Descriptive Epidemiology of COVID-19 in Northwest Tribes

Tribal Public Health and Emergency Preparedness Conference

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MAY 3, 2023
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Overview: COVID-19 in NW Tribes

- Background of COVID-19
- Methods
- Results
- Summary
The impact of the COVID-19 pandemic on American Indian/Alaska Native (AI/AN) persons has been particularly severe.

Aggregated data collected by States and the Centers for Disease Control and Prevention (CDC) have demonstrated higher incidence of infection, hospitalization and death for AI/AN people.

COVID-19 vaccination coverage among AI/AN people has been variable depending on data sources used.

This study provides the first descriptive epidemiology of COVID-19 infection and vaccination among AI/AN persons served at six Indian Health Service (IHS) ambulatory clinics in the Northwest.
Methods

- Data were obtained through a systematic query of electronic medical records (EMR) from each of six IHS-operated ambulatory clinics – 1 clinic in Idaho, 2 clinics in Oregon, and 3 clinics in Washington.
- Data for all laboratory tests to detect SARS CoV-2, the virus that causes COVID-19, from March, 2020 through March, 2022 were obtained.
- Age, sex, vaccination history and underlying comorbidities were also included.
- Outcomes included primary, repeat and breakthrough infections. For five of the clinics, information on COVID-deaths was also obtained.
Results

- Tests – Primary Infections and Re-infections
- Vaccines
- Deaths
Testing Results

70,556 tests (Excludes 273 with missing information)

19,167 individuals*
Mean Age = 35 years
53.5% Female

6,358 positive tests (9%)
5,597 Primary Infections
276 Re-infections

* Includes 74 deaths without IHS test data
Classification of positive tests

Proportion of tests

- Primary Infections (n=5597)
- Repeat infections (n=276)
- Repeat positive tests in same infectious period (n=485)

88%

8%

4%
Distribution of Tests by Date
Distribution of Positive Tests by Date

Count

Date of Test


0 100 200 300 400

Distribution of Primary Infections and Re-infections by Age Group

- Under 5
- 5 to 11
- 12 to 18
- 19 to 39
- 40 to 64
- 65 plus

- Primary Infection
- Reinfection
Infection Status by Sex

<table>
<thead>
<tr>
<th>Percent</th>
<th>Primary Infection</th>
<th>Reinfection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>50%</td>
<td>60%</td>
</tr>
<tr>
<td>Male</td>
<td>40%</td>
<td>40%</td>
</tr>
</tbody>
</table>

- **Primary Infection**
  - Female: 50%
  - Male: 40%

- **Reinfection**
  - Female: 60%
  - Male: 40%
Infection Status by Presence of High Risk Conditions

- **Primary Infection**
  - No High Risk Conditions: [Percentage]
  - ≥1 High Risk Condition: [Percentage]

- **Reinfection**
  - No High Risk Conditions: [Percentage]
  - ≥1 High Risk Condition: [Percentage]
Re-infections by Date of Test

Count

Reinfection Date

Sep 2020  Nov  Jan 2021  Mar  May  Jul  Sep  Nov  Jan 2022  Mar  May
Re-infections by Date of Test

Distribution of Positive Tests by Date

Count

Reinfection Date

[Graph showing distribution of positive tests by date with a peak in January 2022]
Vaccinations

10,299 of 19,093 (53.9%) were fully vaccinated. Of those, 4,970 (48.3%) had received a third or booster dose. 1,614 (8.4%) were partially vaccinated.

Mean Age* = 35 years
53.5% Female

1,302 breakthrough infections (24% of all infections)
- Partially vaccinated=82
- Fully vaccinated=1027
- Boosted=275

* At time of first vaccine dose
1st and 3rd Vaccine Doses by Elder Status

Date of Vaccination

Elder (Age at least 50 Years)  No  Yes
1\textsuperscript{st} and 3\textsuperscript{rd} Vaccine Doses by High Risk Status
Among those tested:

- 5 to 11: 70% Unvaccinated, 12% Partially vaccinated, 20% Fully Vaccinated, 8% Boosted/3rd dose
- 12 to 18: 35% Unvaccinated, 25% Partially vaccinated, 40% Fully Vaccinated, 10% Boosted/3rd dose
- 19 to 39: 45% Unvaccinated, 15% Partially vaccinated, 40% Fully Vaccinated, 10% Boosted/3rd dose
- 40 to 64: 35% Unvaccinated, 25% Partially vaccinated, 30% Fully Vaccinated, 10% Boosted/3rd dose
- 65 plus: 50% Unvaccinated, 20% Partially vaccinated, 30% Fully Vaccinated, 10% Boosted/3rd dose

*Among those tested*
Vaccination Status* by Sex

*Among those tested
Among those tested...
Deaths

We collected information on 144 individuals whose deaths we classified as being directly from COVID-19 (n=133) or were COVID-19 related (n=11).

Mean Age at Death = 67 yrs
For comparison, for those who had a positive test but did not die, the Mean Age at time of test was 34 yrs;
45% of COVID deaths were Female

126/144 (87.5%) COVID deaths occurred before vaccines were available;
10 were fully vaccinated, 6 partially and 2 had received boosters
Date of Death by Dominant COVID Strain

[Bar chart showing the number of deaths by date and dominant strain]

- **Variant Wave at Death**
  - **Original strains**
  - **Delta**
  - **Omicron**

Date of Death:
- Jan 2020
- Apr 2020
- Jul 2020
- Oct 2020
- Jan 2021
- Apr 2021
- Jul 2021
- Oct 2021
- Jan 2022
- Apr 2022
- Jul 2022

Count:
- 0
- 5
- 10
- 15
- 20
- 25
- 30
Date of Death by Vaccine Status

Count

Date of Death

Vaccine Status + Booster

Age Distribution of Deaths

- COVID
- Other

<table>
<thead>
<tr>
<th>Age</th>
<th>COVID</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>under 18</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18 to 39</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>40 to 64</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>65 to 79</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>80 plus</td>
<td>12</td>
<td>6</td>
</tr>
</tbody>
</table>
COVID Survival by Sex

COVID Survivors

COVID Deaths

Percent

SEX F  SEX M
COVID Survival by Presence of Underlying Conditions

- COVID Survivors
  - No Underlying Conditions
  - ≥ 1 Underlying Condition

- COVID Deaths
  - No Underlying Conditions
  - ≥ 1 Underlying Condition
Summary

This analysis provides a basic description of the COVID-19 Pandemic in the Pacific Northwest using data from six IHS Service Units, March, 2020 to March 2022.

- **Primary Infections** were similarly distributed by sex. Among those tested, those who were 19–39 and 40–64 had the highest percent of primary infections (29%–36%). Primary infections occurred in waves corresponding to differing predominant COVID strains.

- **Reinfection** was also more common among those 19–39 and 40–64 years (33%–46%). Those with at least one underlying health condition accounted for 64% of reinfections and women accounted for 60% of reinfections. Most reinfections occurred during the Omicron surge.

- **Vaccine** prioritization was successful in that those who were older or had underlying conditions had earlier and higher uptake of both the primary series and the first booster dose. 84% of those 65 and older were either fully vaccinated or received their booster dose.

- **Deaths** were mostly among those who were unvaccinated, and most of these occurred before vaccines were available. Most were 65 and older and almost all had at least one underlying condition. 55% of deaths were male.