COVID-19

Dale W. Bratzler, DO, MPH, MACOI, FIDSA
Enterprise Chief Quality Officer – OU Medicine
Professor College of Medicine
Professor and Chair, Department of Health Administration and Policy, Hudson
College of Public Health
Edith Kinney Gaylord Presidential Professor
Email: dale-Bratzler@ouhsc.edu
Office Phone: (405) 271-3932

April 16, 2020
Coronavirus

- Coronaviruses are a large family of viruses that can infect humans or animals.
  - In humans, infections due to coronavirus typically occur in winter and spring and cause illnesses such as the common cold with mild respiratory symptoms. Those viruses are seasonal.

- This is a “zoonotic” infection
  - On occasion an animal coronavirus can change so that it infects humans.
“Coronaviruses are sharply seasonal. They appear, based on serial interval and secondary infection risk, to have similar transmission potential to influenza A(H3N2) in the same population.”

Monto AS, et al. [in press]
What do we know about COVID-19

• On 31 December 2019, the WHO China Country Office was informed of cases of pneumonia of unknown etiology (unknown cause) detected in Wuhan City, Hubei Province of China.


First case diagnosed in Oklahoma on March 7, 2020.
SARS-CoV-2 (that causes COVID-19)
“Novel” coronavirus

• Because this is a new coronavirus, humans have no immunity* to it which has resulted in rapid spread of the infection.

*We don’t know if patients who have recovered from COVID-19 have ongoing immunity.
How infectious is this virus??

COVID-19 (a.k.a. coronavirus)
(estimate up to date as of early March)

SARS
one sick person
how many people will catch the disease

Mumps

Rubella

Smallpox

Measles

R₀
Symptoms*

* Most patients develop symptoms within 4-5 days of infection.

COVID-19 symptoms may develop within 14 days of exposure and include*:

- Cough
- Fever
- Shortness of breath
Symptoms
As reported from China

- Fever: 88%
- Dry cough: 68%
- Fatigue: 38%
- Coughing up sputum, or thick phlegm, from the lungs: 33%
- Shortness of breath: 19%
- Bone or joint pain: 15%
- Sore throat: 14%
- Headache: 14%
- Chills: 11%
- Nausea or vomiting: 5%
- Stuffy nose: 5%
- Diarrhea: 4%
- Coughing up blood: 1%
- Swollen eyes: 1%

However....

No symptoms – up to 25% of infected patients!
Original Investigation
April 10, 2020

Neurologic Manifestations of Hospitalized Patients With Coronavirus Disease 2019 in Wuhan, China

Ling Mao1; Huijuan Jin1; Mengdie Wang1; et al

» Author Affiliations  |  Article Information

Symptoms – we’re still learning.

<table>
<thead>
<tr>
<th>Nervous system symptoms</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>78 (36.4)</td>
</tr>
<tr>
<td>CNS</td>
<td>53 (24.8)</td>
</tr>
<tr>
<td>Dizziness</td>
<td>36 (16.8)</td>
</tr>
<tr>
<td>Headache</td>
<td>28 (13.1)</td>
</tr>
<tr>
<td>Impaired consciousness</td>
<td>16 (7.5)</td>
</tr>
<tr>
<td>Acute cerebrovascular disease</td>
<td>6 (2.8)</td>
</tr>
<tr>
<td>Ataxia</td>
<td>1 (0.5)</td>
</tr>
<tr>
<td>Seizure</td>
<td>1 (0.5)</td>
</tr>
<tr>
<td>PNS</td>
<td>19 (8.9)</td>
</tr>
<tr>
<td>Impairment</td>
<td></td>
</tr>
<tr>
<td>Taste</td>
<td>12 (5.6)</td>
</tr>
<tr>
<td>Smell</td>
<td>11 (5.1)</td>
</tr>
<tr>
<td>Vision</td>
<td>3 (1.4)</td>
</tr>
<tr>
<td>Nerve pain</td>
<td>5 (2.3)</td>
</tr>
<tr>
<td>Skeletal muscle injury</td>
<td>23 (10.7)</td>
</tr>
</tbody>
</table>
Confirmed COVID-19 cases and deaths, United States, Jan 22, 2020 to Apr 14, 2020

The confirmed counts shown here are lower than the total counts. The main reason for this is limited testing and challenges in the attribution of the cause of death.

As of 4/16

629,264 cases
26,708 deaths

Source: European CDC – Situation Update Worldwide – Last updated 14th April, 11:00 (London time)  OurWorldInData.org/coronavirus • CC BY
Timeline and Oklahoma Cases

1st US Case

1st Meeting of the SPPOT Team

Public Health Webinar

Suspend travel to China

1st Oklahoma Case

1st Oklahoma Case

Media Briefing

State Senate Staffer

Daily preparedness meetings

2-3 per week meetings

131 deaths (5.6%)
### COVID-19 Cases by Age Grouping

<table>
<thead>
<tr>
<th>Age Group, Years</th>
<th>COVID-19 Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>00-04</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>05-17</td>
<td>41</td>
<td>0</td>
</tr>
<tr>
<td>18-35</td>
<td>426</td>
<td>5</td>
</tr>
<tr>
<td>36-49</td>
<td>483</td>
<td>3</td>
</tr>
<tr>
<td>50-64</td>
<td>597</td>
<td>15</td>
</tr>
<tr>
<td>65+</td>
<td>788</td>
<td>108</td>
</tr>
<tr>
<td>Total</td>
<td>2,357</td>
<td>131</td>
</tr>
<tr>
<td>Age Range: 0-102 yrs</td>
<td>Median Age: 56</td>
<td>Median Age: 74</td>
</tr>
</tbody>
</table>

### COVID-19 Deaths by Chronic Comorbidities

<table>
<thead>
<tr>
<th>Chronic Comorbidity</th>
<th>Y</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Liver Failure</td>
<td>N</td>
<td>6</td>
</tr>
<tr>
<td>Renal Failure</td>
<td>N</td>
<td>0</td>
</tr>
<tr>
<td>Diabetes</td>
<td>N</td>
<td>48</td>
</tr>
<tr>
<td>Chronic Lung Failure</td>
<td>N</td>
<td>20</td>
</tr>
<tr>
<td>Chronic Heart or Circulatory Disease</td>
<td>N</td>
<td>58</td>
</tr>
<tr>
<td>Other Chronic Condition</td>
<td>N</td>
<td>0</td>
</tr>
<tr>
<td>At least one Chronic Condition</td>
<td>N</td>
<td>83</td>
</tr>
</tbody>
</table>

*Data Source: Acute Disease Service, Oklahoma State Department of Health. Report as of April 15, 2020 at 7:00am*
The “iceberg” effect

You must assume that any person you encounter could be infected!

629,264 cases
26,708 deaths (4.2%)

??? Undiagnosed cases

https://coronavirus.jhu.edu/us-map
Data as of April 16, 2020
Some things I have learned.

• Asymptomatic spread of the virus is very common.
  • Most attempts at screening (temperature, questions) will not keep the disease out.

• Healthcare workers are at high risk.
• No treatment is proven effective yet (despite the hype).
• There is no shortage of misinformation out there
• A interdisciplinary process of preparedness planning has worked well!
dale-bratzler@ouhsc.edu