

All Over the Map

A 10-Year Review of State Outbreak Reporting



CENTER FOR
Science IN THE
Public Interest

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A 10-Year Review of State Outbreak Reporting

Including a Report Card on 50 States and Washington, D.C.

Acknowledgments

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Executive Summary

Preventing foodborne illness is a multi-tiered effort from the farm to the table, involving food producers and handlers, scientists, government officials, advocates and consumers. Vital to this effort are local and state public health officials, who track, investigate, and report foodborne illness outbreaks to the Centers for Disease Control and Prevention (CDC). Importantly, it is the compilation of outbreak data that helps to quantify the problem of foodborne illness in America—and helps with the design and implementation of strategies to minimize it. Despite the critical importance of outbreak detection and reporting to this effort, great variability exists among the states on outbreak surveillance and reporting.

FINDINGS

Using 10 years of outbreak data collected from CDC, the Center for Science in the Public Interest (CSPI) analyzed states' reporting of outbreaks and created a profile of performance for each state. While differences in structure and resources make it difficult to compare states, the profiles offer a 10-year retrospective on each state, and reveal key issues for consideration by public health officials.

- **The percentage of solved outbreaks—those with both an indentified food and identified pathogen—has declined over the 10-period, from a high of 44 percent in 2001 to 34 percent in 2007.**
- **In some years, nearly 70 percent of outbreaks are not solved, meaning that at least one essential data point (food or pathogen) is missing.**
- **We have given states A to F letter grades based on the number of reported food-related outbreaks per million residents. States with the most outbreaks received an A. While it may seem counter-intuitive to give the best grade to states with the most outbreaks, those states are the most likely to have robust detection and reporting systems, not the most actual outbreaks. (Note that most of the states receiving an F are southern states with climates most conducive to pathogen growth.)**
 - ◆ Seven states received an A: Florida, Hawaii, Maryland, Minnesota, Oregon, Washington, and Wyoming.
 - ◆ Fourteen states received an F: Arizona, Arkansas, Indiana, Kentucky, Louisiana, Mississippi, Missouri, Nebraska, Nevada, New Mexico, Oklahoma, South Carolina, Texas, and West Virginia.

These findings suggest that many states lack adequate funding for public health services, leading to health departments that are overburdened and understaffed. The result is decreased outbreak investigation and detection and an incomplete picture of foodborne illness across the country. This paucity of information impedes efforts to prevent foodborne illnesses.

RECOMMENDATIONS

Many players can be involved in detecting and reporting outbreaks. CSPI recommends the following actions:

- Consumers should notify their local health department when they suspect they have been sickened by food and should seek medical treatment whenever needed.
- Physicians should report suspected cases of foodborne illness to local health departments and be more assertive about pursuing laboratory testing to detect and confirm these illnesses.
- Physicians, labs, and health departments should work together to improve the mechanisms of reporting and the timeliness of investigations so that outbreaks can be solved and contained efficiently.
- State legislators and governing officials should give local, county and state health departments adequate support for their investigatory and epidemiological staff.
- Federal officials should provide increased guidance and assistance to states to improve local investigation and reporting. Federal agencies should coordinate activities so that they are not adding to states' burdens by shifting federal activities onto state and local public health departments.

Most importantly, state legislators should consider the public health and economic toll of foodborne illness when making budget decisions, and should ensure that health departments are properly funded to carry out their critical public health mandates. In addition to funding, states should recognize the critical importance of outbreak investigation and reporting, as well as the other important activities that can prevent outbreaks also conducted by these officials (for example, inspections of restaurants, nursing homes, hospitals and day care facilities).

Introduction

When it comes to food safety, state and local public health departments—and the people who staff them—are vital to protecting the public. They serve as the frontline detectives in investigating foodborne disease outbreaks. As this report documents, however, the quality of reporting from the states to the Centers for Disease Control and Prevention (CDC) varies greatly, whether looking at a single-year snapshot or a multi-year review.

An outbreak occurs when two or more people (called “cases”) get sick from a common food source. Outbreaks are identified from multiple clusters or cases of illness, and are often linked together by specific foodborne pathogens. The process of identifying outbreaks has changed dramatically with the advent of modern tools like PulseNet—the surveillance system of foodborne bacteria DNA monitored by CDC—that help investigators link illnesses and clusters that occur in different states. But the hard work of outbreak investigations is still conducted largely at the local and county level, where public health officials—often with a number of additional job responsibilities—are tasked with interviewing individuals who became ill and identifying through those interviews the common food source. The job is not unlike a game of Clue, where investigators narrow down the food source through a process of elimination. In a multi-state outbreak, this investigative process occurs in different communities by different teams of investigators, and their findings are shared and peer-reviewed to reach agreement on the common food source.

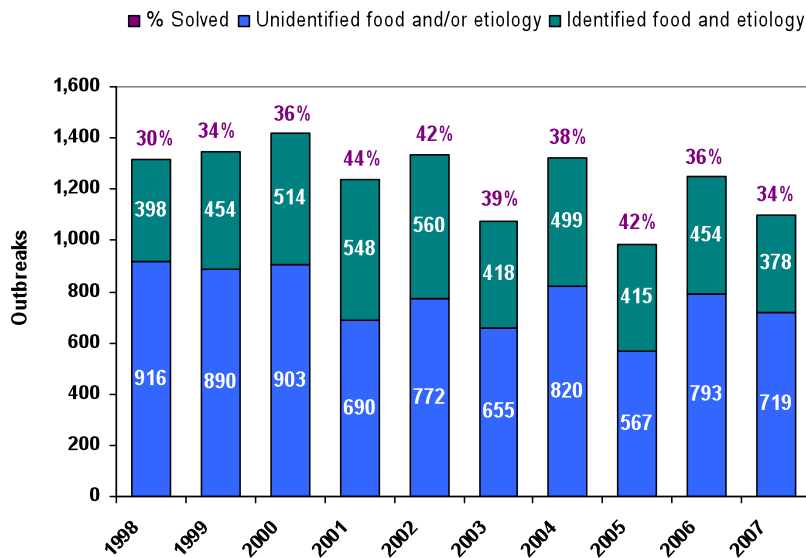
Outbreak investigations are vital to identifying contaminated food and removing it from the market. A prompt investigation can result in faster recalls and prevent many people from becoming ill. This on-the-spot information is invaluable from a public health standpoint. Equally important, however, the information feeds into systems of preventive controls—“HACCP” systems—in use throughout the food industry. These systems begin with a hazard analysis that employs data from outbreaks to help identify key hazards linked to specific foods, leading to the development of facility-specific control plans to manage those hazards.

For over a decade, the Center for Science in the Public Interest (CSPI) has compiled outbreaks reported to CDC with both an identified food and identified pathogen into its own Outbreak Alert! Database. The resulting database contains only the portion of outbreaks with complete data (hereinafter referred to as “solved” outbreaks). CSPI’s Outbreak Alert! report reviews this data annually, and provides insights into both the most recent data and an overview of foodborne illness outbreak trends.

During the decade from 1998-2007, the majority of outbreaks (sometimes as much as 70 percent) reported to CDC had no known pathogen or food vehicle (Figure 1), and could not be included in the Outbreak Alert! Database. Starting in 1998, the number of solved outbreak investigations increased for several years and reached a high of 44

percent in 2001, but since then the number of outbreak reports that met CSPI's criteria diminished. That percentage declined to 34 percent in 2007, the lowest percentage of solved outbreaks in any year since 1999. As the percentages of solved foodborne illness outbreaks decline, experts, government regulators, and the food industry have less information they can use to help make improvements.

Figure 1. Foodborne Illness Outbreaks Reported to CDC



State Outbreak Reporting

CSPI analyzed states' reporting of outbreaks to CDC from 1998 to 2007. Figure 2 depicts states' performance (adjusted for population) and indicates major variability among the states.

Oregon and Minnesota, well-recognized as having strong programs for surveillance, investigation, and reporting of foodborne outbreaks, reported nine and eight outbreaks per million people per year, respectively. Those states are known for having excellent laboratory facilities and strong public health departments that quickly interview individuals who are suspect

outbreak cases. Five states—Florida, Hawaii, Maryland, Washington, and Wyoming—with a range of nine to 24, had as good as or even better reporting records over the ten-year period.

On the other end of the spectrum, 14 states reported just one outbreak of foodborne illness per million people. Fifteen states had reporting rates almost as low, reporting only two to three outbreaks per million people. Many states reporting the lowest numbers of outbreaks are in the southern area of the country where warmer temperatures alone could lead to increased risk of foodborne illness and outbreaks. Several states with shared borders—such as Florida and Georgia, Maryland and West Virginia, and Wyoming and Nebraska—showed surprisingly wide fluctuations in outbreak reporting, despite similarities of climate and population. These findings lead to the conclusion that fewer outbreak reports do not necessarily indicate a lower prevalence of outbreaks. Thus, though it may seem counter-intuitive, CSPI gave states with the highest number of reported outbreaks the best grade. And the worst grade goes to states that report only one outbreak per million population. Only these states can explain whether this reflects the actual incidence of foodborne illness in their state, or inadequate resources and focus on investigations and reporting. The individual state profiles in this report should assist with that analysis.

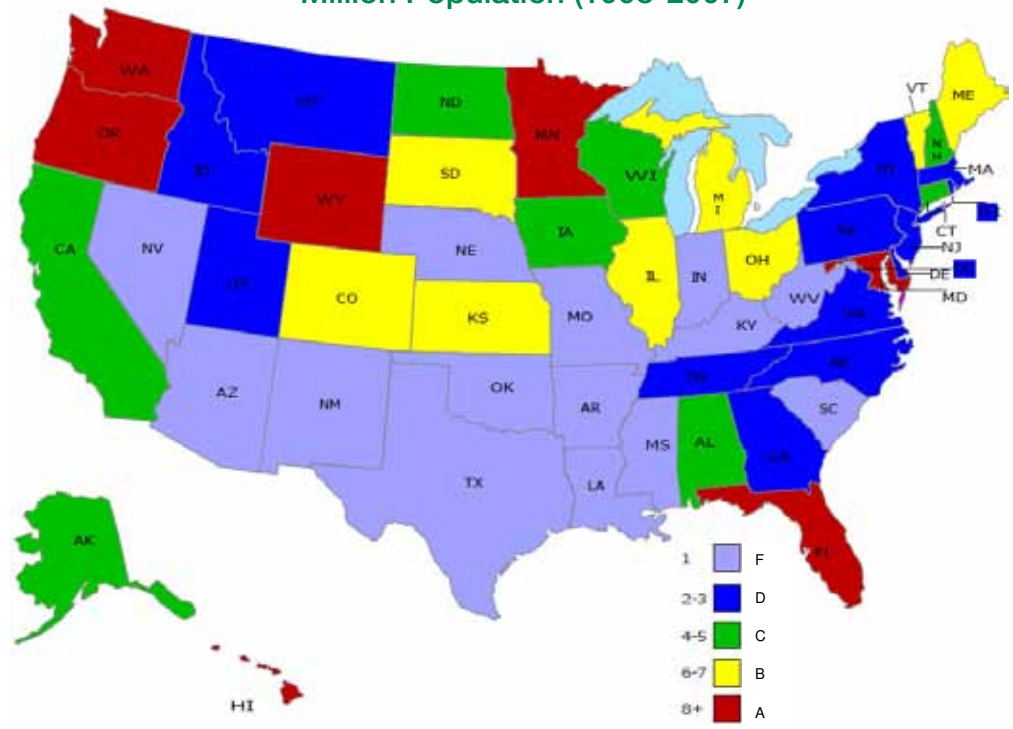
Table 1. Ranking States on Reported Outbreaks per Million Population (1998-2007)

'A' and Benchmark States (8+ outbreaks per million)	<u>Benchmark:</u> Minnesota (8 outbreaks per million), Oregon (9 outbreaks per million) <u>'A' States:</u> Florida, Hawaii, Maryland, Minnesota, Oregon, Washington, and Wyoming
'B' States (6-7 outbreaks per million)	Colorado, Illinois, Kansas, Maine, Michigan, Ohio, and Vermont
'C' States (4-5 outbreaks per million)	Alabama, Alaska, California, Connecticut, Iowa, New Hampshire, North Dakota, and Wisconsin
'D' States (2-3 outbreaks per million)	Delaware, District of Columbia, Georgia, Idaho, Massachusetts, Montana, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Dakota, Tennessee, Utah, and Virginia
'F' States (1 outbreak per million)	Arizona, Arkansas, Indiana, Kentucky, Louisiana, Mississippi, Missouri, Nebraska, Nevada, New Mexico, Oklahoma, South Carolina, Texas, and West Virginia

Using 10 years of data—from CDC’s new outbreak reporting system, together with CSPI’s Outbreak Alert! Database—this report illustrates the history of foodborne illness outbreaks, investigations, and reporting in each state.

Studying both overall reporting and solved outbreaks, the report shows how each state has performed in reporting outbreaks to CDC since 1998. Though individual state profiles cannot be directly compared to one another due to funding, staffing, policy, population, and other variables over the ten-year period, the profiles create an individual portrait of each state, and can serve as a baseline for progress moving forward on food safety.

Figure 2. Median Number of Reported Outbreaks per Million Population (1998-2007)



Analyzing Individual State Outbreak Reporting

Over the last 10 years, state food-related outbreak reports to CDC have experienced dramatic fluctuations. Reports for a single year ranged from 1,400 annually to fewer than 1,000, with occasional year-to-year variations of more than 25 percent. There was also a troubling decline in the quality of state investigations reported to CDC. Overall, states reported 33 percent fewer solved outbreaks to CDC in 2007 than in 2002.

When states are compared, there are huge variations in reporting. As state budgets and staffing vary substantially, as does climate and geography, this report can describe the findings, but cannot determine why such variations in reporting exist.

To examine state performance, CSPI uses both the overall state reporting as reflected in CDC's larger data set broken out by state, and CSPI's Outbreak Alert! Database that contains only the solved outbreaks reported to CDC.

For this survey of the states, CSPI developed an individual profile for each state to examine these indicators:

- 1) Ten-year overview of reporting trends. The box listing overall reporting trends contains information on the number of outbreaks reported to CDC from each state between 1998 and 2007, the number of the total that represents solved outbreaks, and the solved outbreaks that affected only residents of the state.
- 2) The companion chart shows three trend lines representing: total reported outbreaks in the specific state (blue); the trend of solved outbreaks in the specific state including multi-state outbreaks (red); and the trend of solved outbreaks in the specific state excluding multi-state outbreaks (yellow).¹
- 3) Data describing the total number of illnesses, hospitalizations, and deaths for each state were extracted from the September 17, 2009, CDC Foodborne Outbreak Online Database with multi-state outbreaks excluded (see the box at the bottom of each state profile).

Using only the solved outbreaks in the specific state (depicted in the chart in yellow), CSPI analyzed two additional criteria:

- 4) Pathogens most frequently reported from outbreaks occurring in the state, whether confirmed or suspected (excludes multi-state outbreaks). Pathogens linked to only one outbreak were grouped together in the category "Other." Pathogens were assigned individual colors in the 'Pathogens Implicated in

¹ Note that the Y-axis varies from state to state in the 'Outbreak Size' and 'Trends in Reported & Solved Outbreaks' charts. That is due to the widely varying numbers of reported outbreaks among states. Readers should take special care when viewing the trend lines of several states because of variations in the Y-axis.

Outbreaks' chart to create uniformity and ease of understanding, though the format differs (pie chart, bar chart or table) depending on the amount and complexity of the data available.

- 5) Outbreak sizes for solved outbreaks from each state (excluding multi-state outbreaks). Solved outbreaks were grouped together into six categories (2-10, 11-25, 26-50, 51-100, 101-200, and 201+).

Outbreak Reporting: The Process

State and local health departments play a critical role in the investigation of foodborne illness and the reporting of outbreaks to the federal government, but they are certainly not the only participant in this complex reporting regime. Whether outbreaks are identified and reported—or escape detection entirely—depends on the actions of consumers, the medical community, and state officials.

There are two basic routes through which outbreaks are identified. According to a recent study of Minnesota, the most common source of reported outbreaks was through consumer complaints directly to the health department. Depending on that health department's ability to get investigators into the field, such complaints may represent the most efficient and rapid path to outbreak detection. In Minnesota, for example, this type of consumer-complaint-driven investigation results in almost 80 percent of outbreak detection (Li et al., 2010).

The second route is laboratory-based, which starts if a consumer seeks traditional medical care; even then, many variables come into play. A consumer may or *may not* seek medical treatment for illness, depending on the severity of illness or access to medical care. When treatment is sought, a physician may or *may not* order appropriate lab tests and even if ordered, positive results may or *may not* be forwarded to a public health agency. Forwarding is less likely if the detected pathogen is not one of the reportable pathogens as defined by the state.²

Consumer Reporting of Foodborne Illnesses

In a CDC study of the general public's beliefs about sources of gastrointestinal illness, 22 percent of respondents who had experienced vomiting or diarrhea in the previous month believed their recent gastrointestinal illness resulted from a specific meal eaten outside the home (Green et al., 2005). The infrequency with which the public suspects foodborne illness—as opposed to a “stomach virus” or other type of illness—hampers the ability of health departments to identify and investigate foodborne illness outbreaks.

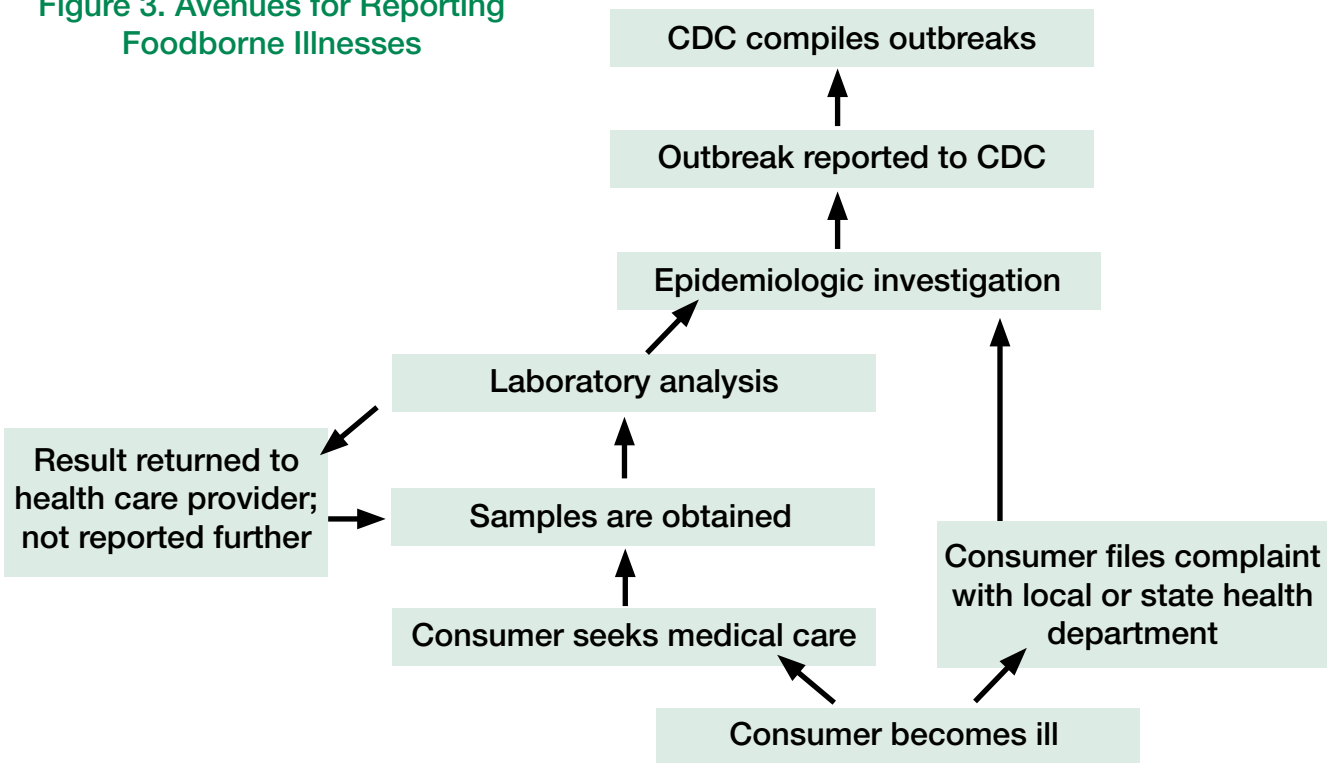
² CDC and the Council of State and Territorial Epidemiologists (CSTE) publish a list of Nationally Notifiable Infectious Conditions, those illnesses thought to be critical enough to public health to warrant notice to federal public health authorities. However, reporting of nationally notifiable diseases to CDC by the states is voluntary. Reporting is currently mandated (i.e., by state legislation or regulation) only at the state level. The list of diseases that are considered notifiable, therefore, varies slightly by state. These generally include *Salmonella* species (spp.), shiga-toxin producing *E. coli*, *Shigella*, *Listeria monocytogenes*, *Cyclospora*, *Vibrio* spp., and *Clostridium botulinum*.

Identifying the pathogen, however, is just one step to solving the outbreak. Investigators must still identify the food that is the cause of the outbreak. This takes field investigation to interview suspect cases and gather and analyze suspect foods. Often though, there is a “lag-time” between onset of illness and notification to the health department of between two days (if a consumer reports directly to the health department) and 19 days (the median time if reports are received through the laboratory-based route) (Li et al., 2010). During this time, consumers’ memories of what they ate falters; food is consumed or discarded; and additional persons may become ill from the same source.

Regardless of how the illness reaches the notice of the health department, that agency may or *may not* be funded or staffed to perform analysis or provide essential epidemiologic support to the investigating epidemiologists, resulting in a stunted investigation. Even a culture-confirmed case may or *may not* be investigated to determine the food vehicle or exposure data. A state may or *may not* report the outbreak to CDC. Other foodborne illnesses may appear sporadic as only one or two people become ill in each state.

The following diagram (Figure 3) illustrates how foodborne illnesses may—or may not—eventually be reported to CDC as an outbreak.

Figure 3. Avenues for Reporting Foodborne Illnesses



Public Health Funding Crisis May Explain Absence of Outbreaks

At least two major studies have recently examined the ongoing budget crisis affecting state and local health departments. While neither study provides a definitive link between the variations in reporting practices and budget changes/constraints, both provide compelling evidence that health department budgets are in crisis.

A 2010 report from the National Association of County & City Health Officials (NACCHO) found that budget cuts to local health departments resulted in deep job losses and the reduction or elimination of essential public health services. The survey, designed to measure the impact of the current economic recession on local health departments, found that 63 percent of Americans live in counties with local health departments that “cut” or “significantly cut” services in 2009 (Blum et al., 2010). These budget cuts can cripple preventive health programs and force health departments into a weakened, reactive stance. “Some cuts weaken essential programs that shield entire communities from disease. For example, nine percent of [local health departments] have cut food safety programs. One official states, ‘Everyone who dines in a restaurant within our district could be potentially impacted if the restaurant inspections and complaints are not followed up in a timely manner. This could lead to [an increase] in foodborne outbreaks’” (Blum et al., 2010).

A March 2010 report from the Trust for America’s Health (TFAH) and the Robert Wood Johnson Foundation found that states around the country have cut \$392 million for public health programs in the past year. States are expected to cut budgets even more in the coming year, which will leave communities struggling to deliver basic public health services for chronic and infectious disease prevention, food and water safety, emergency preparedness and environmental health improvements (TFAH, 2010). Notably, the majority of funding for public health comes from state and local levels rather than federal spending.

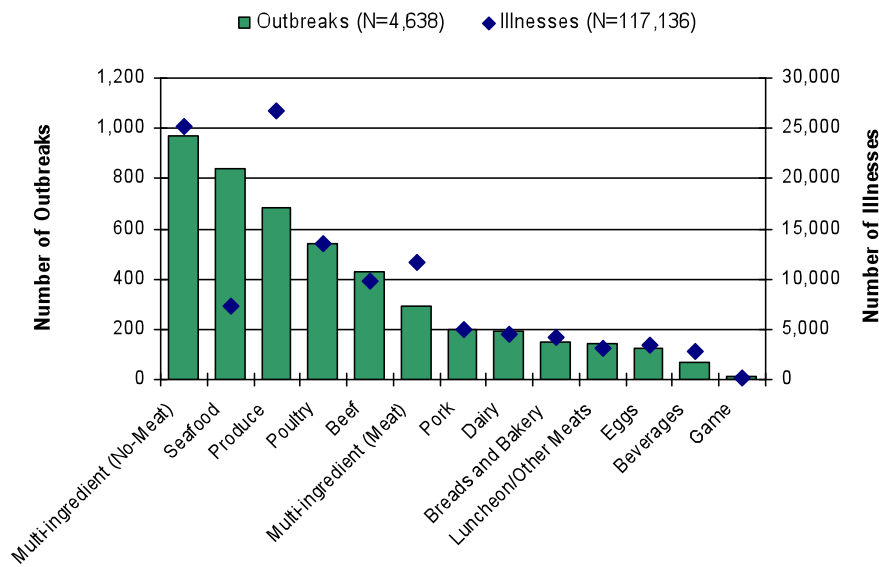
However, CSPI was unable to identify any information on how much each state spends on food safety.

Overall Findings from 10 Years of Outbreaks

An analysis of outbreaks over a 10-year period shows several important trends among the states, and can provide a useful picture of foodborne illness outbreak reporting nationwide. The individual state profiles that follow provide a more comprehensive

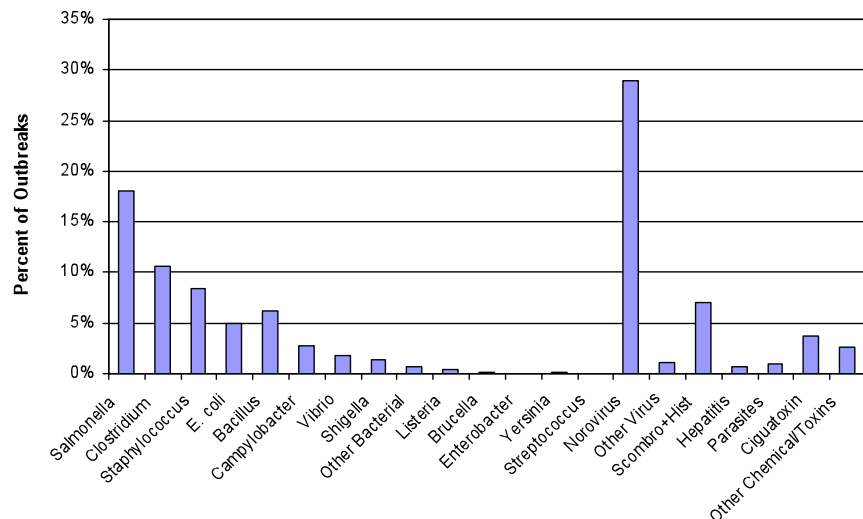
portrait of an individual state in the decade analyzed.

Figure 4: Foods Linked to Solved Outbreaks (1998-2007)



Across all the states, the five food categories, excluding multi-ingredient foods, linked to the most solved foodborne illness outbreaks were seafood, produce, poultry, beef, and pork (Figure 4). Those five categories were responsible for 58 percent of all solved outbreaks and 53 percent of illnesses. The produce category was linked to the largest number of foodborne illnesses associated with outbreaks, constituting 23 percent of all illnesses in CSPI's database between 1998 and 2007.

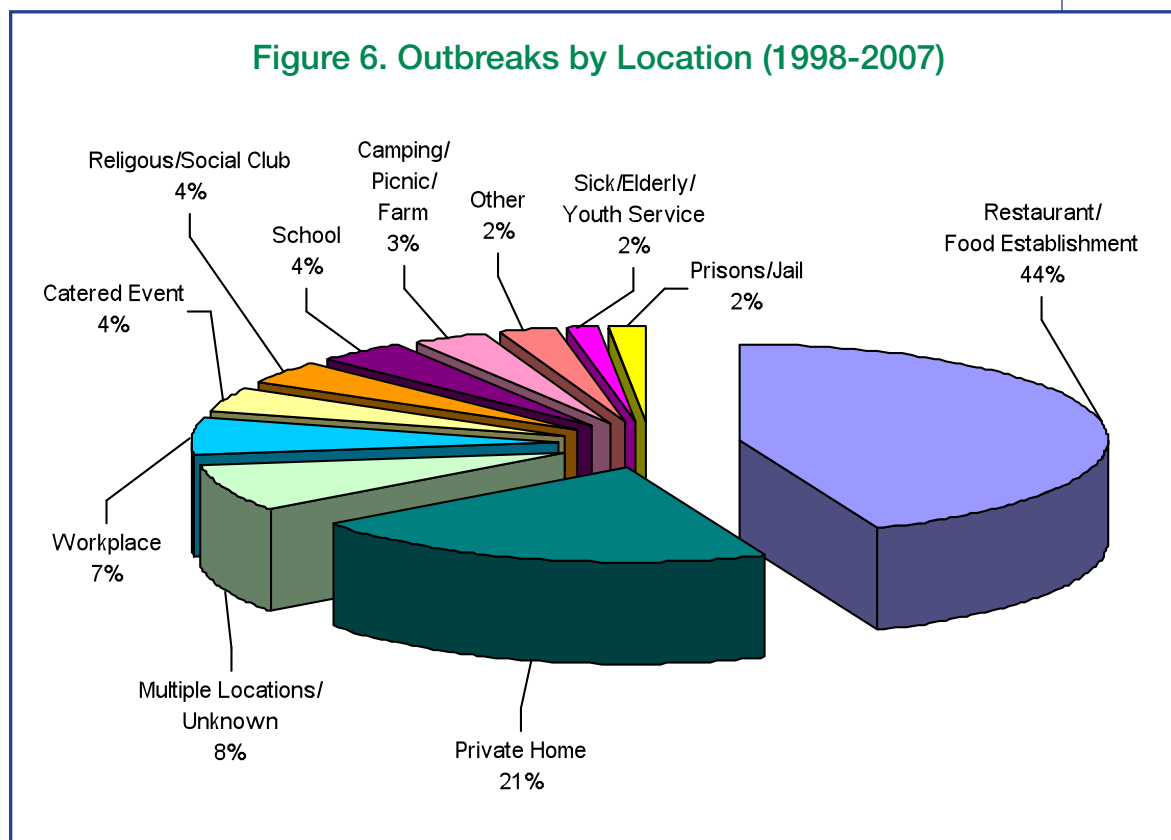
Figure 5. Pathogens Implicated in Foodborne Illness Outbreaks (1998-2007)



Bacterial pathogens were responsible for 56 percent of all solved outbreaks, while viruses caused 30 percent, chemicals/toxins caused 13 percent, and parasites caused one percent (Figure 5).

The most frequently identified and reported bacterial pathogens were *Salmonella* spp., which accounted for 18 percent of all outbreaks, *Clostridium* spp. (11 percent), and *Staphylococcus* spp. (eight percent). *Bacillus* spp. caused six percent, *E. coli* spp. caused five percent, and *Campylobacter* spp. caused three percent of all outbreaks, respectively. Norovirus, which is rarely fatal, caused 94 percent of all viral outbreaks, accounting for 29 percent of all outbreaks.

Restaurants and other food establishments were the most common location for solved outbreaks to occur (44 percent of outbreaks), followed by private homes (21 percent), multiple locations/unknown (eight percent) and workplaces (seven percent) (Figure 6). Restaurants have been identified as a major cause of outbreaks for a number of reasons; the quantity of food served and the variety of preparation methods—as well as the number of people involved in that preparation—provides ample opportunity for contamination.



Methodology

Outbreak data were collected from CDC's searchable Foodborne Outbreak Online Database that became available online in September 2009 and is designed to give the public direct access to information on foodborne illness outbreaks reported to CDC from 1998 to 2007. Most outbreaks are reported to the National Outbreak Reporting System (NORS) by the state, local, territorial, or tribal health department that conducted the outbreak investigation. Multi-state outbreaks are generally reported to NORS by CDC. Outbreak reporting to CDC is voluntary.

The Foodborne Outbreak Online Database includes both single-state and multi-state outbreaks. It is important to note that an outbreak affecting residents of more than one state due to exposures in a single state is considered to be a single-state outbreak. A search for outbreaks for a specific state in CDC's database will return all single-state outbreaks reported by that state and all multi-state outbreaks involving that state. NORS staff are currently validating and correcting past multi-state outbreak reports. Therefore, the state assignment of outbreaks is subject to change.

The CDC database was searched by state name (all 50 states and the District of Columbia). The data files were imported to Microsoft Office Excel for analysis.

The reported number of outbreaks per million population for each state was calculated by dividing the median of the number of total outbreaks reported to CDC, both solved and unsolved, over the ten-year period by the average population in millions from 2000-2007 (data for 1998 and 1999 were not available electronically), as determined by the U.S. Census Annual Population Estimates. The median, rather than mean, was used to calculate reported outbreaks over the ten-year period because the median is less affected by outliers and is a better measure of central tendency for small sample sizes.

Solved outbreaks include only outbreaks for which both the food vehicle and pathogen were identified. Outbreaks with a vehicle listed as "multiple food," "other food," or "unknown food," or for which no pathogen was reported, were excluded from the total number of solved outbreaks. The total number of reported outbreaks includes both solved and unsolved outbreaks. Outbreaks with a vehicle listed as "water," "tap water," or "ice" were excluded from analysis.

Uses and Limitations of the Study

This study is intended to provide each state and the District of Columbia with an individual portrait of its own reporting history to be used as a baseline for future improvement. CSPI encourages states to study their own data, and, where possible, to improve reporting, investigations, and policies. It is our hope that these data will serve as a historical benchmark of the previous decade in reporting and would be used

to encourage state policymakers to properly fund these critical public health services. CSPI recognizes the dedication and service provided by the public health agencies, and considers the lack of funding for health department programs and staffing to be a serious problem—one that is likely to have significant and lasting public health consequences.

State profiles should not be used to directly compare the 10-year reporting performances *between* individual states. However, national trends and some state observations are possible, as discussed in the State Outbreak Reporting section of this report. States should use their own encapsulated data set to evaluate management strategies that could affect outbreak reporting, both positively and negatively. Only individual state public health departments will know, for example, whether years with a higher percentage of solved outbreaks were the result of improved outbreak investigations or the consequence of fewer outbreak reports. Similarly, a dearth of reported outbreaks may indicate a particularly good year for food safety in the state—or a severely hampered or inept reporting system.

Conclusion and Recommendations

At its core, the current system of outbreak identification and reporting in the United States is a house of cards. At each step in this inherently passive process, a single moment of inaction—a single missed opportunity to follow up—can result in an aborted investigation and another outbreak uncounted. A consumer's initial failure to file a complaint with the public health department or to seek medical attention might mean that an outbreak is never identified. A physician's decision not to obtain a laboratory analysis might mean that a pathogen is not confirmed and no action is taken to protect the public from a larger outbreak. A budgetary cutback in the state capitol eliminating an investigator's job in a county health department might mean that there is no follow-up investigation. It is likely that in most states, outbreak reporting greatly underestimates the problem of foodborne illness. Minimizing the public health impact of outbreaks requires action by many players, from consumers to state appropriators; each step in the process is an important opportunity to protect the public health.

States investigating and reporting higher incidents of foodborne illness may be those with robust epidemiological structures, political support for prioritizing food safety, and more generous budget allowances, while other states may be financially strapped, politically pressured not to report and investigate outbreaks, and structurally unable to carry out their public health mandate. Such differences among the states result in a varied and incomplete picture of food safety across the country.

This report's 10-year perspective illustrates the extreme state-to-state variability that results from a passive system of outbreak reporting. That passivity is inherently linked to the stressors placed on some state health departments by inadequate resources. Without the staffing and lab capabilities, the percentage of solved outbreaks remains low,

and the cycle of unknowns—the full extent of illnesses, the pathogens, the foods—is perpetuated.

Greater program evaluation is needed to determine what systems are effective, and where departments can improve. Opportunities for strengthening state systems exist, and should be considered, in order to improve public health.

For Congress and the States

Improving outbreak investigation is one key to reducing the burden of foodborne illnesses. With robust investigation and reporting systems, public health officials are better able to identify contaminated foods before the outbreaks grow, and policymakers are better able to develop regulations to minimize product contamination problems in the first place.

Congress and individual state legislatures must commit to improving public health budgetarily, as well as theoretically. Cutting budgets at health departments has long-lasting repercussions on food safety and consumer health; these essential services must be given top priority and fully funded.

In addition, federal and state governments should proceed cautiously with proposals to shift additional responsibility for inspecting FDA-regulated facilities from the federal agency to the states. Putting a greater burden on states to perform these federally-mandated inspections might make it even more challenging for states to perform their traditional and essential public health functions, such as outbreak investigations and food safety inspections of restaurants, retailers, nursing homes, hospitals, and day care centers. These programs should not be sacrificed to increase the states' role in federal inspections.

For Centers for Disease Control and Prevention

CDC should consider working with the states to develop a curriculum for model investigation and epidemiologic practices to streamline the collection of data through local and state health departments. The collection of compatible data using a consistent methodology across the country could facilitate data analysis and aid in assessing risks from new and emerging pathogens and food sources.

CDC should consider, where practicable, funding state epidemiological training programs to maintain high levels of proficiency among epidemiologists. This training should encourage state epidemiology programs to test for new and emerging pathogens, such as non-O157 Shiga toxin producing *E. coli* and antibiotic-resistant strains of *Salmonella*. CDC should also consider awarding capacity-building grants to those states most in need of improved laboratory infrastructure.

Finally, CDC should consider taking steps to make outbreak reporting to the National Notifiable Diseases Surveillance System mandatory. States are not currently required to report to CDC any of the foodborne illnesses listed therein.

For Local and State Health Departments

Despite their very real limitations related to budget and staffing, most health departments could improve their systems. Each state should review the data presented here and use it to assess

its own unique situation.

Understanding the causes of low reporting could assist states in developing plans to improve reporting systems in the future.

In collaboration with CDC, health departments should also seriously consider utilizing a streamlined investigatory protocol. While local departments may be reticent to give up their independence (and recent outbreaks like peanut butter highlight the need for creativity), being part of a

system for collecting similar data across jurisdictions could help identify more outbreaks and may help prevent additional illnesses.

In addition, health departments should consider hiring or offering academic-credit internships to public health students to provide more “boots on the ground” aid to epidemiologists in collecting exposure information from victims. Such interviews and investigations provide critical clues to solving outbreaks and identifying the food source, which could result in smaller outbreaks.

Health departments should ensure that they are using currently available outbreak detection technology, such as PulseNet, to the greatest extent practicable. This type of technology can be useful in connecting-the-dots of multi-state outbreaks, and can assist with clarifying the impact of disease across state lines.

Health departments should take a critical look at reporting policies throughout their jurisdictions: from physicians and labs to the local level; from local departments to the state; and from the state to CDC. The failure to report unsolved outbreaks, for example,

Collaboration between CDC and the States

Positive models exist for collaboration among those responsible for tracking foodborne illness. For example, the Council to Improve Foodborne Outbreak Response (CIFOR), a multidisciplinary working group of local, state and federal partners, was convened to improve methods of foodborne outbreak detection and response. To this end, CIFOR has developed its Guidelines for Foodborne Disease Outbreak Response, a consensus document that describes the detection, investigation, control, and follow-up of outbreaks. Taking into account the varying circumstances related to outbreaks and to agencies involved and available resources, CIFOR developed the Guidelines to be used as a reference document for comparison with existing procedures, filling in gaps and updating agency-specific procedures, creating new procedures where they do not exist, and training program staff. Additional opportunities for collaboration and information-sharing should be considered where possible.

results in a severe lack of state data and may hamper further analysis of the status of foodborne illness across the country.

For Physicians and Medical Associations

Physician membership organizations should increase education and training for foodborne illness detection and treatment. Medical school curriculums do not always reflect the critical public health issues related to foodborne illnesses, and physicians may not be properly trained to identify them.

Physicians and their membership organizations should commit to increased responsiveness to patients' complaints of possible foodborne illnesses. When practicable, physicians should order appropriate laboratory analyses to confirm foodborne illnesses, and should ensure proper and prompt reporting of both consumer complaints and laboratory results linked to such illnesses to the relevant public health authority.

For Consumers

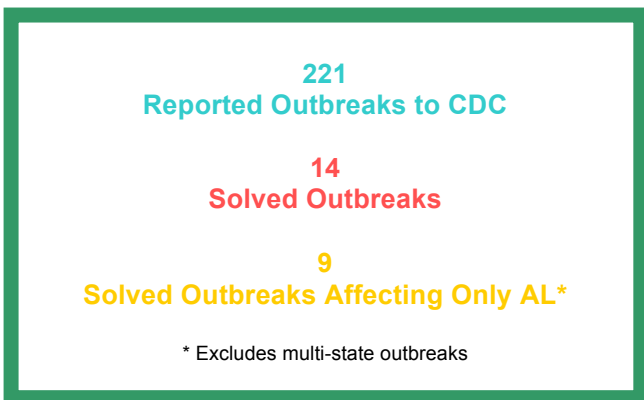
As the first step on the ladder to identifying and arresting foodborne illness outbreaks, consumers can help ensure that their illnesses are counted. Consumers should report suspected foodborne illnesses to local public health authorities. When they seek medical care for gastrointestinal illnesses, consumers can proactively request laboratory tests to clarify the cause. In addition, consumers should notify local and state health departments directly.

Ultimately, making serious strides in preventing foodborne illness requires the commitment of all the relevant players: consumers, physicians, state and local health departments, federal food safety agencies and Congress and state legislatures. The public health cost of continuing as we are, with state reporting literally all over the map, is simply too high.

Alabama (AL)



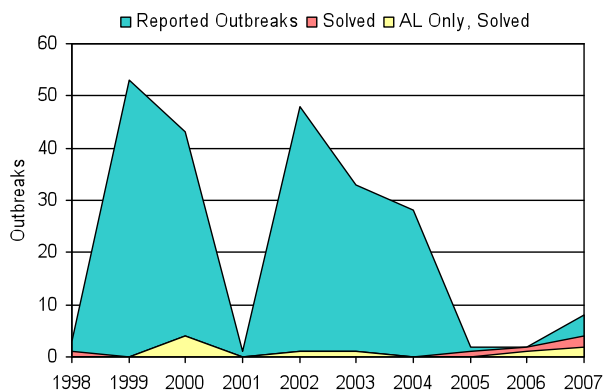
Overall Reporting Trends



Trends in Reported & Solved Outbreaks

In 2007, Alabama reported 8 outbreaks to the CDC, or only 2 reported outbreaks per 1 million population. That year represents a low reporting year. During the peak reporting years of 1999 (53), 2000 (43) and 2002 (48), Alabama reported more than five times that number of outbreaks. The median number of reported outbreaks was 4 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Over a ten-year period, Alabama's state and local health departments reported 221 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 14 were solved, including 9 outbreaks affecting only Alabama residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 9 outbreaks affecting the residents of Alabama. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

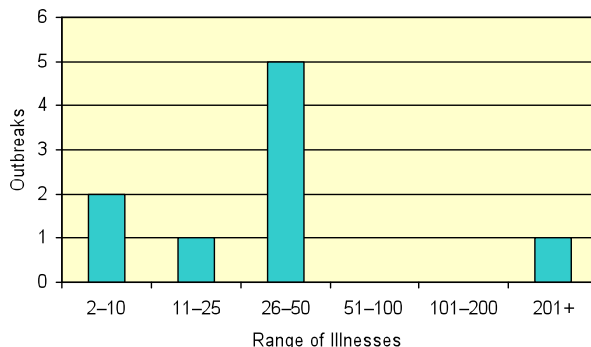
Pathogens Implicated in Outbreaks

Pathogen	Number of Outbreaks
<i>Salmonella</i>	3
Norovirus	1
<i>Clostridium</i>	1
<i>Bacillus</i>	1
Other Chemicals/Toxins	1
<i>Staphylococcus</i>	1
<i>E. coli</i>	1

The most common pathogen implicated for food-related outbreaks in Alabama was *Salmonella*, 3 outbreaks (33%).

Outbreak Size

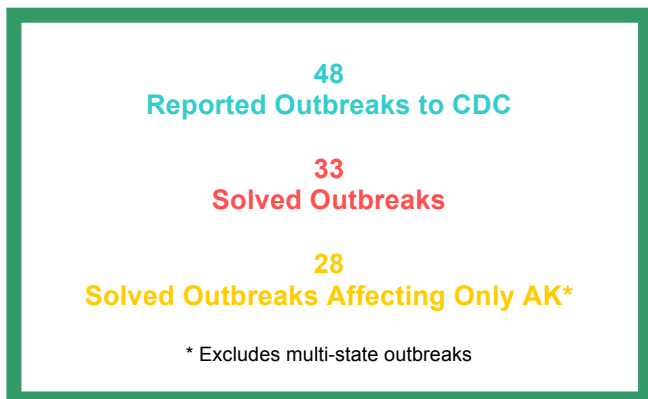
Fifty-six percent of Alabama's outbreaks affected between 26 and 50 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Alaska (AK)



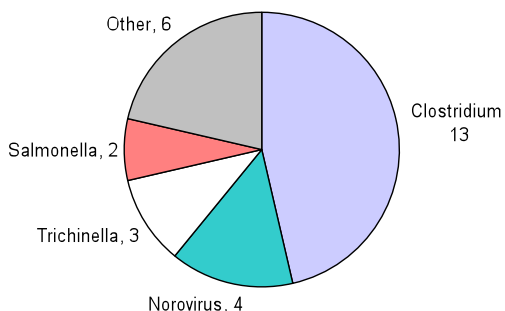
Overall Reporting Trends



Over a ten-year period, Alaska's state and local health departments reported 48 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 33 were solved, including 28 outbreaks affecting only Alaska residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 28 outbreaks affecting the residents of Alaska. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

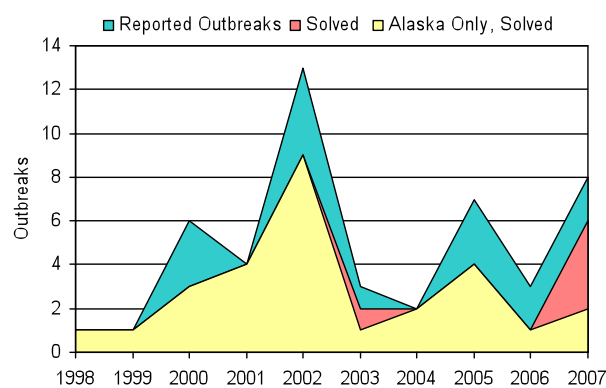


The most common pathogen implicated for food-related outbreaks in Alaska was *Clostridium*, 13 outbreaks (46%), followed by Norovirus, 4 outbreaks (14%).

Trends in Reported & Solved Outbreaks

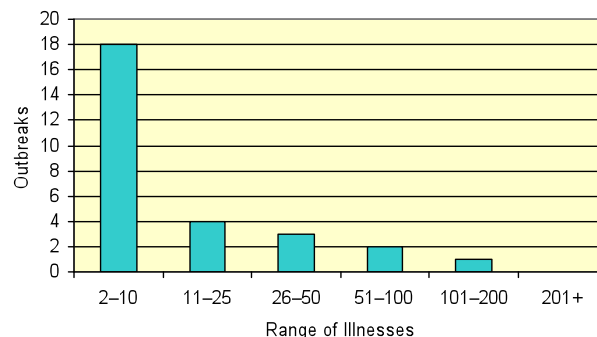
In 2007, Alaska reported 8 outbreaks to the CDC, or 12 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2002 (13). The median number of reported outbreaks was 5 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

Sixty-four percent of Alaska's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.

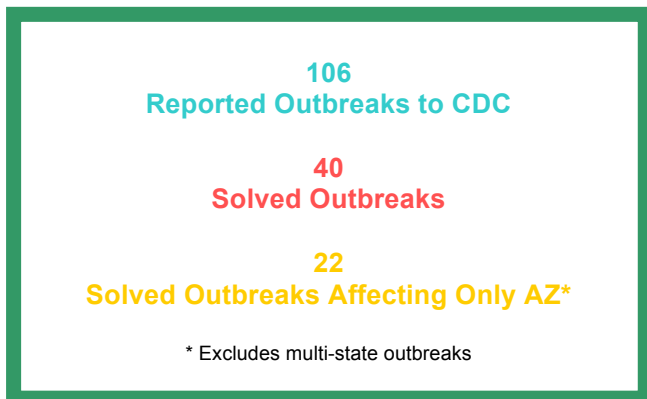


Outbreak Reporting from the States: Foodborne-Illness Outbreaks from 1998 to 2007

Arizona (AZ)



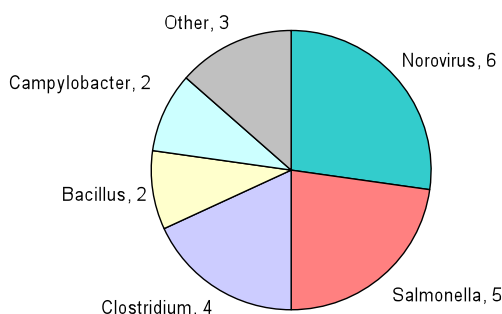
Overall Reporting Trends



Over a ten-year period, Arizona's state and local health departments reported 106 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 40 were solved, including 22 outbreaks affecting only Arizona residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 22 outbreaks affecting the residents of Arizona. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

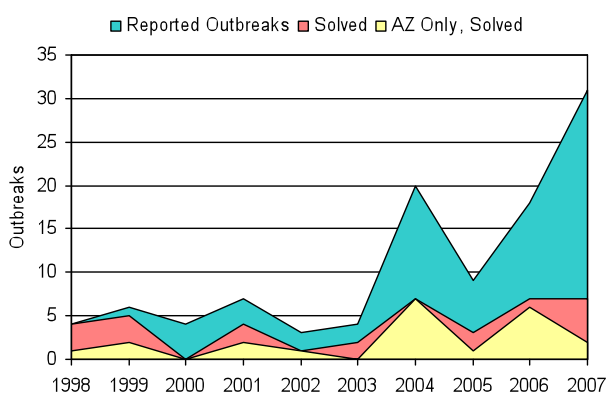


The most common pathogen implicated for food-related outbreaks in Arizona was Norovirus, 6 outbreaks (27%), followed by *Salmonella*, 5 outbreaks (23%), and *Clostridium*, 4 outbreaks (18%).

Trends in Reported & Solved Outbreaks

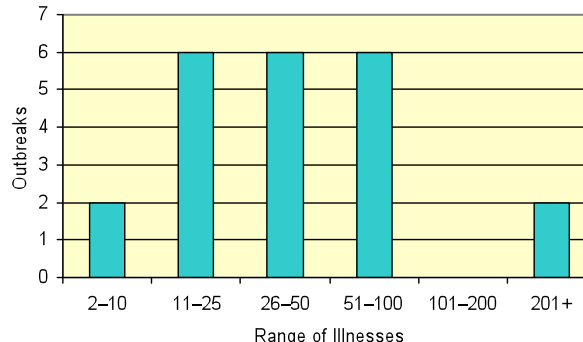
In 2007, Arizona reported 31 outbreaks to the CDC, or 5 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2004 (20). The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

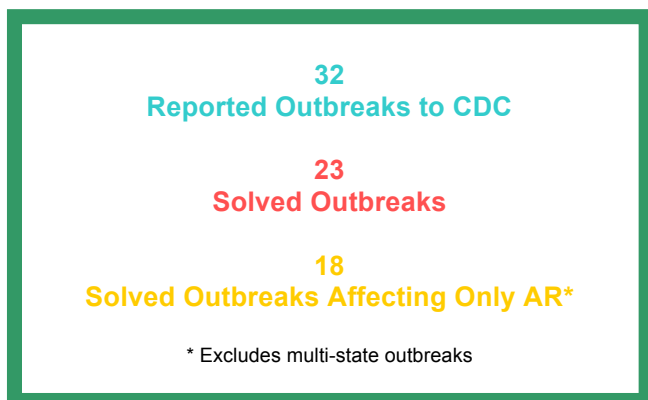
Eighty-one percent of Arizona's outbreaks affected between 11 and 100 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Arkansas (AR)



Overall Reporting Trends

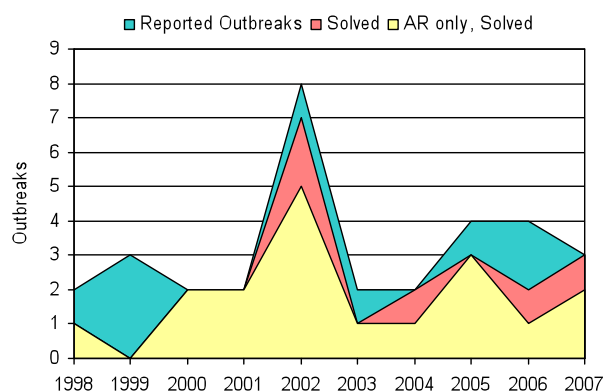


Over a ten-year period, Arkansas's state and local health departments reported 32 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 23 were solved, including 18 outbreaks affecting only Arkansas residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

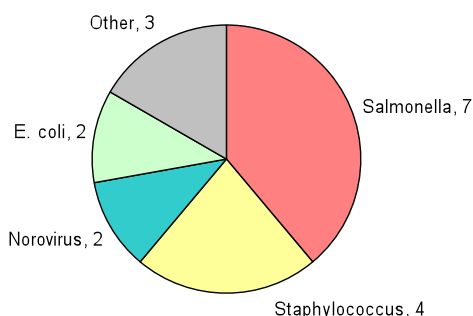
In 2007, Arkansas reported 3 outbreaks to the CDC, or only 1 reported outbreak per 1 million population. That year represents an average reporting year. During the peak reporting year of 2002 (8), Arkansas reported almost three times that number of outbreaks. The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



~The following analyses use only the 18 outbreaks affecting the residents of Arkansas. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

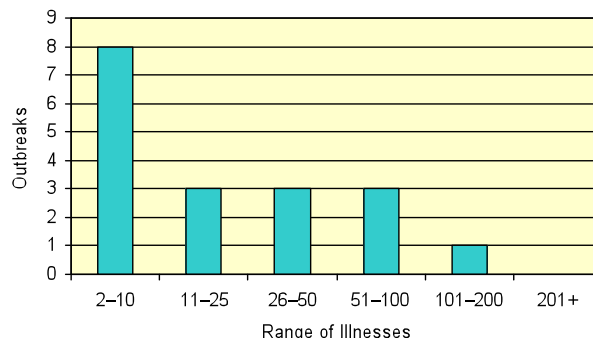
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Arkansas was *Salmonella*, 7 outbreaks (39%), followed by *Staphylococcus*, 4 outbreaks (22%).

Outbreak Size

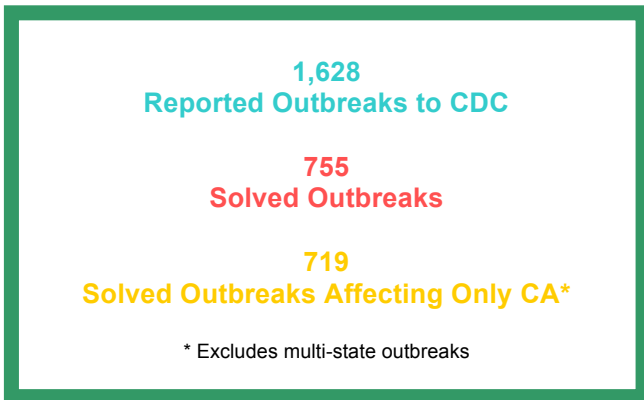
Forty-four percent of Arkansas's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



California (CA)



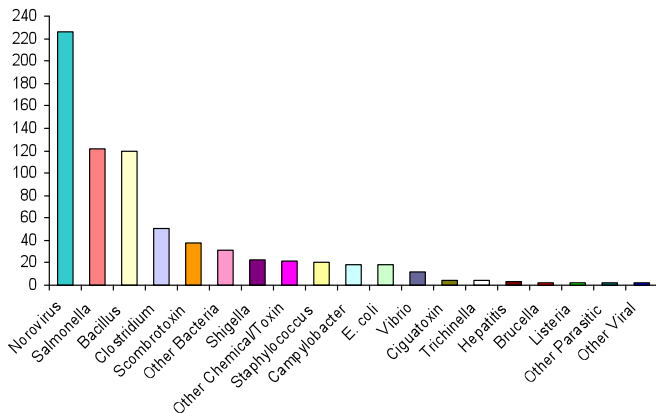
Overall Reporting Trends



Over a ten-year period, California's state and local health departments reported 1,628 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 755 were solved, including 719 outbreaks affecting only California residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 719 outbreaks affecting the residents of California. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

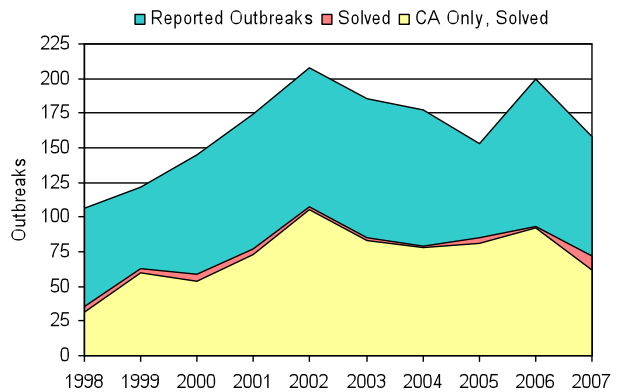


The most common pathogen implicated for food-related outbreaks in California was Norovirus, 226 outbreaks (31%), followed by *Salmonella* and *Bacillus*, with 122 and 120 outbreaks (17% each).

Trends in Reported & Solved Outbreaks

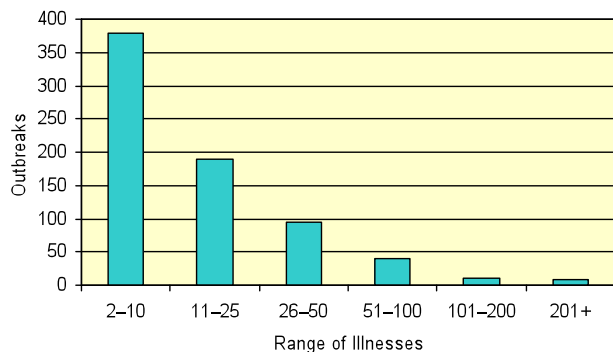
In 2007, California reported 158 outbreaks to the CDC, or 4 reported outbreaks per 1 million population. That year represents an average reporting year. During the peak reporting years of 2002 (208) and 2006 (200), California reported 30% more outbreaks. The median number of reported outbreaks was 5 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

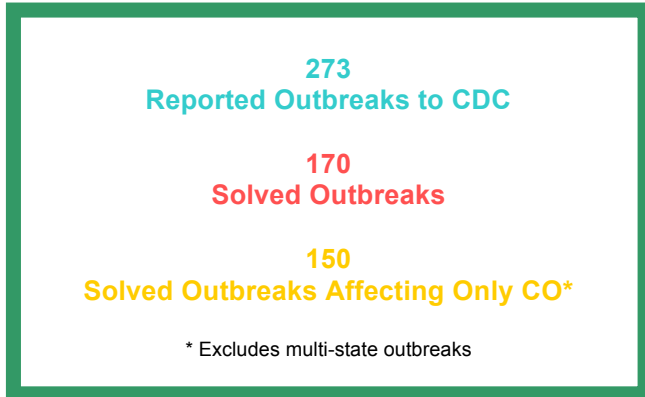
Fifty-three percent of California's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Colorado (CO)



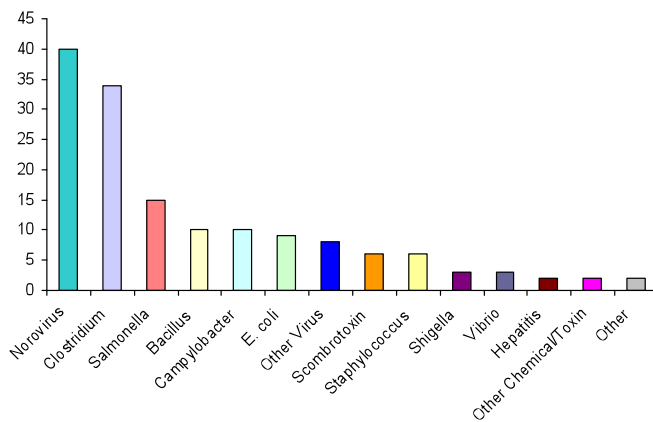
Overall Reporting Trends



Over a ten-year period, Colorado's state and local health departments reported 273 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 170 were solved, including 150 outbreaks affecting only Colorado residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 150 outbreaks affecting the residents of Colorado. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

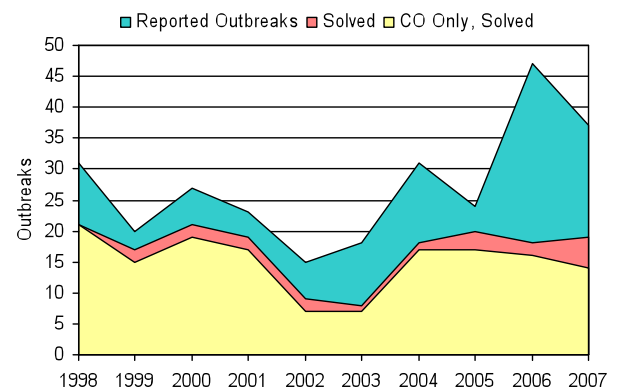


The most common pathogen implicated for food-related outbreaks in Colorado was Norovirus, 40 outbreaks (27%), followed by *Clostridium*, 34 outbreaks (23%).

Trends in Reported & Solved Outbreaks

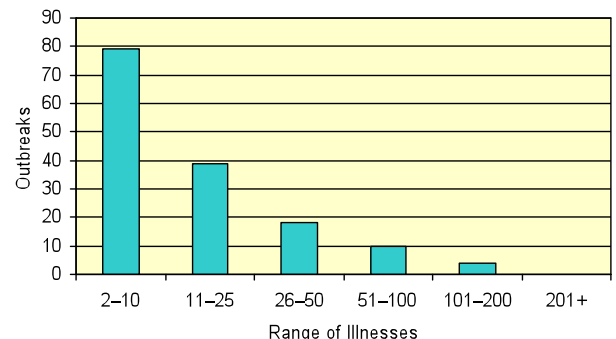
In 2007, Colorado reported 37 outbreaks to the CDC, or 8 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2006 (47). The median number of reported outbreaks was 6 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

Fifty-three percent of Colorado's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.

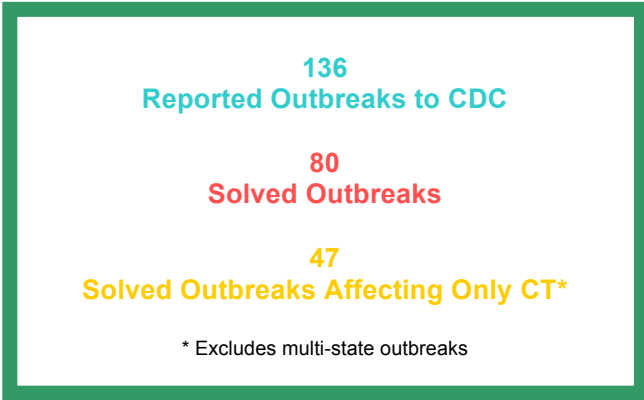


Outbreak Reporting from the States:
Foodborne-Illness Outbreaks from 1998 to 2007

Connecticut (CT)



Overall Reporting Trends

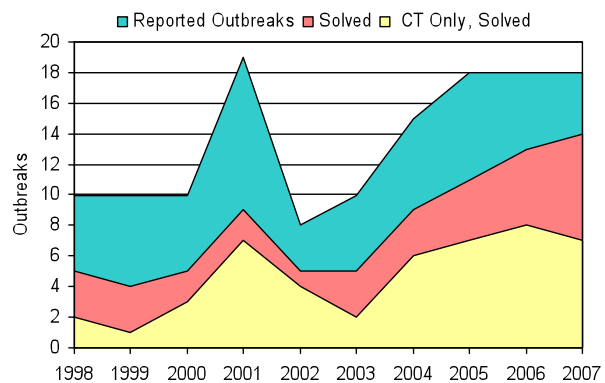


Over a ten-year period, Connecticut's state and local health departments reported 136 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 80 were solved, including 47 outbreaks affecting only Connecticut residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

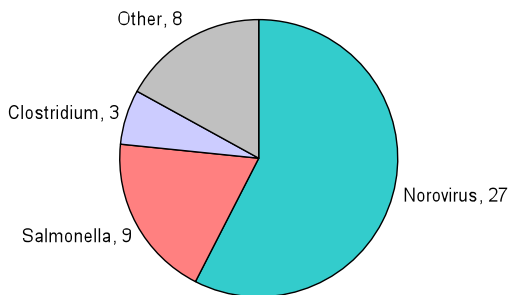
In 2007, Connecticut reported 18 outbreaks to the CDC, or 7 reported outbreaks per 1 million population.* That year represents a peak reporting year, as does 2001 (19), 2005 (18) and 2006 (18). The median number of reported outbreaks was 4 per 1 million population over the ten-year period.‡

‡See the US map in Figure 2



~The following analyses use only the 47 outbreaks affecting the residents of Connecticut. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

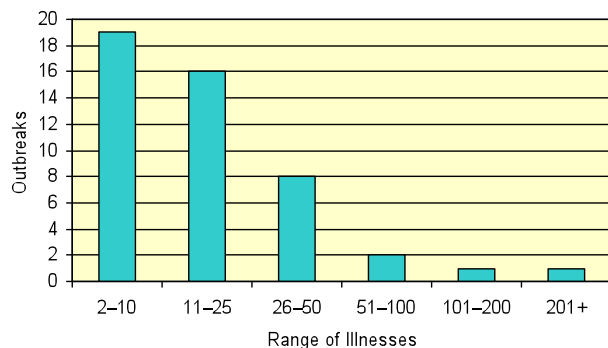
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Connecticut was Norovirus, 27 outbreaks (57%), followed by *Salmonella*, 9 outbreaks (19%).

Outbreak Size

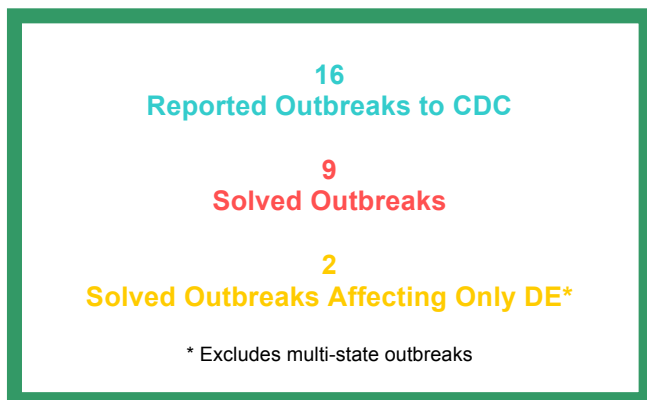
Forty percent of Connecticut's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Delaware (DE)



Overall Reporting Trends

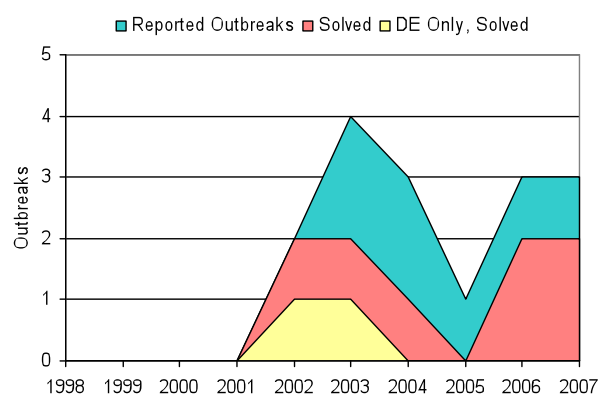


Over a ten-year period, Delaware's state and local health departments reported 16 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 9 were solved, including 2 outbreaks affecting only Delaware residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

In 2007, Delaware reported 3 outbreaks to the CDC, or 3 reported outbreaks per 1 million population. That year represents a high reporting year along with 2003 (4), 2004 (3) and 2006 (3). The median number of reported outbreaks was 2 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2

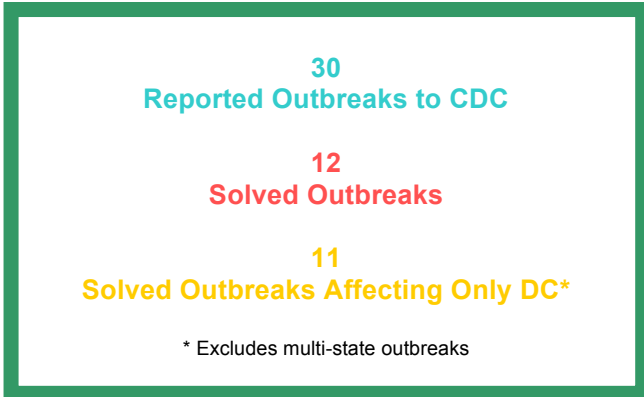


~Analyses of the 2 outbreaks affecting only the residents of Delaware were not completed due to the small number. These two outbreaks were linked to *Salmonella* and *Norovirus* pathogens. The outbreak sizes were 21 and 28. One outbreak occurred in a school setting and the other in a nursing home. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

District of Columbia (DC)



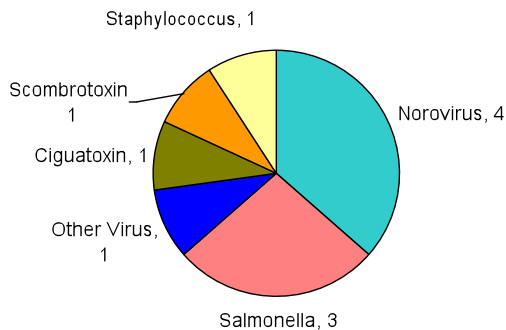
Overall Reporting Trends



Over a ten-year period, the District of Columbia's state and local health departments reported 30 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 12 were solved, including 11 outbreaks affecting only the District of Columbia residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 11 outbreaks affecting the residents of the District of Columbia. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

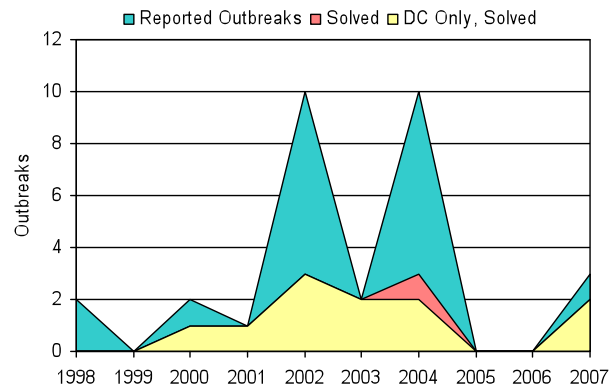


The most common pathogen implicated for food-related outbreaks in the District of Columbia was Norovirus, 4 outbreaks (36%), followed by *Salmonella*, 3 outbreaks (27%).

Trends in Reported & Solved Outbreaks

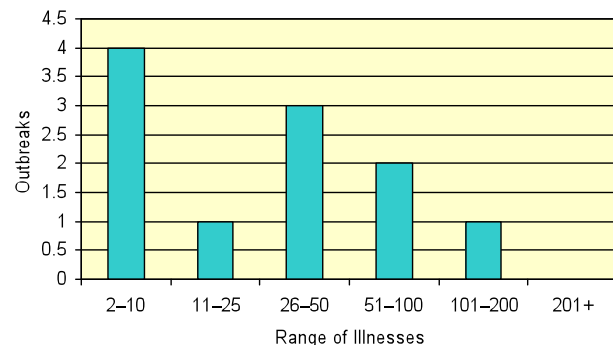
In 2007, the District of Columbia reported 3 outbreaks to the CDC, or 5 reported outbreaks per 1 million population. That year represents an average reporting year. During the peak reporting years of 2002 (10) and 2004 (10), the District of Columbia reported three times that number of outbreaks. The median number of reported outbreaks was 3 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

Thirty-six percent of the District of Columbia's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.

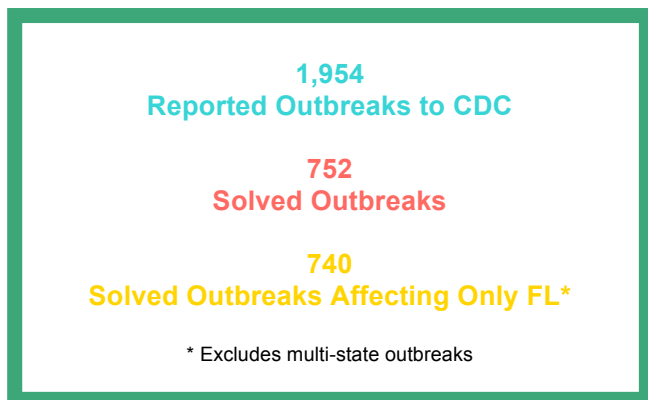


Outbreak Reporting from the States: Foodborne-Illness Outbreaks from 1998 to 2007

Florida (FL)



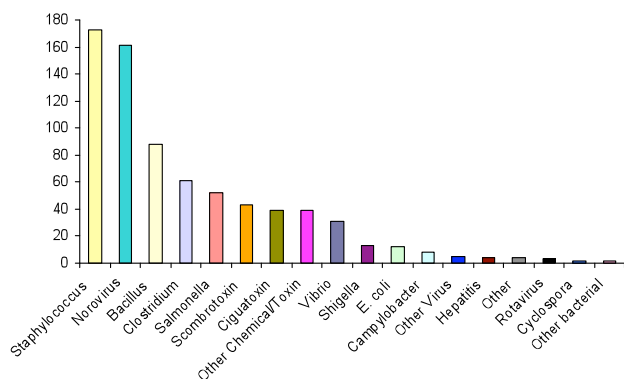
Overall Reporting Trends



Over a ten-year period, Florida's state and local health departments reported 1,954 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 752 were solved, including 740 outbreaks affecting only Florida residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 740 outbreaks affecting the residents of Florida. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

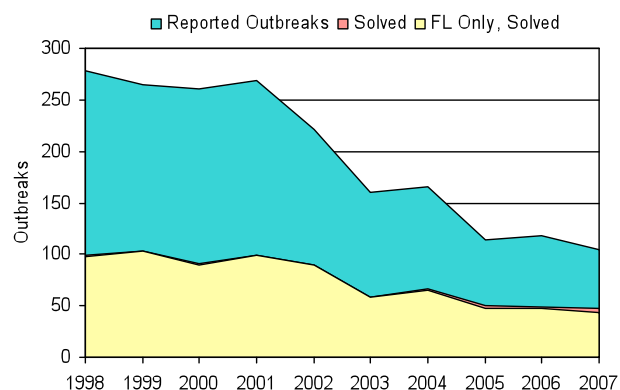


The most common pathogen implicated for food-related outbreaks in Florida was *Staphylococcus*, 173 outbreaks (23%), followed by Norovirus, 161 outbreaks (22%).

Trends in Reported & Solved Outbreaks

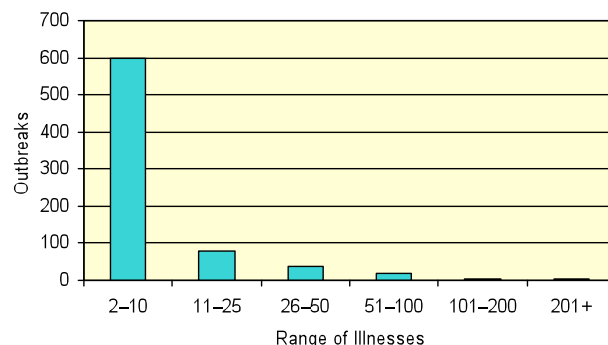
In 2007, Florida reported 104 outbreaks to the CDC, or 5 reported outbreaks per 1 million population. That year represents a low reporting year. During the peak reporting years of 1998 (278) and 2001 (269), Florida reported more than twice that number of outbreaks. The median number of reported outbreaks was 11 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

Eighty-one percent of Florida's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.

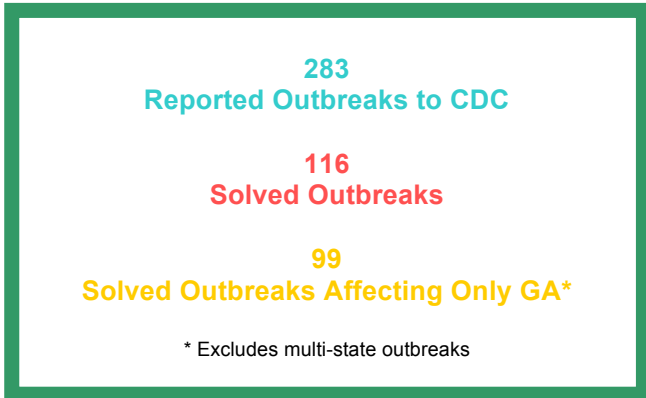


Outbreak Reporting from the States:
Foodborne-Illness Outbreaks from 1998 to 2007

Georgia (GA)



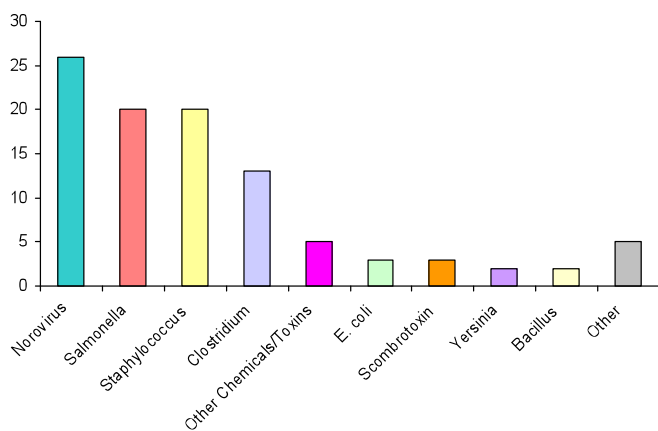
Overall Reporting Trends



Over a ten-year period, Georgia's state and local health departments reported 283 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 116 were solved, including 99 outbreaks affecting only Georgia residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 99 outbreaks affecting the residents of Georgia. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

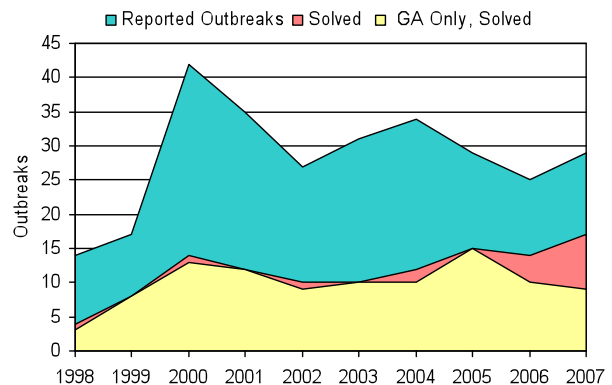


The most common pathogen implicated for food-related outbreaks in Georgia was Norovirus, 26 outbreaks (26%), followed by *Staphylococcus* and *Salmonella*, both with 20 outbreaks (20% each).

Trends in Reported & Solved Outbreaks

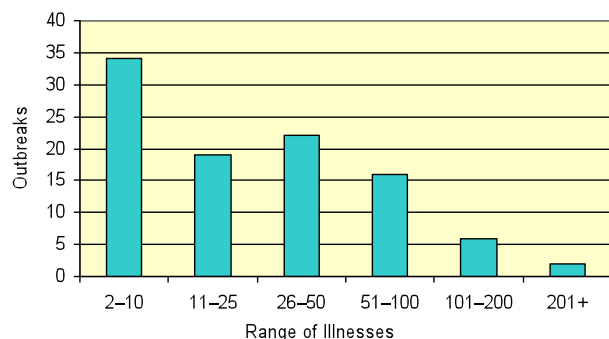
In 2007, Georgia reported 29 outbreaks to the CDC, or 3 reported outbreaks per 1 million population. That year represents an average reporting year. During the peak reporting year of 2000 (42), Georgia reported 50% more outbreaks. The median number of reported outbreaks was 3 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

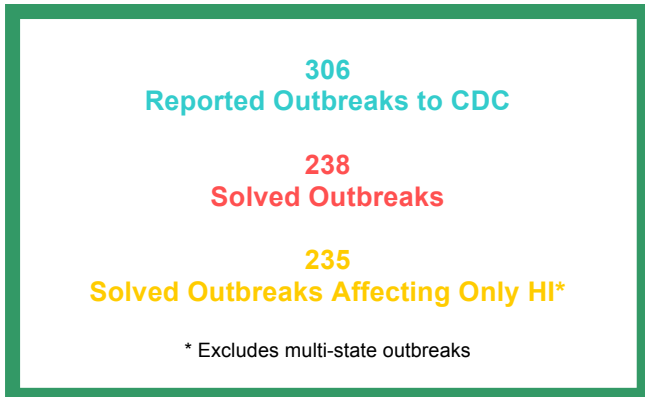
Thirty-four percent of Georgia's outbreaks affected between 2 and 11 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Hawaii (HI)



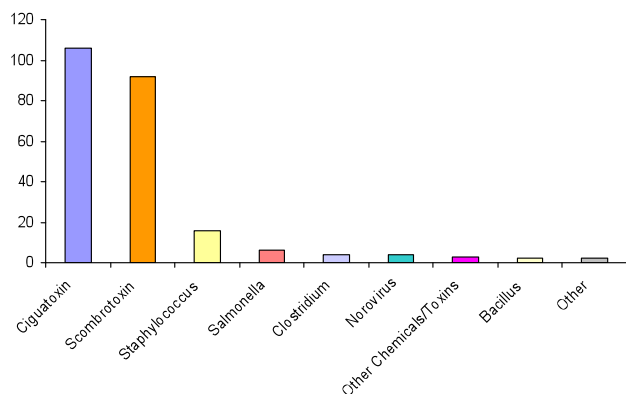
Overall Reporting Trends



Over a ten-year period, Hawaii's state and local health departments reported 306 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 238 were solved, including 235 outbreaks affecting only Hawaii residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 235 outbreaks affecting the residents of Hawaii. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

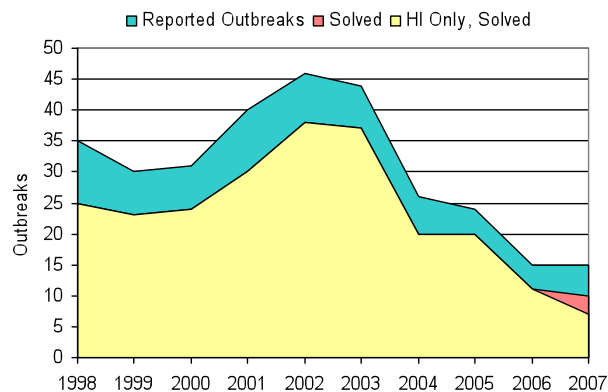


The most common pathogen implicated for food-related outbreaks in Hawaii was Ciguatoxin, 106 outbreaks (45%), followed by Scombrototoxin, 84 outbreaks (36%).

Trends in Reported & Solved Outbreaks

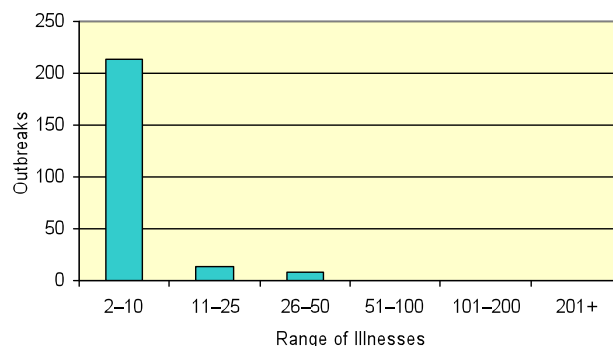
In 2007, Hawaii reported 15 outbreaks to the CDC, or 12 reported outbreaks per 1 million population. That year represents a low reporting year. During the peak reporting years of 2001 (40), 2002 (46) and 2003 (44), Hawaii reported three times that number of outbreaks. The median number of reported outbreaks was 24 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



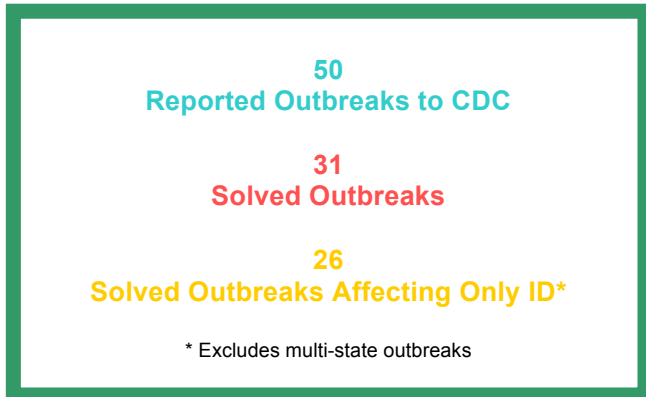
Outbreak Size

Ninety-one percent of Hawaii's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.





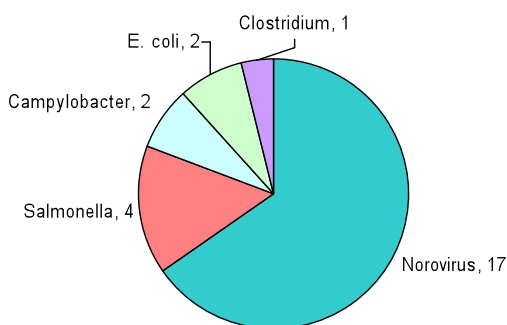
Overall Reporting Trends



Over a ten-year period, Idaho's state and local health departments reported 50 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 31 were solved, including 26 outbreaks affecting only Idaho residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 26 outbreaks affecting the residents of Idaho. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

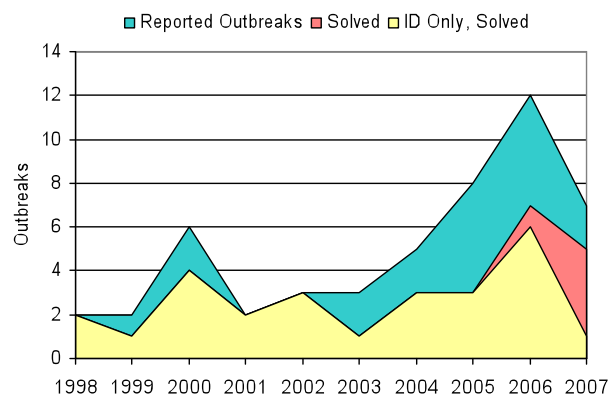


The most common pathogen implicated for food-related outbreaks in Idaho was Norovirus, 17 outbreaks (65%), followed by *Salmonella*, 4 outbreaks (15%).

Trends in Reported & Solved Outbreaks

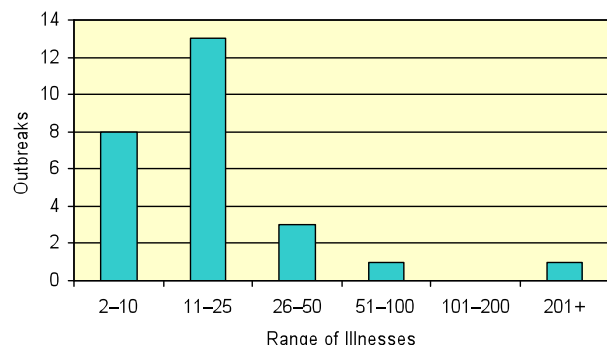
In 2007, Idaho reported 7 outbreaks to the CDC, or 5 reported outbreaks per 1 million population. During the peak reporting year of 2006 (12), Idaho reported more than twice that number of outbreaks. The median number of reported outbreaks was 3 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

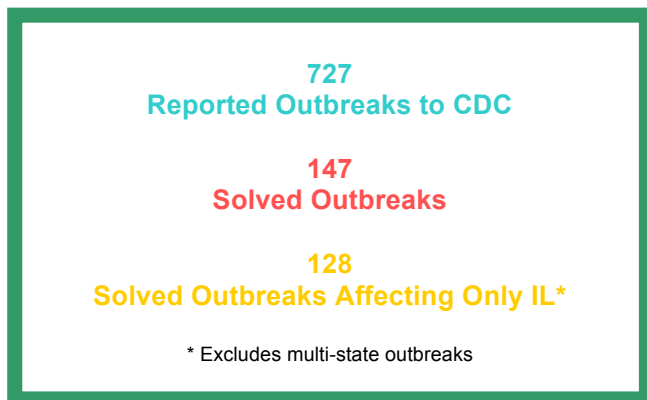
Fifty percent of Idaho's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Illinois (IL)



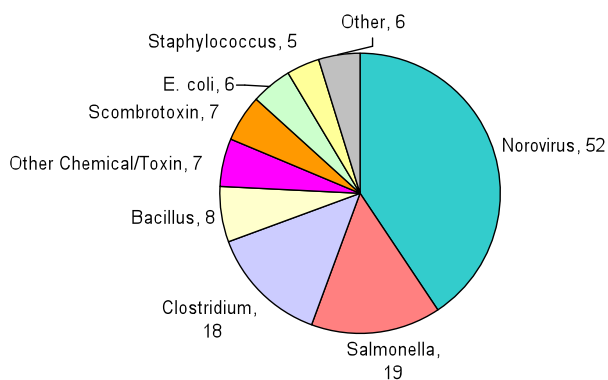
Overall Reporting Trends



Over a ten-year period, Illinois's state and local health departments reported 727 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 147 were solved, including 128 outbreaks affecting only Illinois residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 128 outbreaks affecting the residents of Illinois. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

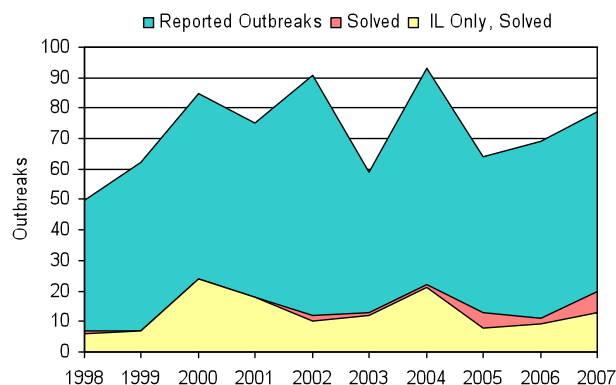


The most common pathogen implicated for food-related outbreaks in Illinois was Norovirus, 52 outbreaks (41%), followed by *Salmonella*, 19 outbreaks (15%).

Trends in Reported & Solved Outbreaks

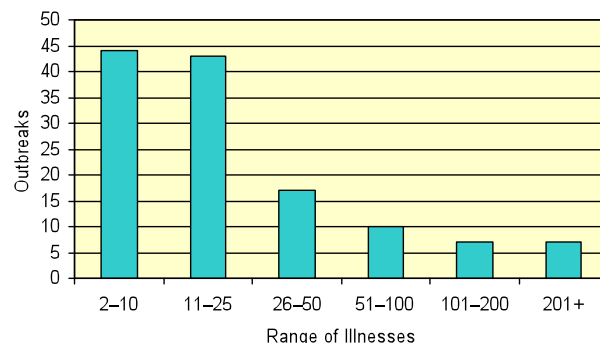
In 2007, Illinois reported 79 outbreaks to the CDC, or 6 reported outbreaks per 1 million population. That year represents an average reporting year. During the peak reporting years of 2002 (91) and 2004 (93), Illinois reported almost 20% more outbreaks. The median number of reported outbreaks was 6 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

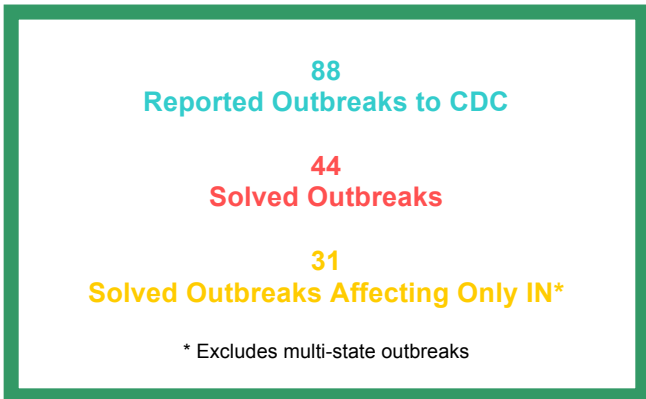
Sixty-eight percent of Illinois's outbreaks affected between 2 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Indiana (IN)



Overall Reporting Trends

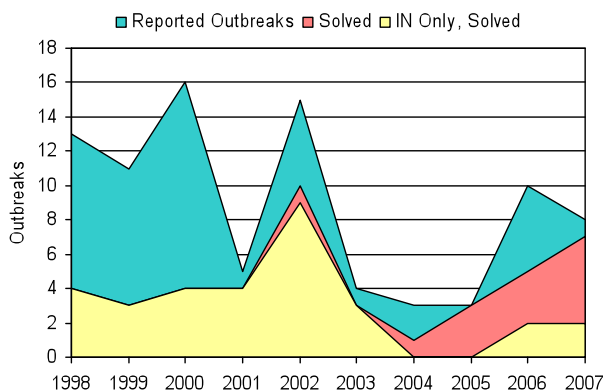


Over a ten-year period, Indiana's state and local health departments reported 88 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 44 were solved, including 31 outbreaks affecting only Indiana residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

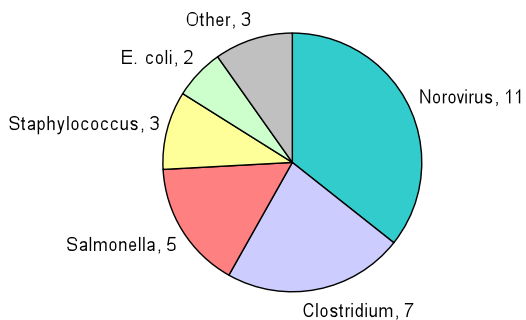
In 2007, Indiana reported 8 outbreaks to the CDC, or only 1 reported outbreak per 1 million population. That year represents an average reporting year. The peak reporting years were 2000 (16) and 2002 (15). The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



~The following analyses use only the 31 outbreaks affecting the residents of Indiana. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

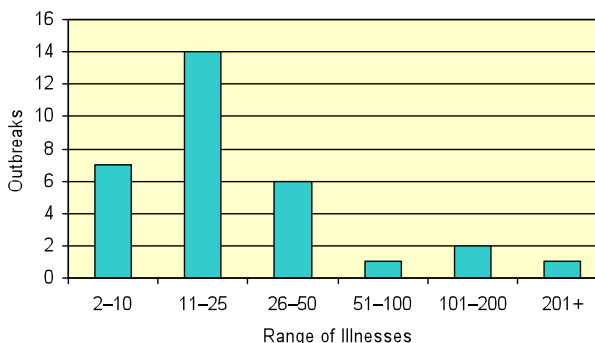
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Indiana was Norovirus, 11 outbreaks (35%), followed by *Clostridium*, 7 outbreaks (23%).

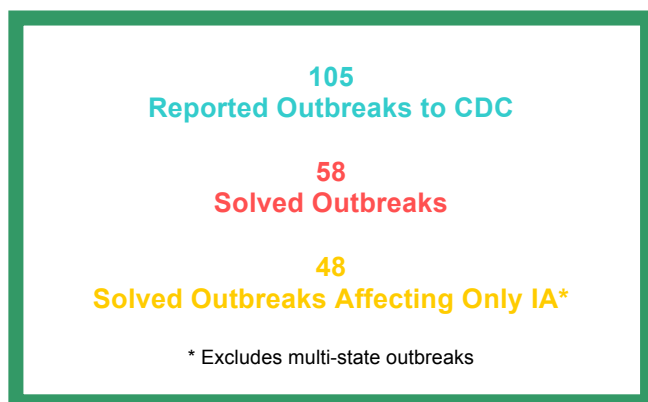
Outbreak Size

Forty-five percent of Indiana's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.





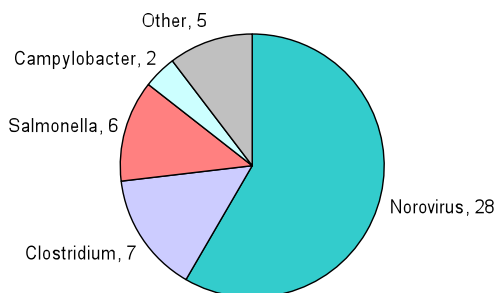
Overall Reporting Trends



Over a ten-year period, Iowa's state and local health departments reported 105 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 58 were solved, including 48 outbreaks affecting only Iowa residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 48 outbreaks affecting the residents of Iowa. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

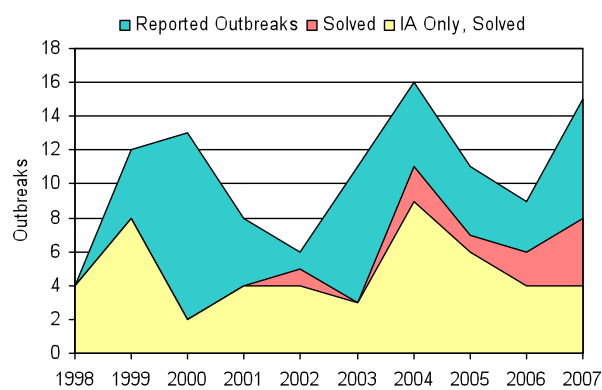


The most common pathogen implicated for food-related outbreaks in Iowa was Norovirus, 28 outbreaks (58%), followed by *Clostridium*, 7 outbreaks (15%).

Trends in Reported & Solved Outbreaks

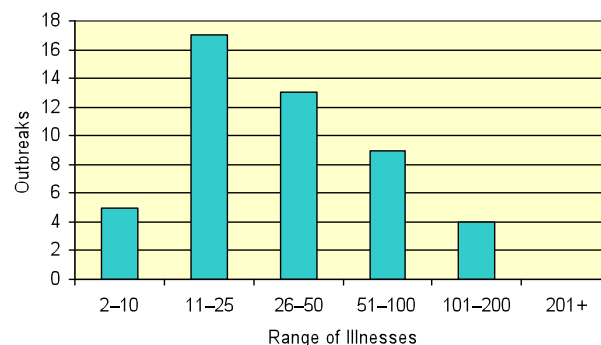
In 2007, Iowa reported 15 outbreaks to the CDC, or 5 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2004 (16). The median number of reported outbreaks was 4 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

Thirty-five percent of Iowa's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.

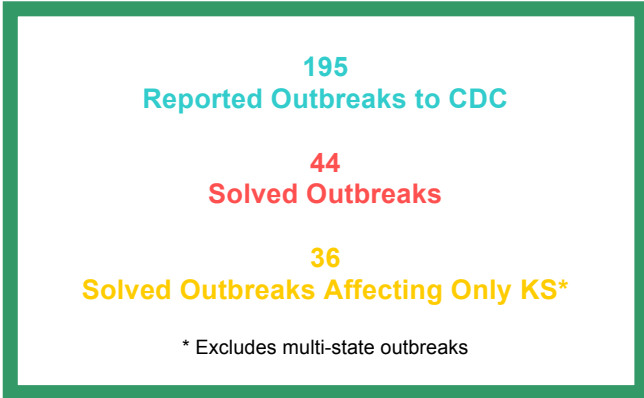


Outbreak Reporting from the States: Foodborne-Illness Outbreaks from 1998 to 2007

Kansas (KS)



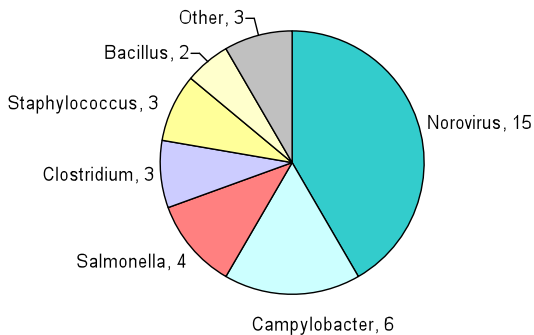
Overall Reporting Trends



Over a ten-year period, Kansas's state and local health departments reported 195 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 44 were solved, including 36 outbreaks affecting only Kansas residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 36 outbreaks affecting the residents of Kansas. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

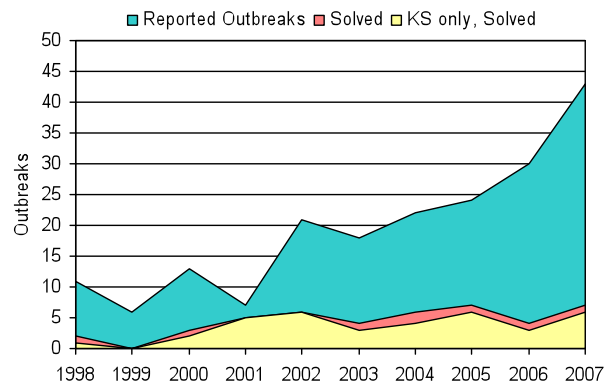


The most common pathogen implicated for food-related outbreaks in Kansas was Norovirus, 15 outbreaks (42%), followed by *Campylobacter*, 6 outbreaks (17%).

Trends in Reported & Solved Outbreaks

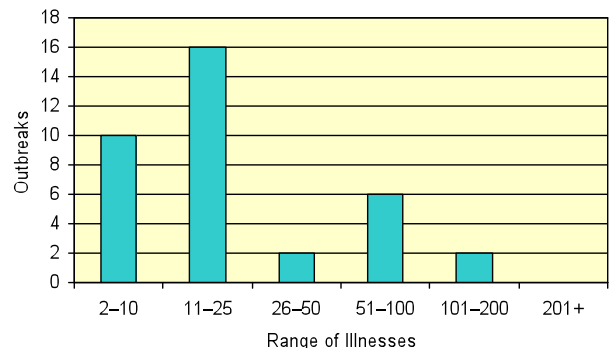
In 2007, Kansas reported 43 outbreaks to the CDC, or 15 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2006 (30). The median number of reported outbreaks was 7 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

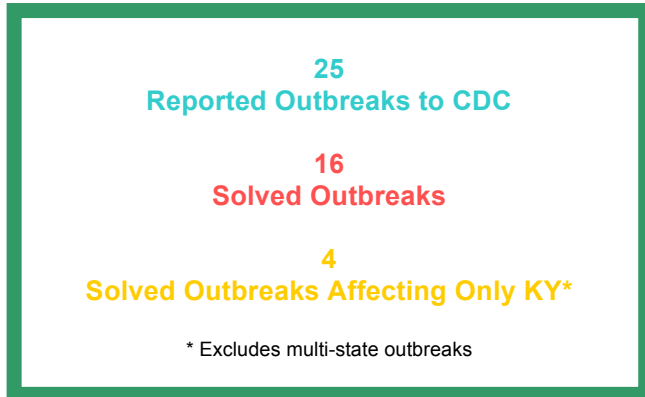
Forty-four percent of Kansas's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Kentucky (KY)



Overall Reporting Trends



Over a ten-year period, Kentucky's state and local health departments reported 25 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 16 were solved, including 4 outbreaks affecting only Kentucky residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 4 outbreaks affecting the residents of Kentucky. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

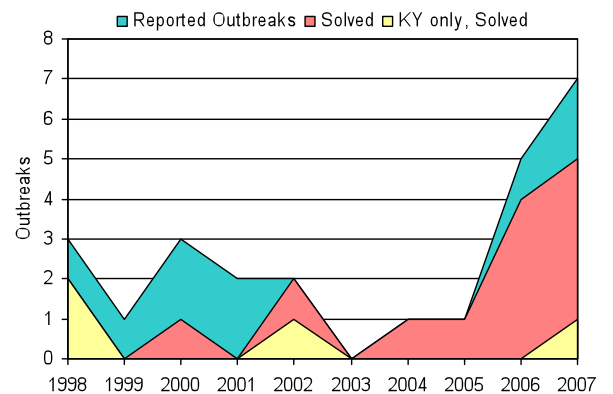
Pathogen	Number of Outbreaks
Norovirus	2
<i>Salmonella</i>	1
<i>Staphylococcus</i>	1

The most common pathogen implicated for food-related outbreaks in Kentucky was Norovirus, 2 outbreaks (50%).

Trends in Reported & Solved Outbreaks

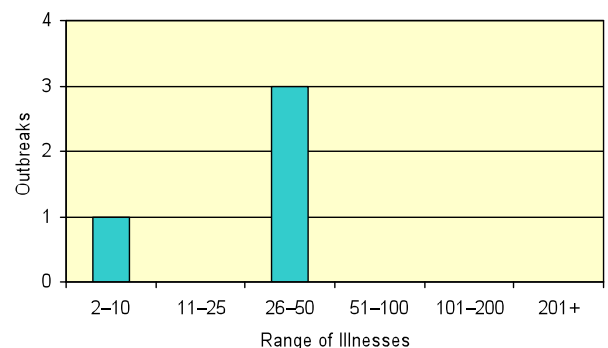
In 2007, Kentucky reported 7 outbreaks to the CDC, or only 2 reported outbreaks per 1 million population. That year is Kentucky's peak reporting year. The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



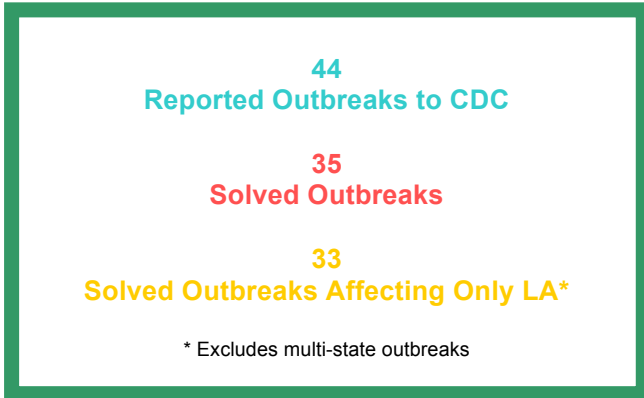
Outbreak Size

Seventy-five percent of Kentucky's outbreaks affected between 26 and 50 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.





Overall Reporting Trends

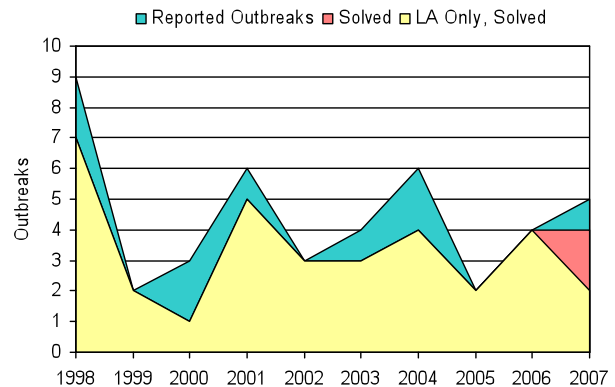


Over a ten-year period, Louisiana's state and local health departments reported 44 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 35 were solved, including 33 outbreaks affecting only Louisiana residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

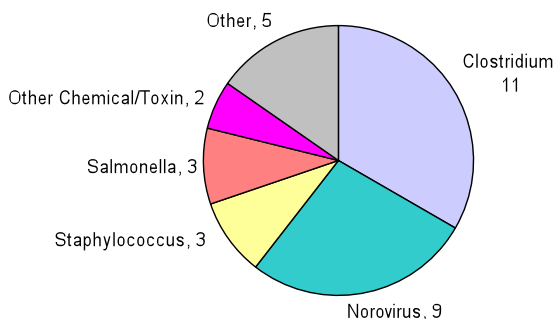
In 2007, Louisiana reported 5 outbreaks to the CDC, or only 1 reported outbreak per 1 million population. That year represents an average reporting year. During the peak reporting year of 1998 (9), Louisiana reported almost twice that number of outbreaks. The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



~The following analyses use only the 33 outbreaks affecting the residents of Louisiana. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

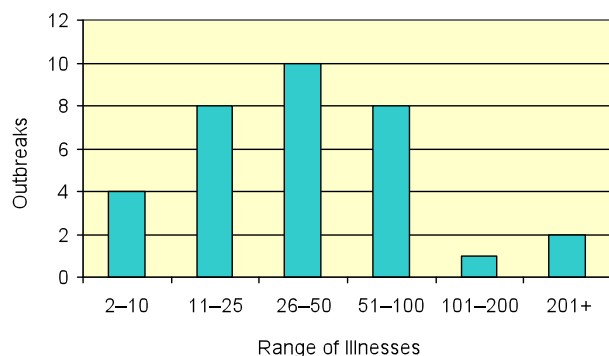
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Louisiana was *Clostridium*, 11 outbreaks (33%), followed by Norovirus, 9 outbreaks (27%).

Outbreak Size

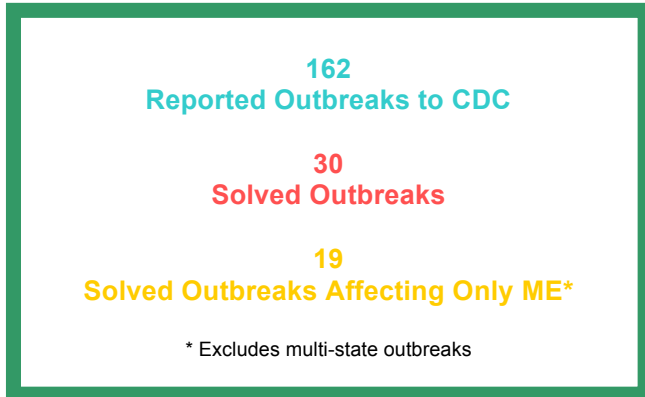
Thirty percent of Louisiana's outbreaks affected between 26 and 50 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Maine (ME)



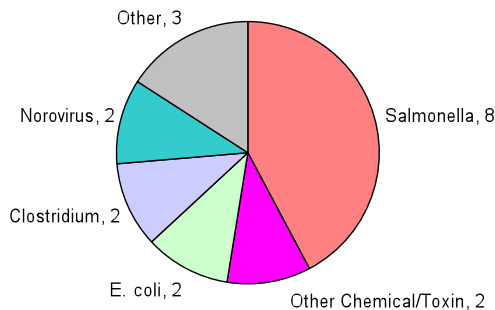
Overall Reporting Trends



Over a ten-year period, Maine's state and local health departments reported 162 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 30 were solved, including 19 outbreaks affecting only Maine residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 19 outbreaks affecting the residents of Maine. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

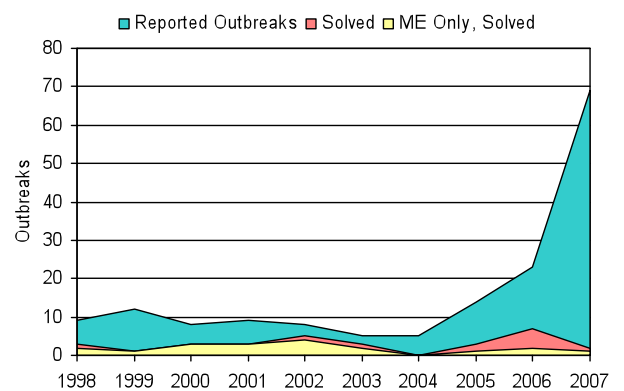


The most common pathogen implicated for food-related outbreaks in Maine was *Salmonella*, 8 outbreaks (42%).

Trends in Reported & Solved Outbreaks

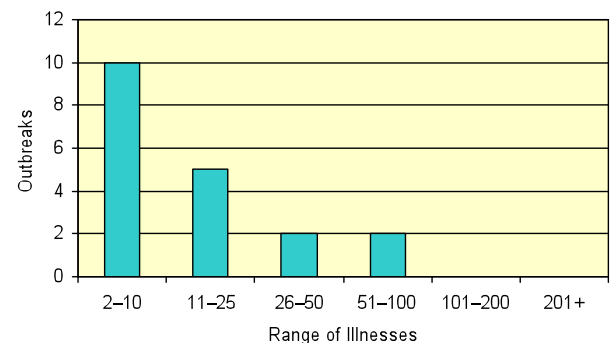
In 2007, Maine reported 69 outbreaks to the CDC, or 52 reported outbreaks per 1 million population. That year represents a peak reporting year. The median number of reported outbreaks was 7 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

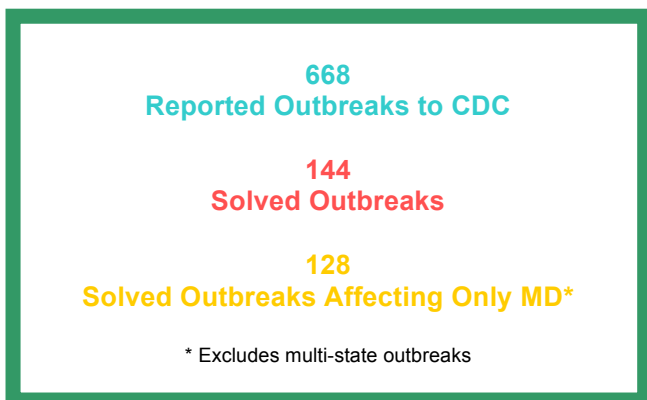
Fifty-three percent of Maine's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Maryland (MD)



Overall Reporting Trends

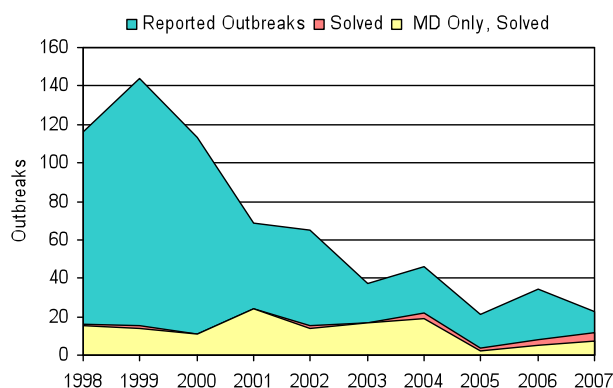


Over a ten-year period, Maryland's state and local health departments reported 668 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 144 were solved, including 128 outbreaks affecting only Maryland residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

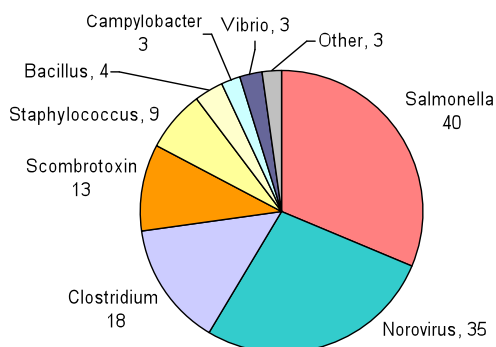
In 2007, Maryland reported 23 outbreaks to the CDC, or 4 reported outbreaks per 1 million population. That year represents a low reporting year. During the peak reporting year of 1999 (144), Maryland reported six times that number of outbreaks. The median number of reported outbreaks was 10 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



~The following analyses use only the 128 outbreaks affecting the residents of Maryland. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

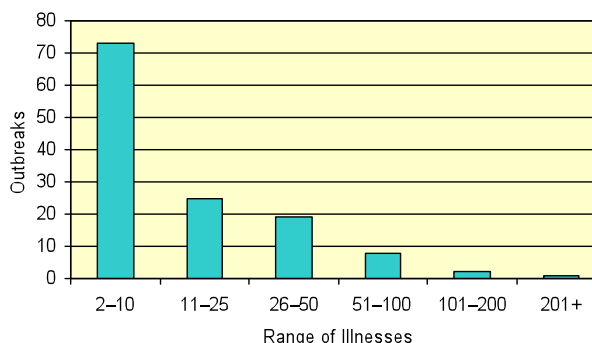
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Maryland was *Salmonella*, 40 outbreaks (31%), followed by *Norovirus*, 35 outbreaks (27%).

Outbreak Size

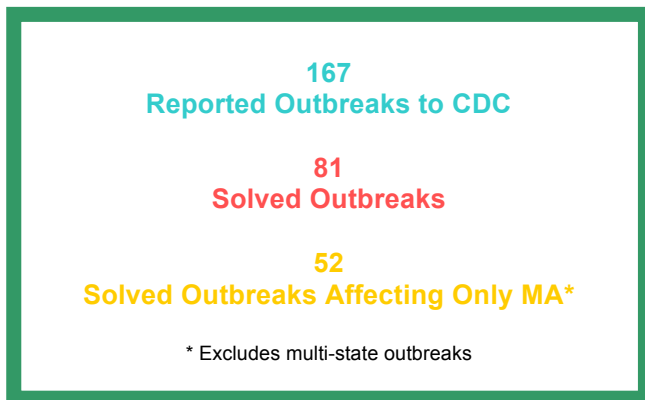
Fifty-seven percent of Maryland's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Massachusetts (MA)



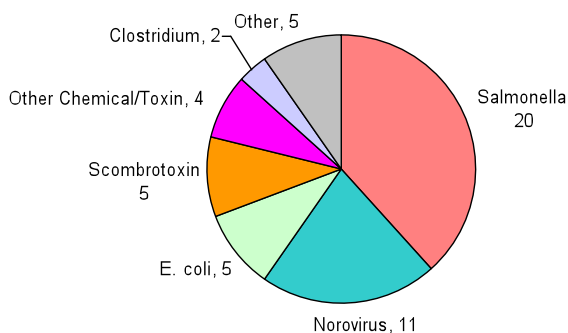
Overall Reporting Trends



Over a ten-year period, Massachusetts's state and local health departments reported 167 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 81 were solved, including 52 outbreaks affecting only Massachusetts residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 52 outbreaks affecting the residents of Massachusetts. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

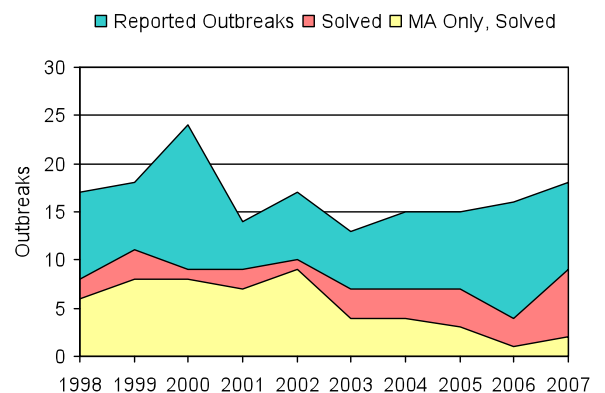


The most common pathogen implicated for food-related outbreaks in Massachusetts was *Salmonella*, 20 outbreaks (38%), followed by Norovirus, 11 outbreaks (21%).

Trends in Reported & Solved Outbreaks

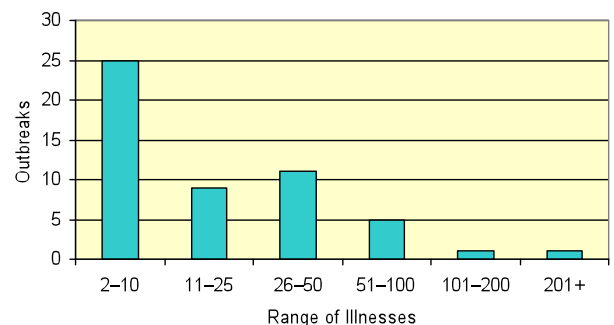
In 2007, Massachusetts reported 18 outbreaks to the CDC, or 3 reported outbreaks per 1 million population. That year represents an average reporting year. During the peak reporting year of 2000 (24), Massachusetts reported 30% more outbreaks. The median number of reported outbreaks was 3 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

Forty-eight percent of Massachusetts's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.

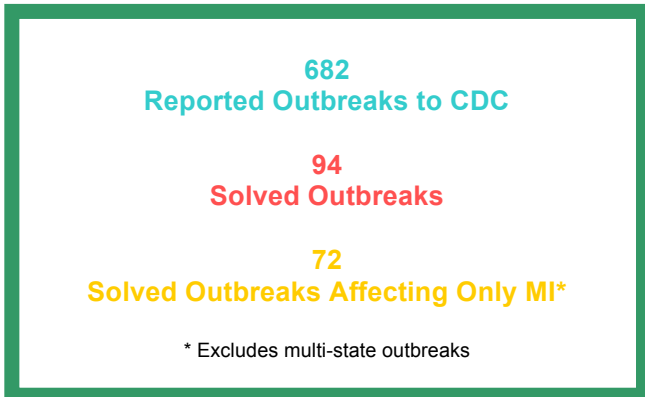


Outbreak Reporting from the States: Foodborne-Illness Outbreaks from 1998 to 2007

Michigan (MI)



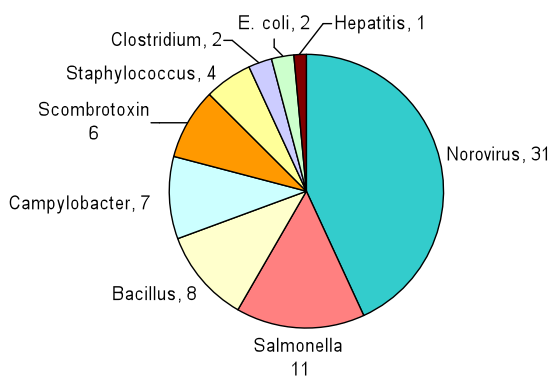
Overall Reporting Trends



Over a ten-year period, Michigan's state and local health departments reported 682 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 94 were solved, including 72 outbreaks affecting only Michigan residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 72 outbreaks affecting the residents of Michigan. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

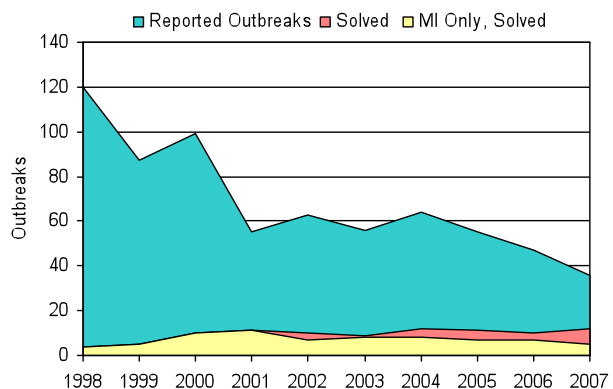


The most common pathogen implicated for food-related outbreaks in Michigan was Norovirus, 31 outbreaks (43%), followed by *Salmonella*, 11 outbreaks (15%).

Trends in Reported & Solved Outbreaks

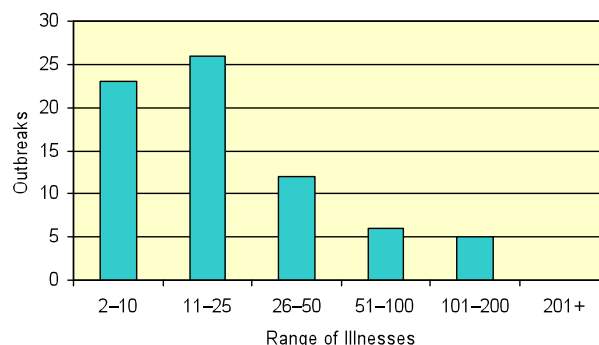
In 2007, Michigan reported 36 outbreaks to the CDC, or 4 reported outbreaks per 1 million population. That year represents a low reporting year. During the peak reporting years of 1998 (120) and 2000 (99), Michigan reported three times that number of outbreaks. The median number of reported outbreaks was 6 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

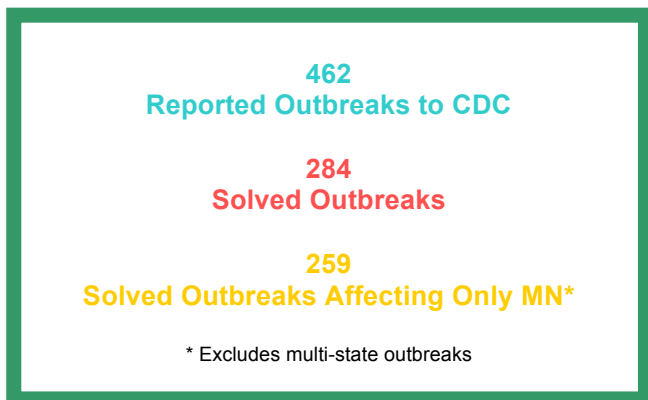
Thirty-six percent of Michigan's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Minnesota (MN)



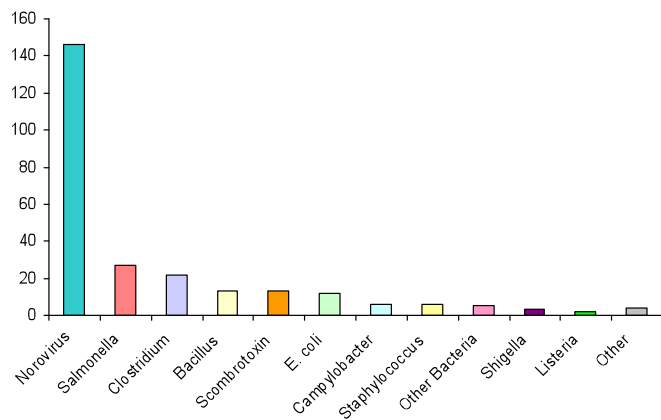
Overall Reporting Trends



Over a ten-year period, Minnesota's state and local health departments reported 462 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 284 were solved, including 259 outbreaks affecting only Minnesota residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 259 outbreaks affecting the residents of Minnesota. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

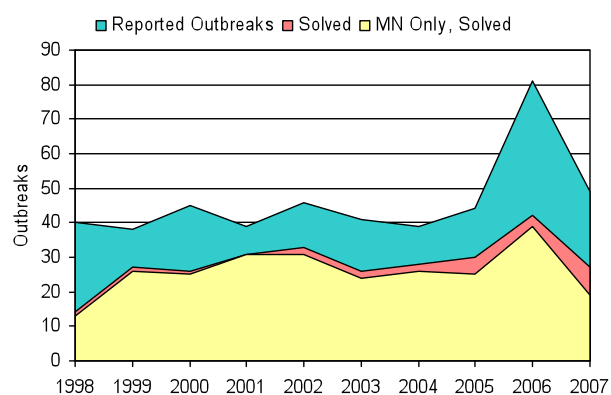


The most common pathogen implicated for food-related outbreaks in Minnesota was Norovirus, 146 outbreaks (56%), followed by *Salmonella*, 27 outbreaks (10%).

Trends in Reported & Solved Outbreaks

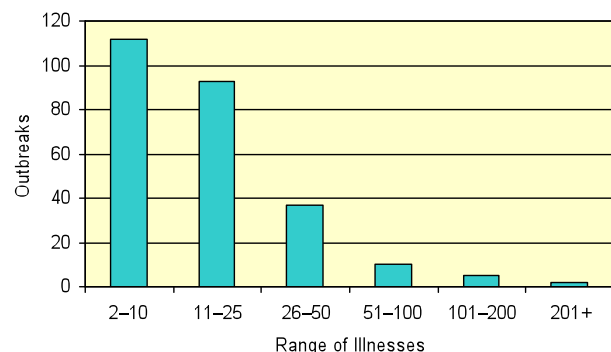
In 2007, Minnesota reported 49 outbreaks to the CDC, or 10 reported outbreaks per 1 million population. During the peak reporting year of 2006 (81), Minnesota reported 65% more outbreaks. The median number of reported outbreaks was 8 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

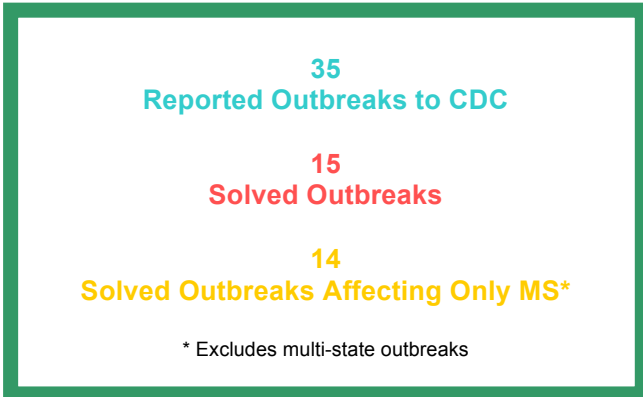
Fifty-three percent of Minnesota's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Mississippi (MS)



Overall Reporting Trends

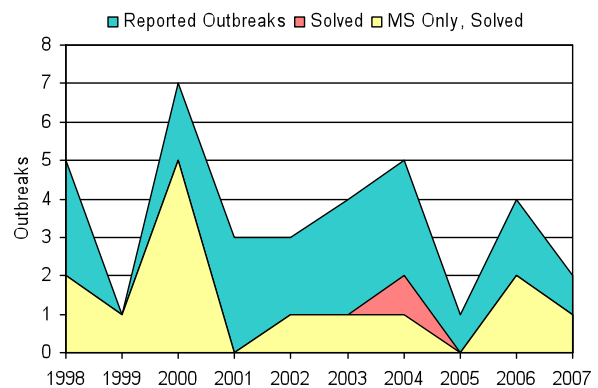


Over a ten-year period, Mississippi's state and local health departments reported 35 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 15 were solved, including 14 outbreaks affecting only Mississippi residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

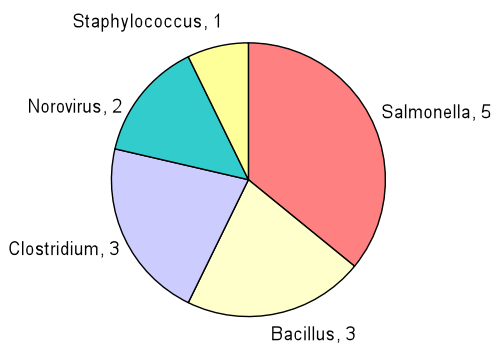
In 2007, Mississippi reported 2 outbreaks to the CDC, or only 1 reported outbreak per 1 million population. During the peak reporting year of 2000 (7), Mississippi reported more than three times that number of outbreaks. The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



~The following analyses use only the 14 outbreaks affecting the residents of Mississippi. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

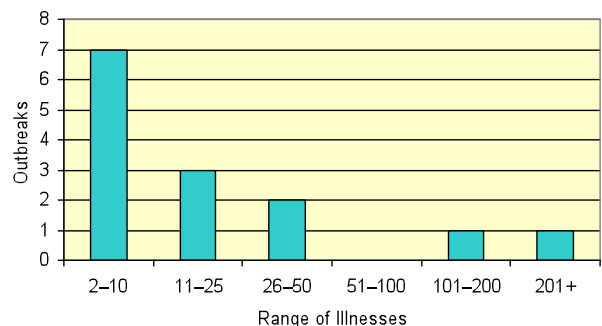
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Mississippi was *Salmonella*, 5 outbreaks (36%), followed by *Bacillus* and *Clostridium*, both with 3 outbreaks (21% each).

Outbreak Size

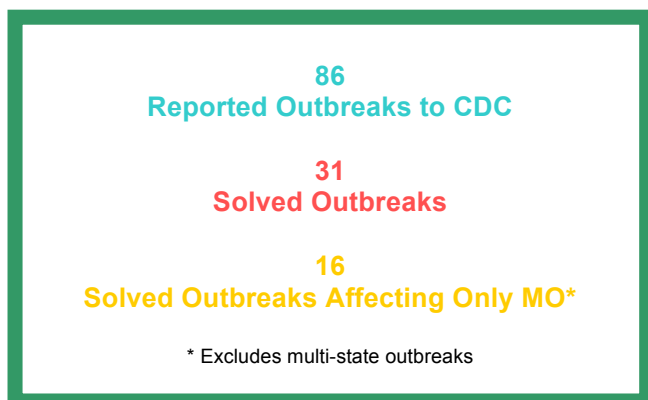
Fifty percent of Mississippi's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.





Missouri (MO)

Overall Reporting Trends

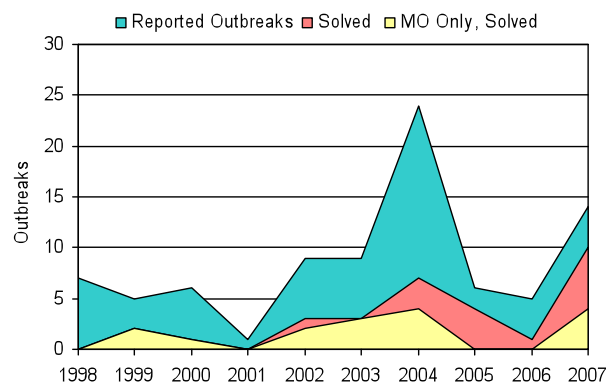


Over a ten-year period, Missouri's state and local health departments reported 86 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 31 were solved, including 16 outbreaks affecting only Missouri residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

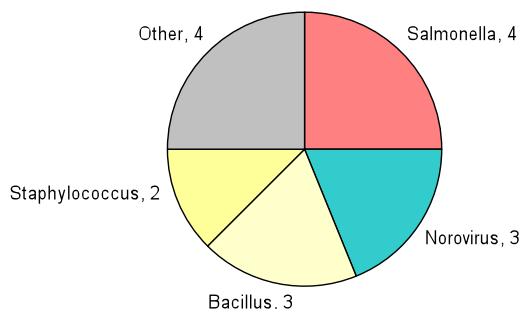
In 2007, Missouri reported 14 outbreaks to the CDC, or only 2 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2004 (24). The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



~The following analyses use only the 16 outbreaks affecting the residents of Missouri. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

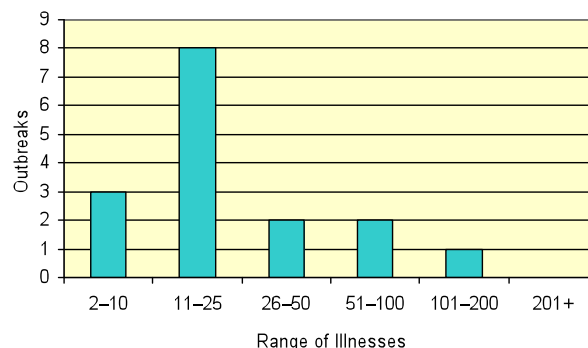
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Missouri was *Salmonella*, 4 outbreaks (25%), followed by *Norovirus* and *Bacillus*, both with 3 outbreaks (19% each).

Outbreak Size

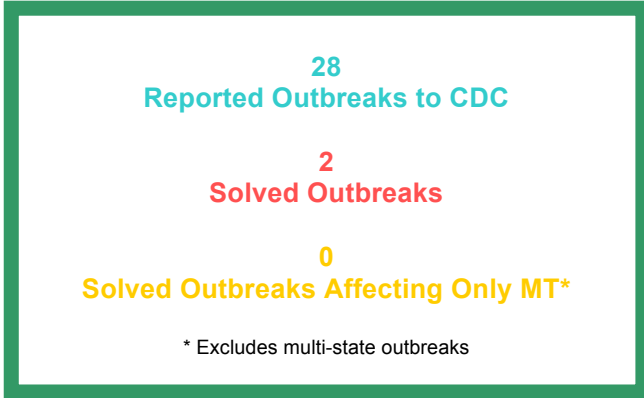
Fifty percent of Missouri's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Montana (MT)



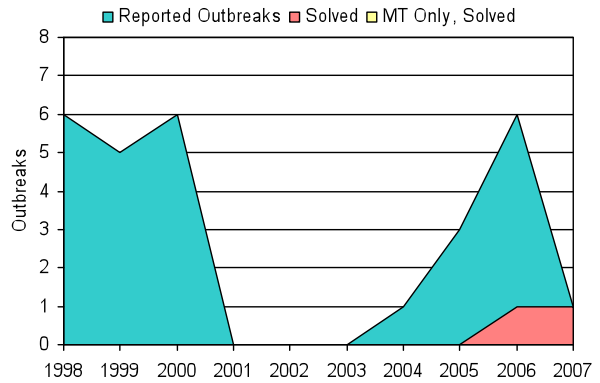
Overall Reporting Trends



Trends in Reported & Solved Outbreaks

In 2007, Montana reported 1 outbreak to the CDC, or only 1 reported outbreak per 1 million population. That year represents a slightly below average reporting year. During the peak reporting years of 1998 (6), 2000 (6), and 2006 (6), Montana reported six times that number of outbreaks. The median number of reported outbreaks was 2 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



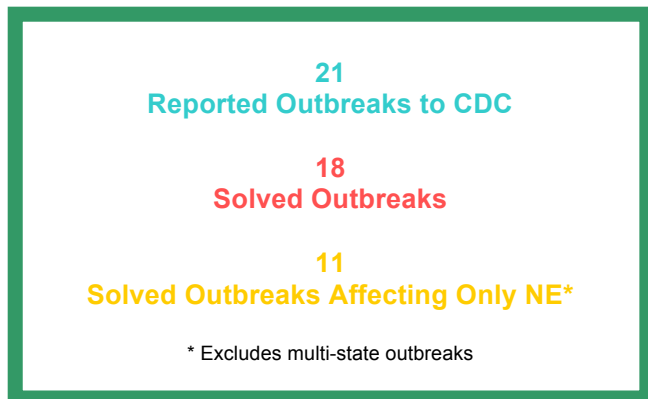
Over a ten-year period, Montana’s state and local health departments reported 28 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 2 were solved. None of the solved outbreaks only affected Montana residents. “Solved” outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states’ reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~An analysis was not completed because the solved outbreaks did not solely affect residents of Montana.~

Nebraska (NE)



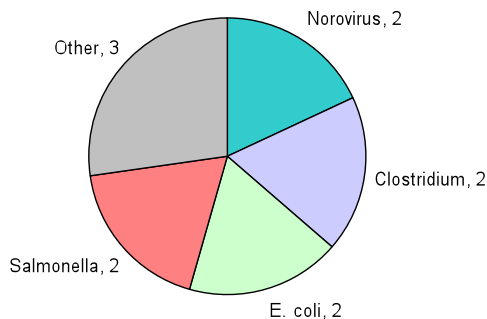
Overall Reporting Trends



Over a ten-year period, Nebraska's state and local health departments reported 21 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 18 were solved, including 11 outbreaks affecting only Nebraska residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 11 outbreaks affecting the residents of Nebraska. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

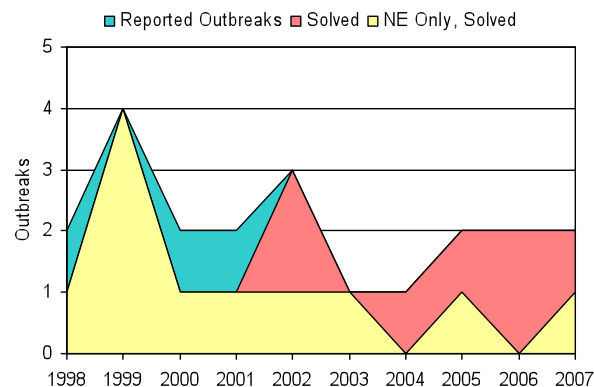


The most common pathogens implicated for food-related outbreaks in Nebraska were *Salmonella*, *E. coli*, *Clostridium*, and *Norovirus*, all with 2 outbreaks (18% each).

Trends in Reported & Solved Outbreaks

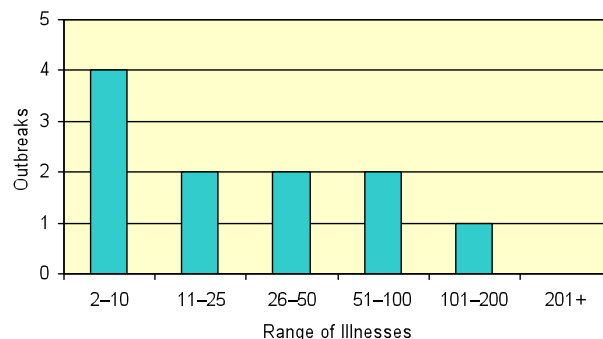
In 2007, Nebraska reported 2 outbreaks to the CDC, or only 1 reported outbreak per 1 million population. That year represents an average reporting year. During the peak reporting year of 1999 (4), Nebraska reported twice that number of outbreaks. The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

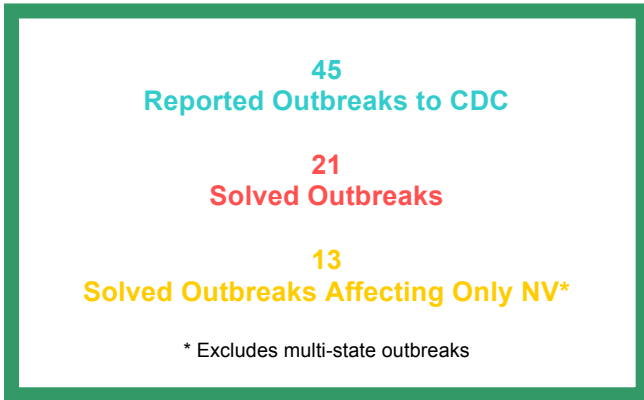
Thirty-six percent of Nebraska's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Nevada (NV)



Overall Reporting Trends

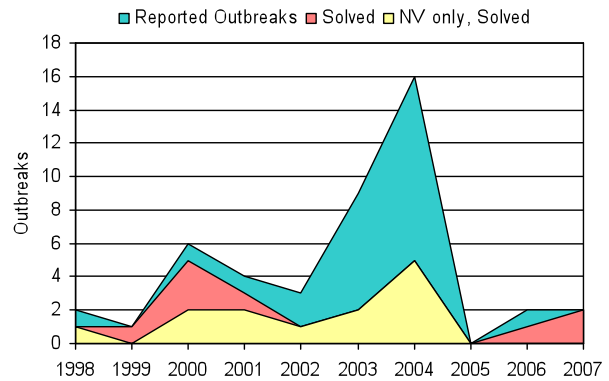


Over a ten-year period, Nevada's state and local health departments reported 45 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 21 were solved, including 13 outbreaks affecting only Nevada residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

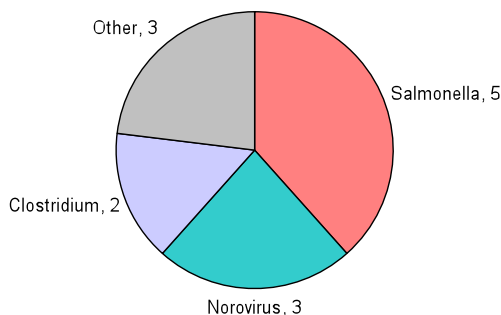
In 2007, Nevada reported 2 outbreaks to the CDC, or only 1 reported outbreak per 1 million population. During the peak reporting year of 2004 (16), Nevada reported eight times that number of outbreaks. The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



~The following analyses use only the 13 outbreaks affecting the residents of Nevada. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

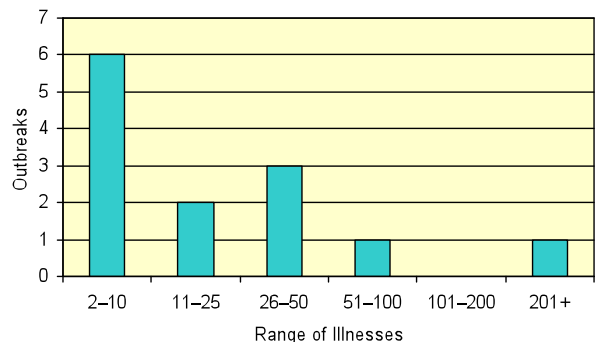
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Nevada was *Salmonella*, 5 outbreaks (38%), followed by Norovirus, 3 outbreaks (23%).

Outbreak Size

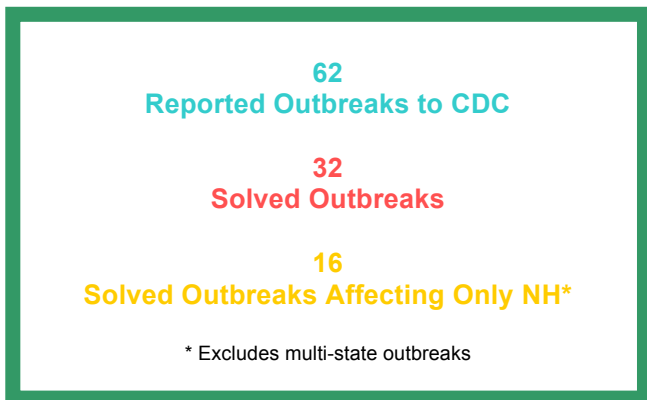
Forty-six percent of Nevada's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



New Hampshire (NH)



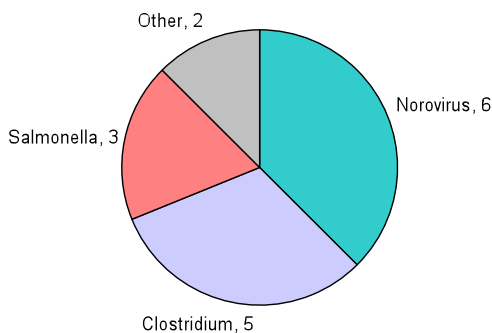
Overall Reporting Trends



Over a ten-year period, New Hampshire's state and local health departments reported 62 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 32 were solved, including 16 outbreaks affecting only New Hampshire residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 16 outbreaks affecting the residents of New Hampshire. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

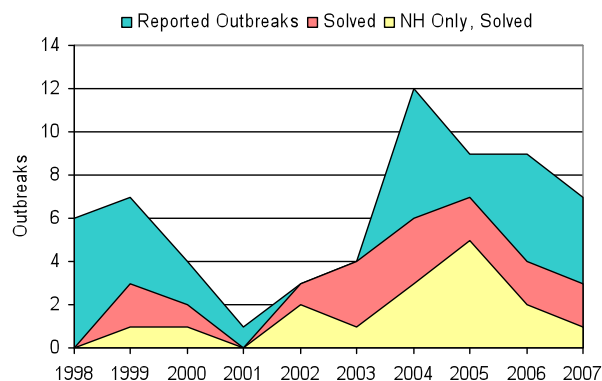


The most common pathogen implicated for food-related outbreaks in New Hampshire was Norovirus, 6 outbreaks (38%), followed by *Clostridium*, 5 outbreaks (31%).

Trends in Reported & Solved Outbreaks

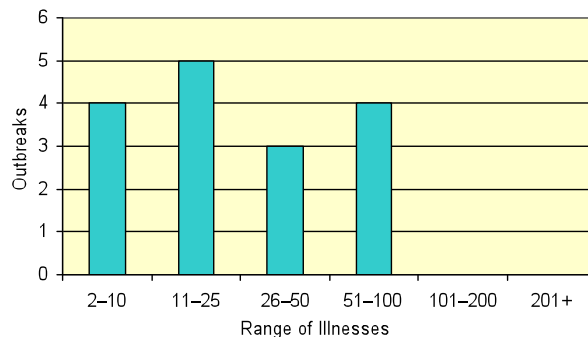
In 2007, New Hampshire reported 7 outbreaks to the CDC, or 5 reported outbreaks per 1 million population. That year represents an average reporting year. During the peak reporting year of 2004 (12), New Hampshire reported more than twice that number of outbreaks. The median number of reported outbreaks was 5 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

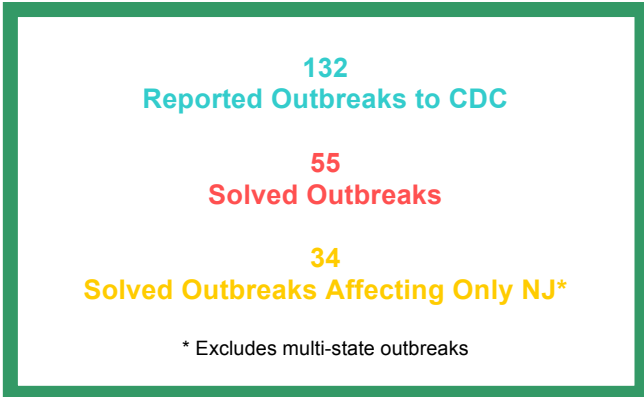
Thirty-one percent of New Hampshire's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



New Jersey (NJ)



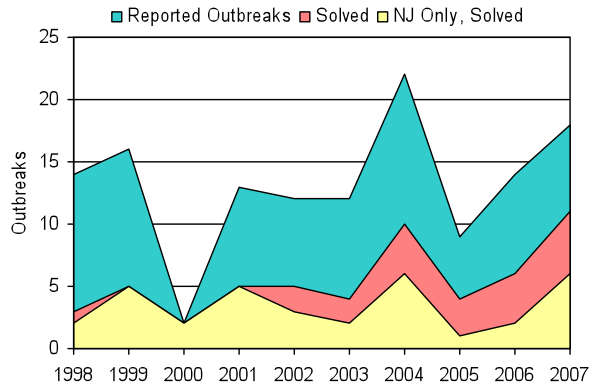
Overall Reporting Trends



Trends in Reported & Solved Outbreaks

In 2007, New Jersey reported 18 outbreaks to the CDC, or only 2 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2004 (22). The median number of reported outbreaks was 2 per 1 million population over the ten-year period.[§]

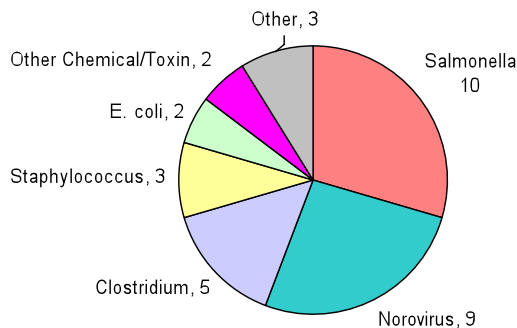
[§]See the US map in Figure 2



Over a ten-year period, New Jersey's state and local health departments reported 132 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 55 were solved, including 34 outbreaks affecting only New Jersey residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 34 outbreaks affecting the residents of New Jersey. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

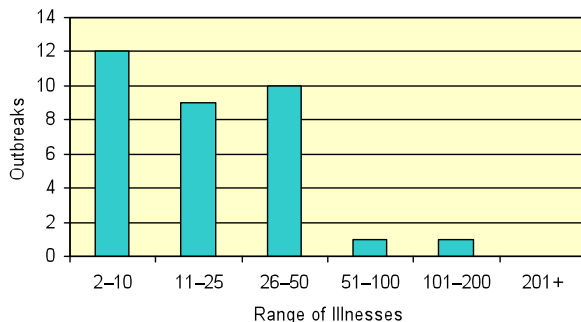
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in New Jersey was *Salmonella*, 10 outbreaks (29%), followed by Norovirus, 9 outbreaks (26%).

Outbreak Size

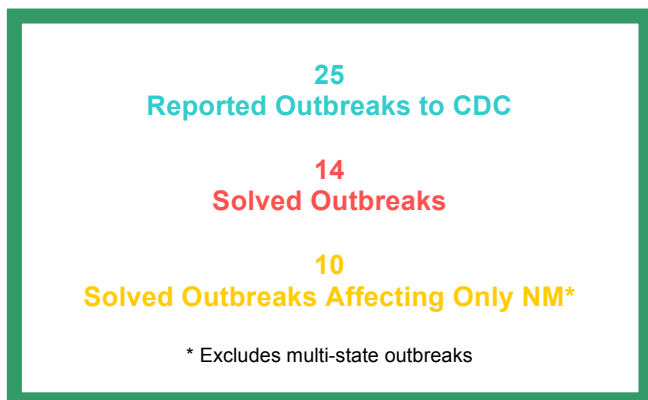
Thirty-five percent of New Jersey's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



New Mexico (NM)



Overall Reporting Trends



Over a ten-year period, New Mexico's state and local health departments reported 25 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 14 were solved, including 10 outbreaks affecting only New Mexico residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 10 outbreaks affecting the residents of New Mexico. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

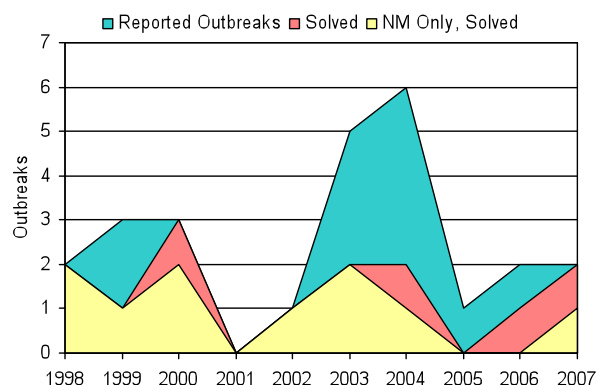


The most common pathogen implicated for food-related outbreaks in New Mexico was *Clostridium*, 4 outbreaks (40%), followed by *Salmonella*, 3 outbreaks (30%).

Trends in Reported & Solved Outbreaks

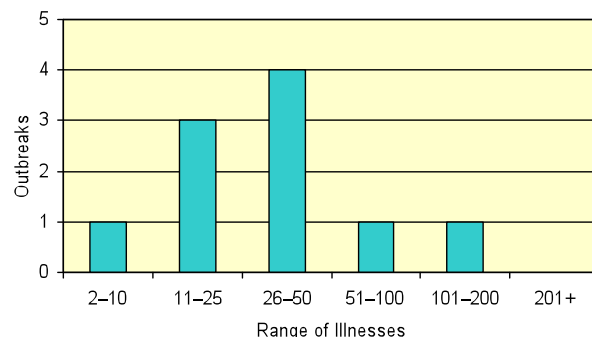
In 2007, New Mexico reported 2 outbreaks to the CDC, or only 1 reported outbreak per 1 million population. That year represents an average reporting year. During the peak reporting years of 2003 (5) and 2004 (6), New Mexico reported three times that number of outbreaks. The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

Forty percent of New Mexico's outbreaks affected between 26 and 50 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.

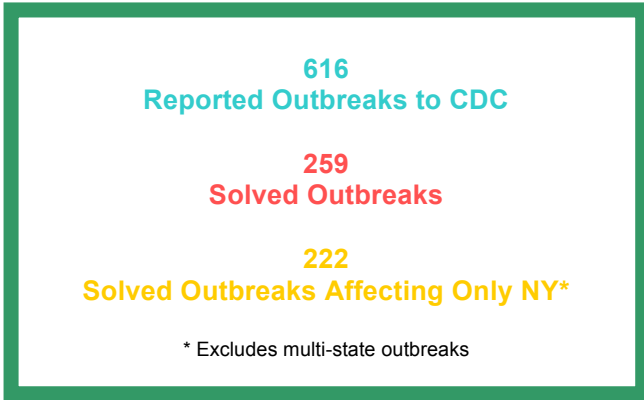


Outbreak Reporting from the States: Foodborne-Illness Outbreaks from 1998 to 2007

New York (NY)



Overall Reporting Trends

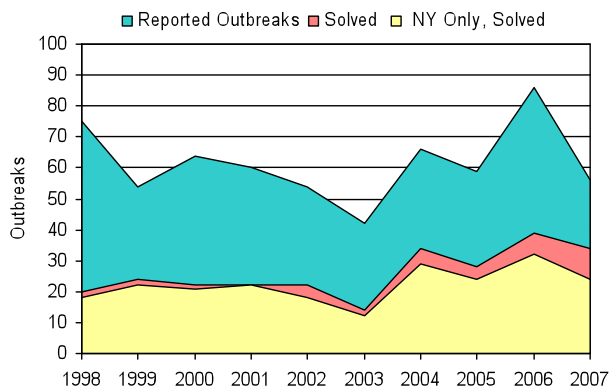


Over a ten-year period, New York's state and local health departments reported 616 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 259 were solved, including 222 outbreaks affecting only New York residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

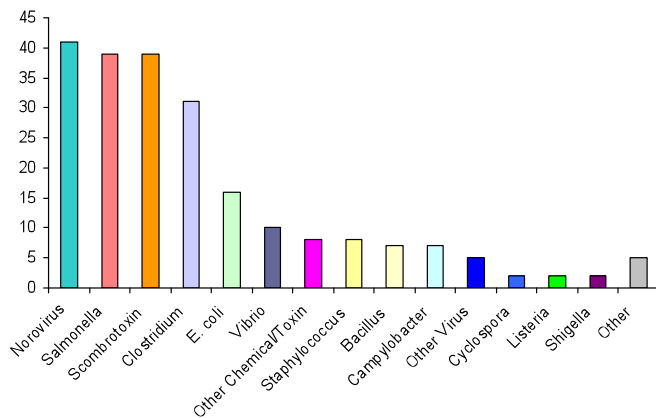
In 2007, New York reported 56 outbreaks to the CDC, or 3 reported outbreaks per 1 million population. During the peak reporting years of 1998 (75) and 2006 (86), New York reported 40% more outbreaks. The median number of reported outbreaks was 3 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



~The following analyses use only the 222 outbreaks affecting the residents of New York. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

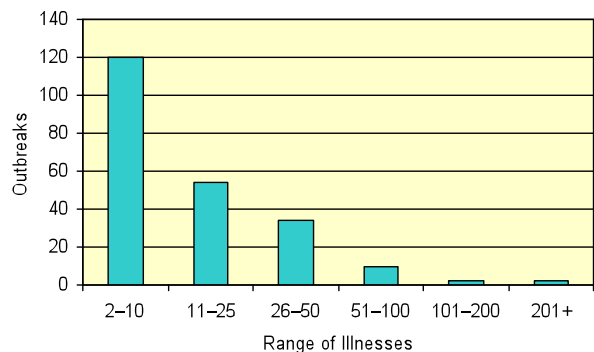
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in New York was Norovirus, 41 outbreaks (18%), followed by *Salmonella* and Scombrototoxin, both with 39 outbreaks (18% each).

Outbreak Size

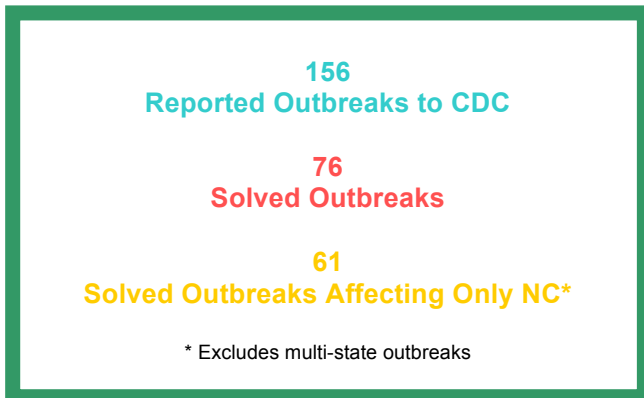
Fifty-four percent of New York's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



North Carolina (NC)



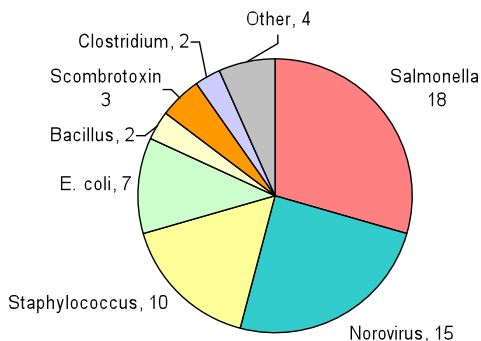
Overall Reporting Trends



Over a ten-year period, North Carolina's state and local health departments reported 156 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 76 were solved, including 61 outbreaks affecting only North Carolina residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 61 outbreaks affecting the residents of North Carolina. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

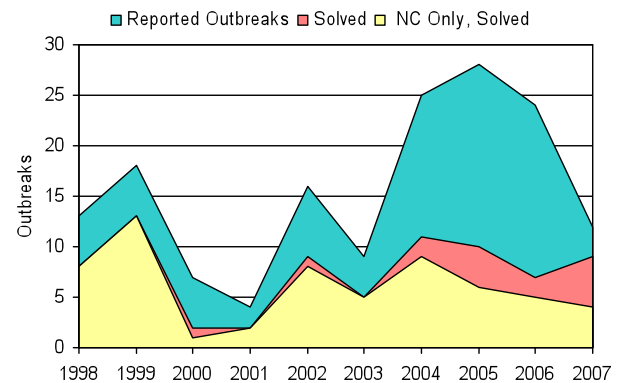


The most common pathogen implicated for food-related outbreaks in North Carolina was *Salmonella*, 18 outbreaks (30%), followed by Norovirus, 15 outbreaks (25%).

Trends in Reported & Solved Outbreaks

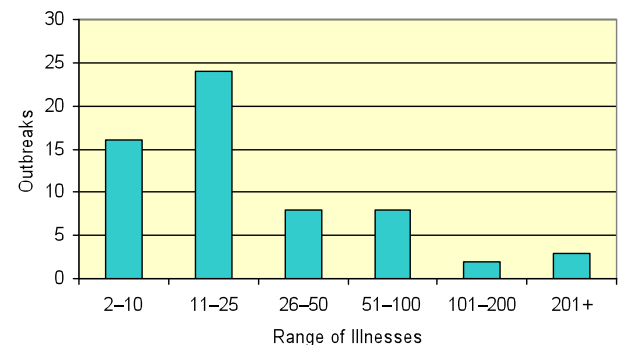
In 2007, North Carolina reported 12 outbreaks to the CDC, or only 1 reported outbreak per 1 million population. That year represents a low reporting year. During the peak reporting years of 2004 (25), 2005 (28) and 2006 (24), North Carolina reported twice that number of outbreaks. The median number of reported outbreaks was 2 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

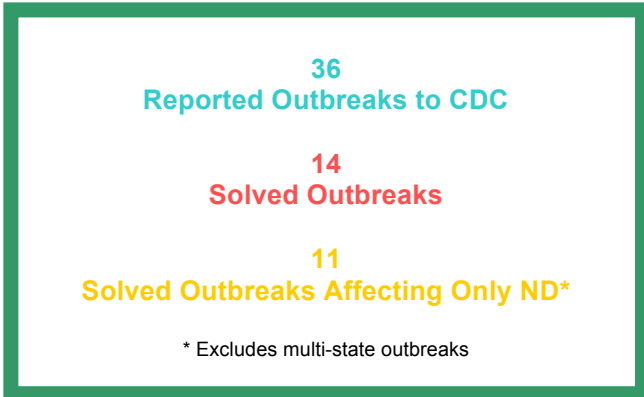
Thirty-nine percent of North Carolina's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



North Dakota (ND)



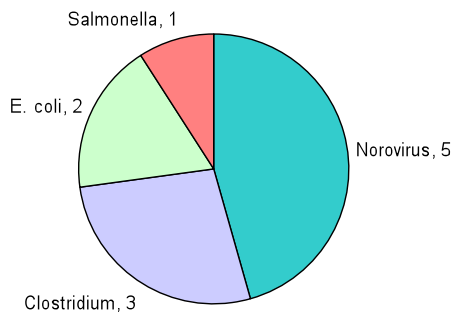
Overall Reporting Trends



Over a ten-year period, North Dakota's state and local health departments reported 36 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 14 were solved, including 11 outbreaks affecting only North Dakota residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 11 outbreaks affecting the residents of North Dakota. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

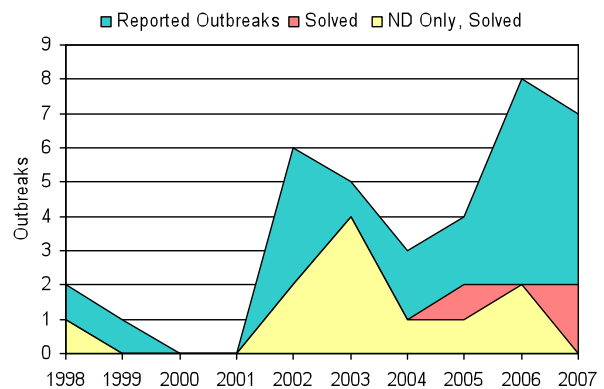


The most common pathogen implicated for food-related outbreaks in North Dakota was Norovirus, 5 outbreaks (45%), followed by *Clostridium*, 3 outbreaks (27%).

Trends in Reported & Solved Outbreaks

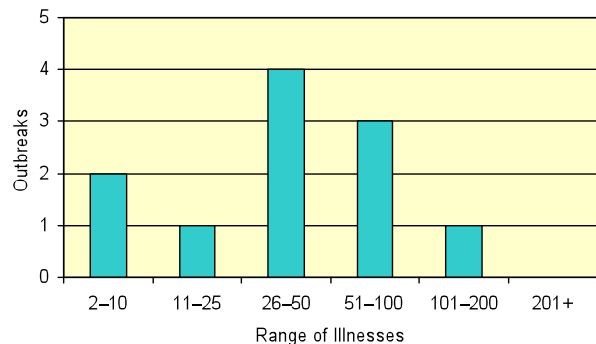
In 2007, North Dakota reported 7 outbreaks to the CDC, or 11 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2006 (8). The median number of reported outbreaks was 5 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



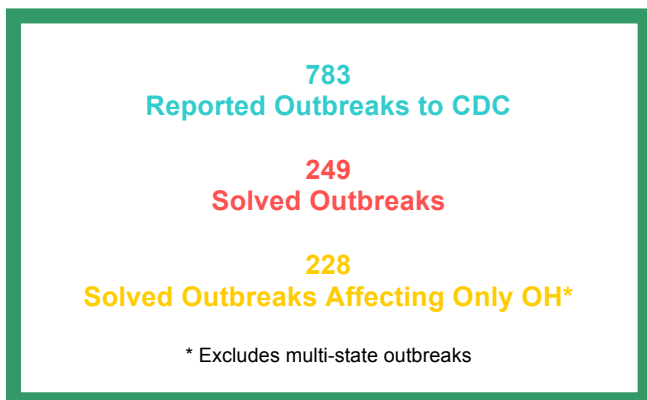
Outbreak Size

Thirty-six percent of North Dakota's outbreaks affected between 26 and 50 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.





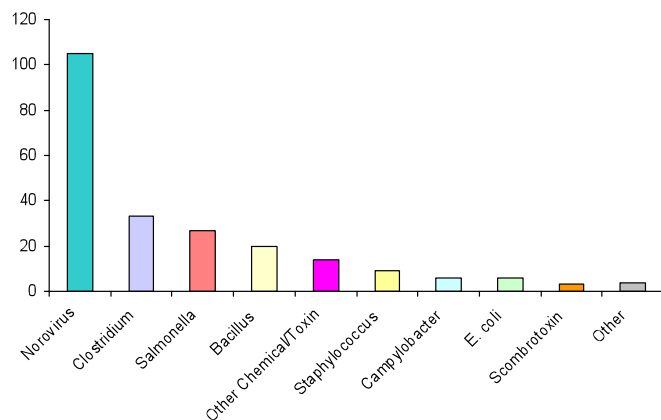
Overall Reporting Trends



Over a ten-year period, Ohio's state and local health departments reported 783 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 249 were solved, including 228 outbreaks affecting only Ohio residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 228 outbreaks affecting the residents of Ohio. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

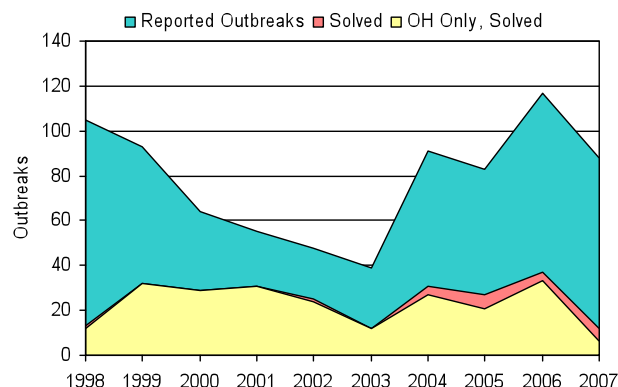


The most common pathogen implicated for food-related outbreaks in Ohio was Norovirus, 105 outbreaks (46%), followed by *Clostridium*, 33 outbreaks (15%).

Trends in Reported & Solved Outbreaks

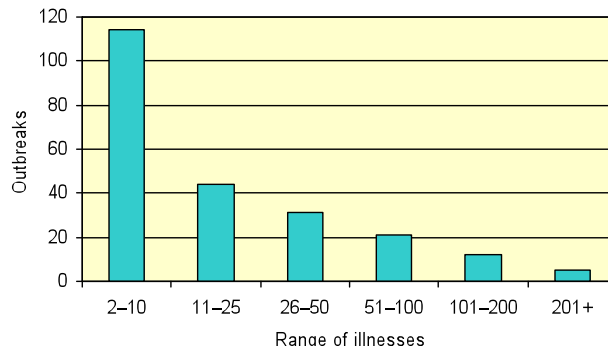
In 2007, Ohio reported 88 outbreaks to the CDC, or 8 reported outbreaks per 1 million population. That year represents a slightly above average reporting year. During the peak reporting years of 1998 (105) and 2006 (117), Ohio reported 25% more outbreaks. The median number of reported outbreaks was 7 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

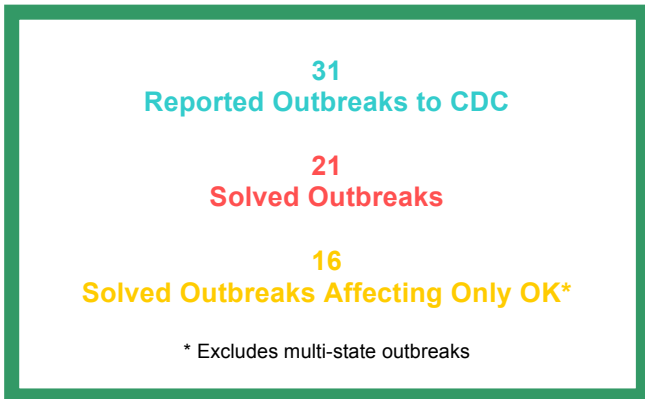
Fifty percent of Ohio's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Oklahoma (OK)



Overall Reporting Trends

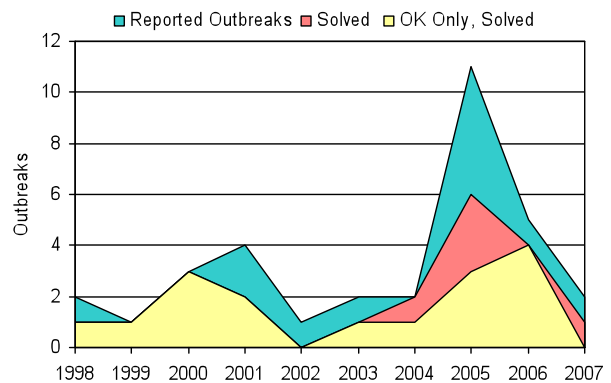


Over a ten-year period, Oklahoma's state and local health departments reported 31 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 21 were solved, including 16 outbreaks affecting only Oklahoma residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

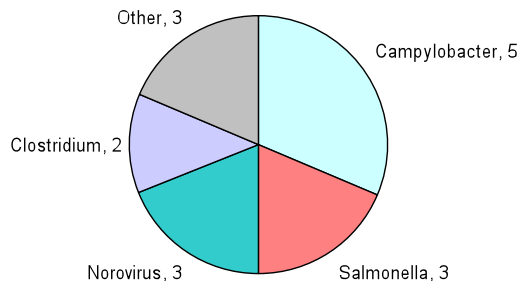
In 2007, Oklahoma reported 2 outbreaks to the CDC, or only 1 reported outbreak per 1 million population. That year represents an average reporting year. During the peak reporting year of 2005 (11), Oklahoma reported five times that number of outbreaks. The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



~The following analyses use only the 16 outbreaks affecting the residents of Oklahoma. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

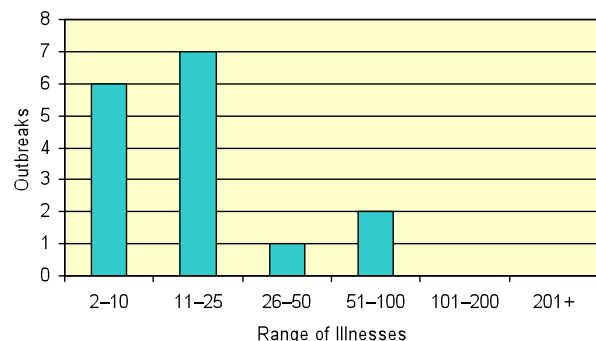
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Oklahoma was *Campylobacter*, 5 outbreaks (31%), followed by *Salmonella* and *Norovirus*, both with 3 outbreaks (19% each).

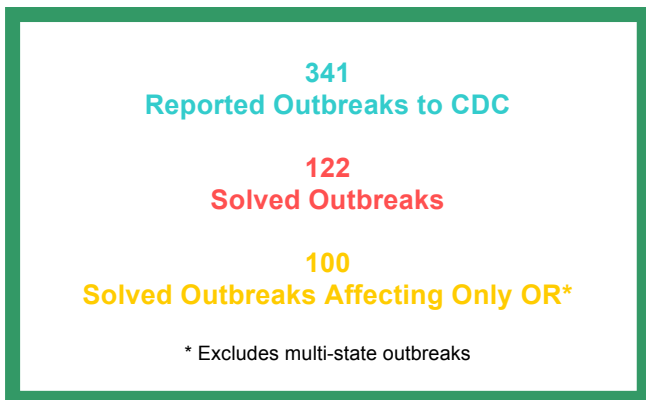
Outbreak Size

Forty-four percent of Oklahoma's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.





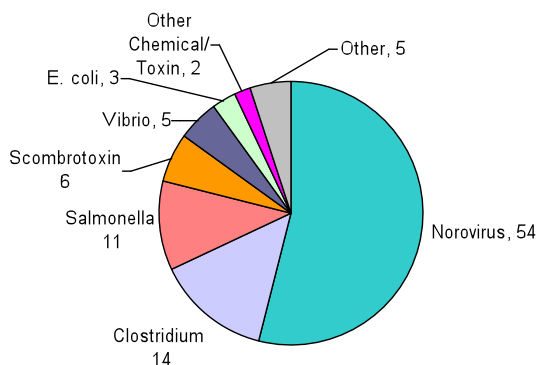
Overall Reporting Trends



Over a ten-year period, Oregon's state and local health departments reported 341 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 122 were solved, including 100 outbreaks affecting only Oregon residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 100 outbreaks affecting the residents of Oregon. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

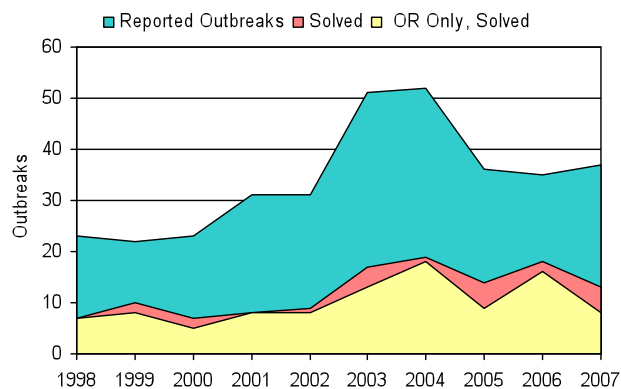


The most common pathogen implicated for food-related outbreaks in Oregon was Norovirus, 54 outbreaks (54%), followed by *Clostridium*, 14 outbreaks (14%).

Trends in Reported & Solved Outbreaks

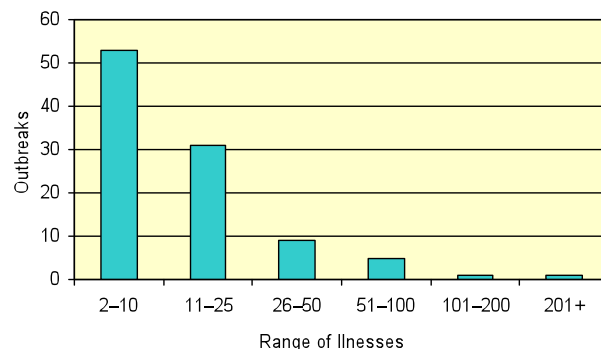
In 2007, Oregon reported 37 outbreaks to the CDC, or 10 reported outbreaks per 1 million population. During the peak reporting years of 2003 (51) and 2004 (52), Oregon reported 50% more outbreaks. The median number of reported outbreaks was 9 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

Fifty-three percent of Oregon's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.

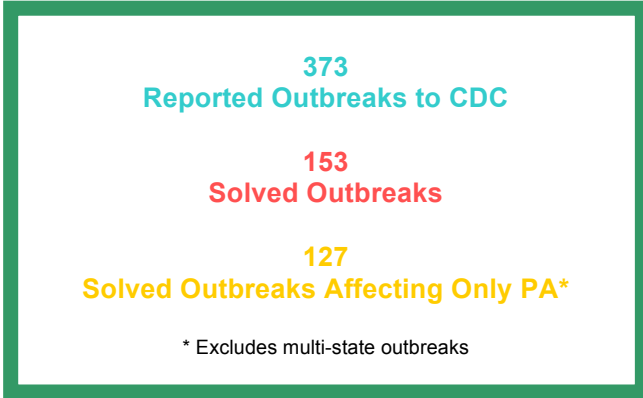


Outbreak Reporting from the States: Foodborne-Illness Outbreaks from 1998 to 2007

Pennsylvania (PA)



Overall Reporting Trends



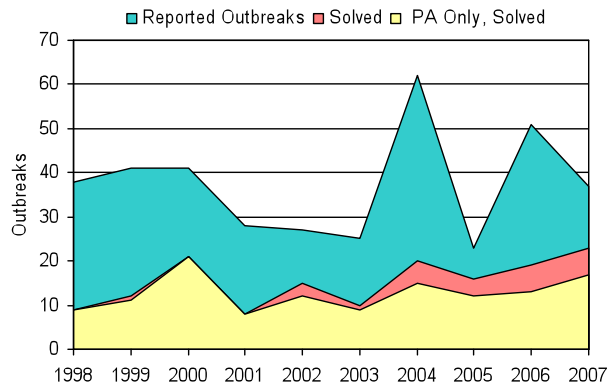
Over a ten-year period, Pennsylvania's state and local health departments reported 373 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 153 were solved, including 127 outbreaks affecting only Pennsylvania residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 127 outbreaks affecting the residents of Pennsylvania. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

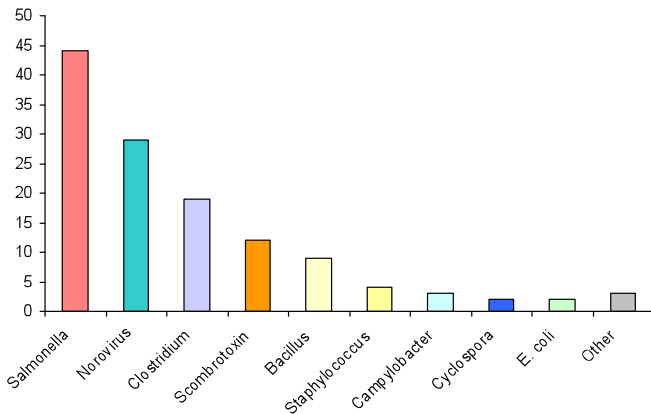
Trends in Reported & Solved Outbreaks

In 2007, Pennsylvania reported 37 outbreaks to the CDC, or 3 reported outbreaks per 1 million population. That year represents an average reporting year. During the peak reporting year of 2004 (62), Pennsylvania reported 65% more outbreaks. The median number of reported outbreaks was 3 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



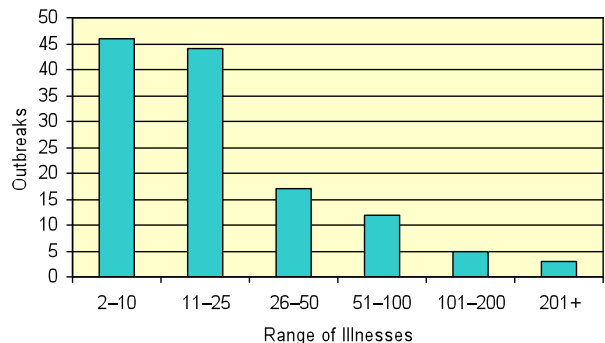
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Pennsylvania was *Salmonella*, 44 outbreaks (35%), followed by Norovirus, 29 outbreaks (23%).

Outbreak Size

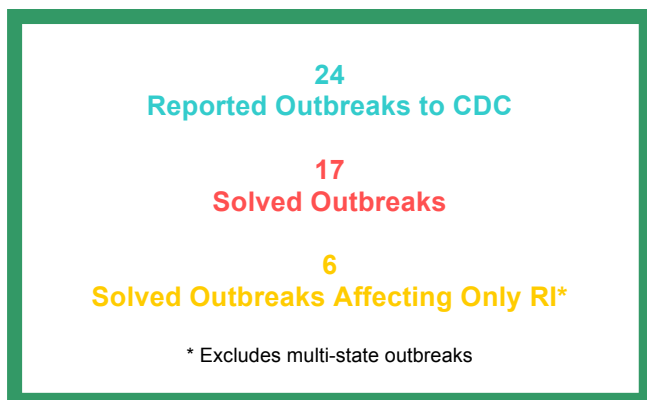
Seventy-one percent of Pennsylvania's outbreaks affected between 2 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Rhode Island (RI)



Overall Reporting Trends



Over a ten-year period, Rhode Island's state and local health departments reported 24 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 17 were solved, including 6 outbreaks affecting only Rhode Island residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 6 outbreaks affecting the residents of Rhode Island. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

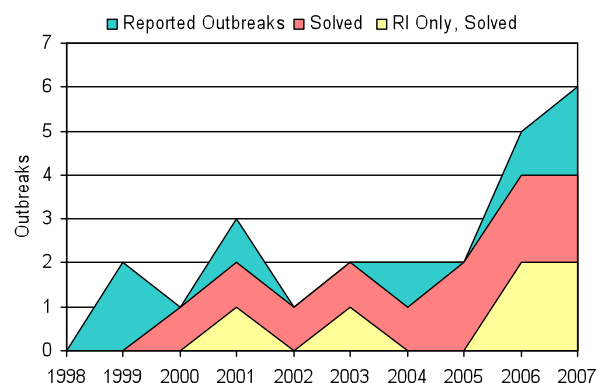
Pathogen	Number of Outbreaks
<i>Salmonella</i>	1
Norovirus	1
<i>Clostridium</i>	1
<i>Bacillus</i>	1
Ciguatoxin	1
Scombrototoxin	1

A different pathogen was implicated for each outbreak (17% each).

Trends in Reported & Solved Outbreaks

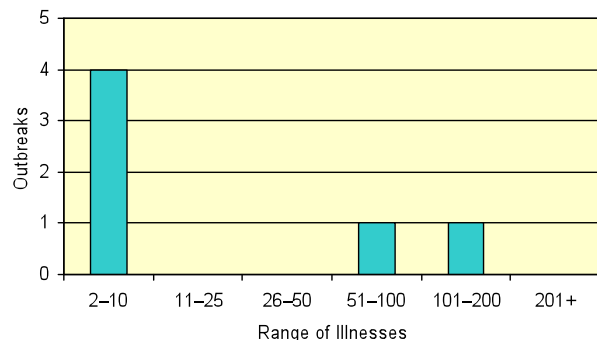
In 2007, Rhode Island reported 6 outbreaks to the CDC, or 6 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2006 (5). The median number of reported outbreaks was 2 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

Sixty-seven percent of Rhode Island's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.

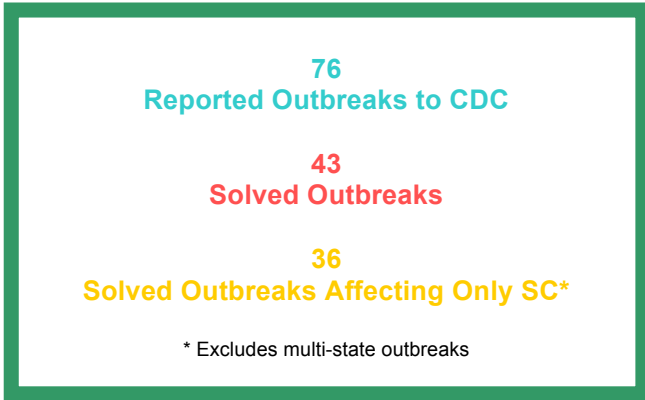


Outbreak Reporting from the States: Foodborne-Illness Outbreaks from 1998 to 2007

South Carolina (SC)



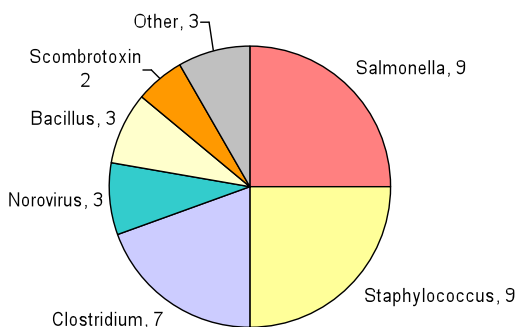
Overall Reporting Trends



Over a ten-year period, South Carolina's state and local health departments reported 76 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 43 were solved, including 36 outbreaks affecting only South Carolina residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 36 outbreaks affecting the residents of South Carolina. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

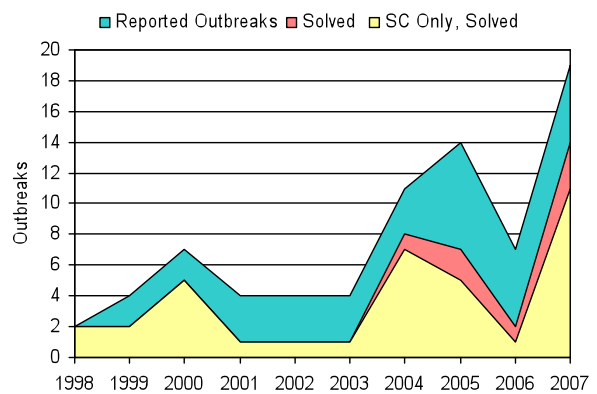


The most common pathogens implicated for food-related outbreaks in South Carolina were *Salmonella* and *Staphylococcus*, both with 9 outbreaks (25% each), followed by *Clostridium*, 7 outbreaks (19%).

Trends in Reported & Solved Outbreaks

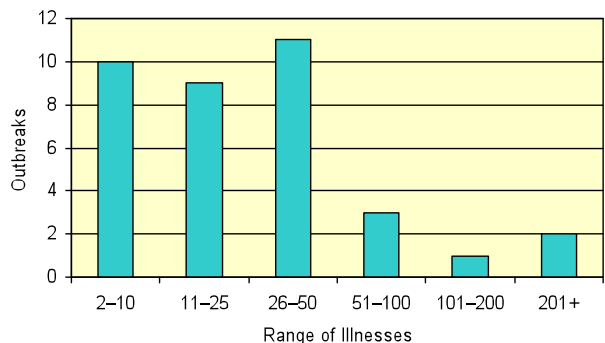
In 2007, South Carolina reported 19 outbreaks to the CDC, or 4 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2005 (14). The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

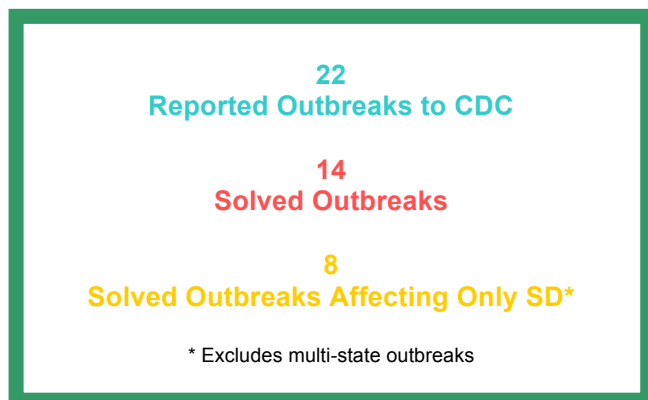
Thirty-one percent of South Carolina's outbreaks affected between 26 and 50 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



South Dakota (SD)



Overall Reporting Trends



Over a ten-year period, South Dakota's state and local health departments reported 22 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 14 were solved, including 8 outbreaks affecting only South Dakota residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 8 outbreaks affecting the residents of South Dakota. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

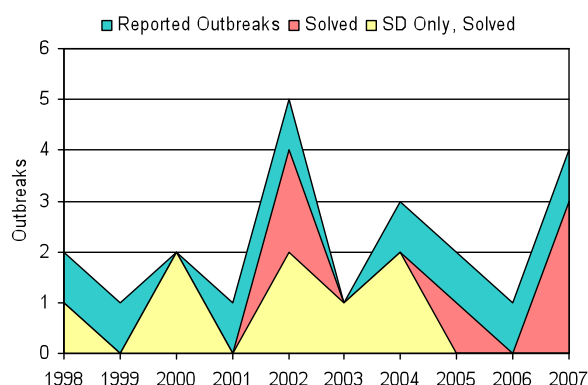
Pathogen	Number of Outbreaks
Norovirus	3
Salmonella	1
Clostridium	1
Campylobacter	1
Sapovirus	1
Staphylococcus	1

The most common pathogen implicated for food-related outbreaks in South Dakota was Norovirus, 3 outbreaks (38%).

Trends in Reported & Solved Outbreaks

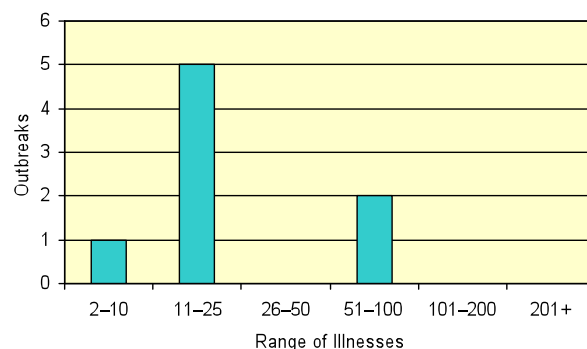
In 2007, South Dakota reported 22 outbreaks to the CDC, or 5 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2002 (5). The median number of reported outbreaks was 3 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

Sixty-three percent of South Dakota's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.

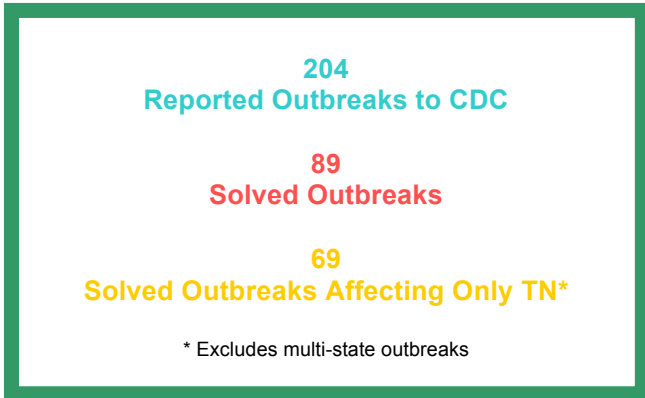


Outbreak Reporting from the States: Foodborne-Illness Outbreaks from 1998 to 2007

Tennessee (TN)



Overall Reporting Trends

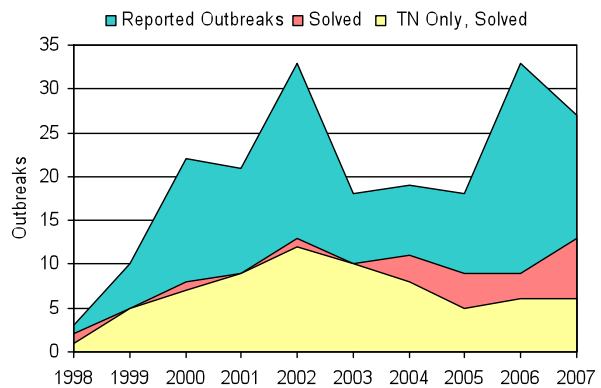


Over a ten-year period, Tennessee's state and local health departments reported 204 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 89 were solved, including 69 outbreaks affecting only Tennessee residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

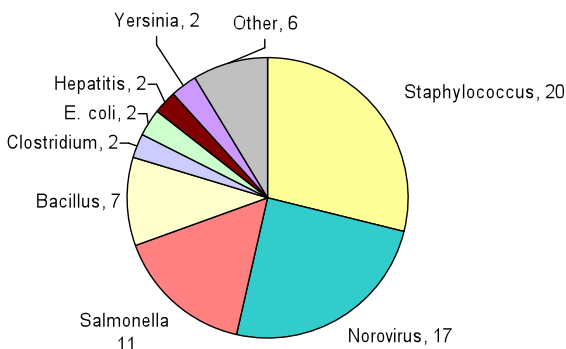
In 2007, Tennessee reported 27 outbreaks to the CDC, or 4 reported outbreaks per 1 million population. That year represents an above average reporting year. The peak reporting years were 2002 (33) and 2006 (33). The median number of reported outbreaks was 3 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



~The following analyses use only the 69 outbreaks affecting the residents of Tennessee. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

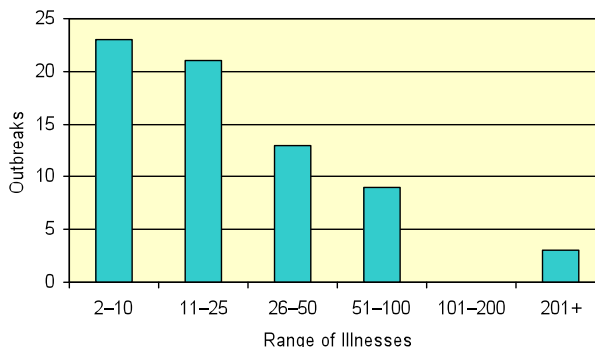
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Tennessee was *Staphylococcus*, 21 outbreaks (30%), followed by *Norovirus*, 17 outbreaks (25%).

Outbreak Size

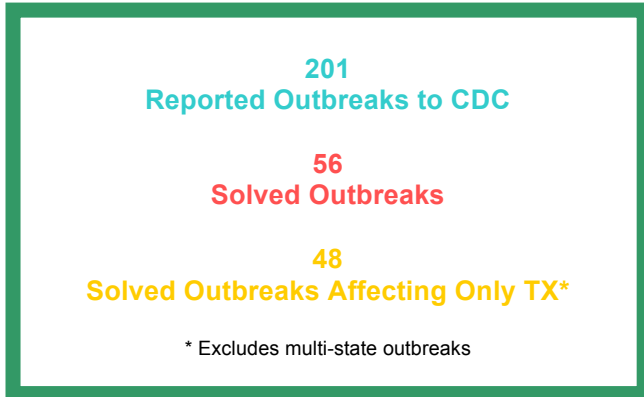
Sixty-three percent of Tennessee's outbreaks affected between 2 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Texas (TX)



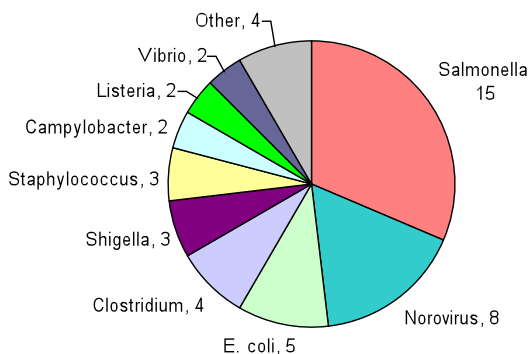
Overall Reporting Trends



Over a ten-year period, Texas's state and local health departments reported 201 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 56 were solved, including 48 outbreaks affecting only Texas residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 48 outbreaks affecting the residents of Texas. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

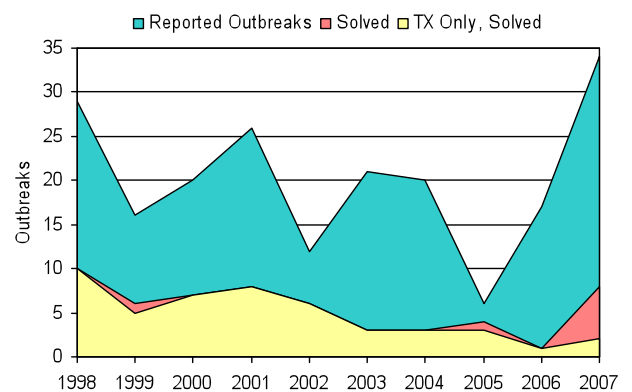


The most common pathogen implicated for food-related outbreaks in Texas was *Salmonella*, 15 outbreaks (31%), followed by *Norovirus*, 8 outbreaks (17%).

Trends in Reported & Solved Outbreaks

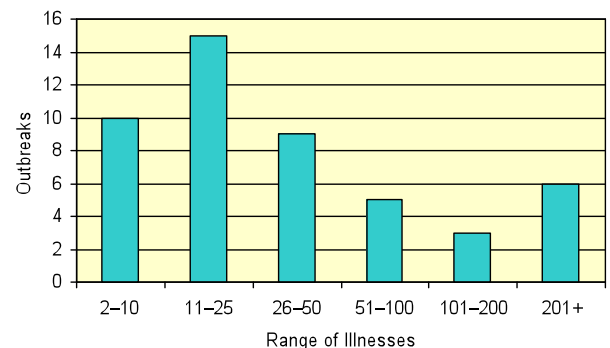
In 2007, Texas reported 34 outbreaks to the CDC, or only 1 reported outbreak per 1 million population. That year represents a peak reporting year, as does 1998 (29). The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

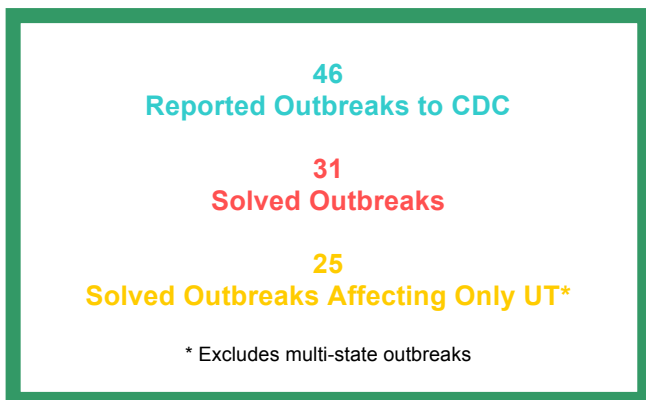
Thirty-one percent of Texas's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Utah (UT)



Overall Reporting Trends

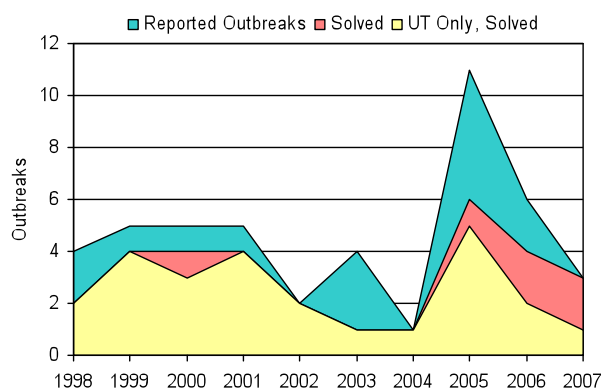


Over a ten-year period, Utah's state and local health departments reported 46 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 31 were solved, including 25 outbreaks affecting only Utah residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

Trends in Reported & Solved Outbreaks

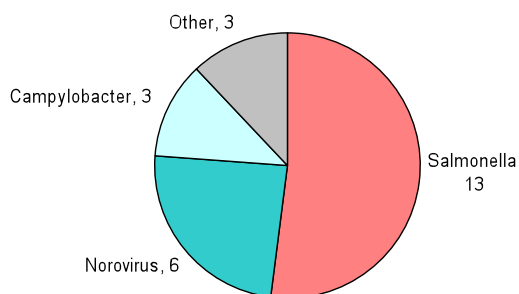
In 2007, Utah reported 3 outbreaks to the CDC, or only 1 reported outbreak per 1 million population. During the peak reporting year of 2005 (11), Utah reported almost four times that number of outbreaks. The median number of reported outbreaks was 2 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



~The following analyses use only the 25 outbreaks affecting the residents of Utah. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

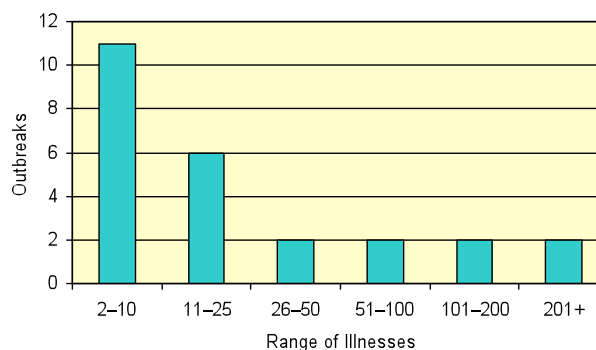
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Utah was *Salmonella*, 13 outbreaks (52%), followed by *Norovirus*, 6 outbreaks (24%).

Outbreak Size

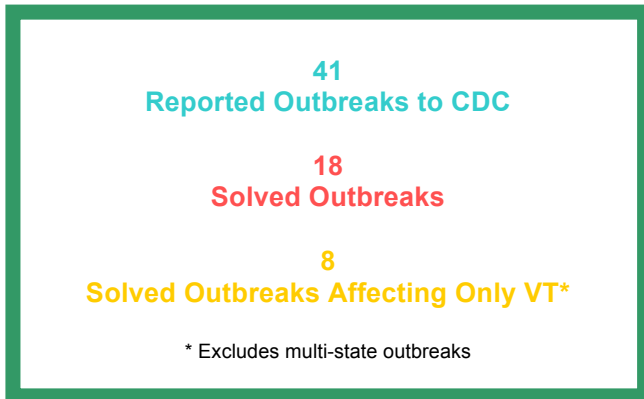
Forty-four percent of Utah's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Vermont (VT)



Overall Reporting Trends



Over a ten-year period, Vermont's state and local health departments reported 41 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 18 were solved, including 8 outbreaks affecting only Vermont residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 8 outbreaks affecting the residents of Vermont. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

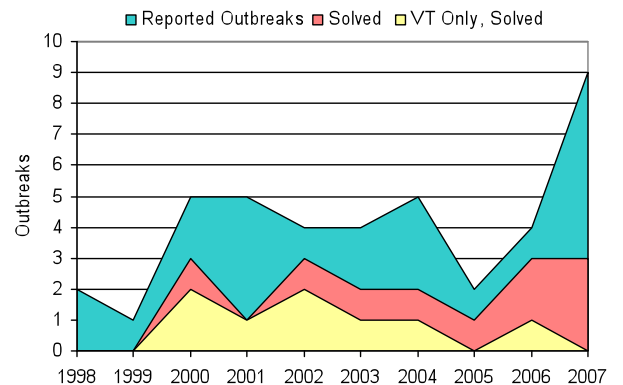
Pathogen	Number of Outbreaks
<i>Salmonella</i>	5
<i>Cyclospora</i>	1
<i>Clostridium</i>	1
<i>Campylobacter</i>	1

The most common pathogen implicated for food-related outbreaks in Vermont was *Salmonella*, 5 outbreaks (63%).

Trends in Reported & Solved Outbreaks

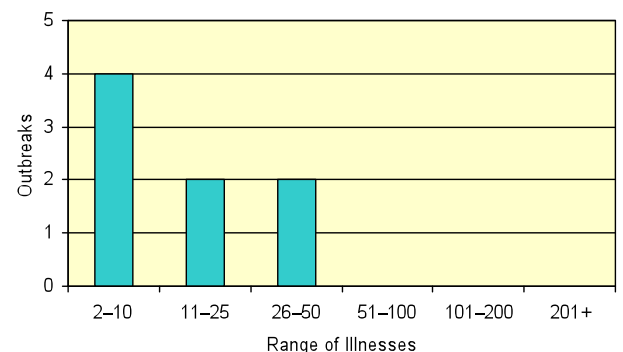
In 2007, Vermont reported 9 outbreaks to the CDC, or 14 reported outbreaks per 1 million population. That year represents a peak reporting year. The median number of reported outbreaks was 6 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

Fifty percent of Vermont's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.

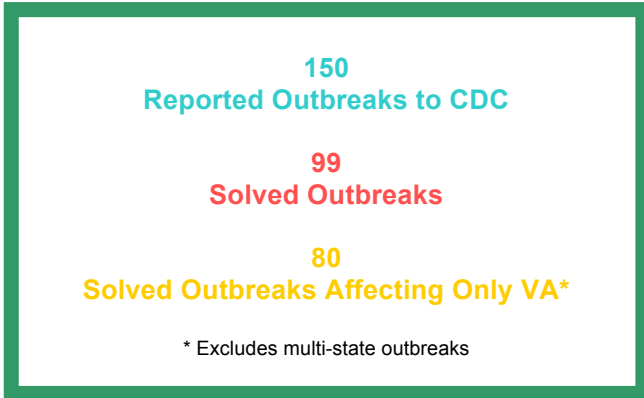


Outbreak Reporting from the States: Foodborne-Illness Outbreaks from 1998 to 2007

Virginia (VA)



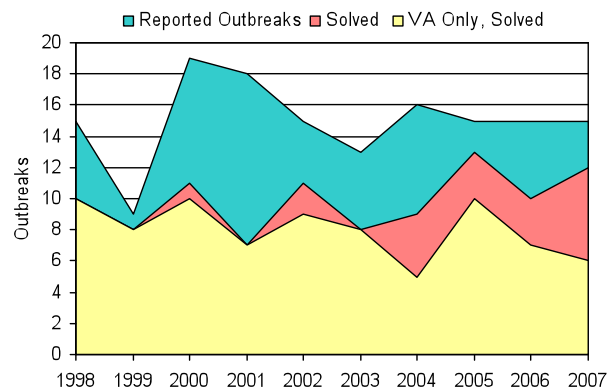
Overall Reporting Trends



Trends in Reported & Solved Outbreaks

In 2007, Virginia reported 15 outbreaks to the CDC, or only 2 reported outbreaks per 1 million population. That year represents an average reporting year. The peak reporting years were 2000 (19) and 2001 (18). The median number of reported outbreaks was 2 per 1 million population over the ten-year period.[§]

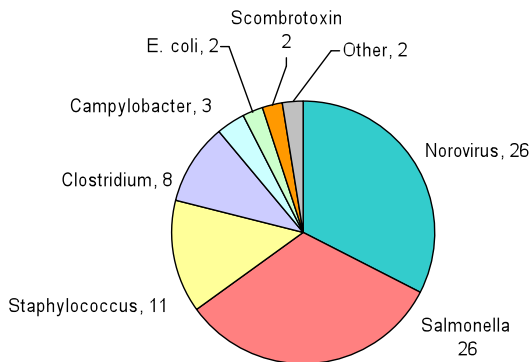
[§]See the US map in Figure 2



Over a ten-year period, Virginia's state and local health departments reported 150 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 99 were solved, including 80 outbreaks affecting only Virginia residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 80 outbreaks affecting the residents of Virginia. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

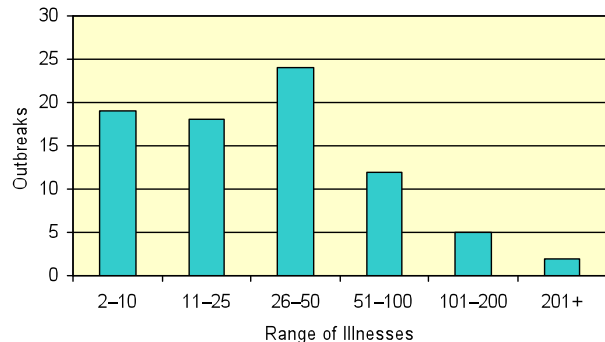
Pathogens Implicated in Outbreaks



The most common pathogens implicated for food-related outbreaks in Virginia were Norovirus and *Salmonella*, both with 26 outbreaks (33% each), followed by *Staphylococcus*, 11 outbreaks (14%).

Outbreak Size

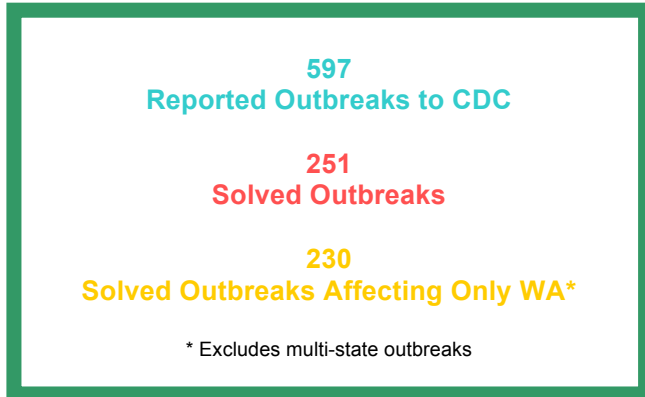
Thirty percent of Virginia's outbreaks affected between 26 and 50 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Washington (WA)



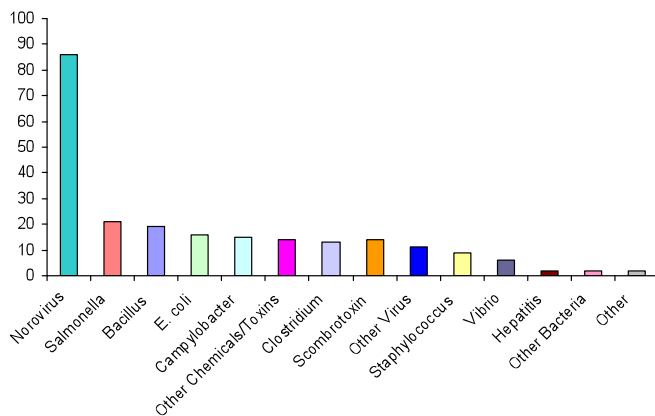
Overall Reporting Trends



Over a ten-year period, Washington's state and local health departments reported 597 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 251 were solved, including 230 outbreaks affecting only Washington residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 230 outbreaks affecting the residents of Washington. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

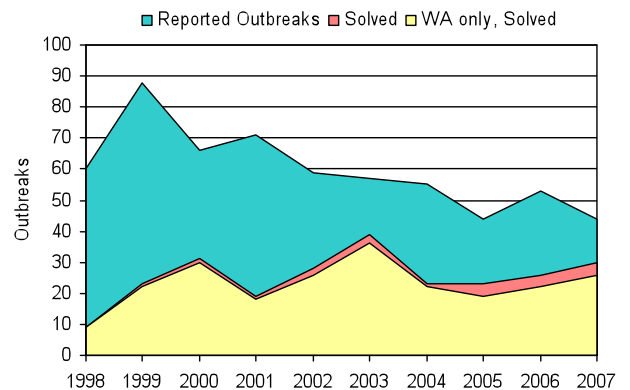


The most common pathogen implicated for food-related outbreaks in Washington was Norovirus, 86 outbreaks (37%), followed by *Salmonella*, 21 outbreaks (9%).

Trends in Reported & Solved Outbreaks

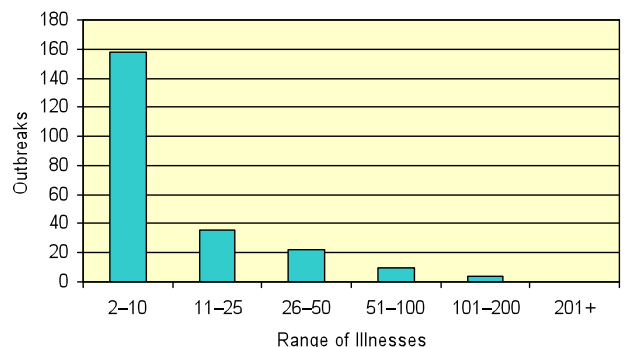
In 2007, Washington reported 44 outbreaks to the CDC, or 7 reported outbreaks per 1 million population. That year represents a low reporting year. During the peak reporting year of 1999 (88), Washington reported twice that number of outbreaks. The median number of reported outbreaks was 9 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

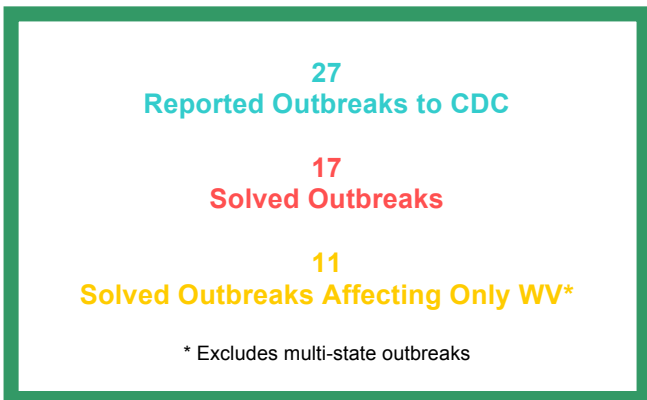
Sixty-nine percent of Washington's outbreaks affected between 2 and 10 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



West Virginia (WV)



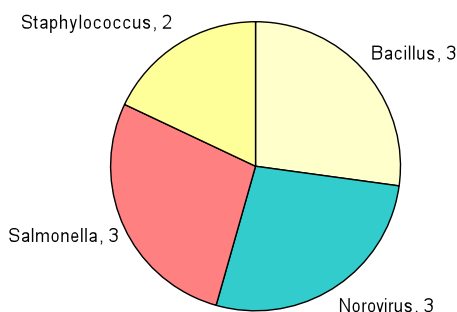
Overall Reporting Trends



Over a ten-year period, West Virginia's state and local health departments reported 27 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 17 were solved, including 11 outbreaks affecting only West Virginia residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 11 outbreaks affecting the residents of West Virginia. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

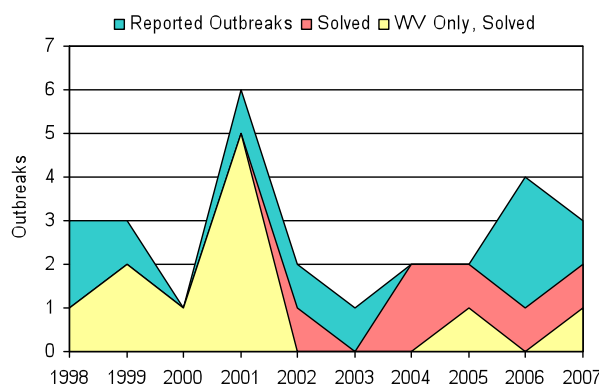


The most common pathogens implicated for food-related outbreaks in West Virginia were *Bacillus*, *Norovirus*, and *Salmonella*, all with 3 outbreaks (27% each).

Trends in Reported & Solved Outbreaks

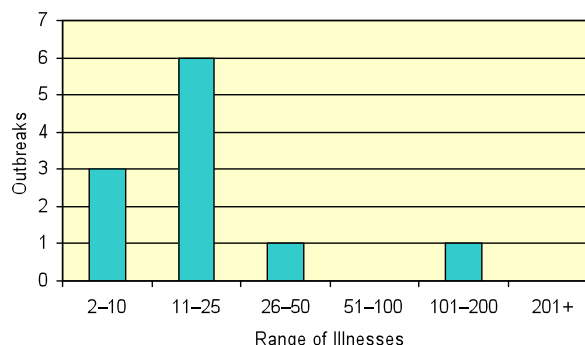
In 2007, West Virginia reported 3 outbreaks to the CDC, or only 2 reported outbreaks per 1 million population. During the peak reporting year of 2001 (6), West Virginia reported twice that number of outbreaks. The median number of reported outbreaks was 1 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



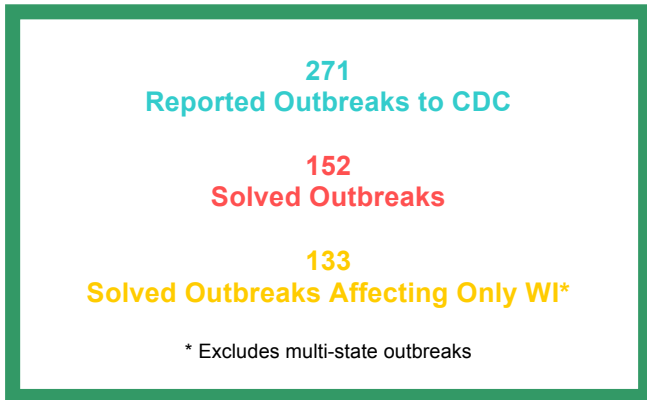
Outbreak Size

Fifty-five percent of West Virginia's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.





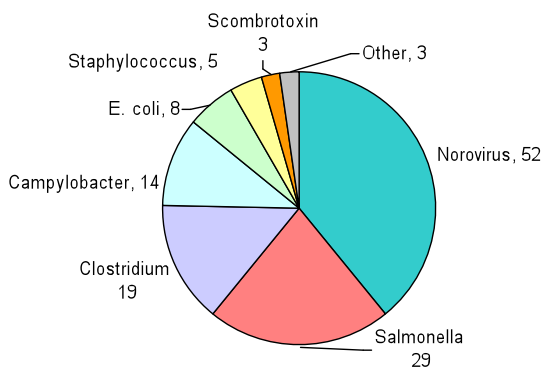
Overall Reporting Trends



Over a ten-year period, Wisconsin's state and local health departments reported 271 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 152 were solved, including 133 outbreaks affecting only Wisconsin residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 133 outbreaks affecting the residents of Wisconsin. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

Pathogens Implicated in Outbreaks

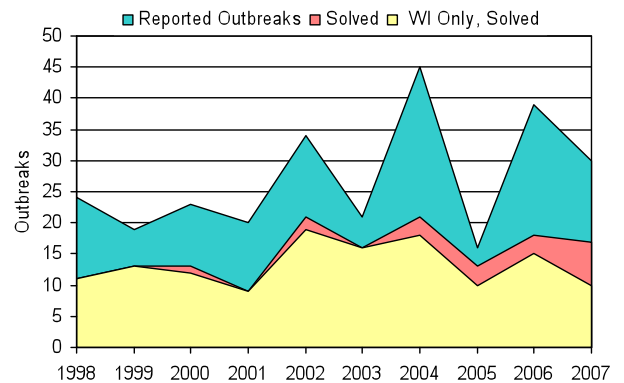


The most common pathogen implicated for food-related outbreaks in Wisconsin was Norovirus, 52 outbreaks (39%), followed by *Salmonella*, 29 outbreaks (22%).

Trends in Reported & Solved Outbreaks

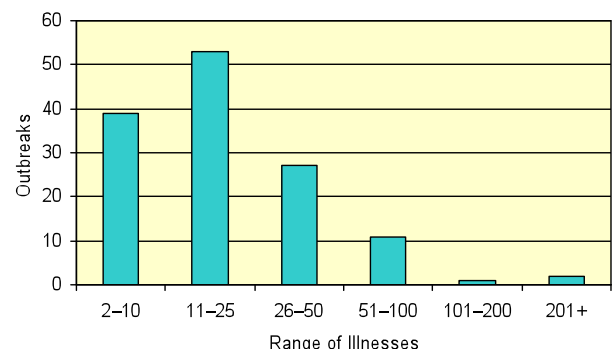
In 2007, Wisconsin reported 30 outbreaks to the CDC, or 5 reported outbreaks per 1 million population. That year represents an average reporting year. During the peak reporting years of 2004 (45) and 2006 (39), Wisconsin reported 30% more outbreaks. The median number of reported outbreaks was 4 per 1 million population over the ten-year period.[§]

[§]See the US map in Figure 2



Outbreak Size

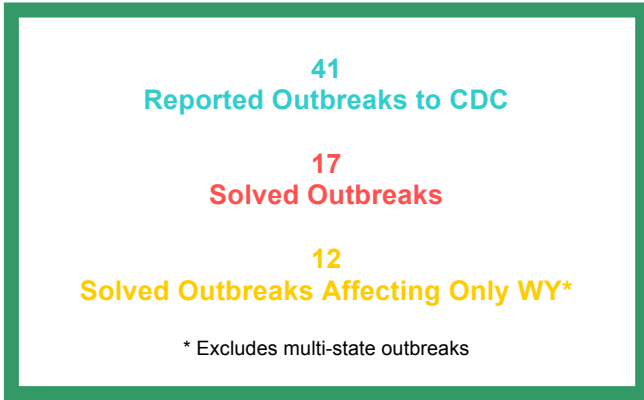
Forty percent of Wisconsin's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Wyoming (WY)



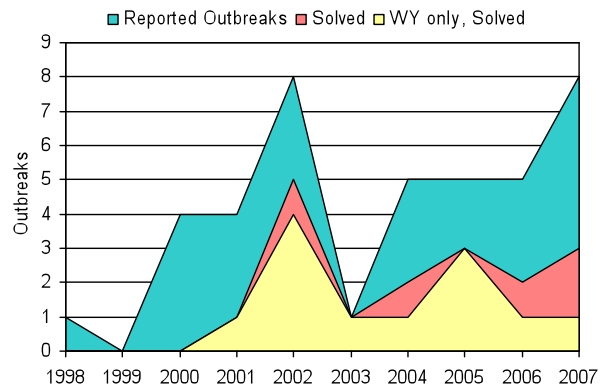
Overall Reporting Trends



Trends in Reported & Solved Outbreaks

In 2007, Wyoming reported 8 outbreaks to the CDC, or 15 reported outbreaks per 1 million population. That year represents a peak reporting year, as does 2002 (8). The median number of reported outbreaks was 9 per 1 million population over the ten-year period.[§]

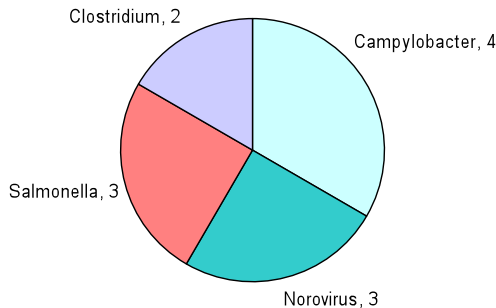
[§]See the US map in Figure 2



Over a ten-year period, Wyoming's state and local health departments reported 41 outbreaks to the Centers for Disease Control and Prevention (CDC). Of the reported outbreaks, 17 were solved, including 12 outbreaks affecting only Wyoming residents. "Solved" outbreaks - those where both a pathogen and a food source are identified - represent a minority of most states' reported outbreaks. Solved outbreaks are the most valuable in terms of providing information to help prevent future illnesses. Rapid identification of the contaminated food source can enable states to quickly alert consumers and implement a food recall, thereby decreasing the public health impact.

~The following analyses use only the 12 outbreaks affecting the residents of Wyoming. These outbreaks best reflect the capacity and effectiveness of the state in investigating outbreaks.~

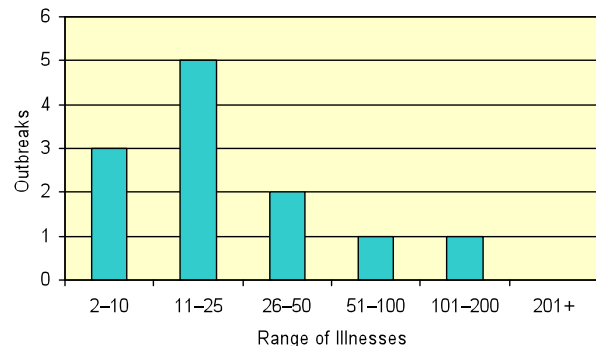
Pathogens Implicated in Outbreaks



The most common pathogen implicated for food-related outbreaks in Wyoming was *Campylobacter*, 4 outbreaks (33%), followed by *Norovirus* and *Salmonella*, both with 3 outbreaks (25% each).

Outbreak Size

Forty-two percent of Wyoming's outbreaks affected between 11 and 25 people. Outbreak size might indicate the emphasis a state places on investigating smaller outbreaks, which can affect the speed with which a state identifies contaminated food and removes it from commerce, or it might indicate a more limited food source.



Endnotes

Blum, A., Briggs, E., Brown, D., Leep, C., Shah, G., & Willard, R. (2010, May). *Local Health Department Job Losses and Program Cuts: Findings from January/February 2010 Survey* [Research Brief]. Retrieved from National Association of County & City Health Officials website: <http://www.naccho.org/topics/infrastructure/lhdbudget/index.cfm>

Green L.R., Selman C., Scallan E., Jones T.F., Marcus R, et al. (2005, November). Beliefs about Meals Eaten Outside the Home as Sources of Gastrointestinal Illness. *Journal of Food Protection*, 68 (10), 2184-2189.

Li, J., Smith, K., Kaehler, D., Everstine, K., Rounds, J., & Hedberg, C. (2010, November). Evaluation of a Statewide Foodborne Illness Complaint Surveillance System in Minnesota, 2000 through 2006. *Journal of Food Protection*, 73 (11), 2059-2064(6).

TFAH. *Shortchanging America's Health A State-by-State Look at How Public Health Dollars Are Spent* [Report]. (2010, March). Retrieved from Trust for America's Health website: <http://healthyamericans.org/report/74/federal-spending-2010>

