

# ***Long-term Effects of COVID on Patients***

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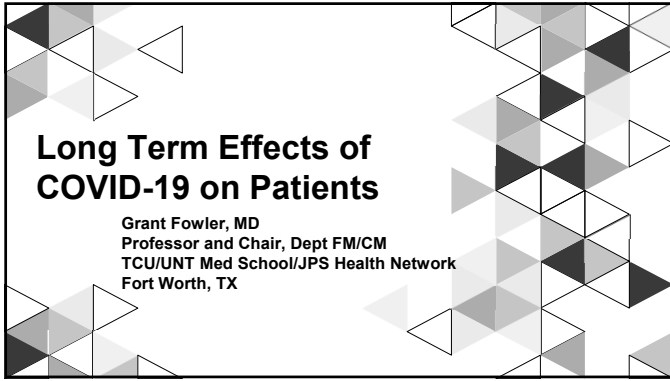
### **Educational Objectives**

By completing this educational activity, the participant should be better able to:

1. Describe latest findings regarding Long-Covid including prevalence.
2. Describe behavioral and psychological/psychiatric effects of Covid.
3. Describe treatment options for Long-Covid including psychological/psychiatric.

### **Speaker Disclosure**

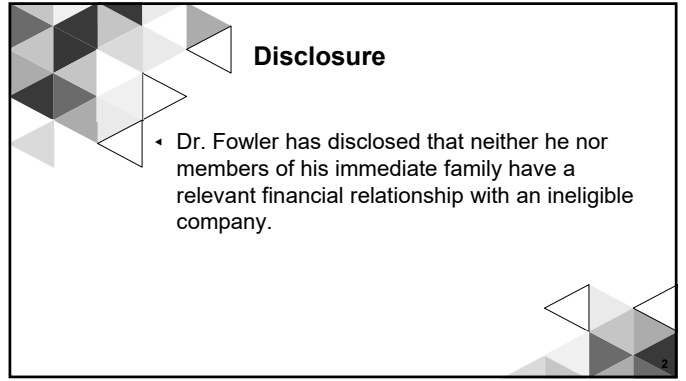
Dr. Fowler has disclosed that neither he nor members of his immediate family have a relevant financial relationship with an ineligible company.



# Long Term Effects of COVID-19 on Patients

Grant Fowler, MD  
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 TCU/UNT Med School/JPS Health Network  
 Fort Worth, TX

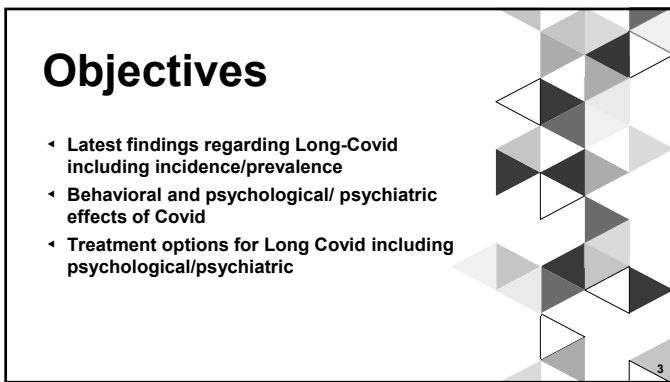
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## Disclosure

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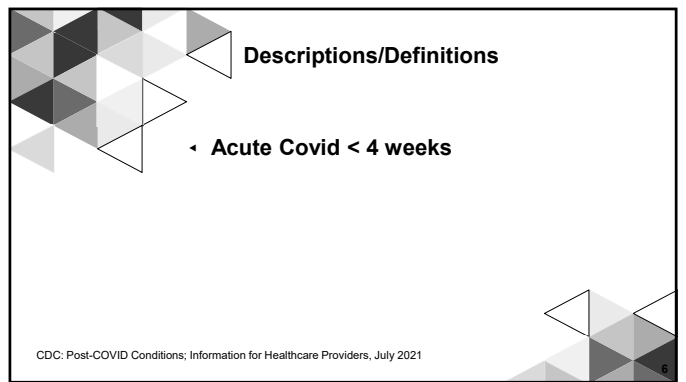
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## Objectives

- Latest findings regarding Long-Covid including incidence/prevalence
- Behavioral and psychological/ psychiatric effects of Covid
- Treatment options for Long Covid including psychological/psychiatric

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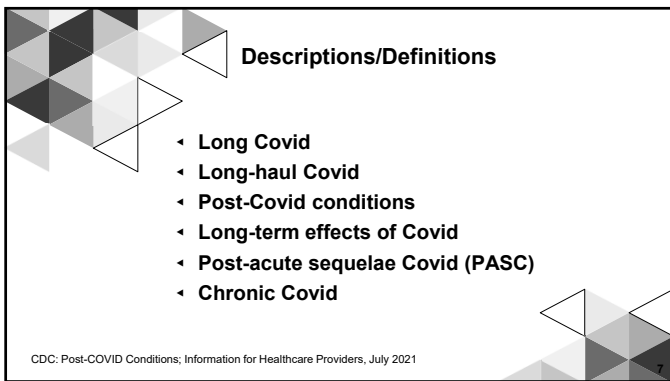


## Descriptions/Definitions

- Acute Covid < 4 weeks

CDC: Post-COVID Conditions; Information for Healthcare Providers, July 2021

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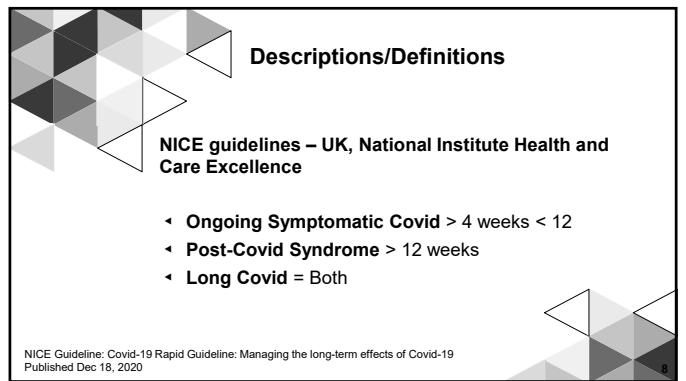


## Descriptions/Definitions

- Long Covid
- Long-haul Covid
- Post-Covid conditions
- Long-term effects of Covid
- Post-acute sequelae Covid (PASC)
- Chronic Covid

CDC: Post-COVID Conditions; Information for Healthcare Providers, July 2021

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## Descriptions/Definitions

NICE guidelines – UK, National Institute Health and Care Excellence

- Ongoing Symptomatic Covid > 4 weeks < 12
- Post-Covid Syndrome > 12 weeks
- Long Covid = Both

NICE Guideline: Covid-19 Rapid Guideline: Managing the long-term effects of Covid-19  
 Published Dec 18, 2020

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### Descriptions/Definitions

- ◀ Even people who did not have COVID-19 symptoms in the days or weeks after they were infected can have post-COVID conditions
- ◀ The following symptoms can happen even if the illness was mild or no symptoms

CDC: Post-COVID Conditions; Information for Healthcare Providers, July 2021

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<ul style="list-style-type: none"> <li>Dyspnea or increased respiratory effort</li> <li>Fatigue</li> <li>Post-exertional malaise and/or poor endurance</li> <li>"Brain fog," or cognitive impairment</li> <li>Cough</li> <li>Chest pain</li> <li>Headache</li> <li>Palpitations and/or tachycardia</li> <li>Arthralgia</li> <li>Myalgia</li> <li>Paresthesia</li> </ul>	<ul style="list-style-type: none"> <li>Abdominal pain</li> <li>Diarrhea</li> <li>Insomnia and other sleep difficulties</li> <li>Fever</li> <li>Lightheadedness</li> <li>Impaired daily function and mobility</li> <li>Pain</li> <li>Rash (e.g., urticaria)</li> <li>Mood changes</li> <li>Anosmia or dysgeusia</li> <li>Menstrual cycle irregularities</li> </ul>
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### Hospitalized Patients

- ◀ Most common symptoms are fatigue, dyspnea, myalgia

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### Prevalence of Long-Covid?

- ◀ UK Office for National Statistics – 10%
- ◀ 90% with Long-Covid report symptoms at 9 months
- ◀ 67% not able to return previous levels of work

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### Prevalence of Long-Covid? Most Common Symptoms

- ◀ Fatigue – 15 to 87%
- ◀ Dyspnea – 10 to 71%
- ◀ Chest pain or tightness – 12 to 44%
- ◀ Cough – 17 to 34%

Multiple studies and UpToDate

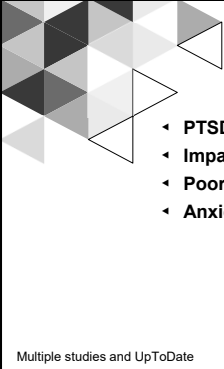
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### Prevalence of Long-Covid? Most Common Symptoms and Time to Resolution

- ◀ Fatigue – 15 to 87% (3 mo or more)
- ◀ Dyspnea – 10 to 71% (2 to 3 mo or more)
- ◀ Chest pain or tightness – 12 to 44% (2 to 3 mo)
- ◀ Cough – 17 to 34% (2 to 3 months or longer)

Multiple studies and UpToDate

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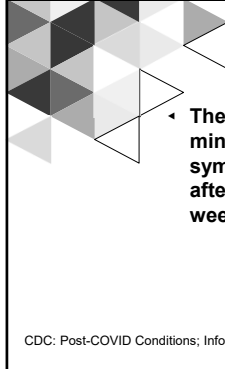


### Prevalence of Long-Covid? Psychologic and Neurocognitive

- ◀ PTSD – 7 to 24% (6 weeks to 3 mo or more)
- ◀ Impaired memory – 18 to 21% (weeks to months)
- ◀ Poor concentration – 16% (weeks to months)
- ◀ Anxiety/ depression – 22+% (weeks to months)

Multiple studies and UpToDate

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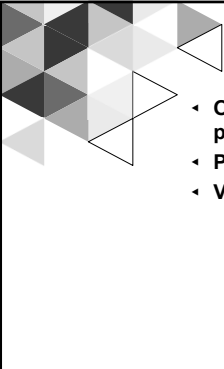


### Post Exertional Malaise

- ◀ The worsening of symptoms following even minor physical or mental exertion, with symptoms typically worsening 12 to 48 hours after activity and lasting for days or even weeks

CDC: Post-COVID Conditions; Information for Healthcare Providers, July 2021

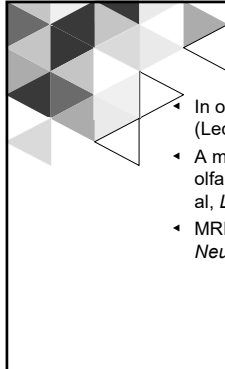
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### Etiology of Long-Covid?

- ◀ Organ dysfunction following the acute phase?
- ◀ Post-traumatic stress linked to disease?
- ◀ Viral persistence?

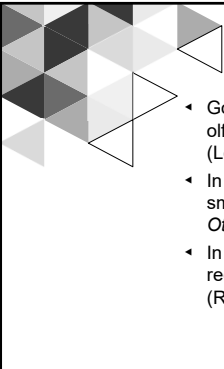
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### Anosmia and Dysgeusia

- ◀ In one series, occurs in greater than 80% of patients (Lechian JR, et al, *Eur Arch Otorhinolaryngol*, 2020)
- ◀ A meta-analysis of 83 studies with 27,000 patients, olfactory symptoms reported in 48% (Saniasiya J, et al, *Laryngoscope* 2021)
- ◀ MRI findings in olfactory bulbs (Aragao, *AM J Neuroradiology*, 2020) which can resolve

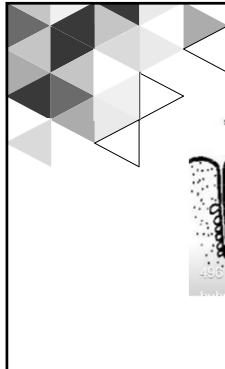
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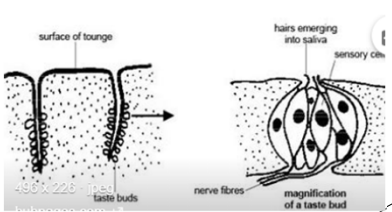
### Anosmia and Dysgeusia

- ◀ Good news: in one series, of 33% who recovered olfactory function, mean symptom duration- 8 days (Lechian again)
- ◀ In non-hospitalized patients in Italy, 83% recovered smell in mean of 37 days (Paderno A, et al, *Otolaryngol Head Neck Surg*, 2020)
- ◀ In 51 patients who underwent objective testing, full recovery at 4 and 8 months was 84 and 96% (Renaud M, et al, 2021)

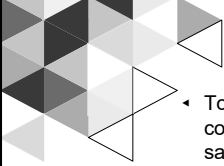
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### Dysgeusia



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### Treatment of Anosmia

- Topical corticosteroid sprays and rinses may be considered in the appropriate patient (relatively safe and evidence supports use in setting of chronic rhinosinusitis)
- Olfactory training (Sorokowska A, et al, *Rhinology* 2017)

Levy JM, et al *JAMA Otolaryngol Head Neck Surg.* 2020

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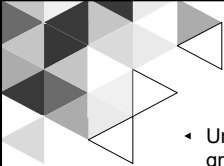
### Effect of Covid Vaccination on Long-Covid

- 951 patients in the study with self-reported or confirmed Covid
- Half randomized to vaccination group
- 3 observation points: At baseline, day 60 and day 120

Tran, V., Perrodeau, E., Saldanha, J., et al. (2021) Efficacy of COVID-19 vaccination on the symptoms of patients with long COVID: a target trial emulation using data from the ComPaRe e-cohort in France. <https://ssrn.com/abstract=3932953>, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=39329531](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=39329531)

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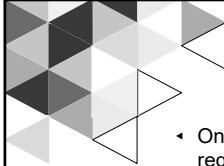
### Effect of Covid Vaccination on Long-Covid

- Unacceptable symptom state 38.9% vaccine group versus 46.4% control

Tran, V., Perrodeau, E., Saldanha, J., et al. (2021) Efficacy of COVID-19 vaccination on the symptoms of patients with long COVID: a target trial emulation using data from the ComPaRe e-cohort in France. <https://ssrn.com/abstract=3932953>, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=39329531](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=39329531)

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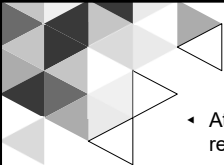
### Effect of Covid Vaccination on Long-Covid

- Only 2 (0.4%) reported an adverse effect that required hospitalization

Tran, V., Perrodeau, E., Saldanha, J., et al. (2021) Efficacy of COVID-19 vaccination on the symptoms of patients with long COVID: a target trial emulation using data from the ComPaRe e-cohort in France. <https://ssrn.com/abstract=3932953>, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=39329531](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=39329531)

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### Effect of Covid Vaccination on Long-Covid

- At 120 days, 16.6% of vaccinated patients reported remission of symptoms; 7.5% in control group
- Mean Long Covid IT score vaccinated 24.3 versus 27.6 in control group (statistically significant)

Tran, V., Perrodeau, E., Saldanha, J., et al. (2021) Efficacy of COVID-19 vaccination on the symptoms of patients with long COVID: a target trial emulation using data from the ComPaRe e-cohort in France. <https://ssrn.com/abstract=3932953>, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=39329531](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=39329531)

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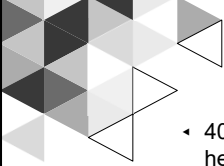


### Effect of Covid Vaccination on Long-Covid

- Vaccination also prevents Covid; therefore, decreases likelihood of Long-Covid by 49% (Antonelli M, et al, *Lancet* Sept 2021)

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**What's the Impact of Covid?  
June 24-30, 2020 Survey**

- ◀ 40% of U.S. adults struggling with mental health or substance abuse

Czeisler MĒ, Lane RI, Petrosky E, et al. Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1049–1057. DOI: <http://dx.doi.org/10.15585/mmwr.mm6932a1>

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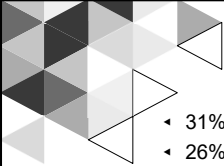


**What's the Impact?  
June 24-30, 2020 Survey**

- ◀ Anxiety prevalence 3X that of 2019 (31% v 8%)
- ◀ Depressive disorder 4X that of 2019 (24% v 7%)

Czeisler MĒ, Lane RI, Petrosky E, et al. Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1049–1057. DOI: <http://dx.doi.org/10.15585/mmwr.mm6932a1>

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**What's the Impact?  
June 24-30, 2020 Survey**

- ◀ 31% of adults with anxiety
- ◀ 26% with trauma or stressor related symptoms
- ◀ 13% started or increased substance abuse
- ◀ 11% seriously considered suicide

Czeisler MĒ, Lane RI, Petrosky E, et al. Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1049–1057. DOI: <http://dx.doi.org/10.15585/mmwr.mm6932a1>

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**What's the Impact?  
June 24-30, 2020 Survey**

- ◀ Younger adults, racial/ethnic minorities, essential workers, and unpaid adult caregivers with worse mental health outcomes, increased substance abuse, and elevated suicidal ideation

Czeisler MĒ, Lane RI, Petrosky E, et al. Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1049–1057. DOI: <http://dx.doi.org/10.15585/mmwr.mm6932a1>

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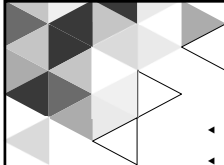


**What's the Impact?  
June 24-30, 2020 Survey**

- ◀ **Age 18-24**
- ◀ 63% with anxiety or depression
- ◀ 25% with substance abuse
- ◀ 26% seriously considered suicide in last 30 days

Czeisler MĒ, Lane RI, Petrosky E, et al. Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1049–1057. DOI: <http://dx.doi.org/10.15585/mmwr.mm6932a1>

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**What's the Impact?  
June 24-30, 2020 Survey**

- ◀ **Essential Worker**
- ◀ 42% with anxiety or depression
- ◀ 25% with substance abuse
- ◀ 22% seriously considered suicide

Czeisler MĒ, Lane RI, Petrosky E, et al. Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1049–1057. DOI: <http://dx.doi.org/10.15585/mmwr.mm6932a1>

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### What's the Impact? June 24-30, 2020 Survey

- ◀ **Unpaid Caregiver**
- ◀ 56% with anxiety or depression
- ◀ 33% with substance abuse
- ◀ 31% seriously considered suicide

Czeisler ME, Lane RI, Petrosky E, et al. Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:1049–1057. DOI: <http://dx.doi.org/10.15585/mmwr.mm6932a1>

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### What does the data show?

- ◀ A majority of comprehensive data-based studies report a modest reduction in total suicide rates whereas the remainder report no significant net increase in suicide rates during the first year of the COVID-19 pandemic

Tandon R *Asian J Psychiatr* Jun 2021

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### What does the data show?

- ◀ The age-adjusted rate of completed suicides decreased 13% in Connecticut during the strict stay-at-home COVID-19 quarantine
- ◀ The proportion of suicide decedents from racial minority groups significantly increased during the lockdown period

Mitchell, TO, et al *Psych Research* Dec 2020

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### What does the data show?

- ◀ A large body of research literature documents the potentially harmful effects of news reporting of suicide deaths on population suicide rates
- ◀ Description of suicide methods, sensational headlines, and excessive reporting can lead to suicidal behavior among vulnerable people

Tandon R *Asian J Psychiatr* Jun 2021


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### Increased Alcohol Sales

- ◀ March 21, 2020, Nielson reported 54% increase alcohol sales compared to year prior
- ◀ Online alcohol sales increased 262% from year prior

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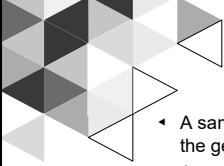


### Increased Alcohol Consumption

- ◀ Rand Corp study of 1540 adults aged 30 to 59
- ◀ Alcohol consumption increased by 14% compared to a year ago (17% for women)
- ◀ 41% increase heavy drinking for women (16% for men, defined as 4 or more drinks within couple hours for women, 5 or more for men)

Pollard MS, et al, *JAMA Network Open*. 2020;3(9):e2022942. doi:10.1001/jamanetworkopen.2020.22942

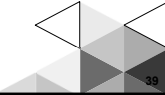
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### What does data show?

- A sample of 2871 adults (79% women) recruited from the general population
- Among participants, 49.1% of the population reported stable alcohol consumption, 24.5% reported a decreased in alcohol consumption since the beginning of the lockdown and 26.4% reported an increase in consumption.

Schmitz E, et al, *Int J Mental Health Addiction* 2021 Jan



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### What does data show?


A study of 305 young adults in Spain, ages 18-26 years

Quantity and frequency of alcohol use decreased from the pre- to post-COVID-19 period. A decrease in drinking frequency was observed among college students, but not in noncollege peers

del Valle Vera, B, et al, *J Clin Med* 2021 Oct



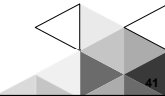
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### Risk of Suicide – Substance Abuse

- Individuals with alcohol use disorder, opioid dependence, or mixed drug use have a 10X, 14X and 17X, respectively, greater likelihood of suicide compared to general population

McIntyre JS et al, Practice Guidelines for the Treatment of Patients with Substance Use Disorder, 2<sup>nd</sup> ed, APA, 2010.  
[https://psychiatryonline.org/pb/assets/raw/sitewide/practice\\_guidelines/guidelines/substanceuse.pdf](https://psychiatryonline.org/pb/assets/raw/sitewide/practice_guidelines/guidelines/substanceuse.pdf)




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### Vulnerable Populations During Covid

- For individuals with pre-existing mental health issues (e.g., anxiety, depression, schizophrenia, bipolar, substance abuse), what has impacted everyone else can also trigger exacerbations

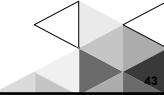


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### Additional Triggers for Patients with Pre-existing Mental Health Disorders

- Stress
- Social isolation
- Mental health facilities closed or reduced to telehealth
- Difficulty obtaining medications
- Less mental health resources available in general




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### Additional Triggers for Patients with Pre-existing Mental Health Disorders

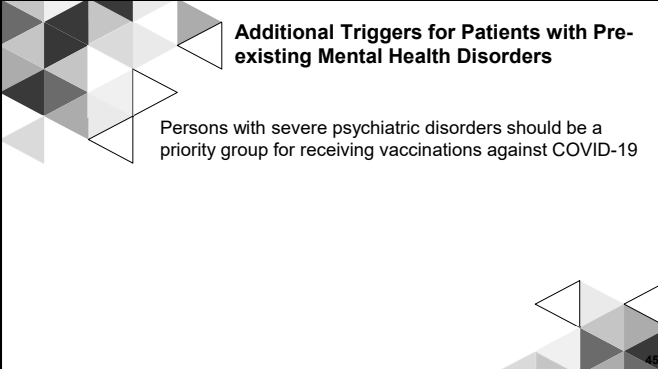
There have been consistent findings of excess mortality in those with psychiatric disorders (Giattino et al., 2020)

This higher mortality was related to direct and indirect effects of COVID-19 and unrelated to suicide



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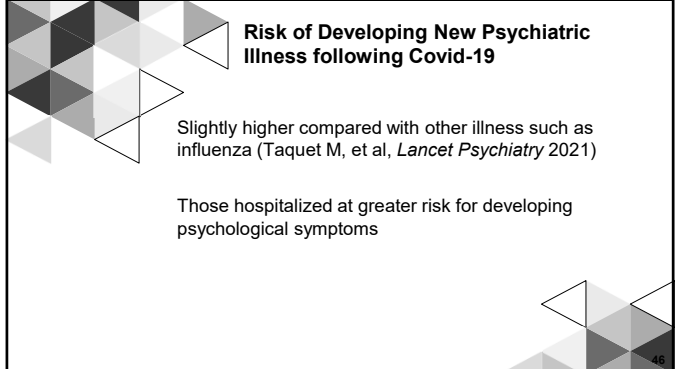




**Additional Triggers for Patients with Pre-existing Mental Health Disorders**

Persons with severe psychiatric disorders should be a priority group for receiving vaccinations against COVID-19

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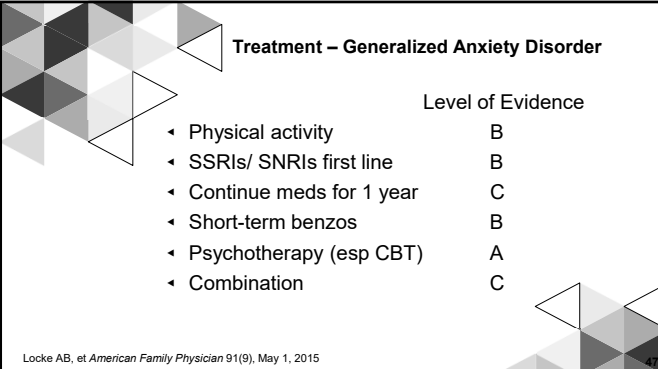


**Risk of Developing New Psychiatric Illness following Covid-19**

Slightly higher compared with other illness such as influenza (Taquet M, et al, *Lancet Psychiatry* 2021)

Those hospitalized at greater risk for developing psychological symptoms

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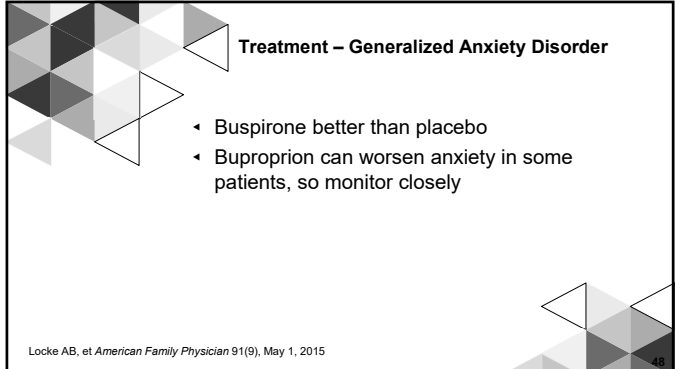


**Treatment – Generalized Anxiety Disorder**

	Level of Evidence
• Physical activity	B
• SSRIs/ SNRIs first line	B
• Continue meds for 1 year	C
• Short-term benzos	B
• Psychotherapy (esp CBT)	A
• Combination	C

Locke AB, et *American Family Physician* 91(9), May 1, 2015

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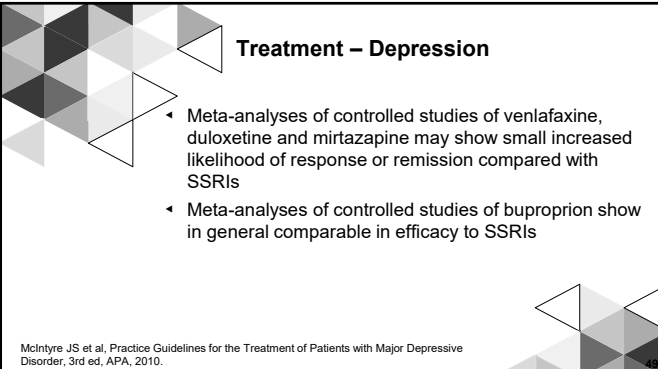


**Treatment – Generalized Anxiety Disorder**

- Buspirone better than placebo
- Bupropion can worsen anxiety in some patients, so monitor closely

Locke AB, et *American Family Physician* 91(9), May 1, 2015

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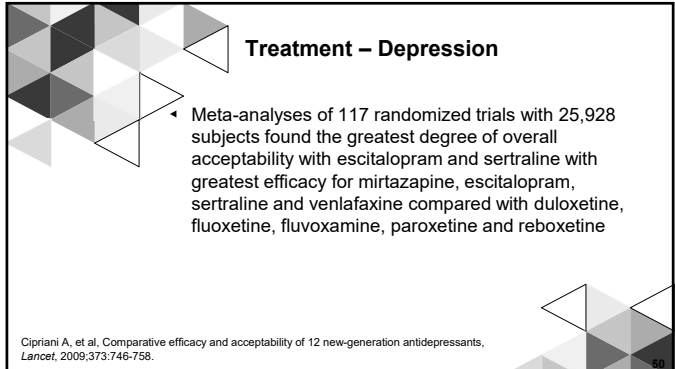


**Treatment – Depression**

- Meta-analyses of controlled studies of venlafaxine, duloxetine and mirtazapine may show small increased likelihood of response or remission compared with SSRIs
- Meta-analyses of controlled studies of bupropion show in general comparable in efficacy to SSRIs

McIntyre JS et al, *Practice Guidelines for the Treatment of Patients with Major Depressive Disorder*, 3rd ed, APA, 2010.

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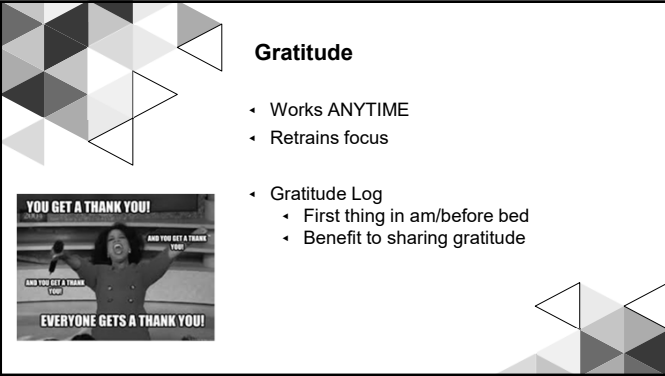


**Treatment – Depression**

- Meta-analyses of 117 randomized trials with 25,928 subjects found the greatest degree of overall acceptability with escitalopram and sertraline with greatest efficacy for mirtazapine, escitalopram, sertraline and venlafaxine compared with duloxetine, fluoxetine, fluvoxamine, paroxetine and reboxetine


Cipriani A, et al, *Comparative efficacy and acceptability of 12 new-generation antidepressants*, *Lancet*, 2009;373:746-758.

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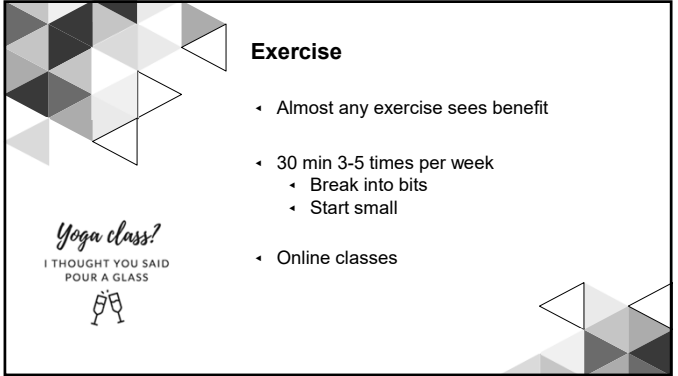


### Gratitude

- Works ANYTIME
- Retrains focus
- Gratitude Log
  - First thing in am/before bed
  - Benefit to sharing gratitude




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### Exercise

- Almost any exercise sees benefit
- 30 min 3-5 times per week
  - Break into bits
  - Start small
- Online classes

*Yoga class?*  
I THOUGHT YOU SAID  
POUR A GLASS



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