

Today's Agenda

Time (MT)	Presentation	Presenter(s)
Noon – 12:05 pm	Welcome, Announcements, Introductions	Lachelle Smith, Director, ECHO Idaho
12:05 – 12:10 pm	Idaho Epidemiology Curves and Public Health Updates	Carolyn Buxton Bridges, MD, FACP
12:10 – 12:15 pm	Treatment Updates	Cathy Oliphant, PharmD
12:15 – 12:35 pm	Self-Care for Healthcare During COVID-19	Amy Walters, PhD
12:35 – 12:55 pm	COVID-19 Patient Case Discussion	ECHO Community of Practice
12:55 – 1 pm	Closing Pearls, Announcements, Call to Action	Megan Dunay, MD Lachelle Smith, Director, ECHO Idaho

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Idaho Epidemiology Curves and Public Health Updates

Carolyn Buxton Bridges, MD, FACP

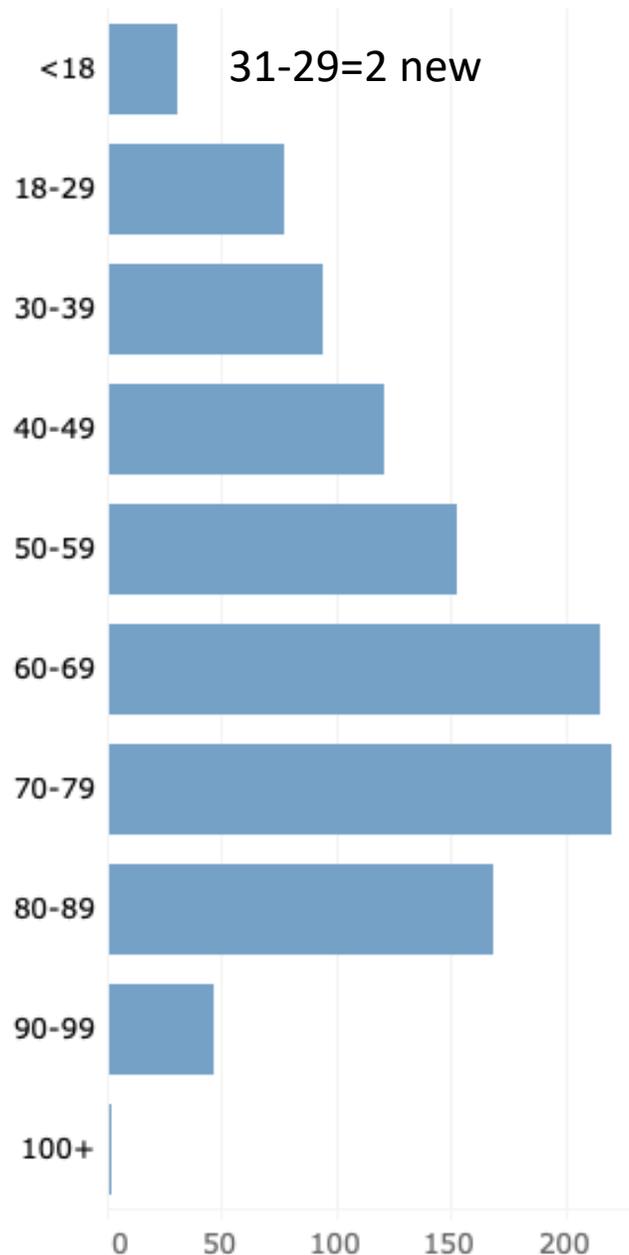
Governor's Coronavirus Working Group, Former CDC Public Health Physician and Researcher

Case Counts and SARS-CoV-2 PCR Testing in Idaho

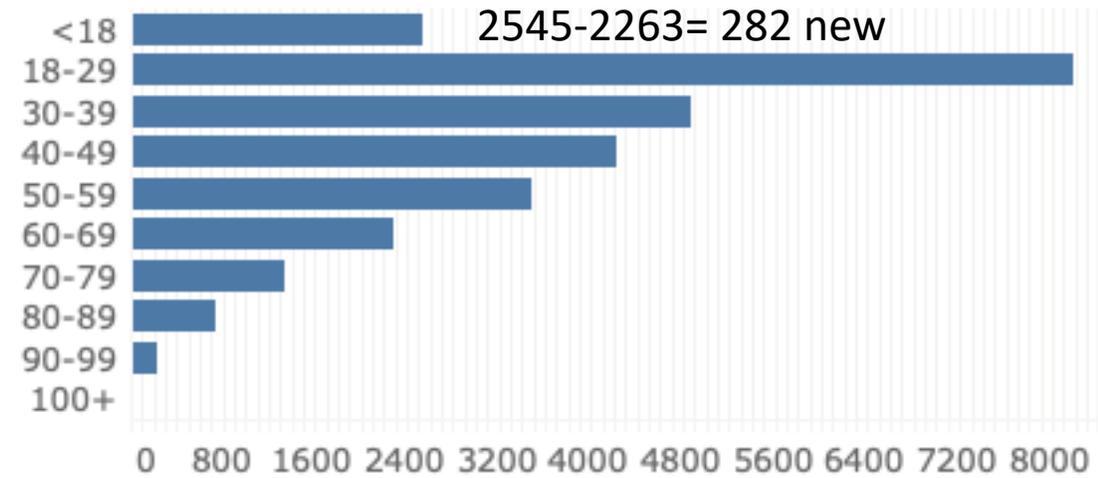
	5/19/2020	6/15/2020	7/13/2020 (comparison with prior mon)	8/2/2020 (comparison with prior wk.)	8/10/2020	8/17/2020
Total lab-confirmed and probable	2,455	3,462 (Δ 556)	11,402 (Δ 7,940)	21,675 (Δ 2,981)	25,100 (Δ 3,425)	27,942 (Δ 2,842)
Deaths	74 CFR =3.0	88 CFR =2.5	102 (Δ 14) CFR =0.18	200 (Δ 48) CFR=1.61	239 (Δ 39) CFR=1.14	273 (34 Δ) CFR=1.20
Hospitalizations	213	270	500 (Δ 230)	886 (Δ 136)	1006 (Δ 120)	1129 (Δ 123)
ICU admissions	89	100	144 (Δ 44)	256 (Δ 32)	282 (Δ 26)	316 (Δ 34)
Healthcare personnel	295	366 (Δ 57)	760 (Δ 394)	1271 (Δ 195)	1467 (Δ 196)	1660 (Δ 193)
Total tests	37,847	65,306 (Δ 17,436)	129,540 (Δ 64,234)	186,475 (Δ 16,887)	206,830 (Δ 20,355)	225,018 (Δ 18,188)

<https://coronavirus.idaho.gov>

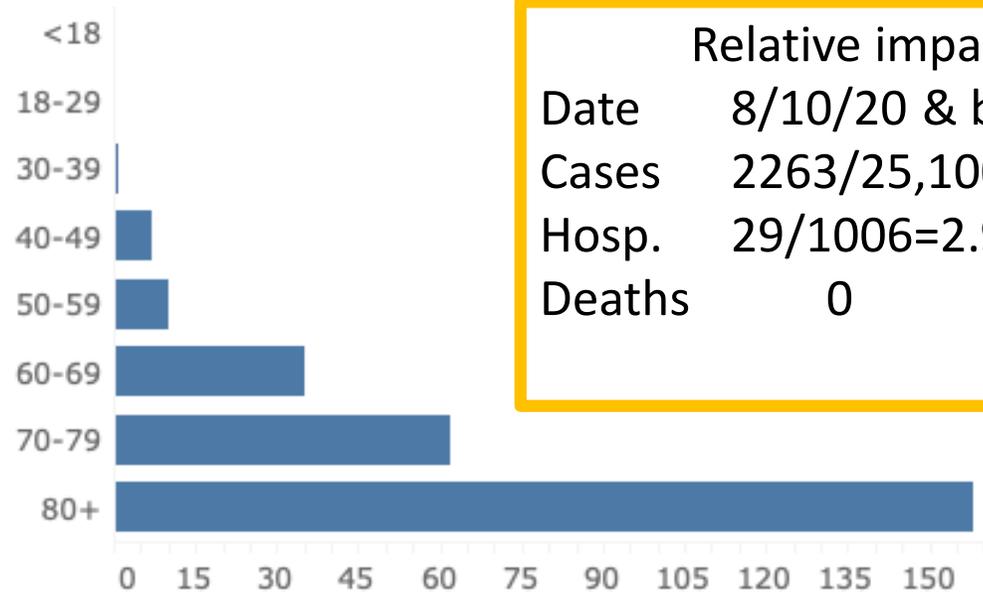
Age group of Idahoans ever hospitalized with COVID-19



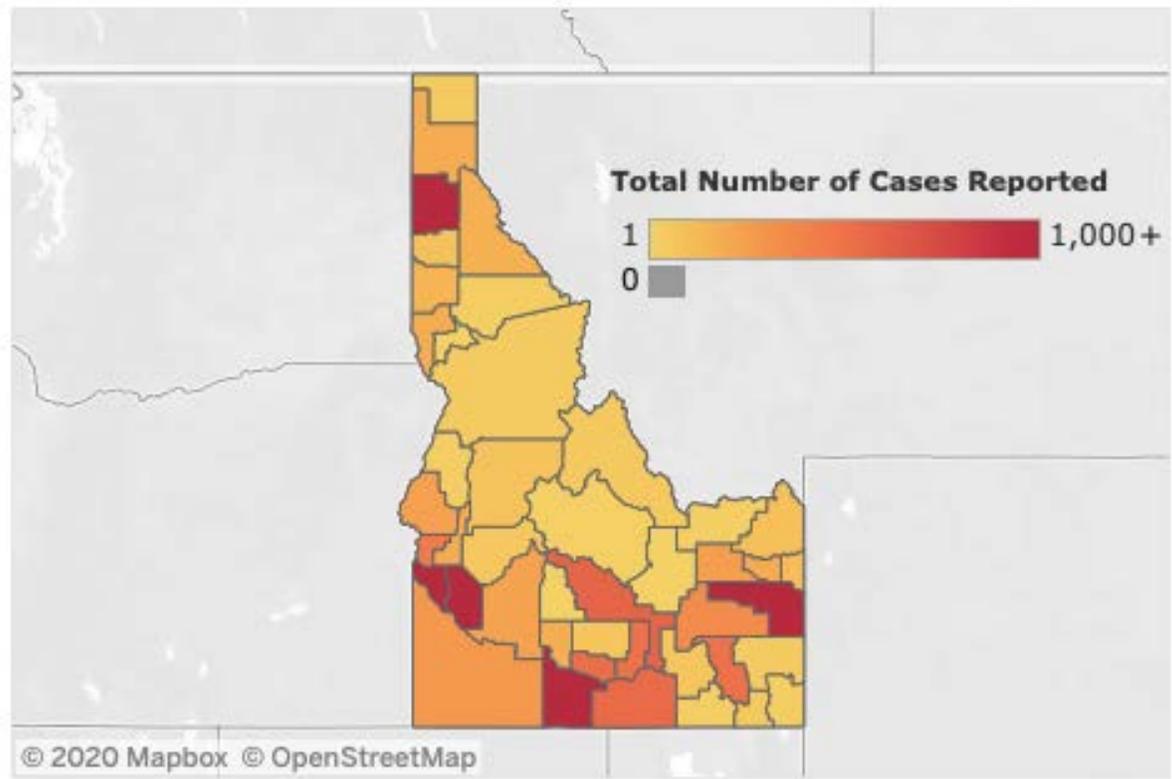
Cases by Age-Group



Deaths by Age-Group



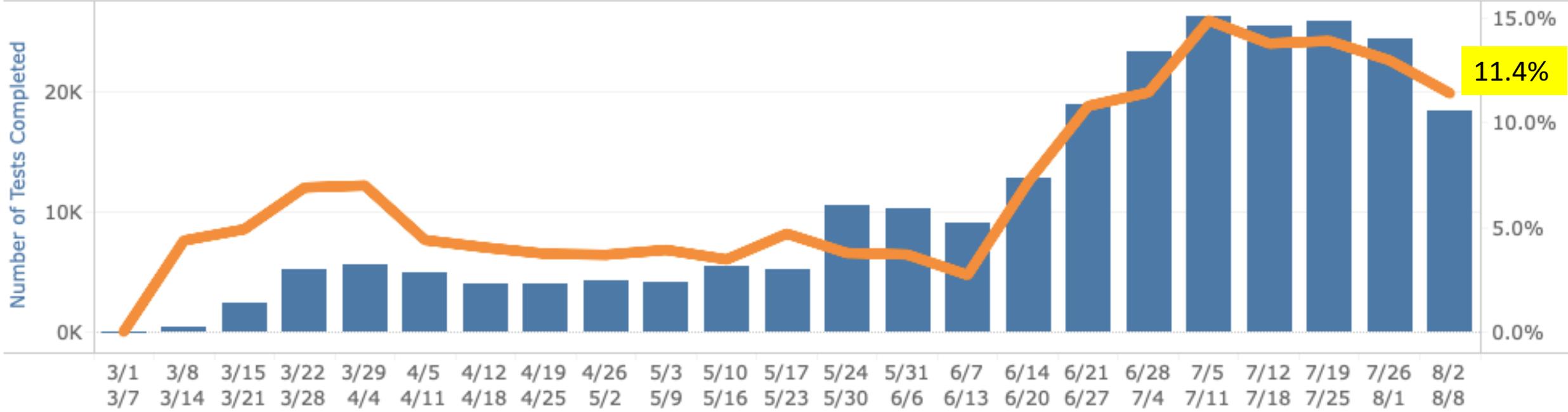
Relative impact in 0-17 year olds thus far		
Date	8/10/20 & before	8/17/20 & after
Cases	2263/25,100=9.0%	282/2842=9.9%
Hosp.	29/1006=2.9%	2/123=1.6%
Deaths	0	0



Total cases per 100,000 by county

- Ada 2083
- Canyon 2794
- Kootenai 1203
- Bonneville 1124
- Twin Falls 1764
- Blaine 2545

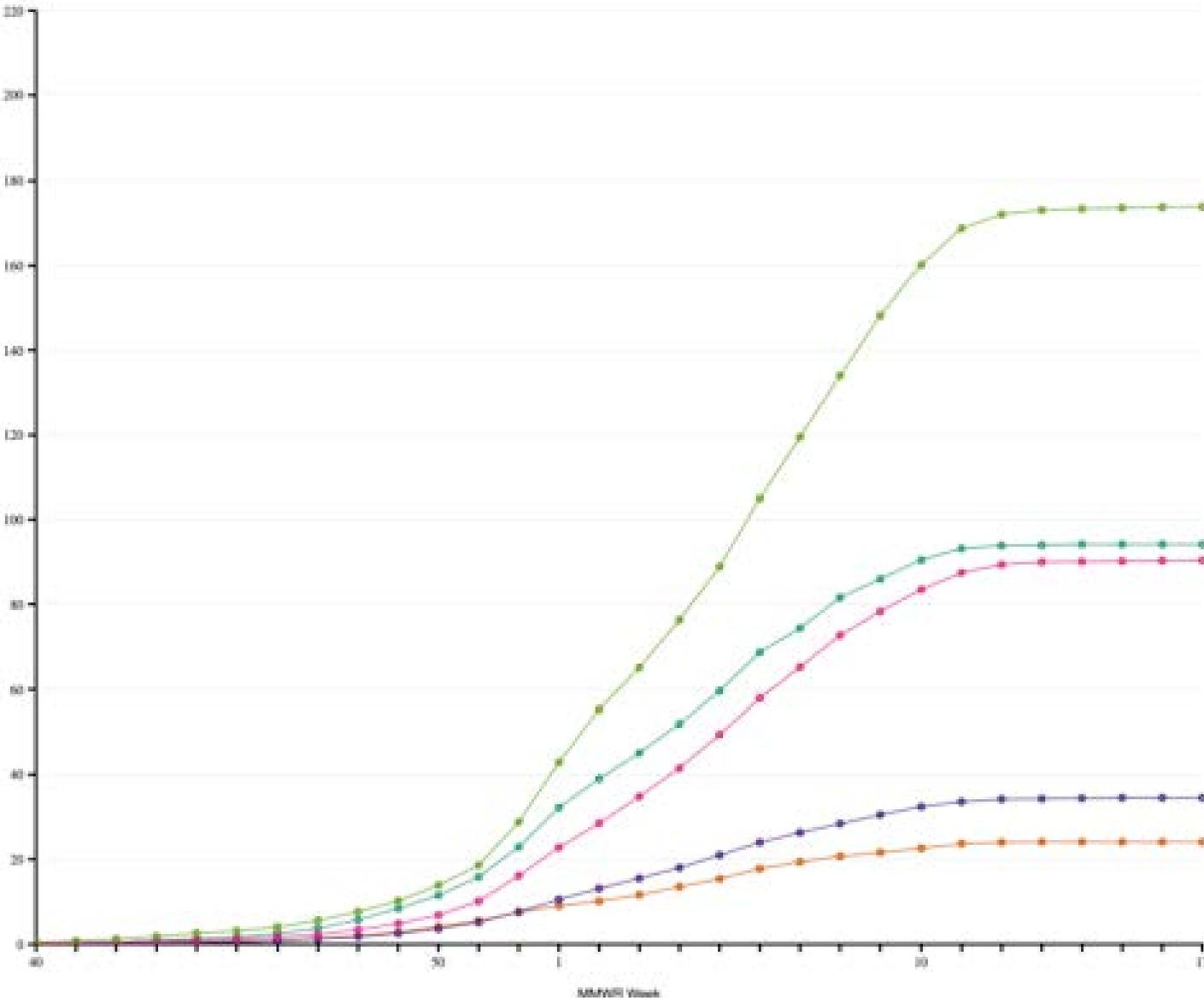
Weekly PCR Laboratory Tests Completed and Percent Positivity by Specimen Collection Date¹



Laboratory-Confirmed Influenza Hospitalizations

Preliminary cumulative rates as of Aug 08, 2020

FluSurv-NET - Entire Network - 2019-20 Season - Cumulative Rate



2019-2020 Season
From 10 CDC's EIP Sites
CA, CO, CT, GA, MD, MN, NM, NY, OR, TN
Rate Per 100,000

---	65+	173.9
---	50-64	90.4
---	18-49	34.5
---	5-17	24.1
---	0-4	94.2

<https://www.cdc.gov/flu/weekly/index.htm>

COVID—Net Lab Confirmed Hospitalizations

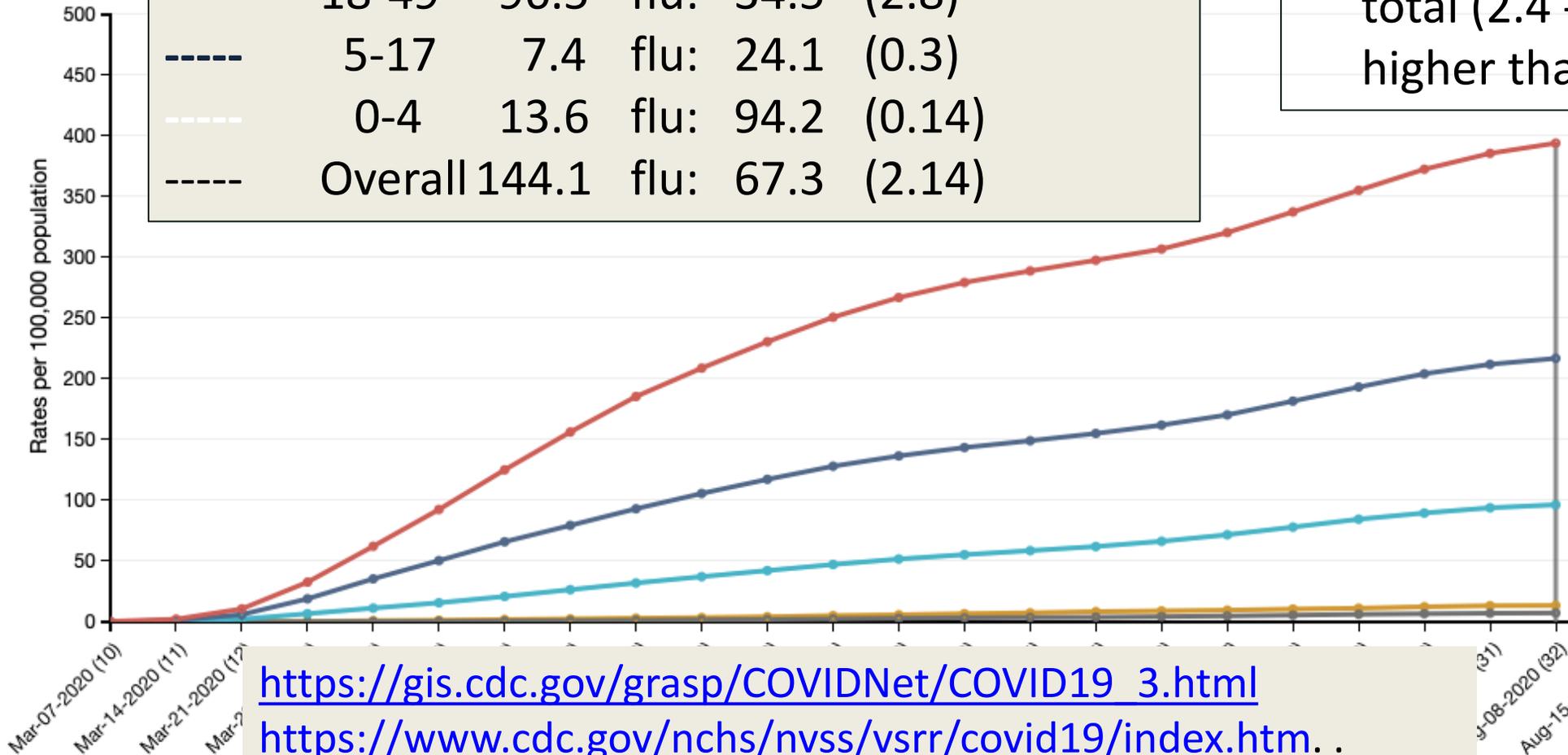
CA, CO, CT, GA, MD, MN, NM, NY, OR, TN

Rate Per 100,000

---	65+	394.2	flu: 173.9	(2.3)
---	50-64	217.0	flu: 90.4	(2.4)
---	18-49	96.5	flu: 34.5	(2.8)
---	5-17	7.4	flu: 24.1	(0.3)
---	0-4	13.6	flu: 94.2	(0.14)
---	Overall	144.1	flu: 67.3	(2.14)

Excess Death Estimates

- Flu annual 12,000-62,000 during 2010-2020
- COVID estimates 151,556 total (2.4 - 12.6 times higher than influenza)



https://gis.cdc.gov/grasp/COVIDNet/COVID19_3.html

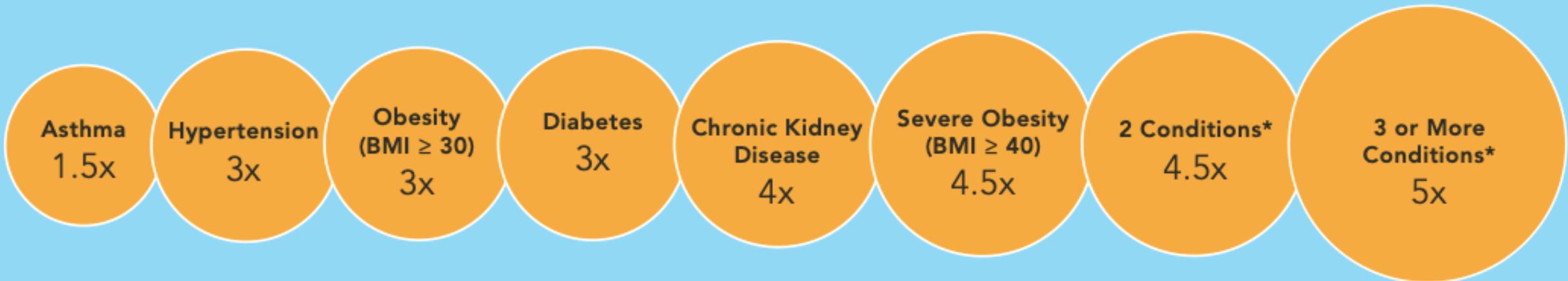
<https://www.cdc.gov/nchs/nvss/vsrr/covid19/index.htm>

Important Caveat Interpreting COVID-19 vs Influenza Information

- Schools have largely been closed since start of SARS-CoV-2 Pandemic
 - Schools are the most crowded location in any community
- Where schools have opened, large increase in proportion of COVID-19 cases among children
- Influenza impact is measured in the setting of about 40% vaccination rates and effective antiviral medications
- Seeking of medical care and testing behaviors likely very different and complicate interpretation of comparative rates

Groups at Increased Risk COVID Hospitalization

RISK FOR HOSPITALIZATION IF YOU HAVE ANY OF THESE CONDITIONS AND GET COVID-19 COMPARED TO PEOPLE WITHOUT THE CONDITION(S).



*Conditions include asthma, obesity, diabetes, chronic kidney disease, severe obesity, coronary artery disease, history of stroke and COPD.

<https://www.cdc.gov/coronavirus/2019-ncov/downloads/covid-data/hospitalization-underlying-medical-conditions.pdf>

Treatment Updates

Cathy Oliphant, PharmD

Infectious Disease, Professor and Interim Chair, ISU College of Pharmacy

Remdesivir

- Gilead submitted new drug application (NDA)
- Increased supply
 - Pfizer
 - Hikma Pharmaceuticals (Portugal)
- Randomized Controlled Clinical Trials
 - ACTT-3
 - Remdesivir + interferon beta-1a vs remdesivir
 - Hospitalized patients

PPI Use and Risk of COVID: Almario CV et al. Increased risk of COVID-19 among users of proton-pump inhibitors

- Online national health survey conducted from May 3 – 6/24
 - 264,058 invited to take the survey → 128,847 accessed the site with 86,602 completing the survey → of these, 53,130 noted prior abdominal findings and were asked about anti-secretory medications
 - Of these 53,130, 3386 reported a positive COVID test (6.4%)

- This cohort closely resembled the general US population with regards to age distribution. n of those > 60 years old

PPI exposure:		
No current PPI use	36,583 (68.9)	752 (22.2)
Daily PPI use or less	14,855 (28.0)	2,436 (71.9)
Twice daily PPI use	1,692 (3.2)	198 (5.8)
H2RA exposure:		
No current H2RA use	44,586 (83.9)	2,828 (83.5)
Daily H2RA use or less	7,387 (13.9)	415 (12.3)
Twice daily H2RA use	1,157 (2.2)	143 (4.2)

Increased Risk of COVID-19 Among Users of Proton Pump Inhibitors

Christopher V. Almario, MD, MSHPM¹⁻⁵; William D. Chey, MD^{6,7};
Brennan M.R. Spiegel, MD, MSHS^{1-4,8}

TABLE 2. Results from the multivariable logistic regression model on reporting a positive COVID-19 test (N=53,130)

Variable	Positive COVID-19 test (n=3,386)	aOR [95% CI] ^a
PPI exposure:		
No current PPI use	752 (2.1)	Reference
Once daily PPI use or less	2,436 (16.4)	2.15 [1.90–2.44] ^b
Twice daily PPI use	198 (11.7)	3.67 [2.93–4.60] ^b
H2RA exposure:		
No current H2RA use	2,828 (6.3)	Reference
Once daily H2RA use or less	415 (5.6)	0.85 [0.74–0.99] ^c
Twice daily H2RA use	143 (12.4)	0.86 [0.66–1.11]

Note: data are presented as n (% of row).

aOR, adjusted odds ratio; CI, confidence interval; H2RA, histamine-2 receptor antagonist; PPI, proton pump inhibitor.

a The multivariable logistic regression model included PPI use, H2RA use, age, sex, race/ethnicity, education level, marital status, employment status, total household annual income, body mass index, current smoking status, alcohol use per week, U.S. region, insurance status, usual source of care, and presence of Rome IV irritable bowel syndrome, celiac disease, gastroesophageal reflux disease, liver cirrhosis, Crohn's disease, ulcerative colitis, diabetes, and HIV/AIDS.

b p<.001

c p=.032

Almario CV et al. Increased risk of COVID-19 among users of proton-pump inhibitors. *Am J Gastroenterol* 2020. Preprint at: [https://journals.lww.com/ajg/Documents/AJG-20-1811_R1\(PUBLISH%20AS%20WEBPART\).pdf](https://journals.lww.com/ajg/Documents/AJG-20-1811_R1(PUBLISH%20AS%20WEBPART).pdf)

Almario CV et al. Increased risk of COVID-19 among users of proton-pump inhibitors

- PPIs linked to increases risks various conditions including increased enteric infections likely secondary to hypochlorhydria
- Data suggests that $\text{pH} < 3$ impairs infectivity of SARS-CoV-1, whereas an increased pH may not inactivate the virus
- The authors concluded that PPIs should only be used when clinically indicated at the lowest effective dose
- Study limitations

Metformin: Reduced Mortality?

- Observational data suggest a reduction in mortality in individuals taking metformin compared with those not taking metformin
- Proposed mechanisms of metformin activity on COVID
 - Improved glycemic control
 - Reduction in body weight
 - Reduction in insulin resistance
 - Anti-inflammatory properties
 - AMPK activation leading to ACE2 phosphorylation
 - Inhibition of mTOR pathway
 - Reduction in neutrophils
 - Inhibition of mitochondrial complex 1

Metformin and COVID

- A recent manuscript analyzed these available retrospective studies with the aim of comparing mortality rates in metformin users to those in non-users
- A positive effect was demonstrated in all 4 studies
 - 25% overall reduction in mortality in metformin users
- Subject size varied (283-6,256)
- Results:
 - In hospital mortality lower in metformin group compared in non-users
 - Prior to hospital use of metformin associated with lower mortality
 - Metformin use in females associated with reduced mortality
 - Lower IL-6 in metformin users

Metformin and COVID

Table 2

Characteristics of four observational studies comparing death rates in metformin users vs non-users among patients with type 2 diabetes hospitalized for COVID-19.

References	Country	Endpoint	Metformin users/non-users			
			Patients (n)	Mean age (years)	Gender (% male)	BMI (kg/m ²)
Bramante et al. [29]	US	In-hospital mortality	2333/3923	73/76	52/45	NA
Cariou et al. [4]	France	Death at ≤ 7 days of admission	746/571	70	65	28.5
				(both groups)	(both groups)	(both groups)
Chen et al. [30]	China	In-hospital mortality	43/77	62/67	NA	NA
Luo et al. [31]	China	In-hospital mortality	104/179	63/65	51/57	NA

BMI: body mass index; NA: not available.

Metformin and COVID

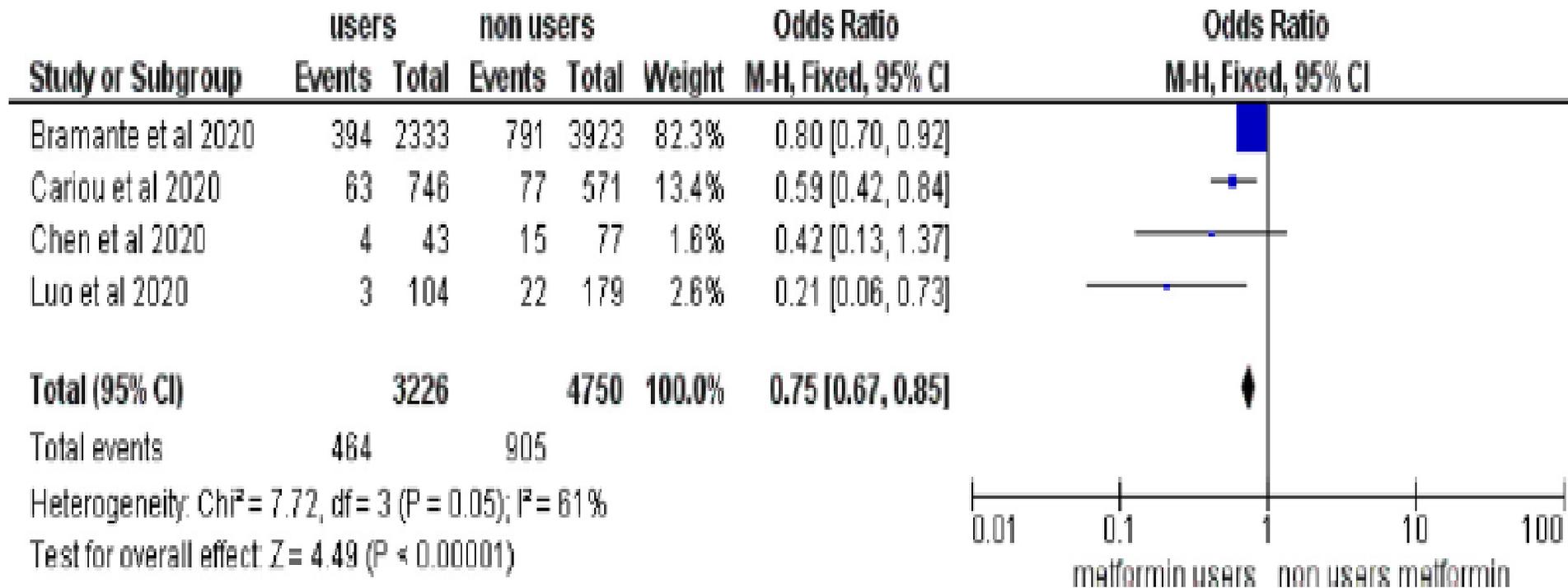


Fig. 1. Mortality rates in metformin users compared with non-users among patients with type 2 diabetes hospitalized for COVID-19 infection. M-H: Mantel-Haenszel (test).

METFORMIN USE IS ASSOCIATED WITH REDUCED MORTALITY IN A DIVERSE POPULATION WITH COVID-19 AND DIABETES, Crouse et al

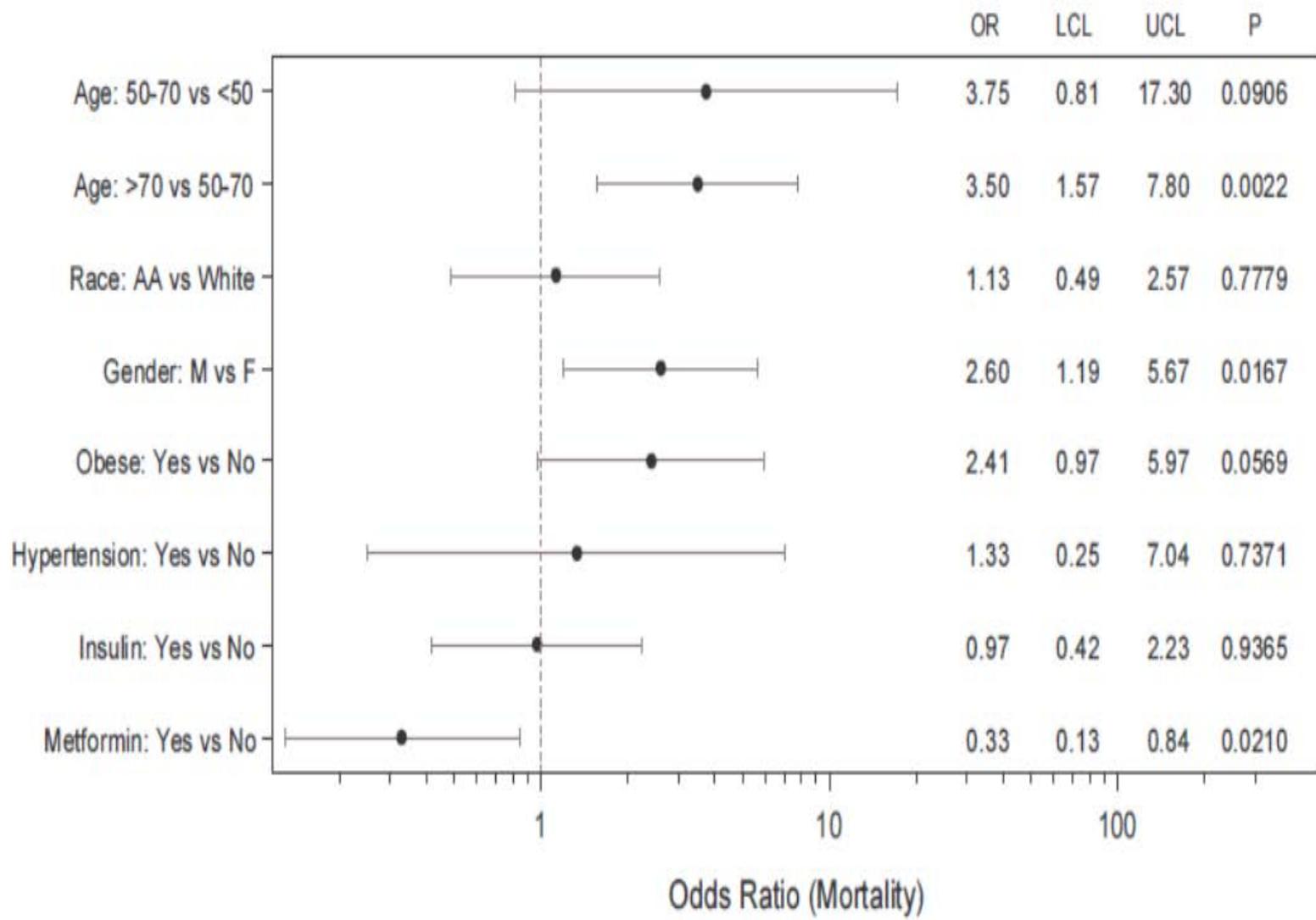
- Retrospective electronic health record data analysis of 25,326 subjects in COVID-19 positive individuals at the University of Alabama at Birmingham Hospital
- Found that the odds of contracting COVID was higher in Black/African Americans, those with obesity, hypertension, and diabetes
- Use of metformin, prior to COVID acquisition, was associated with a 3-fold reduction in mortality

Table 3: Characteristics and mortality of COVID-19 positive subjects with diabetes

Subject characteristics	Mortality		Comparison	OR (95%CI)	P-value
	Alive (n=194)	Deceased (n=45)			
Age Group					
<50 years	50 (25.8%)	2 (4.4%)			
50-70 years	104 (53.6%)	20 (44.4%)	50-70 vs <50	4.81 (1.08, 21.4)	0.0392
>70 years	40 (20.6%)	23 (51.1%)	>70 vs 50-70	2.99 (1.48, 6.03)	0.0022
Race					
African-American (AA)	127 (65.5%)	28 (62.2%)	AA vs White	0.82 (0.40, 1.68)	0.5855
White	52 (26.8%)	14 (31.1%)			
Other	15 (7.7%)	3 (6.7%)			
Sex					
Male	91 (46.9%)	30 (66.7%)	M vs F	2.26 (1.15, 4.47)	0.0187
Female	103 (53.1%)	15 (33.3%)			
Obesity					
Yes	144 (74.2%)	34 (75.6%)	Y vs N	1.07 (0.51, 2.28)	0.8539
No	50 (25.8%)	11 (24.4%)			
Hypertension					
Yes	176 (90.7%)	43 (95.6%)	Y vs N	2.20 (0.49, 9.84)	0.3027
No	18 (9.3%)	2 (4.4%)			
Diabetes					
Type 1 (T1D)	16 (8.2%)	3 (6.7%)	T1D vs T2D	0.79 (0.22, 2.85)	0.7245
Type 2 (T2D)	178 (91.8%)	42 (93.3%)			
Insulin in T2D					
Yes	72 (40.5%)	15 (35.7%)	Y vs N	0.82 (0.41, 1.64)	0.5728
No	106 (59.5%)	27 (64.3%)			
Metformin in T2D					
Yes	68 (38.2%)	8 (19.1%)	Y vs N	0.38 (0.17, 0.87)	0.0221
No	110 (61.8%)	34 (81.0%)			

METFORMIN USE IS ASSOCIATED WITH REDUCED MORTALITY IN A DIVERSE POPULATION WITH COVID-19 AND DIABETES, Crouse et al

Metformin use significantly reduced the odds of dying (OR 0.38; 95%CI 0.17-0.87; p=0.0221)



METFORMIN USE IS ASSOCIATED WITH REDUCED MORTALITY IN A DIVERSE POPULATION WITH COVID-19 AND DIABETES, Crouse et al

For those taking metformin, the likelihood of death was significantly less than those who did not take metformin OR 0.33, p=0.0210

Increased age and male sex were independent risk factors for increased mortality (OR 3.5/p=0.022 and OR 2.60/p=0.0167, respectfully)

Self-Care for Healthcare During COVID-19

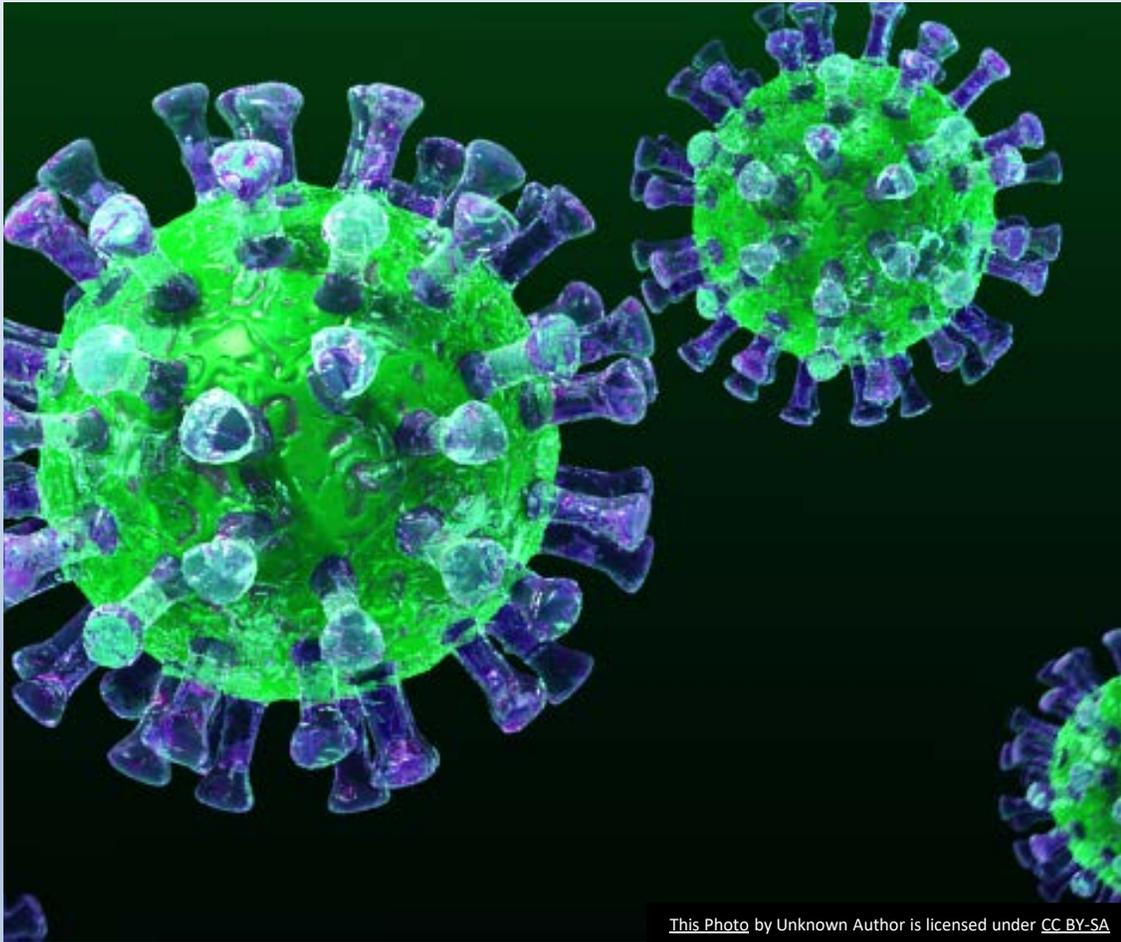
Amy Walters, PhD

Health Psychologist and Director of Behavioral Health Services, St. Luke's Humphrey's Diabetes Center

Learning Objectives

- Understand the psychological impact of COVID on healthcare providers
- Identify signs of compassion fatigue
- Learn practical strategies to cope with stress and reduce compassion fatigue

COVID19: A Physical, Psychological and Economic toll



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- Severe illness with risk of death
 - State of uncertainty and change in our way of life (work, play, school, social)
 - No end in site – psychological storm
 - Significant economic impact
 - Political implications & effects
 - People are isolated, scared and struggling emotionally and financially
- ... And they come to us for help**

Why Self-Care During COVID?

"For frontline responders, the trauma of witnessing so much illness and death will have lasting effects for many"

(Bruce Schwartz 2020; president APA)

"The [tragic death](#) by [suicide](#) this week of an emergency department physician who had been caring for COVID-19 patients in New York City underscores the huge psychological impact of the pandemic — which will linger long after the virus is gone"

(Brooks, 2020)



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Compassion Fatigue

A state of tension and preoccupation with the suffering of those being helped, to the degree that it is traumatizing for the helper

“There is a cost to caring. Professionals who listen to others’ stories of fear, pain, and suffering may feel similar fear, pain and suffering because they care. Sometimes we feel we are losing our sense of self to those we serve”

(Charles Figley, 1995)

How does Compassion Fatigue Relate to COVID19

Study of 1257 health care workers in 34 Chinese hospitals with clinics for COVID

- Considerable proportion of health care workers reported experiencing symptoms of depression, anxiety, insomnia, and emotional distress
 - Women, nurses, front line workers, Wuhan clinic were highest risk

Quotes from Hospital workers:

- “Nerves are starting to get to people”
- We all have young children and are figuring out what to do with our own kids
- How fast can you respond to a code? If it takes me 6 minutes to unlock an N95 mask, the person isn't going to do very well

Jianbo Lai, MSc¹; Simeng Ma, MSc²; et al 2020; Moonen (2020)

Signs of Compassion Fatigue

- Diminished sense of purpose/ enjoyment
- Decline in functioning (person and professional: volition, language, mood cognition)
- Diminished capacity for intimacy
- Diminished capacity to listen and communicate
- Avoid painful/traumatic material
- Loss of confidence
- Diminished effectiveness
- Loss of hope

(Casey 2020)

Perception of Risk During Pandemic

Pandemics result in unique responses. Protracted fear and uncertainty, elements of isolation, anger, misinformation, and faltering confidence in government/institutions may alter perceptions of risk

- Patient and provider experience

- Psychological first aid:

Safety

Calming

Self/community efficacy

Social connectedness

Hope/optimism

(Brooks 2020)

Coping with the Stress of COVID

It is important we recognize...

- We are experiencing a normal response to an abnormal event

Why is this important??

- Perspective
- Understanding
- Coping



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Strategies for Stress During COVID

- Media exposure: small doses, reliable sources
- Create routine & schedule
- Practice daily movement
- Maintain social connections
- Plan simple pleasures daily
- Practice daily relaxation and self-soothing activities
- Avoid catastrophic, obsessive or ruminating thoughts
- Practice Mindfulness
- Discuss concerns, practice active listening
- Practice psychological flexibility
- Engage in creative expression
- Let go of perfection
- Have family conversations about expectations
- Build hope and optimism
- Take time for activities you seldom have time to do
- Connect with your values

(Walters, 2020)

FACE COVID

- F = Focus on what's in your control
- A = Acknowledge your thoughts and feelings
- C = Come back into your body
- E = Engage in what you're doing
- C = Committed action
- O = Opening up
- V = Values
- I = Identify Resources
- D = Disinfect & distance

(Russ Harris 2020)

Physician Self-care

[COVID Physician Support Line](https://www.wwami.org/physician-support-line) (1 888-409-0141)

- free mental health hotline exclusively for doctors
- first 3 weeks, logged more than 3000 minutes of call time

(Sohn, 2020)

* Handout with provider resources

References

- Brooks, M (2020) COVID-19: A 'Marathon, Not a Sprint' for Psychiatry; Medscape Medical News, Conference News, APA 2020.
- Casey, Dan (2020) Compassion Fatigue in a Time of Covid19; Presentation for the Pfizer Group; sponsored by Cornerstone Whole Healthcare Organization
- Figley: C.H (1995) Compassion Fatigue: Secondary traumatic stress Disorders in those who treat the traumatized;
- Jianbo L, Simeng M, Ying W et al (2020) Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019; JAMA Network Open;3(3):e203976.
- Mata, D and Ramos, M et al (2015). Prevalence of Depression and Depressive Symptoms Among Resident Physicians: A Systematic Review and Meta-analysis; JAMA 314(22):2373-83.
- Russ Harris 5 minute animation summary of his FACE COVID ACT approach to the COVID-19 outbreak.
<https://www.youtube.com/watch?v=BmvNCdpHUYM> [youtube.com]
- Schernhammer, E. and Colditz, G.(2004) Suicide Rates Among Physicians: A Quantitative and Gender Assessment (Meta-Analysis) Pub Med.gov. Meta-Analysis Am J Psychiatry 161(12):295-302.
- Schwartz, B. (2020) president of the American Psychiatric Association (APA), Spring Highlights Meeting 2020
- Sohn, E (2020) COVID-19: National Psychiatrist-Run Hotline Offers Docs Emotional PPE; April Medscape Medical News March 23, 2020

COVID-19 Patient Case Discussion

ECHO Community of Practice

Case 1

32yo M with hx of GERD and anxiety is in his 6th year of practice as an ICU nurse. He is caring for patient with and without SARS-CoV2 (depending on the week/assignments are shifting).

He has noticed the onset of nightmares and severe insomnia during the days preceding his COVID weeks.

He spends hours obsessively thinking through the cares he has delivered to patients with COVID in his head to “double check that he was safe about it”.

He has unintentionally lost 15lbs since March, 2020. He thinks he is eating less, and eating less often.

His relationship with his girlfriend is strained. They live together, and she is a radiology technician. She also appears to be frightened of COVID, and he is not able to provide her support due to his own anxiety and distress.

Case 2

- 46yo F with mild asthma, well-controlled HTN, and allergic rhinitis works as a Family Doctor in a busy rural practice. She has both inpatient and outpatient responsibilities in her clinic and critical access hospital. While she does about 50% of her patient care via telehealth, she still needs to see some patients face to face in both the hospital setting and outpatient clinic.
- There was a recent cluster of COVID cases in a prominent family in town following a trip they took.
- There have been scattered cases of COVID among patients, but as summer travel hit a high-water mark last week (before resumption of school), she is bracing for the aftermath.
- She has two teenage sons. Her husband works in IT and can do so remotely.
- She started feeling completely overwhelmed by her work and the pandemic in April. These feelings have progressively worsened and she has anhedonia, sadness, apathy and insomnia. Recently, it has gotten so bad that she has had thoughts of suicide.

Discussion

- How are anxiety-related disorders affected by external events?
- How are depressive-disorders affected by external events?
- What does psychological safety look like these days?
- What types of counseling techniques might be effective in these cases?
- What types of pharmacotherapy might be effective in these cases?

JOIN US FOR OUR NEXT SESSION!

For information, please visit uidaho.edu/echo

- Tuesday, August 25 at noon MT

Ongoing Resource List

RESOURCES FROM TODAY'S SESSION AND PAST SESSIONS CAN BE FOUND IN OUR ONGOING RESOURCE LIST.

<https://iecho.unm.edu/sites/uidaho/download.hns?i=440>