

Research Update is published by the Butler Center for Research to share significant scientific findings from the field of addiction treatment research.

Breaking Research on the Novel Coronavirus: Putting All the Pieces Together

During this global pandemic, Butler Center for Research has compiled and synthesized emerging research on COVID-19. We highlight breaking research to inform the public and leaders of communities and institutions. *We will continue to update this document as research emerges.*

We encourage all to take this pandemic seriously but to continue using wisdom in their individual and collective responses to this health crisis. Fear-based reactivity will make our circumstances more painful than they need to be. Please use the information provided here to inform our collective wisdom in responding to this crisis together.

1. "Mild" COVID-19 includes pneumonia in a majority of infections.

Lian et al. (2020) conducted a study of 788 patients with confirmed COVID-19 in China. The authors compared preexisting conditions, lab results and CT imaging of patients under 60 (652 people) to patients over 60 (136 people). Notably, the authors found:

- 608 of the 652 patients under 60 (93.25%) and 102 of 136 patients over 60 (75.0%) had mild cases of COVID-19
- However, 86.5% of patients under 60 and 95.1% of patients over 60 with mild cases of COVID-19 also developed pneumonia

Key Takeaway: Pneumonia occurs in the vast majority of cases of COVID-19. Reports from frontline providers and current medical protocols for admittance indicate that the criteria for hospitalization are much higher in this current pandemic, thus some cases of pneumonia that would previously have been treated with additional medical support are being discharged to home care. Consequently, recovery from even mild cases of COVID-19, given its co-occurrence with pneumonia, may be significantly extended.

2. Stanford researchers confirm that N95 masks can be sterilized and reused with virtually no loss of filtration efficiency by leaving masks in an oven for 30 minutes at 70° C/158° F.

Key Takeaway: Shortages of N95 masks may be alleviated with implementation of a simple sterilization protocol.

3. Gastrointestinal/digestive symptoms occur in significant portion of hospitalized patients:

Pan et al. (2020) conducted a study of 204 patients with pneumonia and confirmed cases of COVID-19 in the Hubei province in China who sought help for the virus at a hospital.

- 50.5% reported a digestive symptom, including lack of appetite (78.6%), diarrhea (34%), vomiting (3.9%) and abdominal pain (1.9%)
- In 5.8% of cases, patients with the virus presented with digestive symptoms in the absence of respiratory symptoms

- These patients waited significantly longer to seek help at a hospital than those without digestive symptoms (9 days versus 7.3 days)
- As severity of virus increased, digestive symptoms became more pronounced

Key Takeaway: Digestive symptoms should not be dismissed as an early symptom of the novel coronavirus and should be monitored closely as these symptoms may be linked to the overall severity of infection.

4. Children can develop COVID-19, but their cases are often milder:

Dong et al. (2020) conducted a retrospective study of 2,143 pediatric patients with COVID-19 in China (34.1% confirmed, 65.9% suspected based on symptoms).

- Overall, only 5.9% of pediatric cases were considered severe or critical (compared to 18.5% of adult patients in China)
- Infants and young children (under five years) are more susceptible to severe or critical illness (10.6% and 7.3%, respectively) with risk diminishing up to age 18

Key Takeaway: While children may be at less risk than adults for developing severe or critical cases, the existing risk is not negligible, particularly for infants and young children.

In the News: Commentary on our Collective Path Forward

Dr. Tom Frieden, the former director of the U.S. Centers for Disease Control and Prevention, wrote an article outlining one path forward, prefaced on the fact that the world will need to continue to fight this virus until a vaccine becomes available. Given the impossibility of sheltering in place for a year to 18 months, this plan addresses the immediate need to utilize containment and mitigation strategies to stop the current outbreak of cases, followed by a targeted strategy drawing from best practices that have proven successful in South Korea and now China. This so-called "third phase" is characterized by suppression, involving extensive testing and contact tracing to determine those who came into contact with confirmed cases that require isolation for 14 days after the known exposure.

Data Modeling: Helpful Visualizations Related to the Coronavirus

1. Projections of Virus Spread by U.S. State with Various Mitigation and Containment Strategies

A team of data scientists in partnership with epidemiologists and others created an interactive graphic to help communities understand how the pandemic will specifically affect their region, assisting public officials as they make decisions with incomplete data.

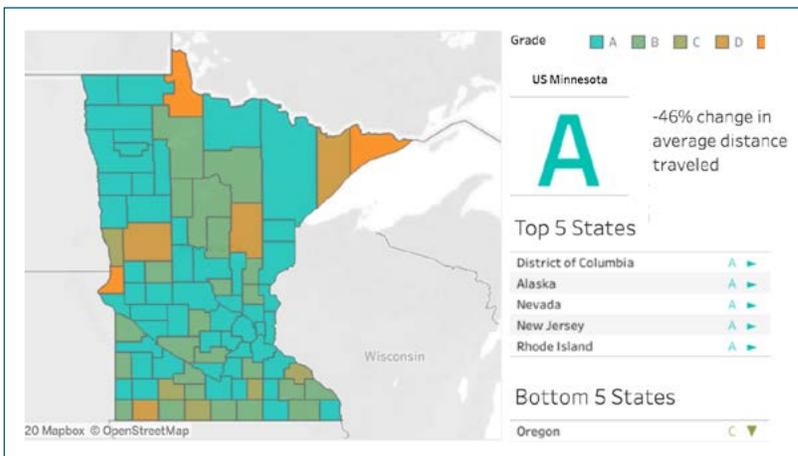
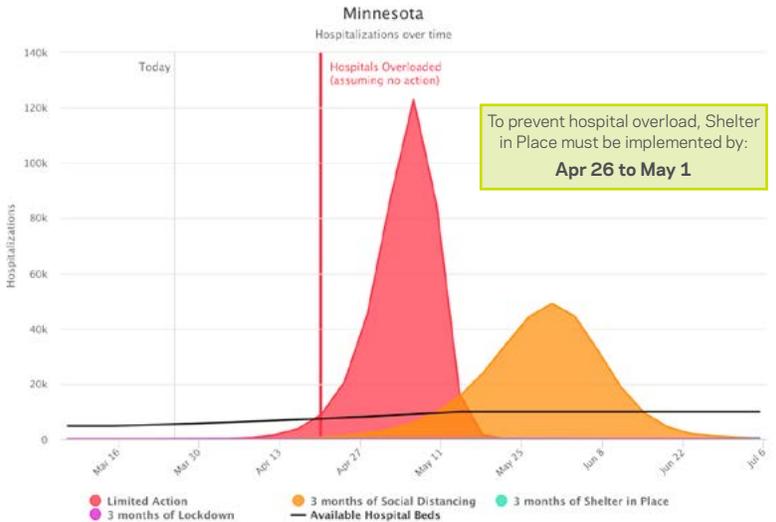
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Each state has four trend lines predicting the number of hospitalizations if: 1) limited action is taken, 2) three months of voluntary social distancing is undertaken, 3) three months of mandated shelter in place orders are instituted and 4) three months of lockdown are instituted (similar to Wuhan and Italy's approaches).

For example, as of March 19, 2020, Minnesotans were amidst a voluntary period of social distancing; if this continues with no additional shutdowns, hospitals would be projected to be overloaded around April 21, 2020.

2. Visualization of Impact of Social Distancing by U.S. State

Social distancing is one of the best epidemiological tools to slow the spread of COVID-19; however, because it is undertaken on a voluntary basis, it is difficult to know to what degree it is being



followed across a population. One company, Unacast, created the "Social Distancing Scoreboard." Using the change in distance traveled (from smartphone location data) as a proxy for how well Americans seem to be adhering to these voluntary distancing guidelines, they created a dynamic visual that scores each state according to how much less their residents are moving around.

For example, Minnesota was given an 'A' for a 45.66% decrease in the average distance traveled from pre-coronavirus to post-coronavirus (compared to the U.S. average of 39.84%).

Emerging Themes from Health Care Providers: Trends to Consider in Future Datasets

1. Anecdotal evidence across the world suggests that a loss of one's sense of smell and/or taste is associated with the COVID-19 virus, with a loss of a sense of smell (anosmia) in particular seen in patients with no other symptoms who eventually tested positive for the virus. Because of this, the American Academy of Otolaryngology-Head and Neck Surgery has recently proposed that these symptoms be added to the list of screening tools for possible COVID-19 infection.
2. Clinical definitions for the severity of a virus can take years to develop and finalize. While most people have heard that 80% of COVID-19 cases are "mild," this does not mean the symptoms in these mild cases are not concerning. In fact, some reports suggest that about half of these cases (40% of all cases) involve moderately severe pneumonia. Consequently, even though these cases do not require hospitalization, they can take weeks to recover and may involve a great deal of discomfort and concern for those afflicted and their families.

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The Butler Center for Research informs and improves recovery services and produces research that benefits the field of addiction treatment. We are dedicated to conducting clinical research, collaborating with external researchers and communicating scientific findings.

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