Epidemiology of SARS-CoV-2 Infections:
Occupation and Underlying Conditions

Idaho COVID-19 Vaccine Advisory Committee

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Industry Sector	Count	Percent	Percent WA employed population
Health Care and Social Assistance	7279	25%	13%
Agriculture, Forestry, Fishing and Hunting	3252	11%	3%
Retail Trade	2877	10%	12%
Manufacturing	2727	9%	9%
Accommodation and Food Services	2150	7%	9%
Construction	1950	7%	6%
Public Administration	1314	5%	4%
Transportation and Warehousing	1293	4%	4%
Administrative and Support and Waste Management and Remediation Services	1154	4%	5%
Educational Services	875	3%	9%
Wholesale Trade	875	3%	4%
Other Services (except Public Administration)	801	3%	3%
Professional, Scientific, and Technical Services	738	3%	6%
Finance and Insurance	530	2%	3%
Real Estate and Rental and Leasing	369	1%	2%
Arts, Entertainment, and Recreation	316	1%	2%
Information	306	1%	4%
Utilities	115	<1%	1%
NIOSH-Specific Retired, Unpaid	82	<1%	
Management of Companies and Enterprises	9	<1%	2%
Mining, Quarrying, and Oil and Gas Extraction	6	<1%	<1%

- 25% of cases with employment data were employed in the health care and social assistance sector.

- Other sectors with larger proportion of cases vs. employment were:
  - Agriculture, Forestry, Fishing, and Hunting
  - Construction
  - Public Administration

November 10, 2020

https://www.doh.wa.gov/Portals/1/Documents/1600/coronavirus/IndustrySectorReport.pdf

Washington State Department of **Health**

Washington State Department of **Labor & Industries**

Table 1. Excess mortality among Californians 18–65 years of age, by occupational sector: March through October 2020.

	Excess deaths	Risk ratio[a]
Entire state	10,047 (9,229–10,879)	1.22 (1.20–1.24)
Facilities	1,681 (1,447–1,919)	1.27 (1.22–1.32)
Food or agriculture	1,050 (897–1,204)	1.39 (1.32–1.48)
Government or community	422 (324–520)	1.14 (1.11–1.18)
Health or emergency	585 (523–647)	1.19 (1.17–1.22)
Manufacturing	638 (530–749)	1.23 (1.18–1.28)
Retail	646 (517–778)	1.18 (1.14–1.23)
Transportation or logistics	1,542 (1,350–1,738)	1.28 (1.24–1.33)
Not essential	1,167 (910–1,428)	1.11 (1.08–1.14)
Unemployed or missing	1,969 (1,718–2,225)	1.23 (1.19–1.27)

[a] Risk ratios are defined as the observed number of deaths divided by the expected number of deaths. They are interpretable as the risk ratio for mortality, comparing pandemic time to non-pandemic time.

- Food or agriculture
- Transportation or logistics
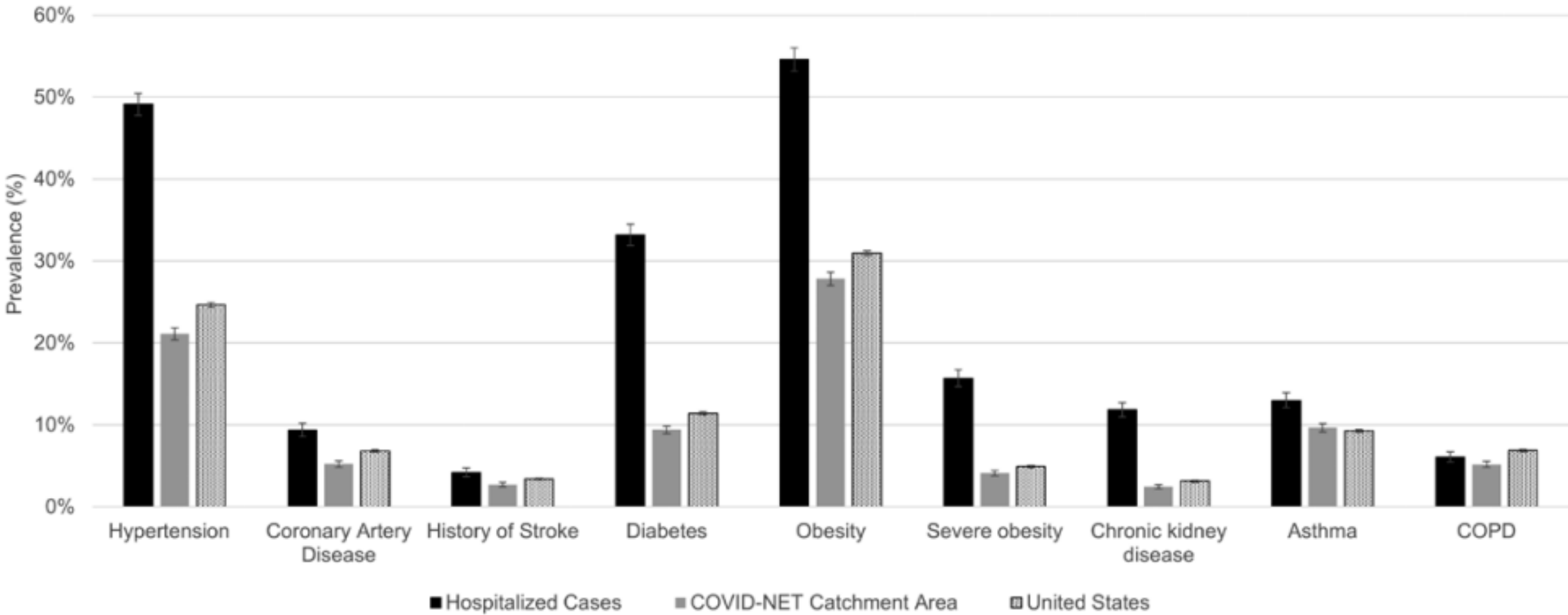- Facilities
- Manufacturing

Table 1. Weighted Prevalence of Adults Meeting Main and Broader CDC Definitions for Increased Risk of Severe COVID-19 Illness, by Employment Characteristics[a]

	Unweighted No.	Population, millions (95% CI)	% (95% CI)[b]	
			Meets main CDC guidelines for increased risk of severe COVID-19	Meets broader CDC guidelines for increased risk of severe COVID-19
All adults	100 064	248.0 (239.0-257.0)	49.7 (48.9-50.4)	61.0 (60.1-61.9)
Nonworkers	40 192	90.8 (87.0-94.5)	67.4 (66.5-68.3)	75.8 (74.9-76.7) REF
Workers	59 872	157.3 (151.0-163.5)	39.4 (38.6-40.3)[c]	52.4 (51.5-53.4)[c]
Essential workers	42 437	112.4 (107.8-116.9)	41.0 (40.0-42.0)[c]	54.4 (53.4-55.4)[c]
Health	6470	17.0 (15.9-18.0)	41.7 (39.6-43.9)[d]	54.4 (52.4-56.4)[c]
Food	3354	7.0 (6.4-7.7)	42.3 (39.0-45.7)[e]	56.6 (53.2-60.0)[c]
Other, cannot WAH	22 611	57.2 (54.7-59.6)	42.0 (40.8-43.2)[c]	56.5 (55.3-57.6)[c]
Other, can WAH	10 002	31.2 (29.5-33.0)	38.6 (37.0-40.2)	50.0 (48.4-51.7)[d] REF
Nonessential workers	17 435	44.9 (42.7-47.0)	35.4 (34.0-36.8)	47.6 (46.1-49.1)
Cannot WAH	10 185	23.0 (21.9-24.1)	33.6 (31.9-35.2)[c]	48.0 (46.1-49.8)
Can WAH	7250	21.9 (20.5-23.3)	37.3 (35.5-39.1)	47.1 (45.3-49.0) REF

Ko JY, Danielson ML, Town M, et al., Risk Factors for Coronavirus Disease 2020 (COVID-19)–Associated Hospitalization: COVID-19–Associated Hospitalization Surveillance Network and Behavioral Risk Factor Surveillance System, *Clinical Infectious Diseases*, , ciaa1419, https://doi.org/10.1093/cid/ciaa1419

Underlying Medical Condition[b]	Overall N = 5416	Age 18–44 y n = 1601 (30%)	Age 45–64 y n = 2162 (40%)	Age ≥65 y n = 1653 (31%)	Males n = 2847 (53%)	Females n = 2569 (47%)	Non-Hispanic White n = 1758 (34%)	Non-Hispanic Black n = 1663 (32%)	Other Race/Ethnicity[c] n = 1798 (34%)
Hypertension	2658 (49)	272 (17)	1146 (53)	1240 (75)	1469 (52)	1189 (46)	956 (55)	1026 (62)	594 (33)
Coronary artery disease	506 (9)	11 (1)	145 (7)	350 (21)	337 (12)	169 (7)	255 (15)	155 (9)	73 (4)
History of stroke	227 (4)	12 (1)	70 (3)	145 (9)	134 (5)	93 (4)	79 (5)	99 (6)	41 (2)
Diabetes	1793 (33)	300 (19)	798 (37)	695 (42)	984 (35)	809 (32)	528 (30)	654 (39)	548 (31)
Obesity	2674 (55)	801 (63)	1238 (60)	635 (41)	1315 (49)	1359 (62)	879 (54)	929 (60)	785 (51)
Severe obesity	769 (16)	312 (25)	353 (17)	104 (7)	316 (12)	453 (21)	240 (15)	329 (21)	191 (12)
Chronic kidney disease	640 (12)	54 (3)	201 (9)	385 (23)	387 (14)	253 (10)	206 (12)	285 (17)	125 (7)
Asthma	702 (13)	211 (13)	295 (14)	196 (12)	243 (9)	459 (18)	236 (13)	276 (17)	171 (10)
COPD	328 (6)	…[d]	104 (5)	219 (13)	179 (6)	149 (6)	189 (11)	102 (6)	29 (2)
Any condition[e]	3938 (73)	978 (61)	1660 (77)	1300 (79)	2071 (73)	1867 (73)	1302 (74)	1338 (80)	1168 (65)

Adjusting for the presence of an individual underlying medical condition, higher hospitalization rates were observed for adults aged ≥65 or 45–64 years (vs 18–44 years), males (vs females), and non-Hispanic black and other race/ethnicities (vs non-Hispanic whites).

Ko JY, Danielson ML, Town M, et al., Risk Factors for Coronavirus Disease 2020 (COVID-19)–Associated Hospitalization: COVID-19–Associated Hospitalization Surveillance Network and Behavioral Risk Factor Surveillance System, *Clinical Infectious Diseases*, , ciaa1419, https://doi.org/10.1093/cid/ciaa1419