



Summary Report on Outbreaks and Exposure Settings for COVID-19 Cases in King County, WA November 23, 2020

Public Health interviews people with COVID-19 (cases) and investigates outbreaks in order to understand and describe the impact of the infection in King County and to inform disease prevention and control measures. During these interviews, public health investigators follow up with cases and contacts of cases, provide public health guidance to prevent further spread of illness, and refer cases and close contacts to services to help them adhere to isolation and quarantine measure and find COVID-19 testing. In order to identify how cases might have become infected, interviewers ask about activities during the 14 days before the onset of illness through 2 days before the onset of illness, which is the time period when a case would have been exposed to the virus (also called the exposure period). Interviewers ask about activities that are high risk for spreading the virus, such as contact in a group or crowded setting, activities in a closed indoor spaces and spaces with poor ventilation, and close contact with someone with COVID-19. We refer to these places and activities as exposure settings in this report.

The information we gather from these interviews tells us what types of activities and exposures people with COVID-19 have reported. However, we cannot always determine with certainty where or how someone acquired COVID-19 based on the information we collect. Many people have multiple activities where they could have been exposed to COVID-19. Sometimes people don't remember or want to share their activities with us, and it can be difficult to find common links across cases with many activities if they are not described in the same way. In addition, certain workplaces (like healthcare facilities and larger work sites) may detect and report outbreaks to Public Health more reliably than others, so reported outbreaks do not reflect a complete picture of all outbreaks or associated cases. For a subset of cases where there is a link to another case or outbreak, or only one suspected exposure setting, we designate a "most likely" source of infection.

In this report, we describe COVID-19 exposure settings based on our interviews and investigations during the course of the COVID-19 pandemic from February 28 through November 20, 2020.

Key Findings

Over the course of the COVID-19 response, we designated a most likely source of exposure for 72% of cases. We were unable to designate a most likely source of exposure for 13% of cases, and we were unable to interview 15% of cases.

In the early months of the pandemic, healthcare settings (primarily living or working in a long-term care facility) were the most common source of exposure for COVID-19 cases. Over time, the number of cases associated with healthcare settings has decreased while exposures in other community settings have increased.

Overall, community-based and social activities, household transmission, and essential worker status were the most common COVID-19 exposure settings reported. Twenty-nine percent of cases were among essential workers (based on occupations defined by American Civil Liberties Union ¹) including 17% among non-healthcare essential workers and 12% among healthcare workers.

In the last 60 days, 39% of cases reported participating during the 14 days prior to the onset of their illness in a variety of community activities and/or social gatherings such as get-togethers with family and friends, dinner parties, birthday and other celebrations, Halloween parties, and weddings, or visiting settings such as taverns, coffee shops, restaurants, retail businesses, and places of worship.

In the last 60 days, we designated cases as most likely exposed in a household setting (34%), at a non-healthcare worksite or place of employment (21%); at community or social gatherings (18%); and at a healthcare setting (9%). The number of cases whose most likely exposure was associated with out of state travel increased to 8% in September and 6% in October relative to 0-2% in April and May when travel restrictions were in place.

We defined an outbreak as two or more COVID-19 cases linked to a facility or event. Since the start of the pandemic, Public Health has identified 836 outbreaks. More than one quarter of the outbreaks occurred at long-term care facilities, with high rates of transmission and case fatality in the first months of the pandemic. We also identified outbreaks in 104 other healthcare settings, including 27 outbreaks at hospitals. Thirty-one percent of outbreaks occurred in non-healthcare workplaces, most frequently at manufacturing worksites such as construction, food-processing, and fishing industries with 117 outbreaks, followed by 83 outbreaks at food-service establishments.

Exposure settings vary by geography, age, and race and ethnicity reflecting different risk environments and activities across the community.

Overall, 66% of COVID-19 cases who were interviewed had close contact with another known or suspected COVID-19 case or were linked to an outbreak. Thirty-four percent of cases (34%) developed COVID-19 but didn't know they were exposed or in contact with someone with confirmed or suspected COVID-19 and were not linked to an outbreak.

Table of contents

- [Overview](#)
- [Settings with potential risk for transmission](#)
- [Most likely exposure settings](#)
- [Identified outbreaks](#)
- [Appendix](#)
- [Limitations](#)

Overview

We defined an outbreak as two or more individuals linked to a facility or event. We estimated the most likely source of exposure based on information from case interviews and outbreak investigations. In certain cases, multiple possible COVID-19 risk settings were present, and we were not able to determine if one setting was clearly higher risk than the others.

There were 37,482 cases reported as of November 20, 2020:

- 27,172 cases (72%) were linked to an outbreak, had a known close contact or had another most likely source of exposure designated. This includes:
 - 6,961 cases (26%) linked to an outbreak
 - 14,431 cases (53%) were not linked to an outbreak but had close contact with a known or suspected COVID-19 case
 - 5,780 cases (21%) reported only one potential exposure setting during their exposure period.
- 1,780 (5%) had 2 or more potential sources of exposure identified
- 2,933 cases (8%) had no potential source of exposure identified
- 5,597 cases (15%) were not able to be interviewed

An additional 1,226 cases are pending interview at the time of this report.

All potential exposure settings reported by COVID-19 cases

Many cases reported a variety of activities in settings that could pose a risk for exposure to COVID-19. In this section, we describe all the potential exposure settings for COVID-19 transmission that were reported by cases. For example, if a case reported that they ate at a food service establishment and also visited a long-term care facility during their exposure period, both settings are included. Note that it is often not possible to identify with certainty where the actual exposure occurred that led to infection for individual cases. Because each case can have more than one potential exposure the percentages exceed 100% in the table below (In the following section, we estimate a single “most likely” source of exposure).

All data below is limited to cases where at least one potential exposure setting was reported.

Most recent 60 days

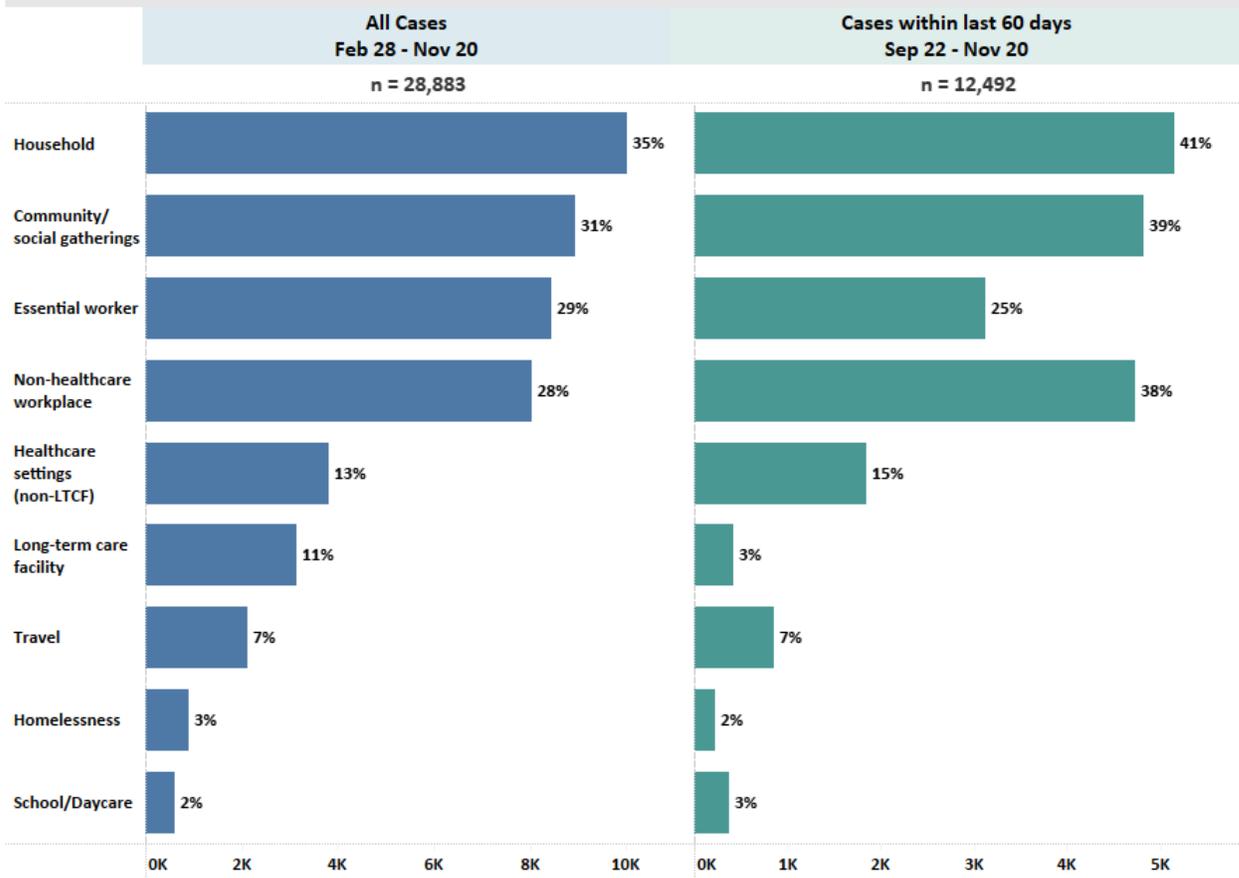
- 41% had a household exposure
- 39% of all cases reported one or more non-healthcare, non-workplace community exposures prior to illness onset. Specifically:
 - 24% reported social events with friends or family
 - 15% visited food-service establishments
 - 4% attended a place of worship
- 38% had a non-healthcare workplace exposure
 - 28% reported going to work during their exposure period
 - 5% were linked to an outbreak

- 5% reported close contact to a confirmed or suspected case in a non-healthcare workplace
- 25% of all cases are among essential workers. This category includes:
 - healthcare workers (32% of essential worker cases, 8% of all cases)
 - hospitality or service industry workers (34% of essential worker cases, 9% of all cases)
 - other essential workers (24% of essential worker cases, 8% of all cases)
- 15% reported visiting, working, living, or being a patient in a healthcare setting
- 3% of cases were associated with a long-term care facility
- 7% traveled out of state or internationally

All cases

- 35% had a household exposure
- 31% of all cases reported one or more non-healthcare, non-workplace community exposures prior to illness onset. Specifically:
 - 21% reported social events with friends or family
 - 10% visited food-service establishments
 - 3% attended a place of worship
- 29% of all cases are among essential workers. This category includes:
 - healthcare workers (42% of essential worker cases, 12% of all cases)
 - hospitality or service industry workers (31% of essential worker cases, 9% of all cases)
 - other essential workers (27% of essential worker cases, 8% of all cases)
- In March and April, healthcare workers comprised 20-25% of all cases. However, in the last two months, less than 8% of cases are among healthcare workers.
- 28% had a non-healthcare workplace exposure
 - 19% reported going to work during their exposure period
 - 4% were linked to an outbreak
 - 5% reported close contact to a confirmed or suspected case in a non-healthcare workplace
- 13% reported visiting, working, living, or being a patient in a healthcare setting
- 11% of cases were associated with a long-term care facility
- 7% traveled out of state or internationally

Figure 1: All potential exposure settings identified among COVID-19 cases in King County, WA



Categories are not mutually exclusive. An individual may appear in multiple categories if during their interview or investigation the setting was identified.

See figure 8 in appendix for tabular format.

Most likely exposure settings for COVID-19 cases

In this section, we estimated a most likely source of exposure based on information from case investigations. Note that is often not possible to identify with certainty where the actual exposure occurred that led to someone’s infection. Results are provided in the graph for all cases during the entire outbreak period and for the most recent 60 days.

Below is a summary of n=27,172 cases (representing 72% of all cases) where:

- 1) Investigators linked the case to a confirmed outbreak (e.g., in a healthcare setting, congregate living facility, workplace, social gathering, school, childcare, university, or other community setting)
- 2) Transmission was not linked to an outbreak but had close contact with a known or suspected COVID-19 case
- 3) Cases who reported only one potential exposure setting during their exposure period.

- 4) We excluded cases if we were unable to identify a potential source of exposure, or if cases were not interviewed. We also excluded cases if multiple potential sources of exposure were identified.

Most likely exposure designations among all cases in past 60 days

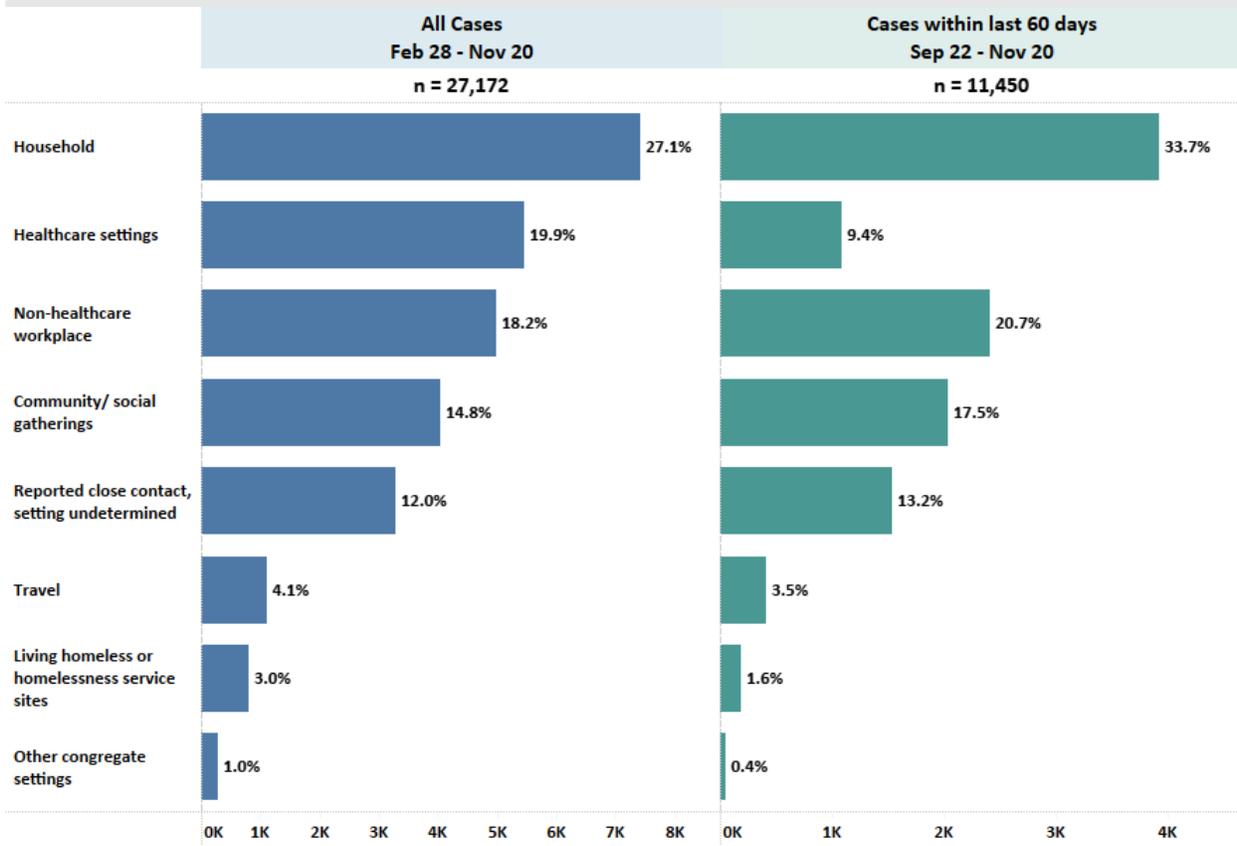
- 34% had an exposure within a household setting
- 21% had an exposure at a non-healthcare worksite or place of employment
- 18% had an exposure linked to a community setting or social gathering other than healthcare or workplace settings. These settings include get-togethers with family or friends, dinner parties, birthday and other celebrations, Halloween parties, weddings, and visiting food service establishments, retail locations, places of worship, and other venues.
- 13% had close contact with a COVID-19 case, but the setting was undetermined
- 9% had an exposure at a healthcare setting*
 - 3% were linked to an outbreak at a long-term care facility (LTCF); 2% among residents and 1% among healthcare workers
 - 3% had an exposure at a healthcare setting, and no other setting
 - 1% had close contact to a confirmed or suspected case in a healthcare setting
 - 1% were linked to an outbreak in non-LTCF healthcare setting
 - 1% were healthcare workers not linked to a healthcare facility outbreak

*Most likely exposure designations among all cases**

- 27% of all cases had an exposure within a household setting
- 20% of all cases had an exposure in a healthcare setting
 - 11% were linked to an outbreak at a long-term care facility (LTCF); 8% among residents and 4% among healthcare workers
 - 4% had an exposure at a healthcare setting, and no other setting
 - 3% were linked to an outbreak in non-LTCF healthcare setting
 - 2% had close contact to a confirmed or suspected case in a healthcare setting
 - 1% were healthcare workers not linked to a healthcare facility outbreak
- 18% had an exposure at a non-healthcare worksite or place of employment
- 15% had an exposure linked to a community setting or social gathering other than healthcare or workplace settings. These settings include get-togethers with family or friends, dinner parties, birthday and other celebrations, Halloween parties, weddings, and visiting food service establishments, retail locations, places of worship, and other venues.
- 12% had close contact with a COVID-19 case, but the setting was undetermined

*percentages are rounded up

Figure 2: Exposure setting among cases with a mostly likely source designated



Percentage excludes cases where a source of exposure was not identified or the case was lost to follow-up. Categories are mutually exclusive. For more complete definitions of the categories, see data dictionary below.

See figure 9 in appendix for tabular format.

Trends over time in most likely exposure settings

In the early months of the COVID-19 pandemic, most cases were among residents and staff with exposures to COVID-19 in long-term care facilities. As infection control measures improved and access to testing increased, the number and size of outbreaks at long-term care facilities has decreased. In March, 51% of all cases were exposed within a healthcare setting, including patients, healthcare workers and visitors, compared to 9% in October. Notably, in March 33% of all cases were linked to a long-term care facility outbreak and 7% were linked to hospital outbreaks compared to 3% and 2%, respectively, in October.

Since June, we identified a larger proportion of cases whose most likely source of exposure was a social gathering or other non-healthcare setting in the community. During this time, households became the most common likely exposure setting. From April to May, when more stringent restrictions on social gatherings and non-essential businesses were in effect, few cases were linked to non-workplace community exposures or social gatherings. By comparison, since June, between 13-26% of monthly cases were likely exposed in such settings. In addition, the percent of cases that were likely exposed in a household setting has increased over time, from 12% in March to 29% in October.

In the last two months, approximately 6-8% of cases were likely exposed during out of state or international travel. Notably, travel was not a common source of exposure in April (0% of cases) or May (2% of cases).

Figure 3: Trends in the frequency of most likely exposure settings designated, by month of test result date

	March	April	May	June	July	August	September	October	November
Household	12.1%	16.2%	21.8%	20.8%	27.3%	28.0%	27.7%	28.9%	37.7%
Healthcare settings	51.0%	41.2%	33.2%	18.8%	17.8%	18.8%	11.5%	9.3%	9.4%
Non-healthcare workplace	13.4%	18.1%	16.3%	16.2%	16.9%	17.2%	15.2%	20.0%	21.7%
Community/ social gatherings	9.9%	0.7%	6.8%	21.0%	15.0%	16.0%	25.8%	22.4%	13.0%
Reported close contact, setting undetermined	3.4%	14.4%	11.9%	10.3%	14.3%	11.3%	7.4%	11.3%	15.4%
Travel	7.3%	0.4%	1.7%	8.8%	4.7%	3.7%	7.6%	5.6%	1.3%
Living homeless or homelessness service sites	1.1%	7.5%	3.8%	2.6%	3.0%	4.3%	4.5%	1.7%	1.2%
Other congregate settings	1.7%	1.6%	4.6%	1.5%	1.0%	0.7%	0.4%	0.7%	0.2%
Number of cases	2,142	2,708	1,511	1,579	3,489	2,967	2,250	4,398	6,336

Percentage excludes cases where a source of exposure was not identified or the case was lost to follow-up. Categories are mutually exclusive. For more complete definitions of the categories, see data dictionary below.

Data for November is preliminary and incomplete.

Trends of most likely exposure settings by race/ethnicity within the last 60 days

In the last 60 days, households were the leading most likely exposure setting among Asian (31%), Black (27%), Hispanic/Latinx (29%), and Native Hawaiian/Pacific Islander (32%) cases. Among Whites, community settings and social gatherings other than workplaces or healthcare settings (25%) were the leading most likely exposure settings, followed by households (22%) and non-healthcare workplaces (22%). White cases were more likely to have been exposed through travel than other race and ethnicity groups.

A larger proportion of Hispanic/Latinx cases reported exposure at a workplace other than healthcare (29%) compared to all other race/ethnicity groups.

Black cases had a higher proportion of exposures associated with healthcare settings relative to other racial/ethnic groups (15%); 52% among healthcare workers and 48% among residents, patients or visitors in healthcare settings.

Figure 4: Proportion of cases associated with exposure settings within the last 60 days (Sep 22 - Nov 20), by race/ethnicity (among cases with a most likely source designated)

Percentages are for all cases within the specified race/ethnicity, not across different groups.
This chart excludes cases where race/ethnicity was unknown (n=2,313).

	White	Hispanic / Latinx	Black	Asian	NHPI	AI / AN	Other or multi-racial
Household	21.9%	29.4%	26.9%	30.6%	32.3%	23.3%	23.2%
Non-healthcare workplace	21.5%	29.1%	22.5%	22.8%	22.1%	25.6%	21.2%
Community/ social gatherings	25.1%	15.9%	17.0%	17.6%	16.4%	23.3%	20.7%
Reported close contact, setting undetermined	13.9%	16.7%	11.3%	13.8%	13.8%	9.3%	19.5%
Healthcare settings	9.8%	5.3%	14.6%	10.4%	7.2%	2.3%	9.9%
Travel	6.1%	2.5%	3.2%	4.4%	4.6%	4.7%	2.5%
Living homeless or homelessness service sites	1.1%	0.9%	4.1%	0.3%	2.6%	7.0%	2.5%
Other congregate settings	0.6%	0.2%	0.4%	0.2%	1.0%	4.7%	0.7%
Number of cases	3,701	2,551	1,106	1,067	195	43	406

Percentage excludes cases where a source of exposure was not identified or the case was lost to follow-up. Categories are mutually exclusive. For more complete definitions of the categories, see data dictionary below.

AI/AN = American Indian / Alaska Native
NHPI = Native Hawaiian or Pacific Islander
Other = Other or multi-racial

Trends of most likely exposure settings by age within the last 60 days

In the last 60 days, among cases 0-17 years old, households represented the leading most likely exposure setting. Among cases 18-24 years old, community settings and social gatherings other than workplaces or healthcare settings (35%) were the leading most likely exposure settings, followed by households (26%).

Among cases 25-49 years old, household and non-healthcare workplace settings were the leading most likely exposure settings identified – both represented a similar proportion of cases.

A larger proportion of cases 65 + years old had an exposure associated with healthcare settings relative to other age groups. Among cases 75+ years old, healthcare settings represented 44% of all cases; the majority of which were residents at long-term care facilities.

Figure 5: Proportion of cases associated with exposure settings within the last 60 days (Sep 22 - Nov 20), by age (among cases with a most likely source designated)

Percentages are for all cases within the specified age group, not across different groups.

	0-4 years old	5-17 years old	18-24 years old	25-34 years old	35-49 years old	50-64 years old	65-74 years old	75+ years old
Household	58.1%	59.8%	25.7%	26.9%	28.1%	29.5%	34.3%	31.2%
Non-healthcare workplace	12.3%	4.6%	19.0%	26.3%	28.1%	24.9%	11.0%	2.6%
Community/ social gatherings	8.8%	15.5%	35.0%	17.4%	14.4%	11.8%	17.0%	8.8%
Reported close contact, setting undetermined	14.2%	15.2%	12.1%	14.7%	13.1%	13.4%	10.3%	10.3%
Healthcare settings	2.9%	1.8%	5.0%	8.6%	9.7%	12.1%	20.7%	43.8%
Travel	2.0%	1.4%	1.9%	4.1%	4.0%	5.6%	5.5%	2.1%
Living homeless or homelessness service sites	1.7%	1.7%	1.0%	1.6%	1.9%	2.2%	1.2%	0.3%
Other congregate settings			0.2%	0.5%	0.6%	0.6%		0.9%
Number of cases	408	1,263	1,804	2,536	2,786	1,751	493	340

Percentage excludes cases where a source of exposure was not identified or the case was lost to follow-up. Categories are mutually exclusive. For more complete definitions of the categories, see data dictionary below.

Trends of most likely exposure settings by geography within the last 60 days

For more details on the geographical areas shown in this report, please refer to the appendix.

Over the last 60 days, community settings and social gatherings were the leading most likely exposure settings among cases residing in North Seattle and Shoreline (35%) and central Seattle (22%). Among all other areas, households were the leading most likely exposure settings.

Overall, cases residing in the southern regions of King County had higher proportion of most likely exposures in non-healthcare workplaces compared with other regions. Non-healthcare workplaces were identified as the most likely source of exposure among 25% of residents in Renton, Burien, SeaTac and Tukwila, and among 22% of residents in Auburn, Kent, and Federal Way.

Central Seattle and eastern regions of King County had higher proportion of travel exposures compared to other regions (5-9%).

Figure 6: Proportion of cases associated with exposure settings within the last 60 days (Sep 22 - Nov 20) by geography (among cases with a most likely source designated)

Percentages are for all cases within the specified geography, not across different geographies.

	North Seattle & Shoreline	W Seattle, S Seattle, Delridge and Highline	Central Seattle	Renton, Burien, SeaTac & Tukwila	Auburn, Kent & Federal Way	Bellevue, Redmond, Issaquah, and Mercer Island	Redmond, Kirkland, Bothell and Woodinville	Sammamish and East King County	Southeast King County
Household	23.4%	36.5%	18.6%	36.1%	36.5%	26.9%	33.4%	32.4%	42.2%
Non-healthcare workplace	13.2%	20.5%	16.2%	25.1%	22.4%	20.1%	20.1%	16.7%	21.2%
Community/ social gatherings	35.4%	14.6%	21.9%	14.3%	14.1%	20.1%	15.8%	21.8%	13.7%
Reported close contact, setting undetermined	11.6%	13.2%	14.2%	12.8%	14.1%	17.0%	13.8%	11.3%	12.1%
Healthcare settings	10.9%	11.0%	12.7%	8.4%	9.0%	9.3%	8.4%	8.8%	6.4%
Travel	3.8%	2.3%	5.4%	2.0%	3.0%	5.2%	6.6%	9.1%	3.6%
Living homeless or homelessness service sites	1.7%	1.7%	7.0%	1.2%	0.8%	1.0%	1.4%		0.6%
Other congregate settings	0.2%	0.1%	4.0%	0.1%	0.1%	0.3%	0.4%		0.2%
Number of cases	1,250	1,271	741	2,178	3,272	616	557	408	659

Percentage excludes cases where a source of exposure was not identified or the case was lost to follow-up. Categories are mutually exclusive. For more complete definitions of the categories, see definitions in the appendix.

Outbreaks identified

We defined an outbreak as two or more COVID-19 cases linked to a facility or event. Since the start of the pandemic, Public Health has identified 836 outbreaks. More than one quarter of the outbreaks occurred at long-term care facilities, with high rates of transmission and case fatality in the first months of the pandemic. We also identified outbreaks in 104 other healthcare settings, including 27 outbreaks at hospitals. Thirty-one percent of outbreaks occurred in non-healthcare workplaces, most frequently at manufacturing worksites such as construction, food-processing, and fishing industries with 117 outbreaks, followed by 83 outbreaks at food-service establishments. Cases linked to outbreaks account for 26% of all cases where a most likely source of exposure is designated.

On average, 8 cases were identified per outbreak. The largest outbreaks were identified within UW sorority/fraternity housing (265 cases per outbreak), long-term care facilities (12 cases per outbreak), social gathering outbreaks (12 cases per outbreak), and outbreaks associated with places of worship (10 cases per outbreak). Within non-healthcare workplace settings, an average of 5 cases were identified per outbreak.

Figure 7: COVID-19 outbreak settings

Type of setting	FEBRUARY TO PRESENT			LAST 60 DAYS Sep 22 - Nov 20			
	Number of outbreaks	Percent of all outbreaks	Percent within type of setting	Average number of cases per outbreak	Number of outbreaks	Percent of all outbreaks	Percent within type of setting
All identified outbreaks	836			8	289		
Healthcare settings	327	39%		10	77	27%	
Long-term care facilities	223		68%	12	44		57%
Hospitals (including psychiatric hospitals)	27		8%	7	8		10%
Outpatient healthcare settings	15		5%	3	10		13%
Behavioral health residential facility	10		3%	5	3		4%
Supported living and home health agencies	52		16%	9	12		16%
Non-healthcare workplace settings	260	31%		5	110	38%	
Manufacturing worksites	117		45%	5	53		48%
Retail, hospitality, or recreational worksites	60		23%	4	20		18%
Shipping, delivery, & utility worksites	33		13%	4	16		15%
Office-based or other workplaces	33		13%	3	17		15%
Correctional facilities	8		3%	9	3		3%
Other workplaces	9		3%	4	1		1%
Community and social gatherings	111	13%		5	56	19%	
Food-service establishments	83		75%	3	40		71%
Large social gatherings	13		12%	12	6		11%
Places of worship	15		14%	10	10		18%
Homeless service sites	71	8%		6	8	3%	
Colleges, childcares, and universities	63	8%		13	35	12%	
Childcare	45		71%	4	21		60%
UW Sorority/Fraternity	2		3%	265	1		3%
College/Universities	12		19%	6	9		26%
K-12 school	4		6%	3	4		11%
Not yet categorized	4	0%		3	3	1%	

Appendix:

Exposure setting definitions: We estimated the most likely source of exposures of cases using information from case interviews and outbreak investigations. In certain cases, one or more possible COVID-19 risk settings were present, and we were not able to determine if one setting was higher risk than the others.

- Healthcare settings includes:
 - Healthcare facility outbreaks (including healthcare workers, patients and visitors)
 - Long-term care facility outbreaks (including healthcare workers, patients and visitors)
 - Healthcare workers without a link to a known outbreak or other likely source of exposures
 - Visitors to healthcare facilities not linked to an outbreak and who reported no other potential source of exposure
- Non-healthcare worksites
 - Linked to workplace outbreaks (excludes taverns/restaurants, place of worship, college/university)
 - Cases where work was considered the most likely source of exposure, but the case is not linked to a known outbreak
 - Non-healthcare essential workers without any other potential exposure identified
- Living homeless or homelessness service sites
 - Linked to a known outbreak in a homelessness service facility/site (including employees)
 - Living homeless and no other likely source of exposure identified
- Other congregate settings
 - Cases linked to correctional settings outbreaks
 - Cases linked to with other congregate settings outside of LTCF or homelessness. This includes correctional facilities, behavioral care settings, rehabilitation centers, etc.
- Community/Social gatherings
 - Linked to outbreaks involving large social gatherings, colleges/universities, weddings, funerals, places of worship, restaurants, taverns and other food service establishments.
 - Cases reporting close contact to a confirmed or suspected case in large social or public events or gatherings, or college/university, but not linked to a known outbreak
 - Cases who reported visiting taverns, restaurants or other food service establishments, places of worship, affiliated with the UW or other university settings, or retail shopping and no other potential exposure was identified, and not linked to a known outbreak.
 - Cases who reported out-of-household socializing/visiting with family and friends, going to parties or celebrations (weddings, graduation events, etc.), other social events (or recreational activities), and not linked to a known outbreak and no other potential exposure was identified.
- Household setting
 - Cases where the home was considered the most likely source of exposure and are not linked to a known outbreak
 - These cases were either household members or exposed in the home setting
- Travel
 - Reported close contact with a confirmed or suspected case during international or domestic travel out of state
 - Onset of symptoms within 2 days after return from international or out of state travel

- Not linked to a local outbreak
- Reported other close contact
 - Case reported having close contact with a probable or confirmed COVID-19 case, but did not provide details about the setting

All potential exposures, detailed table:

Figure 8: All potential exposure settings identified among COVID-19 cases in King County, WA

		All Cases	Last 60 days (Sep 22 - Nov 20)
Community/ social gatherings	Social events or gatherings	20.7%	24.3%
	Bar/restaurant	10.1%	15.0%
	Retail/commercial	4.7%	5.2%
	Place of worship	2.7%	4.2%
	UW sorority/fraternity	1.7%	2.6%
Household	Household exposure	34.7%	41.3%
Essential worker	Healthcare workers	12.3%	7.9%
	Hospitality workers	9.2%	8.6%
	Other essential workers	7.8%	8.5%
Non-healthcare workplace	Workplace potential exposure	19.0%	27.8%
	Close contact at workplace, not outbreak linked	4.7%	5.3%
	Linked to an outbreak (non-healthcare workplace)	4.2%	4.8%
Healthcare settings (non-LTCF)	Healthcare facility visit	10.4%	13.1%
	Healthcare outbreak	2.3%	1.3%
	Healthcare, not outbreak linked	0.5%	0.3%
Long-term care & supported living facilities	Long-term care facility outbreaks	10.3%	3.1%
	Supported living	0.6%	0.3%
Travel	Out of state	6.9%	6.6%
	International	0.5%	0.3%
Homelessness	Experiencing homelessness	2.7%	1.5%
	Staff linked to an outbreak in a homelessness service site	0.4%	0.3%
School/Daycare	Daycare visit	1.2%	1.7%
	Daycare or K-12 school outbreaks	0.7%	1.0%
	Reported close contact in a daycare or K-12 school, not outbreak linked	0.3%	0.3%

Categories are not mutually exclusive. An individual may appear in multiple categories if during their interview or investigation the setting was identified.

Most likely exposure settings for COVID-19 cases

Figure 9: Exposure setting among cases with a mostly likely source designated

		All Cases	Last 60 days (Sep 22 - Nov 20)
Household	Reported close contact in household setting	27.1%	33.7%
	Long-term care facility outbreak	11.1%	3.2%
Healthcare settings	Reported only healthcare setting exposure	3.5%	2.6%
	Non-LTCF healthcare setting outbreak	2.6%	1.4%
	Report close contact in healthcare setting	2.0%	1.3%
	Healthcare worker reported only healthcare setting exposure	0.7%	0.7%
Non-healthcare workplace	Reported only non-healthcare, non-community workplace exposure	7.2%	7.8%
	Reported close contact in non-healthcare, non-community workplace setting	6.9%	7.9%
	Non-healthcare, non-community workplace outbreak	4.1%	5.1%
Community/ social gatherings	Reported close contact in community/social gathering setting	9.2%	10.2%
	Community/social gathering outbreak	3.6%	4.8%
	Reported only community/social gathering exposure	2.1%	2.5%
Reported close contact, setting undetermined	Reported close contact but setting was undetermined	12.0%	13.2%
Travel	Travel out of state during exposure	4.1%	3.5%
Living homeless or homelessness service sites	Living homeless or homelessness service site outbreak	3.0%	1.6%
Other congregate settings	Outbreak in other congregate settings	1.0%	0.4%

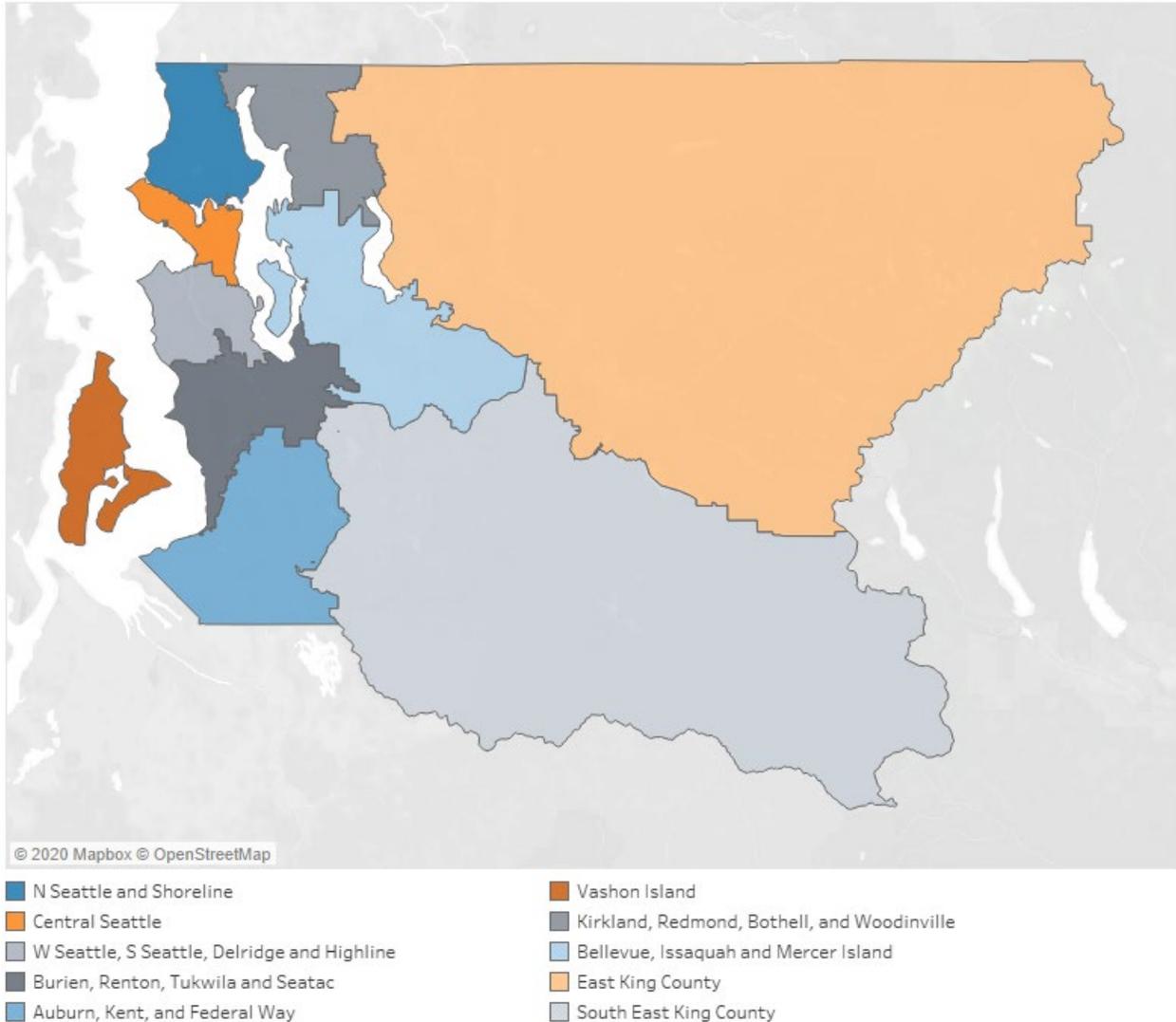
Percentage excludes cases where a source of exposure was not identified or the case was lost to follow-up. Categories are mutually exclusive. For more complete definitions of the categories, see data dictionary in the appendix.

Geographic definitions:

The geographies shown in the chart are based on the Health Reporting Areas (HRA) commonly used to examine health-related patterns in a more neighborhood level. For the purposes of this report, HRAs were grouped together based on population size, demographic similarities, and incidence trends for COVID-19 throughout the pandemic. Ten areas were created based on these combined HRA boundaries. Below is a map as a reference. For more details on HRAs, please visit:

<https://www.kingcounty.gov/depts/health/data/community-health-indicators/definitions.aspx>

Map of the 10 regions used to examine geographic difference across exposure settings for COVID-19.



Limitations

Our understanding of exposure risk and transmission settings is based on several sources of information, including information from case investigations, outbreaks we become aware of, and from scientific reports and knowledge about how COVID-19 spreads. It is important to note that for each reported case, there are several others that go undetected and for which we have no information.

It is often not possible to determine with certainty from public health case and outbreak investigations where individual cases acquired COVID-19 in the community. In addition, different not all businesses and venues report cases to Public Health. For this reason, it is difficult to accurately estimate the precise burden of transmission associated with specific venues including restaurants, taverns and other food service establishments, and other community settings. For example, consider how difficult it would be to determine where someone acquired the flu during a typical flu season. However, the difficulty in precisely quantifying the contribution of specific transmission venues does not mean certain venues are not high-risk settings. Reasons for this include:

- Businesses may not be aware of or report cases among their workers consistently and do not typically know if patrons become ill.
- COVID-19 has a long incubation period for people to recall all their activities. Based on our experience interviewing cases with other diseases we know that the history of recent activities we get may not be complete in many instances either because of difficulty with recall or reluctance to share information.
- There are features of data systems that record information from case interviews that can limit the ability to find common exposures.
- There are many opportunities for exposure to COVID-19 in indoor settings when transmission rates are high in the community. That people visit certain business or community venues alone or in relatively small groups makes it especially hard to recognize an outbreak compared with larger workplaces and events where more people are exposed at a one time. This problem is magnified because not all people will report visiting a particular business or activity even if they have done so, making it harder to recognize a connection. Likewise, workers in retail and food service establishments are not likely to know and report when they have been exposed to COVID-19 by patrons.
- People can have multiple potential exposures before their illness. Other than outbreak settings, we often can't tell with reasonable certainty which exposure led or did not lead to the infection.

COVID-19 spreads through the air from people before they develop symptoms making it difficult to know when and where someone came in contact with the virus and exposures and clusters hard to detect.

ⁱ <https://www.aclum.org/en/publications/data-show-covid-19-hitting-essential-workers-and-people-color-hardest>