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COVID-19 OUTBREAK IN WASHOE COUNTY (7)

COVID-19 Mortality Statistics & Certifying Death Certificate due to COVID-19

Introduction

The Washoe County Health District (WCHD) reported the first case of COVID-19 on March 5, 2020. As of June 27, a total of 2,573 cases have been reported, which corresponds to an incidence rate of 546 cases per 100,000 population. See following table for an overview of morbidity, mortality, and testing of COVID-19 outbreak from the national, statewide, and local perspective.

Characterization	US	NV	Washoe
No. Cases	2,459,472	16,339	2,573
Cases per 100,000 population	749	530	546
Number of Deaths	124,976	500	74
Case Fatality Ratio (%)	5.08	3.06	2.88
Deaths per 100,000 population	38.08	16.23	15.69
Number of tests	30,401,644	301,815	48,213
Tests per 1000 persons	93	98	102

Data as of 6/27/2020

Daily epidemiology updates of COVID-19 can be found at <https://covid19washoe.com>. WCHD has published a series of Epi-News on COVID-19. Those issues can be found at www.TinyURL.com/WashoeEpiNews. This newsletter will focus on the COVID-19 mortality statistics and CDC’s guidance for certifying death certificate due to COVID-19.

COVID-19 Mortality Statistics

As of June 27, a total of 74 cases of COVID-19 reported in Washoe County had a fatal outcome. In total, Nevada has reported 500 COVID-19 deaths. Both the case fatality rate (CFR) and mortality rate in Washoe County were lower than Nevada. CFR in Washoe County is 43% lower than the national average and the mortality rate is 59% lower than the national average.

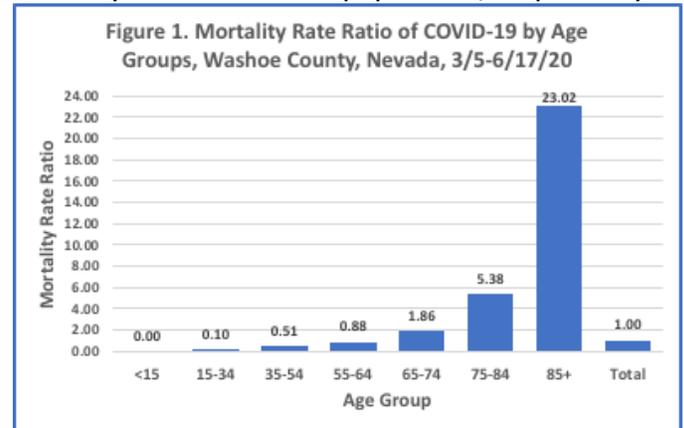
Statistics in this issue were based on 71 deceased cases reported as of June 17. A total of 40 fatal cases (56%) were associated with institutional

outbreaks and 53 cases (75%) were associated with 13 clusters or outbreaks.

Following graphs illustrate rate ratio among different demographic groups. The purpose of this analysis is to quantify the risk of dying of COVID-19 among different demographic groups. Here is the formula to calculate Rate Ratio (RR).

Rate Ratio (RR) = Mortality Rate in specific group of demographics / Mortality Rate in total population

The median age of deceased cases is 76 years (range: 18-103). Based on **Figure 1**, the risk of dying of COVID-19 among age groups 85+, 75-84, 65-74 years is 23 times, 5.4 times, 1.86 times of mortality rate in the total population, respectively.



Based on **Figure 2**, there is not a large difference in mortality of COVID-19 by gender in Washoe County.

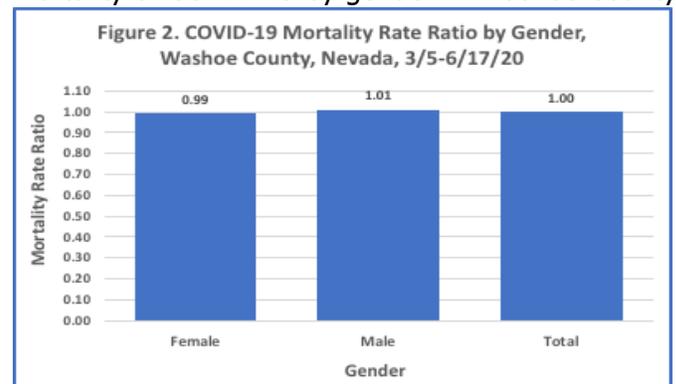
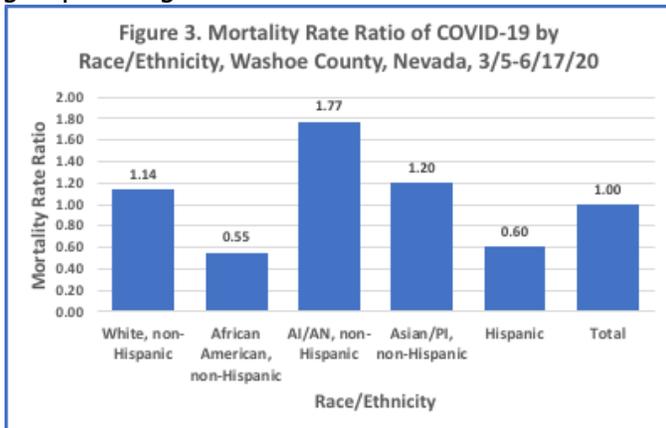
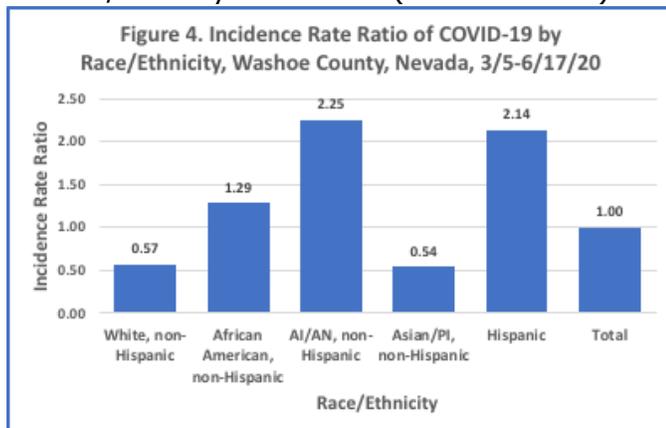


Figure 3 shows the mortality rate ratio by race/ethnicity groups. American Indian/Alaska Natives (AI/AN) has a higher risk among all race/ethnicity group among 71 deceased cases.



In comparison in **Figure 4**, AI/AN and Hispanic groups have a higher risk of getting infected than the average population among the reported 1,708 cases with race/ethnicity information (~80% of cases).



In summary, high risk groups for COVID-19 deaths in Washoe County likely include but not limited to:

1. Senior population, especially 65 years or above;
2. American Indians/Alaska Native Americans and Hispanic/Latino populations;
3. Individuals associated with institutions such as assisted living facilities, long term care facilities, nursing homes, etc.
4. Individuals with underlying conditions. The epidemiological investigations are still ongoing and local level complete data is not available. Refer to national data by CDC here:

¹ <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/index.html>

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These groups should be targeted by local COVID-19 prevention programs.

Certifying Death Certificate

Monitoring and analysis of mortality data allow dissemination of critical information to the public and key stakeholders. One of the most important methods of mortality surveillance is through monitoring causes of death as reported on death certificates. CDC publishes provisional death counts for COVID-19 every Friday.^{1 2} The provisional numbers of deaths includes 1) deaths with COVID-19 as the underlying cause or contributing cause; 2) deaths with confirmed or presumed COVID-19. Strictly speaking, the provisional death counts for COVID-19 can be considered as the COVID-19 associated deaths, not really 100% COVID-19 caused deaths.

Physicians certify deaths due to natural causes and medical examiners/coroners (ME/Cs) certify deaths due to injuries or poisonings, deaths occurring under suspicious circumstances, and sudden, unattended deaths.

On the Nevada Death Certificate (see Figure 6 on following page), there are two sections, Part I and Part II, in the section of "CAUSE OF DEATH". Part I contains four lines (a-d) listing the sequence of conditions or events leading directly to death: immediate cause, intermediate cause(s) (conditions leading to the immediate cause of death), and underlying cause of death (UCOD). If not all the lines are needed, leave them blank. The lowest line in Part I should be always used as UCOD, which means the disease or injury that initiated the train of morbid events leading directly to death or the circumstances of the accident or violence that produced the fatal injury. Part II should be used to list other significant conditions contributing to death, but not resulting in the underlying cause given in part I.

If COVID-19 is determined to be a cause of death, it should be reported on the death certificate, likely as the underlying cause of death. Testing should be conducted, if possible. If a definite diagnosis cannot be made, but it is suspected or likely, it can be reported as "probable" or "presumed". Certifiers

² <https://www.cdc.gov/nchs/covid19/coding-and-reporting.htm>

should NOT report COVID-19 EXPOSURE on a death certificate. Generally speaking, death certificate should avoid abbreviations and acronyms, but COVID-19 is unambiguous, so it is OK to use acronyms. Pre-existing conditions that may increase susceptibility to infection or exacerbate the disease, such as cardiovascular diseases, obesity, COPD, should be reported in Part II.

According to CDC, there are three common problems with certifying death certificates.

1. Intermediate causes vs. underlying causes

Missing underlying causes is one of the common problems. For example, some certificates only list "pneumonia" as an intermediate cause without listing underlying causes of death, which is incorrect. Pneumonia can be caused by virus, bacteria, and chemicals. Only listing "pneumonia" is incorrect. If certifiers do not know the UCOD, then certifiers may list "pneumonia" as intermediate cause and list "Unknown" as UCOD. If pneumonia is caused by COVID-19, the correct report should be "pneumonia" as intermediate cause and COVID-19 as the UCOD.

2. Specificity

Lack of specificity is another common problem. For example, "viral infection" is not specific. COVID or coronavirus are also not specific enough. The correct one should be "COVID-19", which indicates the novel coronavirus 2019 strain.

3. Sequencing

Lack of logical sequencing is a very common problem. For example, COVID-19 due to COPD is an apparently illogical sequence although COPD would increase the risk of developing the disease

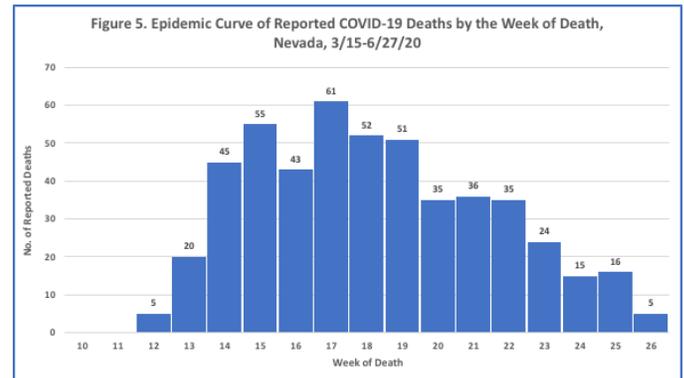
or dying from the disease, it does not cause COVID-19; but acute respiratory distress syndrome due to pneumonia due to COVID-19 is a logical sequence. COPD should go in part II.

Should physicians have more questions regarding filling out death certificates, please call the Vital Statistics Program at the Washoe County Health District at 775-328-2456 or visit CDC's website here:

https://emergency.cdc.gov/coca/calls/2020/callinfo_041620.asp .

Trend of COVID-19 Deaths in Nevada

As of June 27, 2020, a total of 500 COVID-19 deaths have been reported in Nevada. The epidemic curve of deaths by the week of death is seen below in **Figure 5**. The data for week 26 has not been completed yet as of June 27 (one day pending). The overall trend is downward in the past two months. Could this finding be attributed to the likely decreased virulence of circulating SARS-CoV-2 strain, significantly increased number of cases, and/or improved patient care? The answer is unknown. Continued monitoring is needed.



Mortality data source: <https://nvhealthresponse.nv.gov>

Figure 6.

CAUSE OF DEATH	25. IMMEDIATE CAUSE (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c).)				Interval between onset and death		
	CONDITIONS IF ANY WHICH GAVE RISE TO IMMEDIATE CAUSE STATING THE UNDERLYING CAUSE LAST	PART I (a)	DUE TO, OR AS A CONSEQUENCE OF:			Interval between onset and death	
		(b)	DUE TO, OR AS A CONSEQUENCE OF:			Interval between onset and death	
		(c)	DUE TO, OR AS A CONSEQUENCE OF:			Interval between onset and death	
(d)		DUE TO, OR AS A CONSEQUENCE OF:			Interval between onset and death		
	PART II OTHER SIGNIFICANT CONDITIONS-Conditions contributing to death but not resulting in the underlying cause given in Part 1.				26. AUTOPSY (Specify Yes or No)	27. WAS CASE REFERRED TO CORONER (Specify Yes or No)	
	28a. ACC. SUICIDE, HOM., UNDET. OR PENDING INVEST. (Specify)	28b. DATE OF INJURY (Mo/Day/Yr)	28c. HOUR OF INJURY	28d. DESCRIBE HOW INJURY OCCURRED		No	Yes
	28e. INJURY AT WORK (Specify Yes or No)	28f. PLACE OF INJURY- At home, farm, street, factory, office building, etc. (Specify)		28g. LOCATION	STREET OR R.F.D. No.	CITY OR TOWN	STATE