

COMMUNICABLE DISEASE OUTBREAKS — 2017

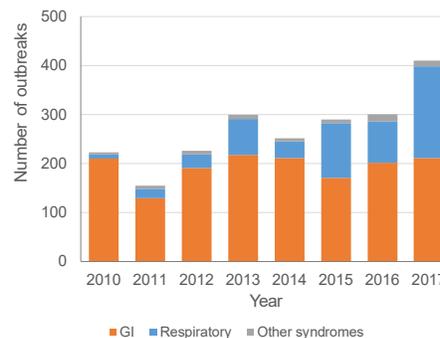
An outbreak of disease can be defined as two or more cases of the same illness linked by a plausible common exposure. Outbreaks of any illness are reportable to public health officials in Oregon for one simple reason: we want to identify the cause of the outbreak so that appropriate interventions (e.g. food item recall; vaccination of susceptible contacts) can be implemented to prevent additional cases. This *CD Summary* reviews outbreaks reported to Oregon public health officials in 2017, and highlights notable outbreaks.

OUTBREAK OVERVIEW

Outbreaks can be classified in a variety of ways: by clinical manifestations, such as gastrointestinal (GI) or respiratory; by etiology, such as viral or bacterial; or by mode of transmission, such as foodborne, waterborne, person-to-person, contact with animals, vector-borne, etc. For public health purposes, we roughly follow this hierarchy: 1) divide outbreaks into GI, respiratory (or other such as blood-borne or vector-borne, but these are much less common); 2) identify the pathogen; 3) determine the predominant mode(s) of transmission (many outbreaks may start as a point source, but then are later spread by person-to-person—these require different prevention strategies).

We hear about outbreaks in several ways: affected people may report directly to their health departments, health care professionals may report clusters of patients with similar illnesses, or the Oregon State Public Health Laboratory may discern related microbial etiologies by pathogen subtyping methods. Each of these potential outbreaks gets followed up quickly to hopefully intervene in time to prevent more people from getting sick.

Figure 1. Number of outbreaks by year, Oregon, 2010–2017



2017 BY THE NUMBERS

In 2017, 410 outbreaks of communicable disease were reported in Oregon — a record high, and 35% higher than the 303 outbreaks reported during 2016. Figure 1 shows outbreaks reported annually in Oregon since 2010, by syndrome. While the number of report GI outbreaks appears to be rather stable, 2017 saw an eruption of respiratory outbreaks, primarily caused by influenza; more on this below. Most outbreaks were reported during December and January — reflecting the peak of the influenza season (Figure 2).

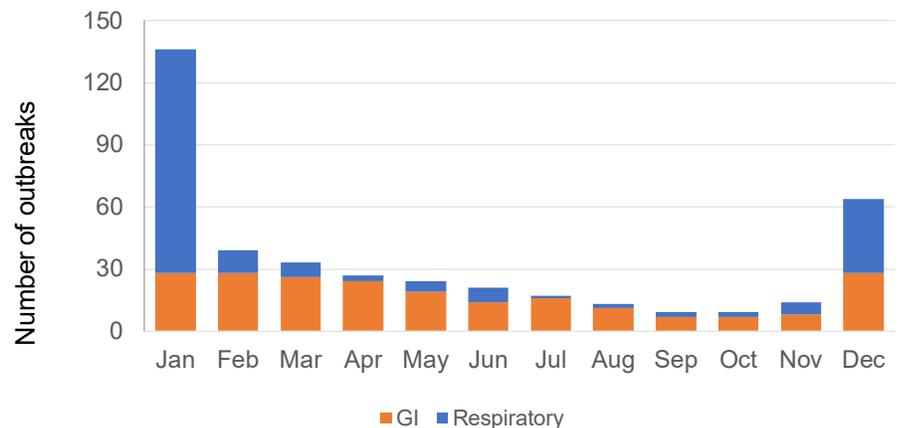
Gastrointestinal outbreaks. A slim majority of reported outbreaks were of gastrointestinal disease: 210 (51%). As

usual, norovirus was the predominant etiologic agent of the GI outbreaks, causing 138 (64%) of 210, followed by *Salmonella* 12 (6%), and STEC 4 (2%). Norovirus genogroup II (GII) was the predominant strain (40%). Among the 23 foodborne outbreaks, *Salmonella* was the causative agent for 10 (43%), followed by norovirus (9 [39%]) (Figure 3, verso).

Respiratory outbreaks. Respiratory illness caused 186 (45%) outbreaks. Of these, influenza was the overwhelmingly predominant etiology, causing 151 (81%) of them. These 151 influenza outbreaks involved at least 1,743 ill persons. This is a marked uptick from the 60 influenza outbreaks reported during 2016. Of the 2017 influenza outbreaks, influenza A accounted for 120 (79%) and influenza B for 21 (14%). Six outbreaks (4%) included both influenza A and B, and for 4 (3%) no typing information was available. Viral strains from only 29 (24%) of the 120 influenza A outbreaks were subtyped; of these, influenza H3 accounted for 27 and H1N1 for 2.

Most of the reported influenza outbreaks were in long-term care facilities (134; 89%), followed by schools (3%).

Figure 2. Number of outbreaks by month and syndrome, Oregon, 2017



Most of the affected long-term care facility residents were vaccinated. But unfortunately, CDC subsequently estimated the overall effectiveness of the 2017–2018 influenza vaccine at only 36%, and against the strain that dominated in these outbreaks — A/H3 — at only 25%. Influenza outbreak control efforts included recommendations for antiviral prophylaxis for all residents of affected long-term care facilities, regardless of vaccination status.

Other respiratory outbreaks in 2017 were due to pertussis (N=13), mumps (N=2), and respiratory syncytial virus (N=3).

NOTABLE OUTBREAKS

Last year, we reported an outbreak of serogroup B meningococcal disease among Oregon State University students. We are happy to report that no new cases have been reported there since November 2017.

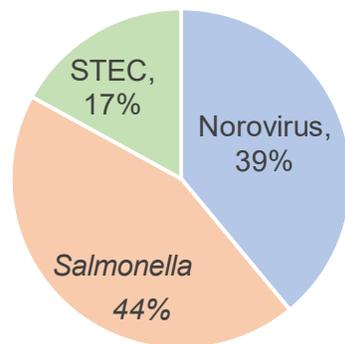
Tuna Trouble

In July 2017, a cluster of *Salmonella* Paratyphi B var Java was identified, with 3 cases from 2 counties with identical pulsed-field gel electrophoresis (PFGE) patterns. Gradually, the number of cases increased, and 5 PFGE-matched cases were identified in Washington State. The leading hypothesis was sushi. By September, this turned out to be a multistate cluster with 35 cases in 7 states. Onset dates ranged from April 16 – October 18; ages ranged from 1–64 (median, 34) years and 34% of case-patients were female. An epidemiologic investigation found sushi and fresh tuna to be associated with illness; a product traceback investigation implicated undercooked Newport brand tuna loin* imported from Indonesia. *Salmonella* was recovered from tuna samples, but it differed from the outbreak strain. The company voluntarily recalled the implicated tuna.

Polypathogen pig?

In January 2017, several persons fell ill with GI symptoms after a Christmas family gathering in Clackamas County. Roasted pig had been served at the gathering. Among those who sought medical care, two had positive stool cultures: one for *Salmonella* serotype Saintpaul, and another for *Salmonella* serotype I 4,5,12:i:-. Unfortunately, none of the roasted pig remained for testing. However, the antibiotic resistance pattern from this

Figure 3. Etiology of 2017 food-borne GI outbreaks, Oregon



outbreak was similar to that of a previous *Salmonella* Typhimurium outbreak associated with whole pig.

E. coli O157 in nut butter

A multistate outbreak of *E. coli* O157 infection linked to I.M. Healthy Brand SoyNut butter affected 32 people in 12 states; Oregon contributed 11 cases. The median age for this outbreak was 9 years, with a range of 1–70 years. Twelve people (38%) were hospitalized, and 9 (28%) developed hemolytic uremic syndrome. Twenty-five (78%) of the 32 cases reported having eaten I.M. Healthy brand SoyNut Butter, or granola coated with SoyNut Butter, at home or in a child-care center in the week before they became ill. Several products were recalled as a result of this investigation.²

Salmonella in coconut

In March 2017, CDC notified us that an Oregon case of *Salmonella* serotype Chailey infection—a rare serotype—was part of a multistate cluster; ultimately, 14 related cases were confirmed from 7 states and 5 from Canada. The onset dates ranged from March 10 to May 7, 2017. Cases ranged from 1 to 78 (median, 57) years of age; 5 were female. Two were hospitalized; none died. Nine cases (75%) shopped at Whole Foods, and 60% of those who could recall reported exposure to pre-cut coconut. All the Canadian cases reported shopping at Whole Foods, and 4 of 5 reported exposure to pre-cut coconut from Whole Foods. Traceback investigation converged upon imported coconut from a single lot.³

Pertussis outbreaks

Thirteen pertussis outbreaks were reported in 2017 — all but two of them in schools.

Pertussis 2018: Pertussis incidence has been up in Oregon during 2018, with 380 cases reported to date this year. As usual, the incidence among

infants has been highest (66/100,000), followed by incidence among those 10–19 years of age (38/100,000). We are noticing an increase in the relative burden among school-aged children and adolescents, who have accounted for 187 (50%) of this year's cases. Seven outbreaks have been reported, almost all occurring in schools. Lane County has been hardest hit: 211 cases this year in a community-wide outbreak. Previously published Oregon data have demonstrated that even during an epidemic year, the risk of pertussis is higher among the unvaccinated.⁴ This is a good reminder to make sure all your patients (particularly school-aged kids) are up-to-date on their vaccinations.

Measles in 2018

After a measles-free 2016 and 2017, five cases of measles have been reported to date in Oregon during 2018. Two were imported, and another 3 were linked to importations. The median age of cases has been 23 years (range, teens to 40s).

Since 2004, 28 cases of measles have been reported in Oregon; 15 of these were imported and the remaining 13 were linked to imported cases. Cases ranged in age from <1 to 49 years. Eighteen cases were unvaccinated, six were vaccinated, the vaccination status of three could not be documented, and the infant was too young to be vaccinated. Being vaccinated against measles is highly protective; fortunately, most Oregonians are. Please do your best to keep it that way!

A big thank you to all our reporters. Please continue to report outbreaks to your local health department. For more information, visit <http://healthoregon.org/outbreaks>.

REFERENCES

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4. Liko J, Robison SG, Cieslak PR. Pertussis vaccine performance in an epidemic year—Oregon, 2012. *Clin Infect Dis* 2014; 59:261–3.

* Who knew that tuna had loins?



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