

COVID-19 Outbreaks in Washington State Agriculture and Food Manufacturing Settings

Data Overview from March 1, 2020 - December 31, 2020

Washington State Department of Health

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Health

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Overview

Agriculture production and food processing industries are essential to Washington State's economy. In 2019, Washington agriculture production totaled 9.49 billion dollars and food processing generated more than 21.8 billion dollars in revenues. Additionally, more than 164,000 jobs are provided by Washington's agriculture and food producing industries.¹ Additional information can be found at [Washington State's Department of Agriculture website](#).

Since the start of the COVID-19 pandemic, Washington's agriculture and food manufacturing communities have been impacted by COVID-19 outbreaks. While public health agencies, employers, and employees have worked to prevent the spread of the virus, understanding the burden of disease among these workers can help local health jurisdictions, state agencies, and partners prioritize future plans and response.

This report describes COVID-19 outbreaks in agriculture and food manufacturing settings in Washington State with an estimated start date between March 1, 2020 and December 31, 2020. Agriculture and food manufacturing settings include the following, grouped into three subcategories: agricultural, employer-provided housing, and produce packing areas; animal production and products settings; and food manufacturing settings.

The Washington State Department of Health (DOH) considers a COVID-19 outbreak in these settings and other non-healthcare congregate settings when the following criteria have been met:

- There are two or more COVID-19 cases who tested positive by a [viral test](#), AND
- At least two cases have symptom onsets (or positive test specimen collection dates if asymptomatic) within 14 days of each other, AND
- Cases were epidemiologically linked in the congregate setting (e.g., case-patients share a work shift or building, or benefit from employee sponsored transportation or housing), AND
- There is no plausible epidemiological linkage suggesting transmission is more likely to have occurred in another setting (e.g., household) outside of the workplace.

The information in this report comes from COVID-19 test results and COVID-19 outbreaks reported by local health jurisdictions to DOH. The investigation of COVID-19 cases to confirm that an event meets Washington State's outbreak definition is time intensive. Therefore, the number of cases and outbreaks reported by a local health jurisdiction may change over time as outbreak details become available.

Additionally, while the outbreaks included in this report are associated with agriculture and food manufacturing settings, it can be difficult to determine if COVID-19 transmission occurred in the workplace. Agriculture and food manufacturing employees may live, socialize, commute, and work together. These connections can make it more challenging to identify where the virus was transmitted. Therefore, while cases are associated with a reported outbreak, this does not guarantee that the person infected directly contacted COVID-19 at the workplace.

This report will be updated when new data is available. Information from 2021 and 2022 will be added to the report after DOH finishes analyzing the data.

¹Washington State Department of Agriculture. (2021, March). *Washington Agriculture Snapshot* [Infographic]. <https://cms.agr.wa.gov/WSDAKentico/Documents/Pubs/641-WSDAAGInfographic-WEB.pdf?/641-WSDAAGInfographic-WEB>

Key Findings

- Agriculture and food manufacturing settings were among the first types of non-healthcare facilities to report COVID-19 outbreaks in 2020. Understanding the burden of disease among these workers can help local health jurisdictions, state agencies, and partners prioritize future plans and response.
- 240 COVID-19 outbreaks occurred in agriculture and food manufacturing settings between March 1, 2020 and December 31, 2020.²
- Most outbreaks (62.9%) in these settings occurred in agricultural, employer-provided housing, and produce packing settings.
- COVID-19 outbreaks in agriculture and food manufacturing settings made up 8.9% of all non-healthcare congregate settings outbreaks.
- The median COVID-19 outbreak size was 8 cases with outbreaks ranging from 2 to 371 cases.
- At least 4,410 cases were associated with these outbreaks.
- At least 148 of these cases were hospitalized and at least 21 people died.
- The median age of cases was 39 years, 52.8% of cases were male, and 81.1% were Hispanic.³

²This figure only includes outbreaks that were reported to DOH and may not capture all agriculture and food manufacturing outbreaks in Washington

³These statistics only include cases with complete information. Demographic information varied by outbreak setting

Overview of COVID-19 Outbreaks in Food and Agriculture Industry Settings

Non-healthcare congregate setting COVID-19 outbreaks are reported by setting type, grouped into the following four categories: service-providing industries, goods-producing industries, community, and government. The service-providing category includes outbreaks in settings like childcare, schools, restaurants, retail and grocery stores, and offices. The good-producing category includes outbreaks in manufacturing facilities, construction, and agriculture. The government category includes outbreaks in public safety, corrections and military settings, and the community category includes private gatherings, places of worship, and events. These four categories are further broken down to more descriptive subcategories.

Figure 1: Reported COVID-19 outbreaks in non-healthcare congregate settings in Washington State from March 1, 2020 to December 31, 2020

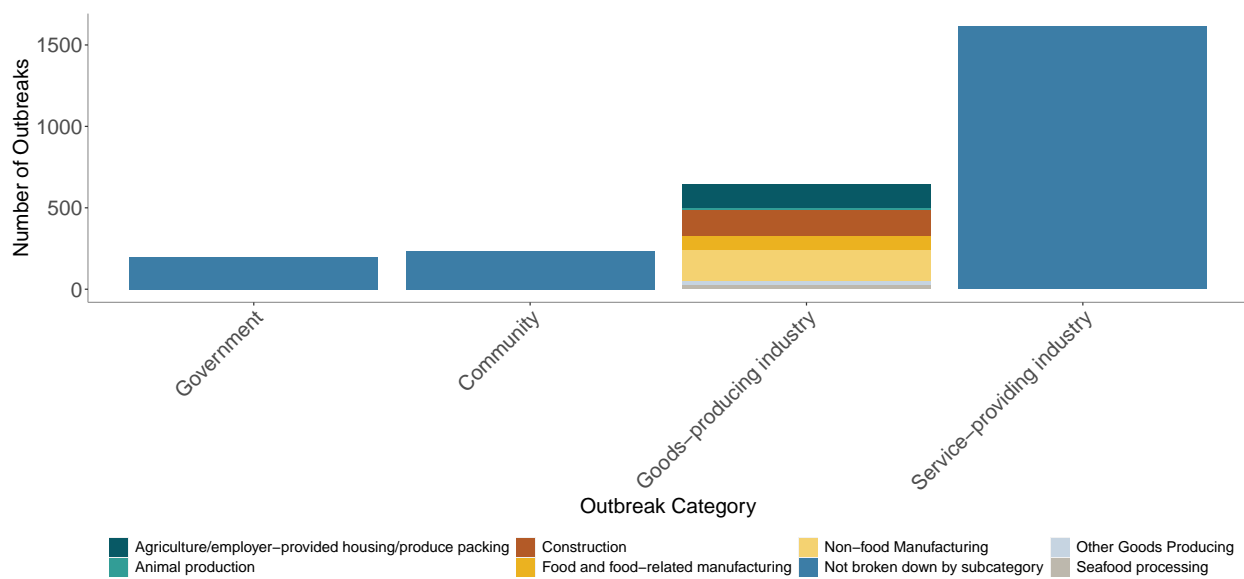


Figure 1 shows that COVID-19 outbreaks in agricultural, employer-provided housing, and produce packing areas made up 37.2% of outbreaks occurring in the “goods-producing industry” subcategory and 8.9% of the total number of outbreaks in non-healthcare congregate settings. The majority of outbreaks (62.9%) occurring in agriculture and food manufacturing settings were in agricultural, employer-provided housing, and produce packing settings.

Figure 2: Map of reported COVID-19 outbreaks in agricultural, employer-provided housing, and produce packing areas in Washington State from March 1, 2020 to December 31, 2020

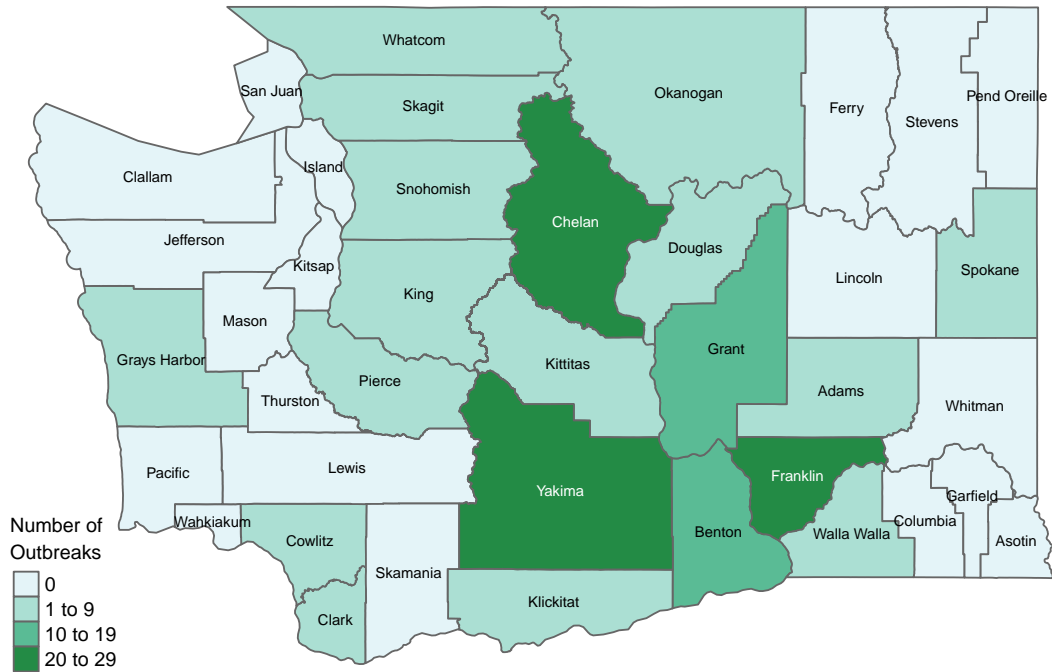


Figure 3: Map of reported COVID-19 outbreaks in food manufacturing settings in Washington State from March 1, 2020 to December 31, 2020

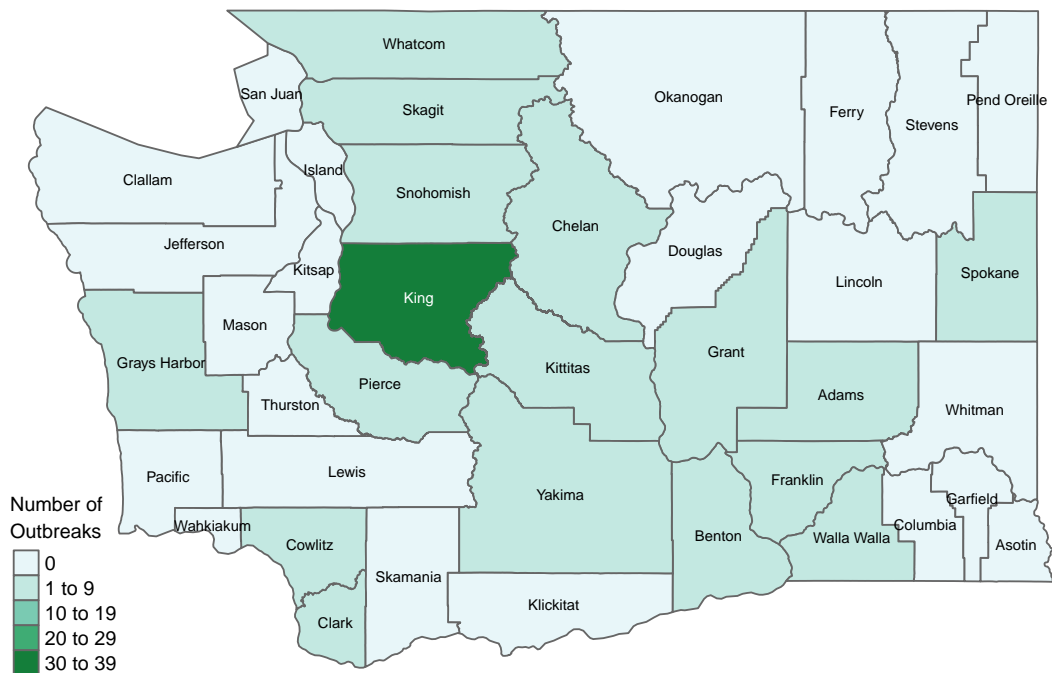
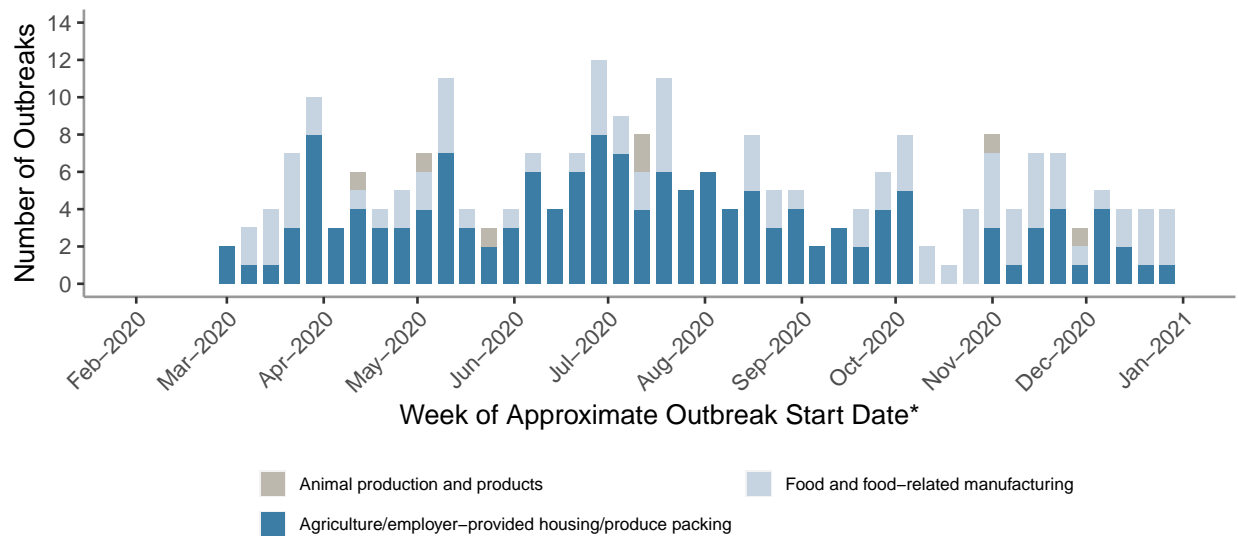


Figure 4: Weekly count of the 240 reported COVID-19 outbreaks in agriculture and food manufacturing settings between March 1, 2020 and December 31, 2020, broken down by subcategory



*Approximate outbreak start date is estimated using information including symptom onset dates, test dates, and the date the outbreak was reported to DOH

Agricultural and food manufacturing outbreaks made up a large proportion of overall outbreaks in the initial months of the COVID-19 pandemic in 2020. In March 2020, these outbreaks made up 22% of the reported non-healthcare congregate settings outbreaks, this percentage increased to 31% in April and May. As additional outbreaks were reported in other settings, the proportion of agriculture and food manufacturing outbreaks decreased. By June, agricultural and food manufacturing outbreaks made up 12% of outbreaks in non-healthcare congregate settings outbreaks.

Characteristics of COVID-19 Cases Associated with Outbreaks in Agriculture and Food Manufacturing Settings

Local health jurisdictions reported that 240 COVID-19 outbreaks occurred in agriculture and food manufacturing settings between March 1, 2020 and December 31, 2020. At least 4,410 cases were associated with these outbreaks, of these 148 cases were hospitalized and 21 cases died. The median age of cases was 39 years, 52.8% were male, and 81.1% were Hispanic.

Some cases may not have complete information available and the demographic data in this report should be interpreted with caution. For example, 16% of Washington’s agriculture and food manufacturing COVID-19 cases have missing data on race and ethnicity. This means the actual proportion of COVID-19 cases in Hispanic/Latinx people compared to the total population in Washington could be higher or lower.

Cases in Agricultural Employer-housing and/or Produce Packing Settings

Of the 240 reported agriculture and food manufacturing COVID-19 outbreaks, 151 outbreaks were in agricultural, employer-provided housing, and produce packing settings. Outbreaks in these settings made up 5.61% of all reported non-healthcare congregate settings outbreaks during this period. The median size of these outbreaks was 9 cases with outbreaks ranging from 2 to 371 cases per outbreak.

Among the 2,723 COVID-19 cases that were associated with these outbreaks, the median age was 37 years. Of these with complete information, 92% were Hispanic and 52% were male. At least 75 of these cases were hospitalized and at least 12 people died.

Table 1: Characteristics of cases associated with reported COVID-19 outbreaks in agricultural, employer-provided housing, and/or produce packing settings in Washington State from March 1, 2020 to December 31, 2020

	Agriculture/ Employer-provided Housing/Produce Packing Outbreak Cases (Percent)	All Washington State Cases (Percent)	Percent of Total WA Population
Race and Ethnicity			
Total Number of Cases	2,723 (100%)	264,097 (100%)	
Unknown Race/Ethnicity ¹	390 (14%)	56,228 (21%)	NA
Total with Race/Ethnicity Available²	2,333 (100%)	207,869 (100%)	
Hispanic	2,158 (92%)	64,332 (31%)	13%
White ³	133 (6%)	104,702 (50%)	68%
Other Race ³	20 (1%)	2,756 (1%)	NA
AIAN ⁴	<10 (<1%)	3,106 (1%)	1%
Asian ³	<10 (<1%)	12,259 (6%)	9%
Black ³	<10 (<1%)	12,132 (6%)	4%
Multiracial ³	<10 (<1%)	4,523 (2%)	4%
NHOPI ⁵	<10 (<1%)	4,059 (2%)	1%
Age			
0-19	106 (4%)	40,225 (15%)	25%
20-34	1,077 (40%)	81,148 (31%)	21%
35-49	950 (35%)	63,843 (24%)	19%
50-64	528 (19%)	48,030 (18%)	19%
65-79	60 (2%)	21,642 (8%)	13%
80+	<10 (<1%)	8,997 (3%)	4%
Unknown Age	<10 (<1%)	212 (0%)	NA
Sex			
Female	1,005 (37%)	130,026 (49%)	50%
Male	1,419 (52%)	126,115 (48%)	50%
Unknown Sex	299 (11%)	7,746 (3%)	NA
Hospitalizations			
Hospitalizations	75 (3%)	15,853 (6%)	NA
Deaths			
Deaths	12 (0%)	4,424 (2%)	NA

Note:

1 Percent is out of total cases

2 Race and ethnicity percentages are out of total cases with reported race/ethnicity

3 Non-Hispanic

4 Non-Hispanic American Indian or Alaska Native

5 Non-Hispanic Native Hawaiian or Other Pacific Islander

Cases in Food and Food-Related Manufacturing Settings

Of the 240 reported agriculture and food manufacturing COVID-19 outbreaks, 82 outbreaks were in food and food-related manufacturing settings. Outbreaks in these settings made up 3.04% of all reported non-healthcare congregate settings outbreaks during this period. The median size of reported outbreaks was 6.5 cases with outbreaks ranging from 2 to 287 cases per outbreak.

Among the 1,669 COVID-19 cases that were associated with these outbreaks, the median age was 42 years. Of the cases with complete race and ethnicity data, 61% were Hispanic and 54% of cases were male. At least 71 cases were hospitalized and fewer than 10 people died.

Table 2: Characteristics of cases associated with reported COVID-19 outbreaks in food and food-related manufacturing settings, Washington State 3/01/2020 - 12/31/2020

	Food and Food-Related Manufacturing Outbreak Cases (Percent)	All Washington State Cases (Percent)	Percent of Total WA Population
Race and Ethnicity			
Total Number of Cases	1,669 (100%)	264,097 (100%)	
Unknown Race/Ethnicity ¹	307 (18%)	56,228 (21%)	NA
Total with Race/Ethnicity Available²	1,362 (100%)	207,869 (100%)	
Hispanic	837 (61%)	64,332 (31%)	13%
White ³	216 (16%)	104,702 (50%)	68%
Asian ³	172 (13%)	12,259 (6%)	9%
NHOPI ⁴	70 (5%)	4,059 (2%)	1%
Black ³	30 (2%)	12,132 (6%)	4%
Other Race ³	18 (1%)	2,756 (1%)	NA
Multiracial ³	16 (1%)	4,523 (2%)	4%
AIAN ⁵	<10 (<1%)	3,106 (1%)	1%
Age			
0-19	61 (4%)	40,225 (15%)	25%
20-34	504 (30%)	81,148 (31%)	21%
35-49	523 (31%)	63,843 (24%)	19%
50-64	503 (30%)	48,030 (18%)	19%
65-79	77 (5%)	21,642 (8%)	13%
80+	<10 (<1%)	8,997 (3%)	4%
Sex			
Female	713 (43%)	130,026 (49%)	50%
Male	895 (54%)	126,115 (48%)	50%
Other	< 10 (<1%)	210 (0%)	NA
Unknown Sex	60 (4%)	7,746 (3%)	NA
Hospitalizations			
Hospitalizations	71 (4%)	15,853 (6%)	NA
Deaths			
Deaths	<10 (<1%)	4,424 (2%)	NA

Note:

1 Percent is out of total cases

2 Race and ethnicity percentages are out of total cases with reported race/ethnicity

3 Non-Hispanic

4 Non-Hispanic Native Hawaiian or Other Pacific Islander

5 Non-Hispanic American Indian or Alaska Native

Cases Associated with COVID-19 Reported Outbreaks in Animal Production and Products Settings

Of the 240 reported agriculture and food manufacturing COVID-19 outbreaks, 7 outbreaks were in animal production and products settings. Outbreaks in these settings made up 0.26% of all reported non-healthcare congregate settings outbreaks during this period. The median size of reported outbreaks was 3 cases with outbreaks ranging from 2 to 4 cases per outbreak.

Among the 18 cases that were associated with these outbreaks, the median age was 44 years. Of those with complete information, 83% were Hispanic. Fewer than 10 cases were hospitalized and fewer than 10 people died. Additional demographic data is not reported due to the small number of cases reported.

Methods and Definitions

Overview

Coronavirus disease 2019 (COVID-19) outbreak surveillance in Washington State is based upon local health jurisdictions reporting of COVID-19 outbreaks to DOH through the Washington Disease Reporting System (WDRS). Associated cases are also reported through WDRS. Data in this report comes from outbreak and case data in WDRS. DOH estimates an outbreak's start date, using symptom onset dates, test dates, and the date the outbreak was reported to DOH.

Definitions

Agriculture and Food Manufacturing Settings: This report describes COVID-19 outbreaks in agriculture and food manufacturing settings in Washington State. Agriculture and food manufacturing settings include the following, grouped into three subcategories: agricultural, employer-provided housing, and produce packing areas; animal production and products settings; and food manufacturing settings. Outbreaks in aquaculture and seafood processing facilities are reported separately and are not included in this report.

- **Agricultural, employer-provided housing, and produce packing settings** are establishments that grow crops, plants, vines, or trees and their seeds (e.g., grain farming, hay farming, grape vineyards, apple orchards, flowers, or nursery stock). Examples of agriculture establishments include farms, orchards, groves, greenhouses, and nurseries. Outbreaks in agricultural employer-provided housing and support activity settings are also included in this category. Employer-provided housing includes situations where workers are living in housing provided or secured by the person's employer (e.g., temporary farmworker housing). Support activities include establishments such as farm labor contractors and crew leaders, farm management services, or post-harvest crop activities (e.g., crop cleaning, sorting, grading, packing, or cooling).
- **Animal production and products settings** are establishments that raise or fatten animals for the sale of the animals or animal products (e.g., beef cattle ranching and farming, dairy cattle and milk production, or egg production). Examples of animal production establishments include ranches, farms, and feedlots.
- **Food and food-related manufacturing settings** are establishments that transform livestock and agricultural products into new products for consumption (e.g., fruit and vegetable preserving, animal slaughtering and processing, or bakery manufacturing). Examples of food manufacturing establishments include plants, factories, and mills.

COVID-19 Case: A case is defined as an individual who tested positive for COVID-19 by either molecular test (such as PCR) or antigen tests. Most antigen tests are rapid tests and provide results in approximately 15 minutes to 1 hour.

COVID-19 Hospitalization: A COVID-19 hospitalization is an individual identified as hospitalized in WDRS using either case investigation data or links with the Rapid Health Information Network (RHINO) records.

COVID-19 Death: COVID-19 deaths are reported to the state by health care providers, medical examiners or coroners, local health departments, or others to the official vital records database, Washington Health and Life Events System (WHALES). COVID-19 deaths included in this report are cases identified in WHALES where the cause of death was confirmed or suspected to have been COVID-19.

Non-healthcare Congregate Setting Outbreak: A non-healthcare workplace is considered to be experiencing a COVID-19 outbreak when the following criteria have been met:

- There are two or more COVID-19 cases who tested positive by a viral test, AND
- At least two cases have symptom onsets (or positive test specimen collection dates if asymptomatic) within 14 days of each other, AND
- Cases were epidemiologically linked in the congregate setting (e.g., case-patients share a work shift or building, or benefit from employee sponsored transportation or housing), AND
- There is no plausible epidemiological linkage suggesting transmission is more likely to have occurred in another setting (e.g., household) outside of the workplace.

Limitations to these data

The investigation of COVID-19 cases to confirm that an event meets Washington State's outbreak definition is time intensive. Therefore, the number of outbreaks and the number of cases associated with these outbreaks may change over time as outbreak details become available.

Accurately identifying and reporting cases associated with outbreaks can be challenging. People with a reported COVID-19 infection are more likely to have access to COVID-19 testing services, have symptoms, and/or be employed in a workplace that uses regular testing and/or screening testing during an outbreak event. COVID-19 infections may not be reported to DOH for several reasons. A person may not have received a COVID-19 test if they are unaware that they had an infection and did not seek out testing. Additionally, if a person is unable to access COVID-19 testing services, they may not have received a test despite being ill. People who use over-the-counter test kits and home-based tests that are not sent to a lab may not be reported to DOH. In addition, the sensitivity of these tests might be different from confirmed lab tests and some infections may not be detected.

These limitations result in an underreporting of COVID-19 cases. The amount of underreporting may differ depending on the severity of the person's illness and their ability to access testing resources. For example, testing and reporting of COVID-19 infections are more likely to occur when someone is severely ill, hospitalized, or dies. Testing is also more likely to occur when someone can easily get a COVID-19 test.

Because COVID-19 outbreak identification relies on accurate case identification, unreported cases can lead to an underreporting of outbreaks. Additionally, COVID-19 outbreak investigation can be complex, and some associated cases may not be identified or reported to DOH. For example, agriculture and food manufacturing employees may live, socialize, commute, and work together. These connections can make it more challenging to identify where the virus was transmitted. Finally, while cases in this report are associated with an outbreak, this does not guarantee that the person infected directly contacted COVID-19 at their workplace.