

# Re-building Healthy Habits

## Maintaining Cardiovascular Health During the COVID-19 Pandemic

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# Outline

1. Pre-pandemic Cardiovascular Health in the US
2. Pandemic-Related
  - a. Increase in CV risk Factors
  - b. Decrease in Preventative and Emergency CV Care
3. COVID-19 Disease Prevention and Heart Health
4. 2022: Rebuilding Healthy Habits

# Pre-Pandemic Cardiovascular Health



## Life's Simple 7



1. Stop Smoking



2. Eat Better



3. Get Active



4. Lose Weight



5. Manage Blood Pressure



6. Control Cholesterol



7. Reduce Blood Sugar

		Level of Health for Each Metric		
		Poor	Intermediate	Ideal
	Current smoking	Yes	Former ≤ 12 months	Never or quit >12 months Never tried; never smoked whole cigarette
42%	BMI*	≥30 kg/m <sup>2</sup>	25-29.9 kg/m <sup>2</sup>	18.5-25 kg/m <sup>2</sup>
45%	PA†	None	1-149 min/week moderate or 1-74 min/wk vigorous 1-149 min/wk moderate + 2x vigorous >0 min <60 min of moderate or vigorous every day	≥150 min/wk moderate or ≥75 min/wk vigorous ≥150 min/wk moderate + 2x vigorous ≥60 of moderate or vigorous every day
80%	Healthy diet pattern, number of components ‡	0-1	2-3	4-5
	Total cholesterol	≥240 mg/dL	200-239 mg/dL or treated to goal	<200 mg/dL
	Blood pressure	SBP ≥140 mmHg or DBP ≥90 mmHg	SBP 120-139 mmHg or DBP 80-89 mmHg or treated to goal	<120 mmHg/ <80 mmHg
	Fasting plasma glucose	≥126 mg/dL	100-125 mg/dL	<100 mg/dL

39% of people surveyed thought they were in ideal CV health.

Only 1% were ideal by all 7 metrics.

3-4 “ideal measures” decrease your risk of heart-related death by more than half.

# Pre-Pandemic Dietary Choices

Currently:



of people have dietary patterns low in vegetables, fruits, and dairy.



exceed the limit for added sugars.



exceed the limit for saturated fat.



exceed the Chronic Disease Risk Reduction limits for sodium.

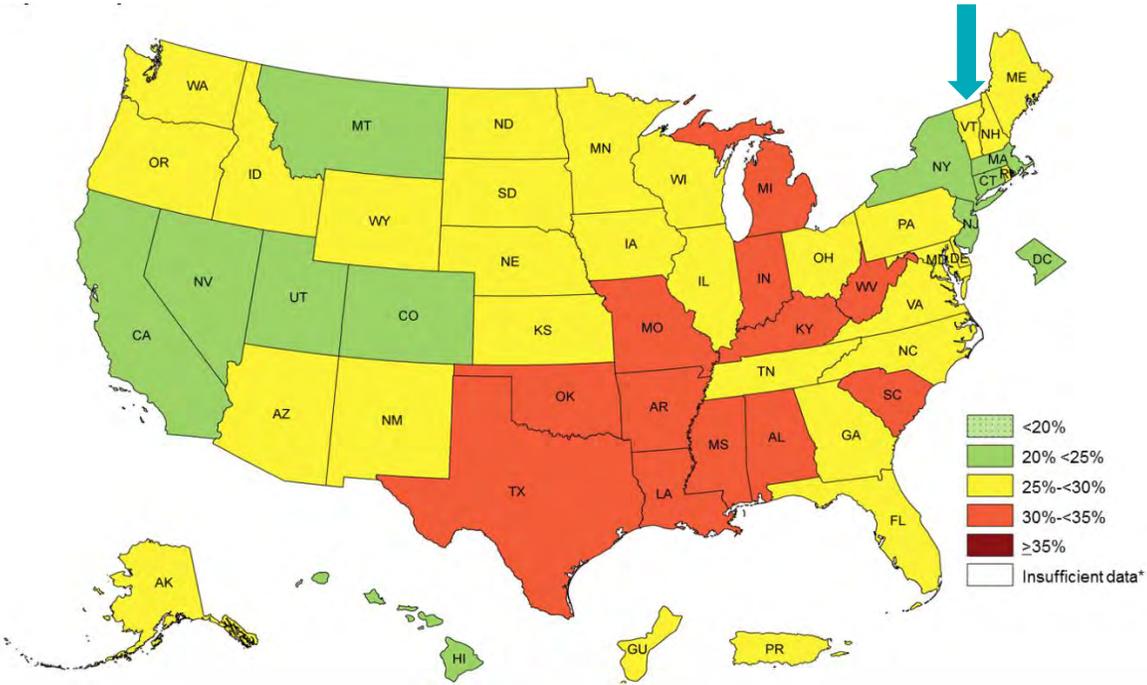
<2300 mg



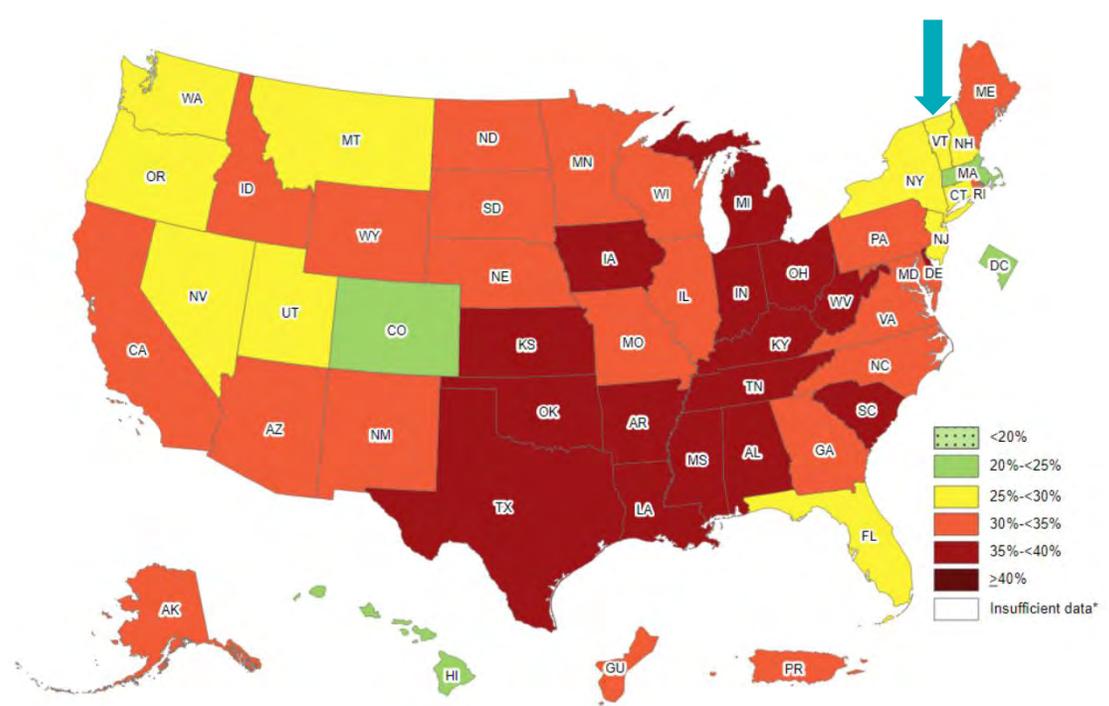
**More than half of the U.S. population** meets or exceeds total grain and protein foods recommendations, but are not meeting the subgroup recommendations for each food group.

# 74% of US Adults are Overweight or Obese Pre-Pandemic

2011



2020



CDC Report

One year on: Unhealthy weight gains, increased drinking reported by Americans coping with pandemic stress

**YOU'RE NOT ALONE IN  
EATING MORE  
COMFORT FOOD DURING  
COVID**

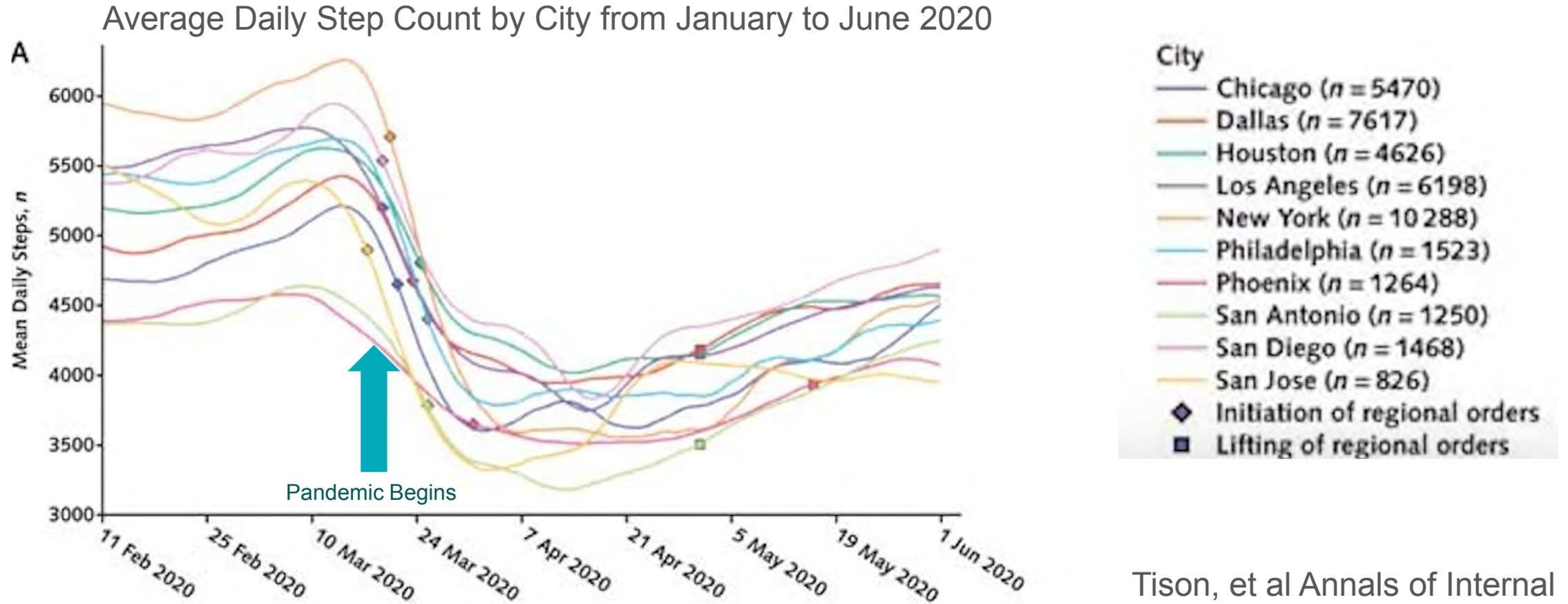
PUBLIC HEALTH

Obesity Rates Rise During Pandemic, Fueled By Stress, Job Loss, Sedentary Lifestyle

*The Pandemic Has Your Blood Pressure Rising? You're Not Alone.*

Average blood pressure readings increased as the coronavirus spread, new research suggests. The finding portends medical repercussions far beyond Covid-19.

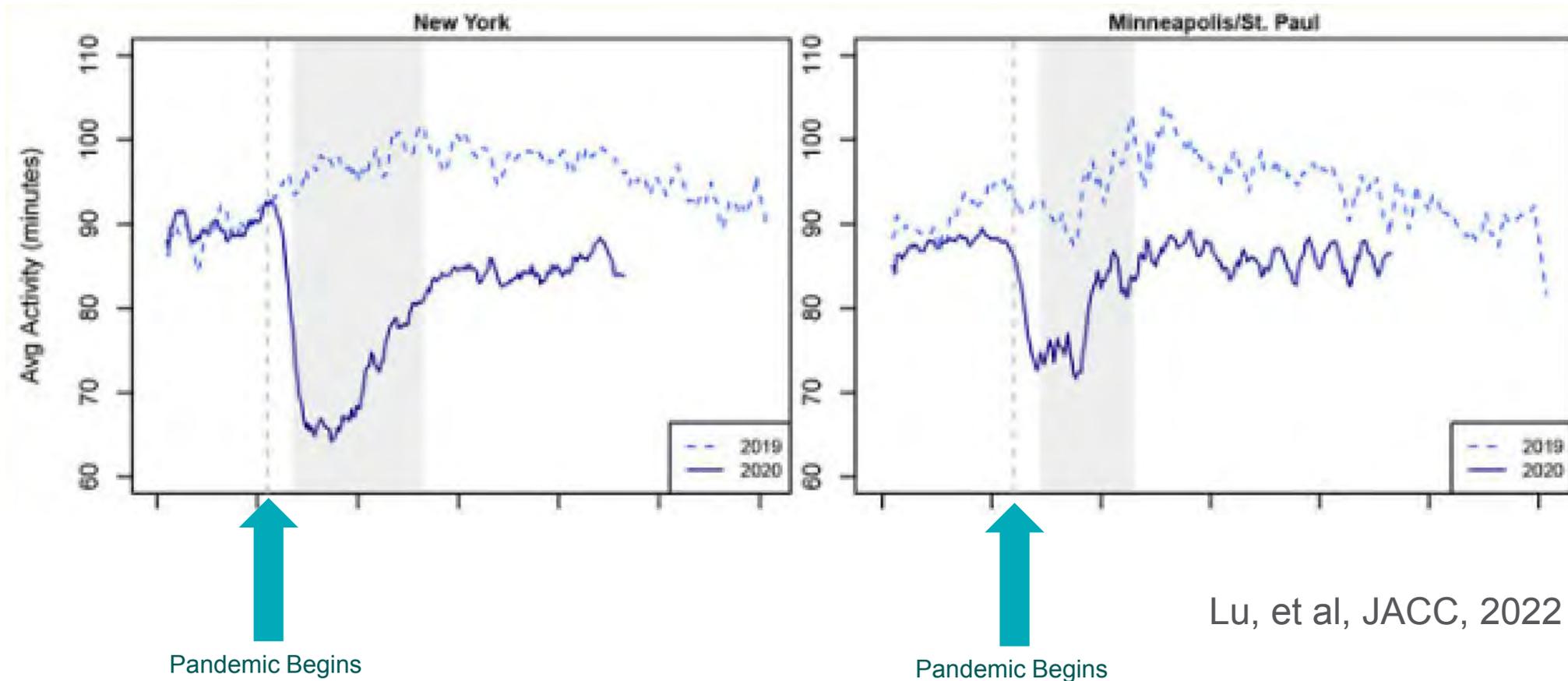
# Early-Pandemic Associated Decreased Step Counts



Tison, et al Annals of Internal Medicine, Nov 2020

# Early-Pandemic Associated Decreased Step Counts

Average Daily Activity in Minutes by City in 2019 vs. 2020





AMERICAN  
PSYCHOLOGICAL  
ASSOCIATION

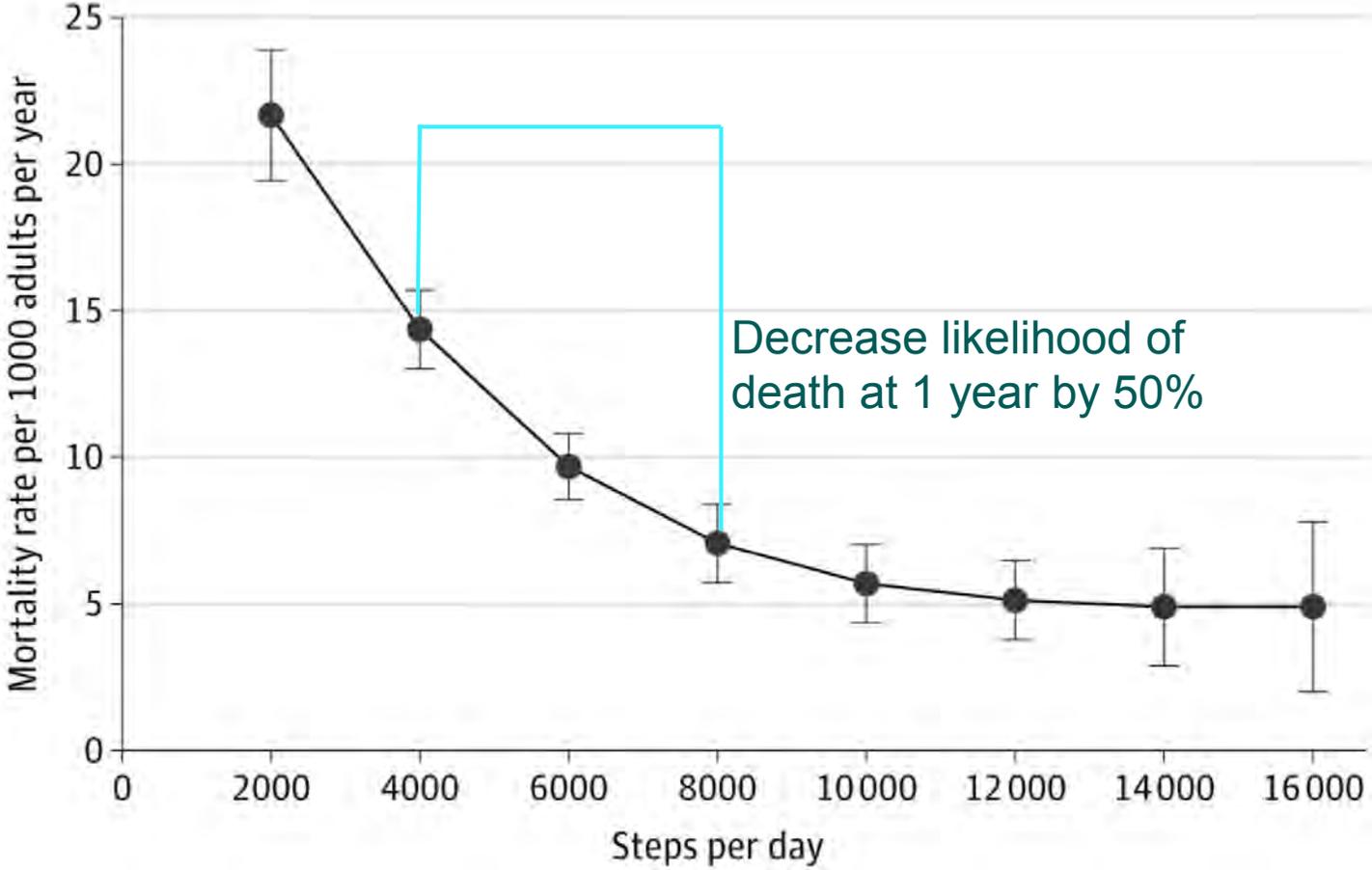


**53%** have been less physically active than they wanted.



© American Psychological Association

# Physical Activity is an Important Predictor of Survival



Saint-Maurice PF JAMA. 2020.

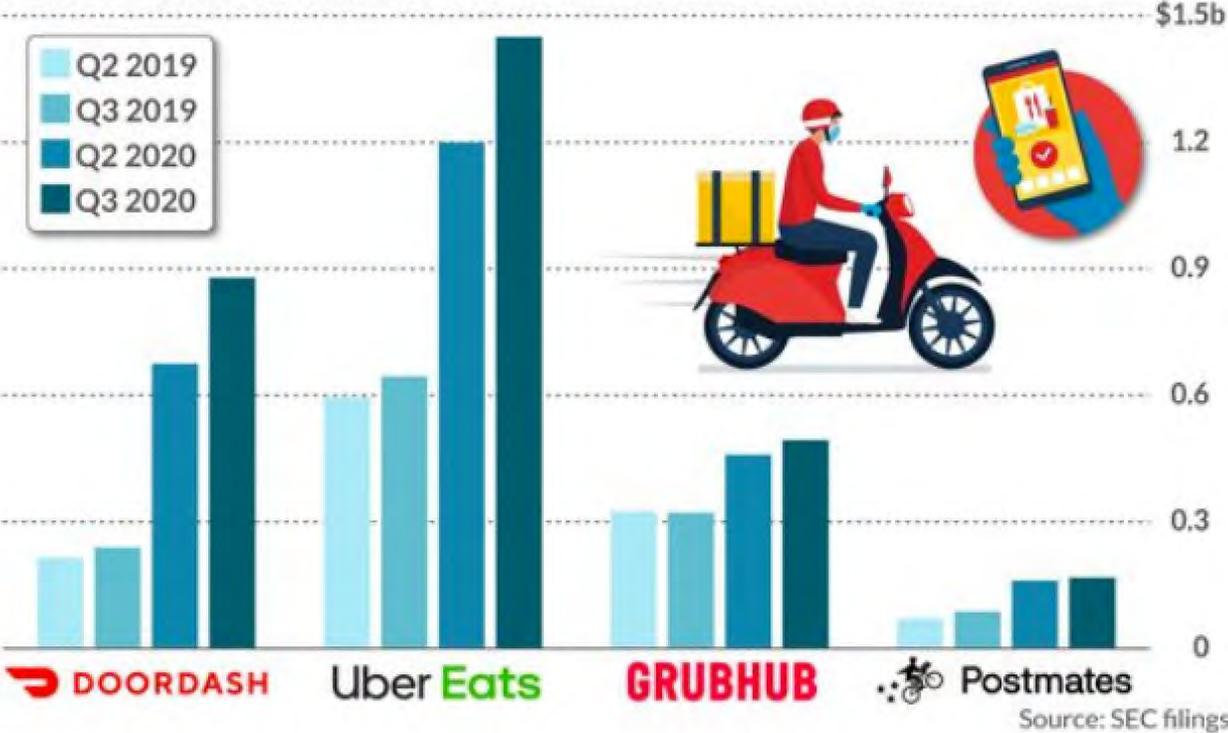
# Increased Demand for Food Delivery & Comfort Food

**Analysts: Comfort Food Popularity Should Continue Post-Pandemic**



## The COVID-19 delivery boom

The four top U.S. food-delivery apps saw revenue rise \$3 billion collectively in the second and third quarters, as the coronavirus pandemic required shelter-in-place restrictions.



# Top 10 Food Delivery Choices:

Uber Newsroom

**Cheese fry sales increased by over 1200%**

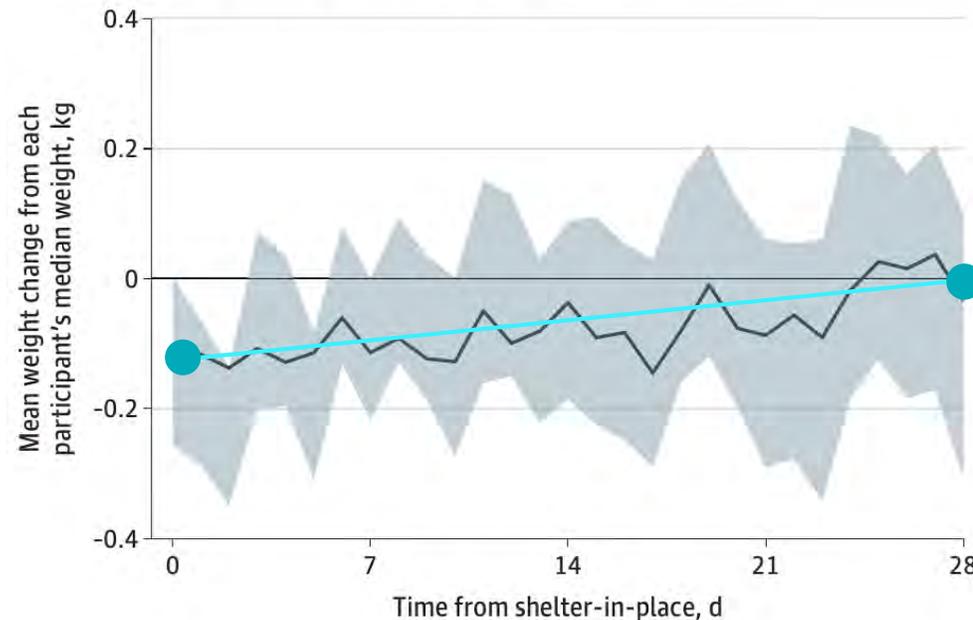
The most ordered items:

1. French Fries
2. Pad Thai
3. Garlic Naan
4. Soda
5. Miso Soup
6. California Roll
7. Chicken Tikka Masala
8. Edamame
9. Mozzarella Sticks
10. Spicy Tuna Roll

Uber 2021 Cravings Report

# Early Pandemic-Associated Weight Gain Among Adults

Figure. Mean Weight Change After Shelter-in-Place for the Study Population



> 1/2 lb every 10 days

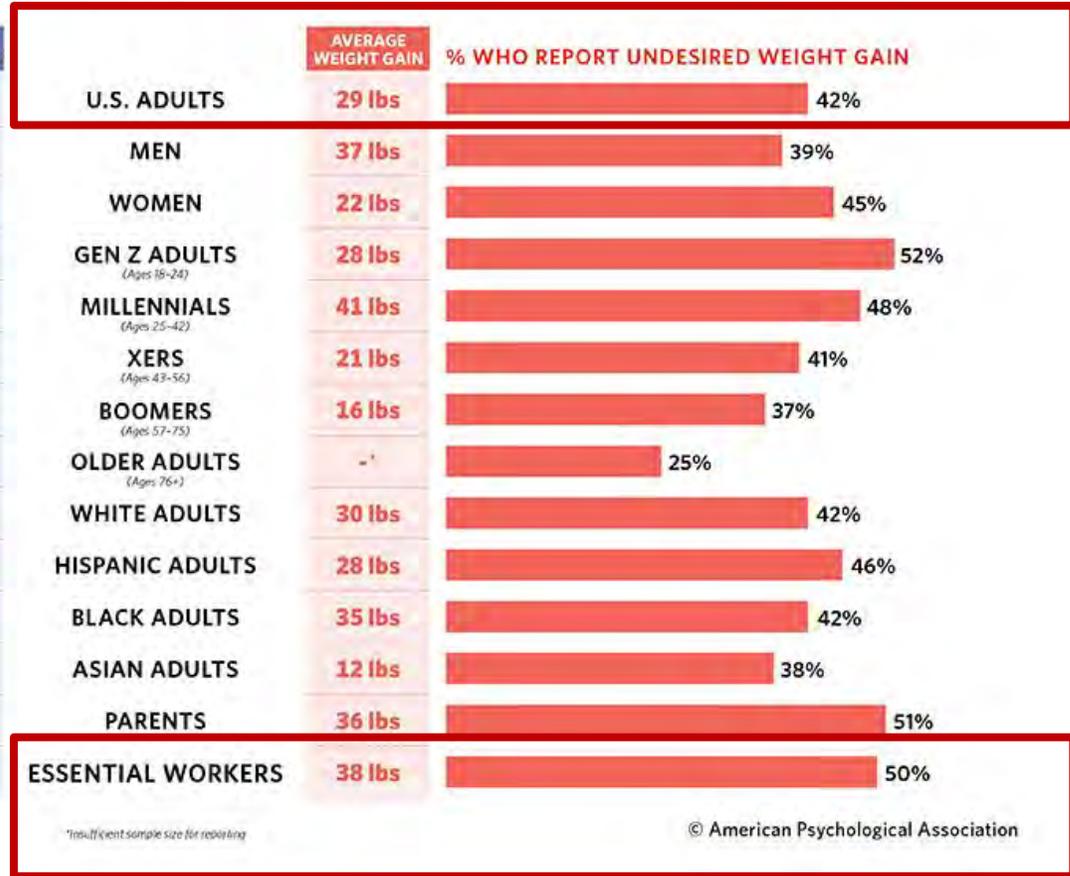
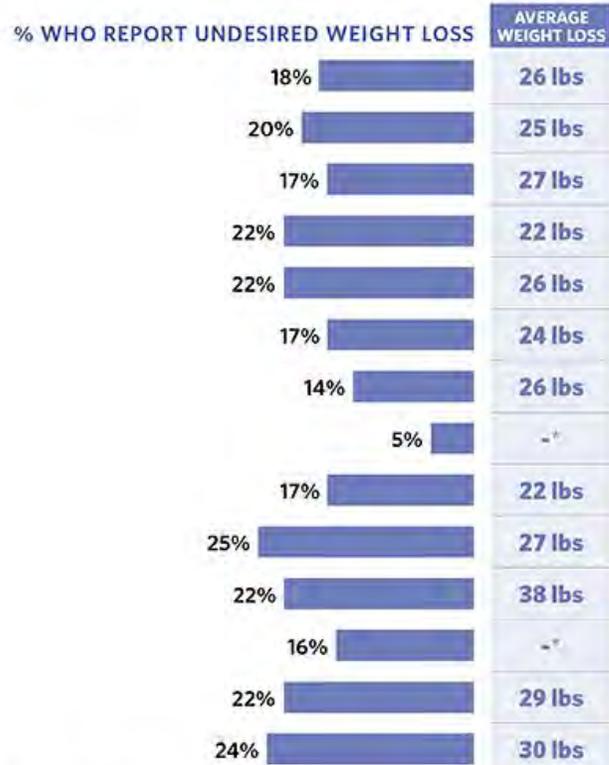
**Figure,** post-SIP participants experienced steady weight gain at a rate of 0.27 kg every 10 days (95% CI, 0.17 to 0.38 kg per 10 days;  $P < .001$ ), irrespective of geographic location or comorbidities.

Lin, JAMA Network Open. 2021

# Pandemic-Related Weight Change Overall

PANDEMIC SURVEY

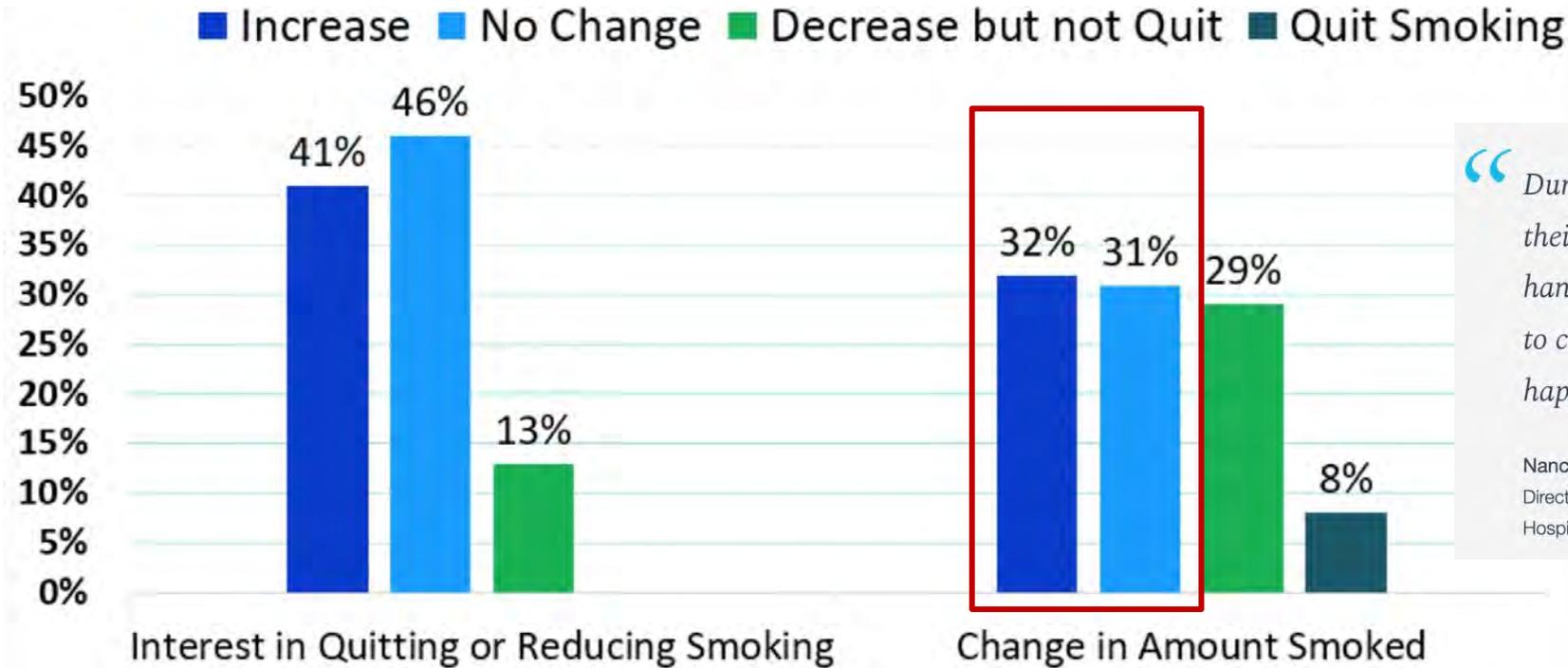
**Slightly More Than 6 in 10 U.S. Adults (61%) Report Undesired Weight Change Since Start of Pandemic**



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# Cigarette Smoking & COVID-19

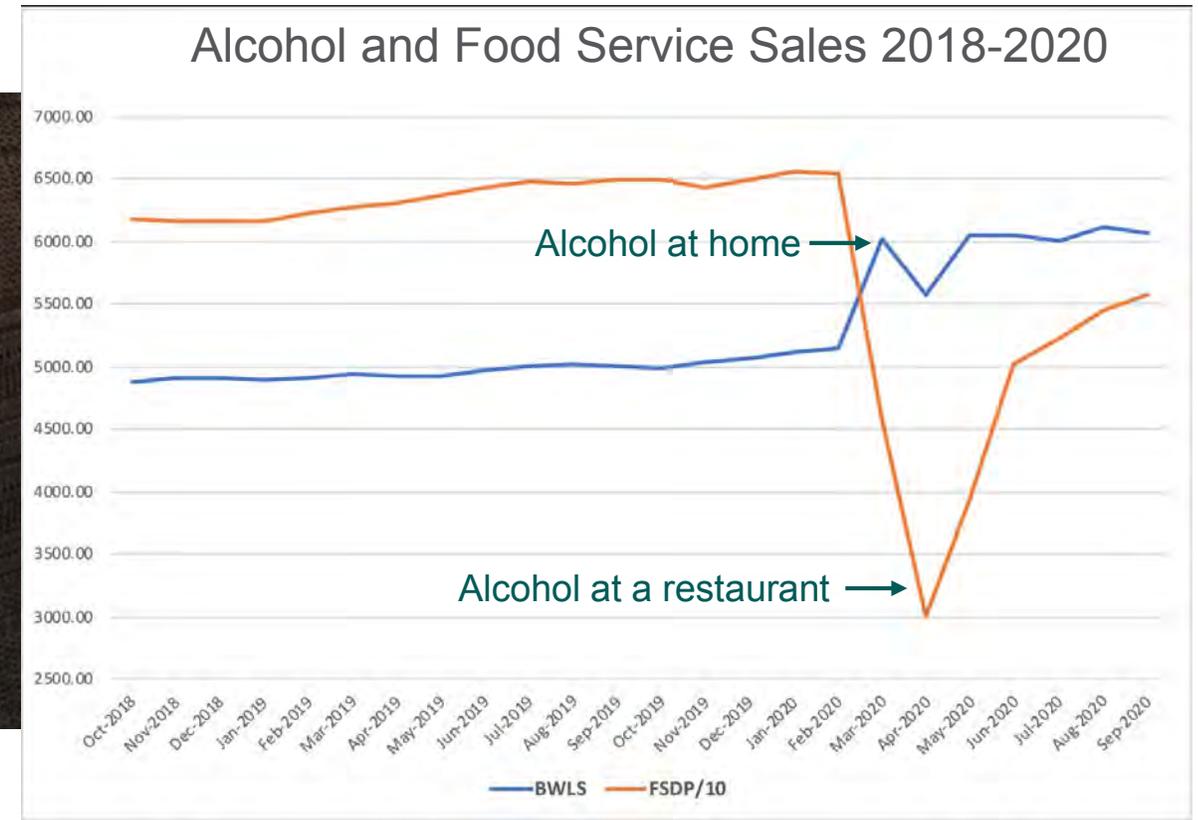


“ During the pandemic, smokers might have increased their smoking due to stress and boredom. On the other hand, the fear of catching COVID might have led them to cut down or quit smoking. In fact, we found that both happened. ”

Nancy A. Rigotti, MD  
Director, Tobacco Research and Treatment Center, Massachusetts General Hospital

Rigotti et al, JGIM 2021

# Alcohol Consumption



Average drinking days **↑20%** Drinks per drinking day **↑10%** Binge Drinking **↑20%**

Barbosa et al. J of Addict Med. 2021; Castaldelli-Maia et al. Alcohol. 2021

PANDEMIC SURVEY

## Americans' Physical Health Has Taken a Back Seat Since Start of Pandemic



**47%** delayed or canceled health care services.

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# COVID-Related Rescheduling

## THE PRESENT AND FUTURE

### JACC STATE-OF-THE-ART REVIEW

## Cardiovascular Considerations for Patients, Health Care Workers, and Health Systems During the COVID-19 Pandemic



Elissa Driggin, MD,<sup>a,\*</sup> Mahesh V. Madhavan, MD,<sup>a,b,\*</sup> Behnood Bikdeli, MD, MS,<sup>a,b,c</sup> Taylor Chuich, PHARMD,<sup>a</sup> Justin Laracy, MD,<sup>a</sup> Giuseppe Biondi-Zoccai, MD, MSTAT,<sup>d,e</sup> Tyler S. Brown, MD,<sup>f</sup> Caroline Der Nigoghossian, PHARMD,<sup>a</sup> David A. Zidar, MD, PhD,<sup>g</sup> Jennifer Haythe, MD,<sup>a</sup> Daniel Brodie, MD,<sup>a</sup> Joshua A. Beckman, MD,<sup>h</sup> Ajay J. Kirtane, MD, SM,<sup>a,b</sup> Gregg W. Stone, MD,<sup>b,i</sup> Harlan M. Krumholz, MD SM,<sup>c,j,k</sup> Sahil A. Parikh, MD<sup>a,b</sup>

Epub March 19, 2020

FIGURE 3 Considerations Regarding COVID-19 for Cardiovascular Health Care Workers by Specialty

### MINIMIZING COVID-19 EXPOSURE: Key Considerations for Cardiovascular Health Care Workers

#### CARDIOVASCULAR PROCEDURES

Interventional / electrophysiology / cardiac surgery

- Minimize staffing in urgent / emergent cases
- Optimize medications and reschedule elective procedures
- Use negative pressure catheterization labs / operating rooms for urgent procedures as able
- Consider fibrinolysis in case PCI is not feasible

#### CARDIAC CRITICAL CARE

- Wear appropriate PPE according to institutional / national / international guidelines
- Use airborne PPE with intubation and ACLS
- Favor external compression devices for CPR

#### ECHOCARDIOGRAPHY

- Reschedule elective procedures
- Use bedside studies
- Clean the machines and probes appropriately before and after each use
- Shorten exam length (e.g. fewer views)
- Use airborne PPE with TEE

### OVERALL GOAL

Provide high quality care for patients with cardiovascular disease while minimizing infection risk to cardiovascular health care workers.

#### OUTPATIENT CARDIOLOGY

- Reschedule in-person visits
- Utilize telemedicine

#### INPATIENT CARDIOLOGY

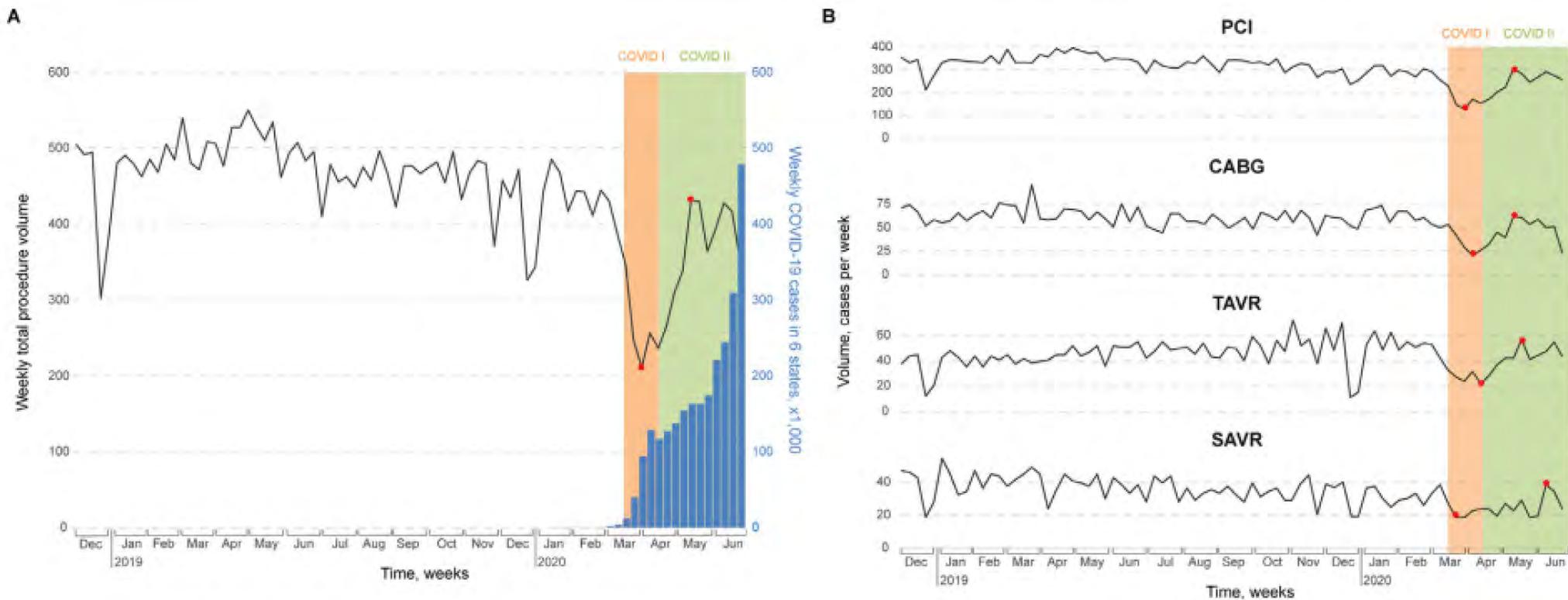
- Limit in-person consultation
- Utilize telehealth

#### CARDIOLOGY TEACHING SERVICES

- Minimize non-essential staff (e.g. medical students)
- Avoid large group rounds
- Develop virtual rounds and teaching conferences

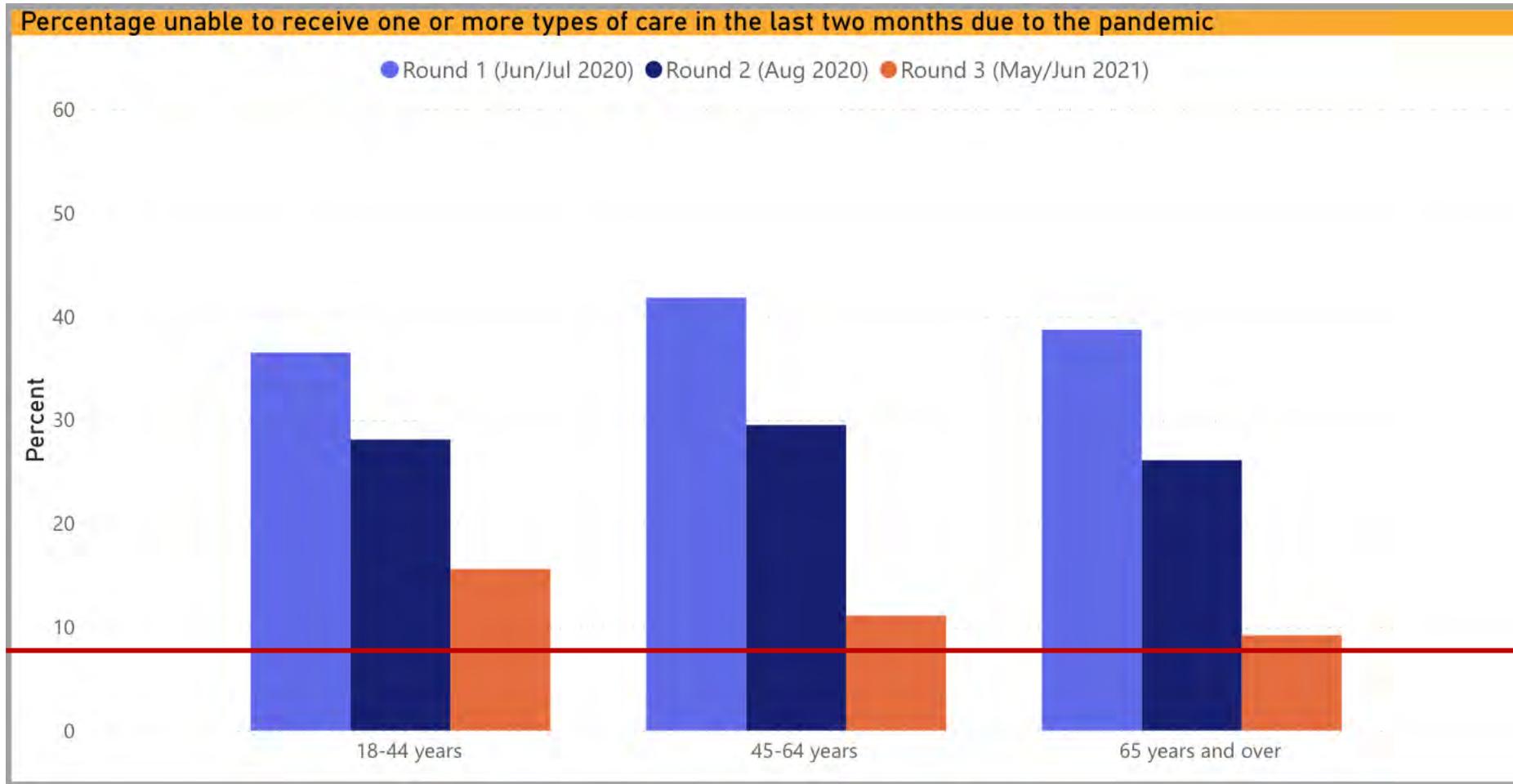
# COVID Decreases Volume of Elective Procedures

Figure 1



Yong et al. American Heart Journal 2021

# Reduced Access to Needed Services



**SOURCE:** National Center for Health Statistics, Research and Development Survey, RANDS during COVID-19, 2020–2021.

# 4 in 10 U.S. adults

reported avoiding medical care because of concerns related to COVID-19\*

Delaying or avoiding urgent or emergency care was more common among:



People with disabilities

People with two or more underlying conditions

\*Web-based survey of a representative sample of U.S. adults aged ≥18 years during June 24–30, 2020

**Telehealth** may help people get the care they need

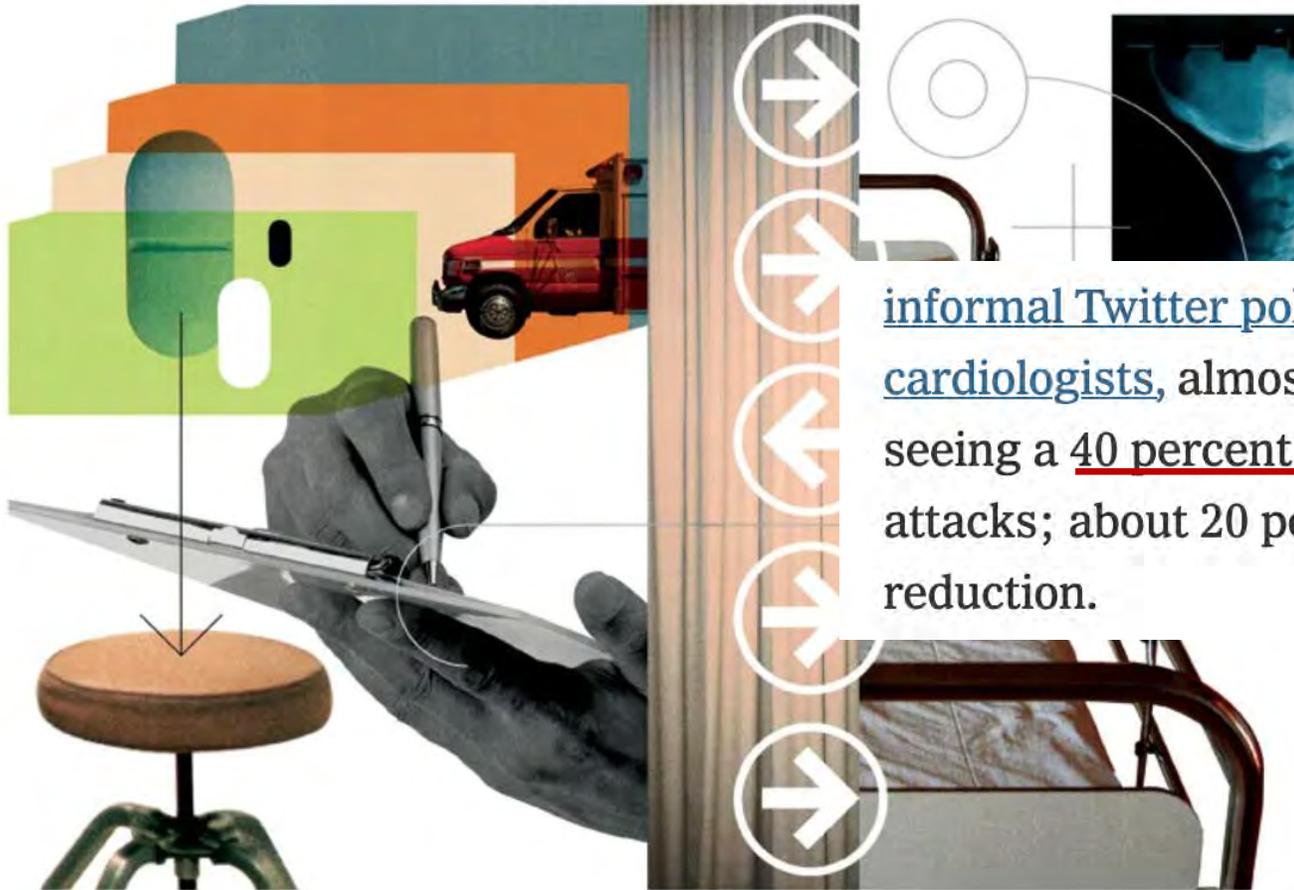
Even during the COVID-19 pandemic, people who experience a medical emergency should seek care **without delay**

CDC.GOV

[bit.ly/MMWR91020](https://bit.ly/MMWR91020)

MMWR

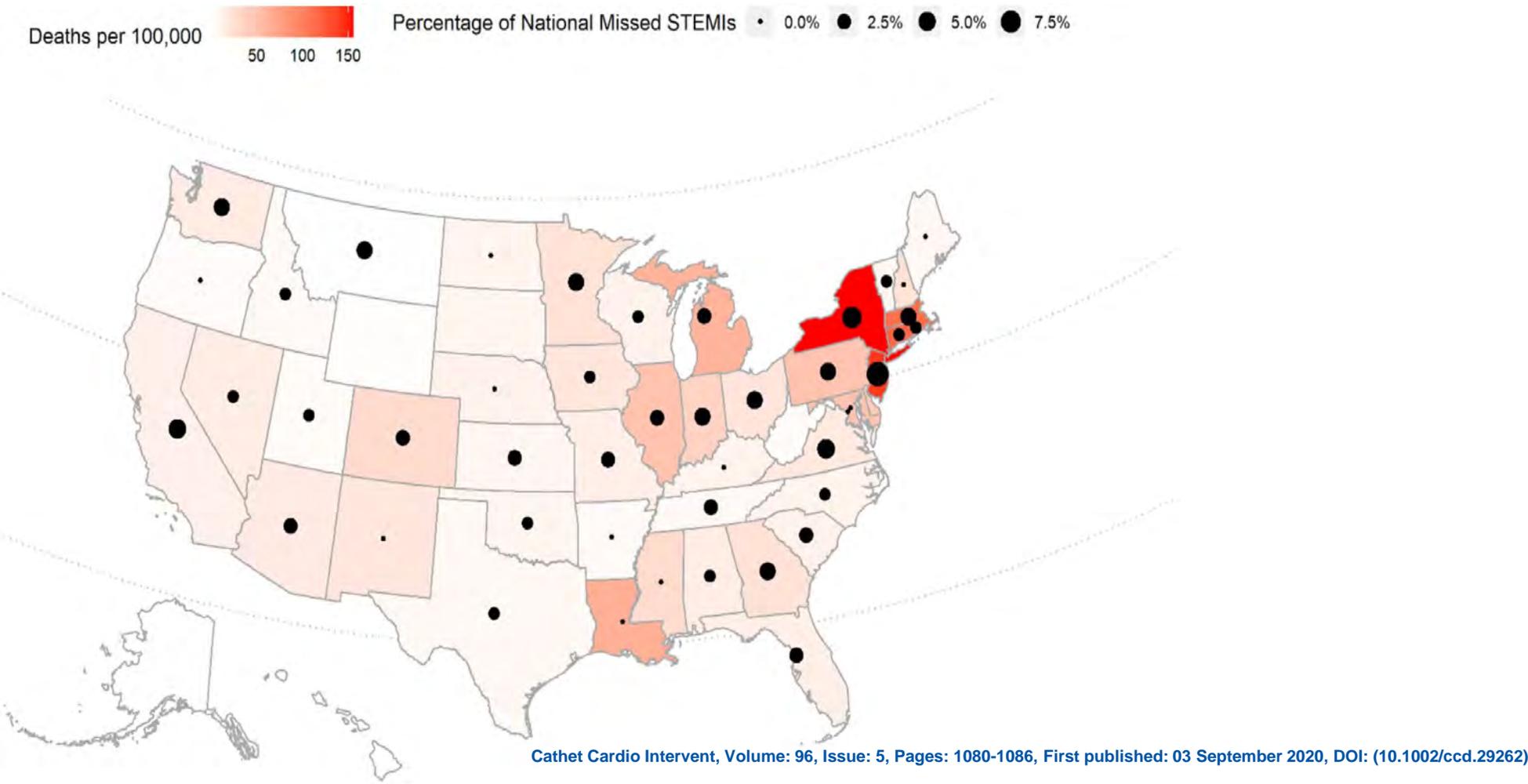
# Where Have All the Heart Attacks Gone?



informal Twitter poll by @angioplastyorg, an online community of cardiologists, almost half of the respondents reported that they are seeing a 40 percent to 60 percent reduction in admissions for heart attacks; about 20 percent reported more than a 60 percent reduction.

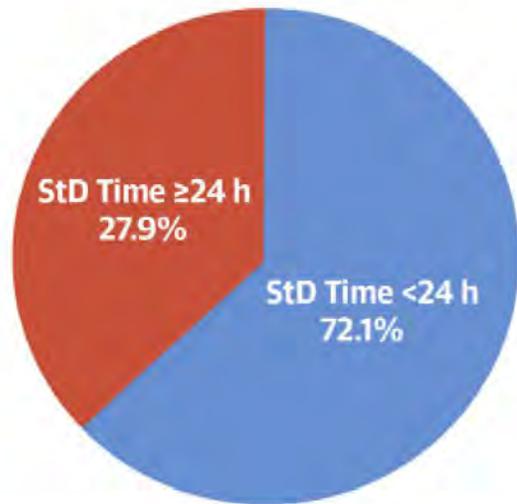
Krumholtz, NY Times, April 6, 2020

# COVID Increases Late Presentations for STEMI

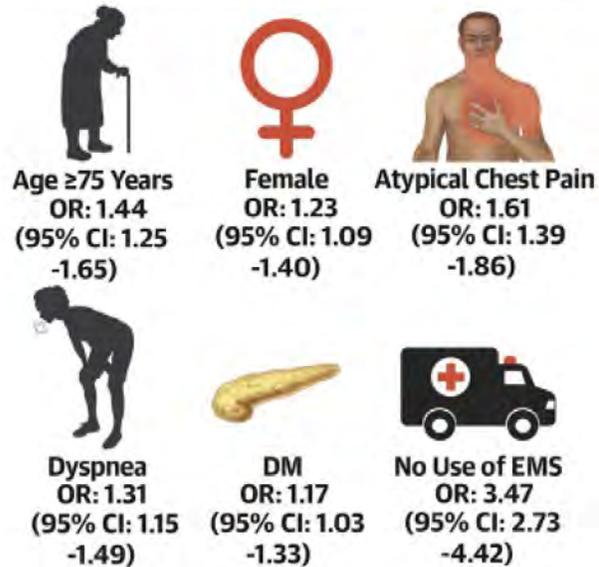


# Delays Increase Risk of Death from Heart Attack

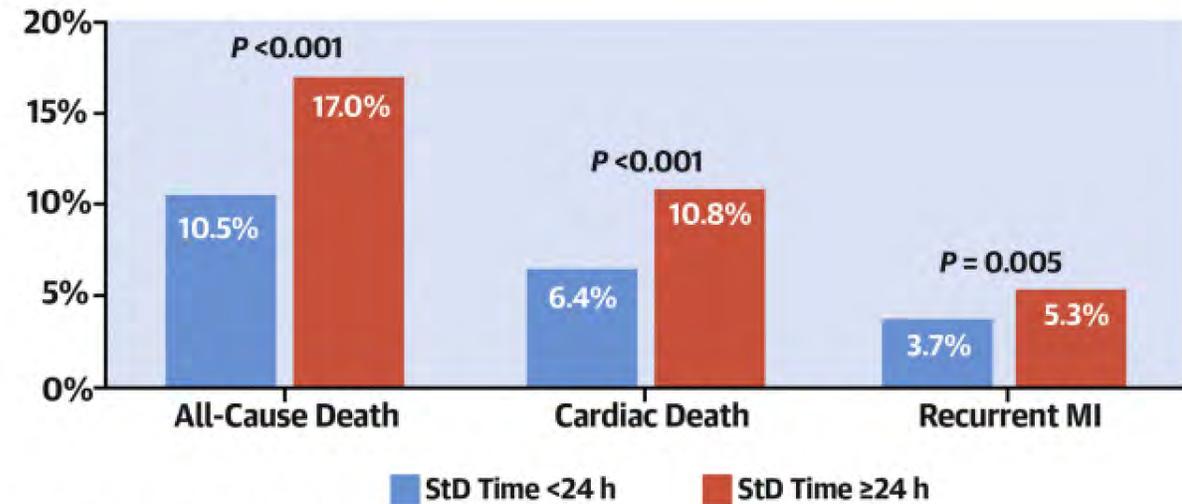
Distribution of Symptom-to-Door Time



Independent Predictors for Prehospital Delay (StD Time ≥24 h)



3-Year Clinical Outcomes



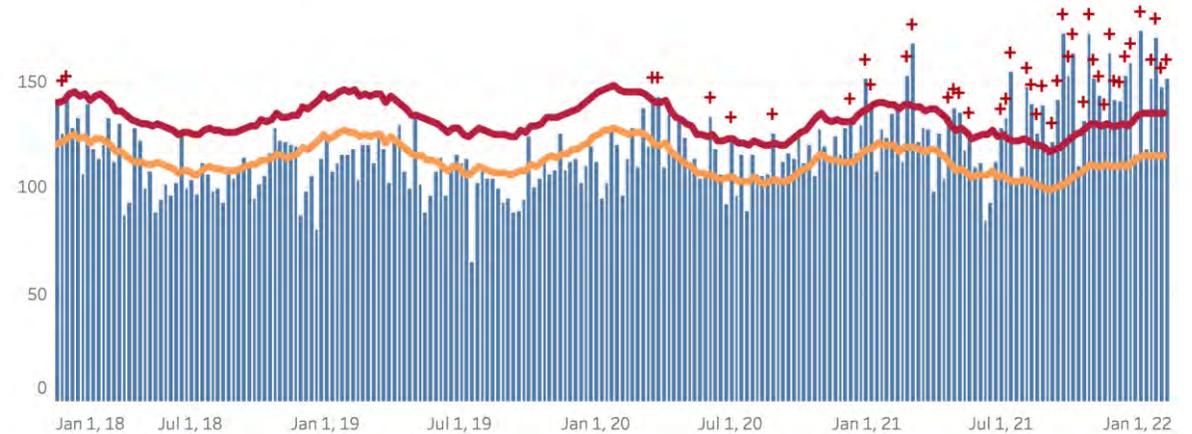
Cha, J.-J. et al. J Am Coll Cardiol. 2022;79(4):311-323.

# Excess Deaths

Weekly number of deaths (from all causes) **New Hampshire**

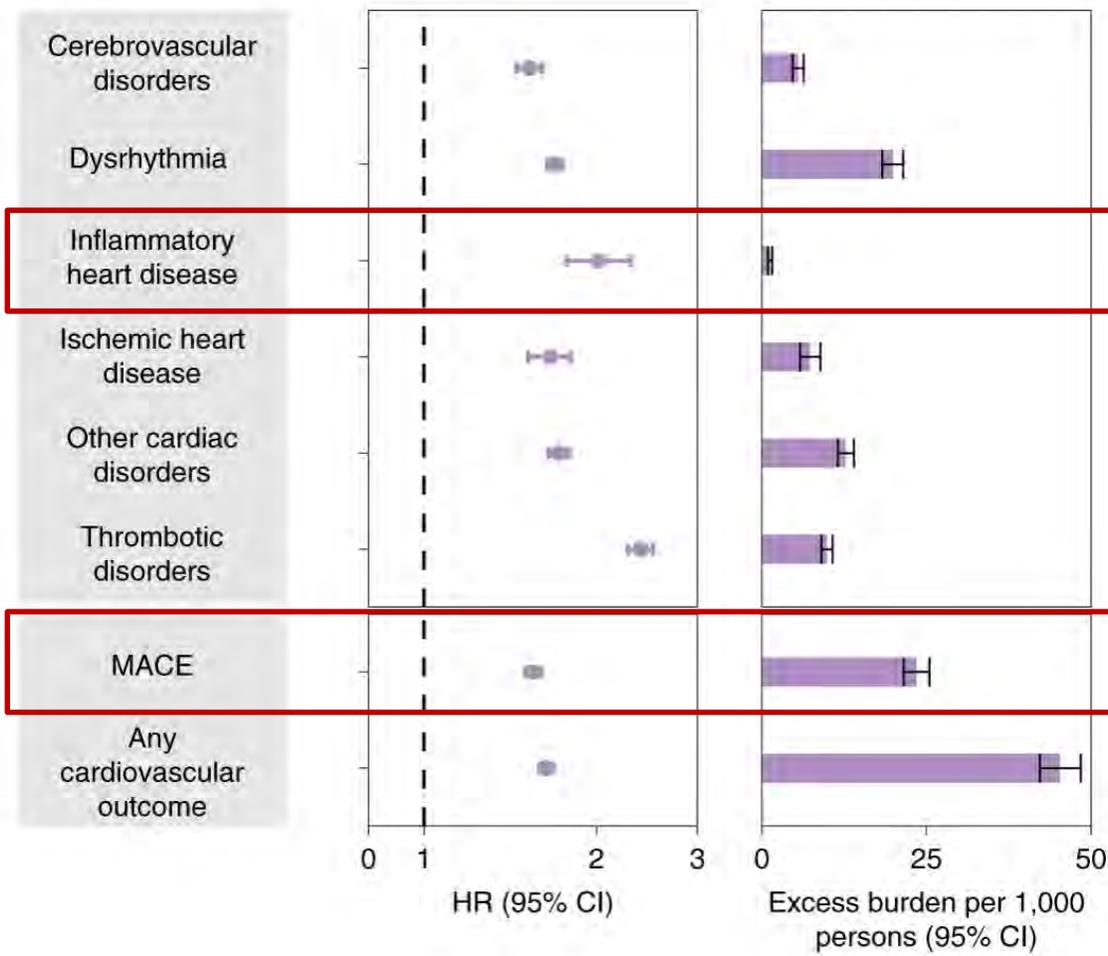


Weekly number of deaths (from all causes) **Vermont**



[https://www.cdc.gov/nchs/nvss/vsrr/covid19/excess\\_deaths.htm](https://www.cdc.gov/nchs/nvss/vsrr/covid19/excess_deaths.htm)

# COVID-19 Infection Increases Risk of CV Events



Xie, Nature Medicine, 2022

# COVID-19 Infection and Myocarditis

Myocarditis (inflammation of part of the heart muscle) occurs more frequently among COVID-19 patients

**16x higher risk**  
of myocarditis among patients with COVID-19\*



**Vaccination is the best way to protect against COVID-19-related complications**

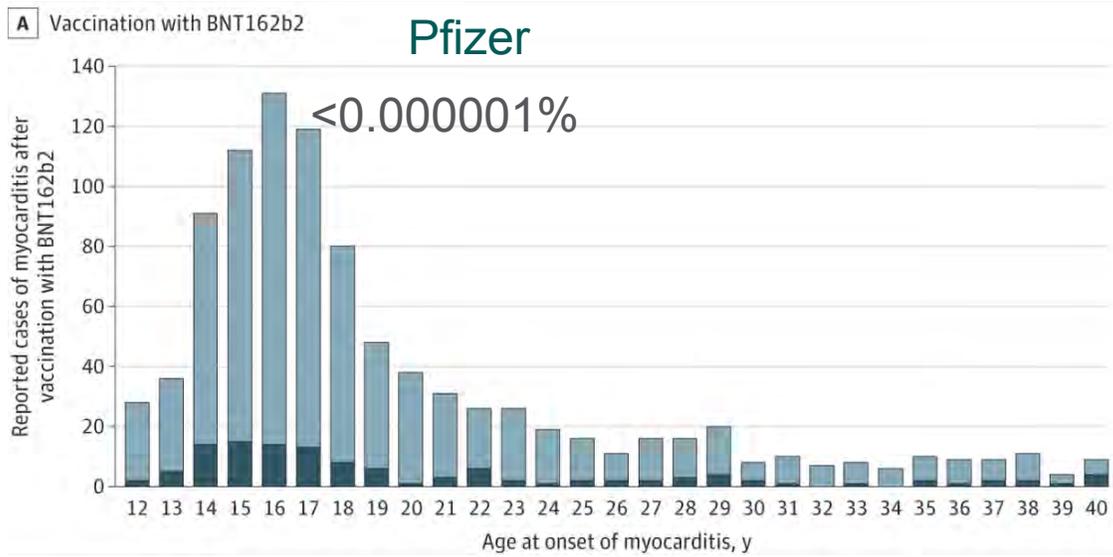


\*Premier Healthcare Database Special COVID-19 Release

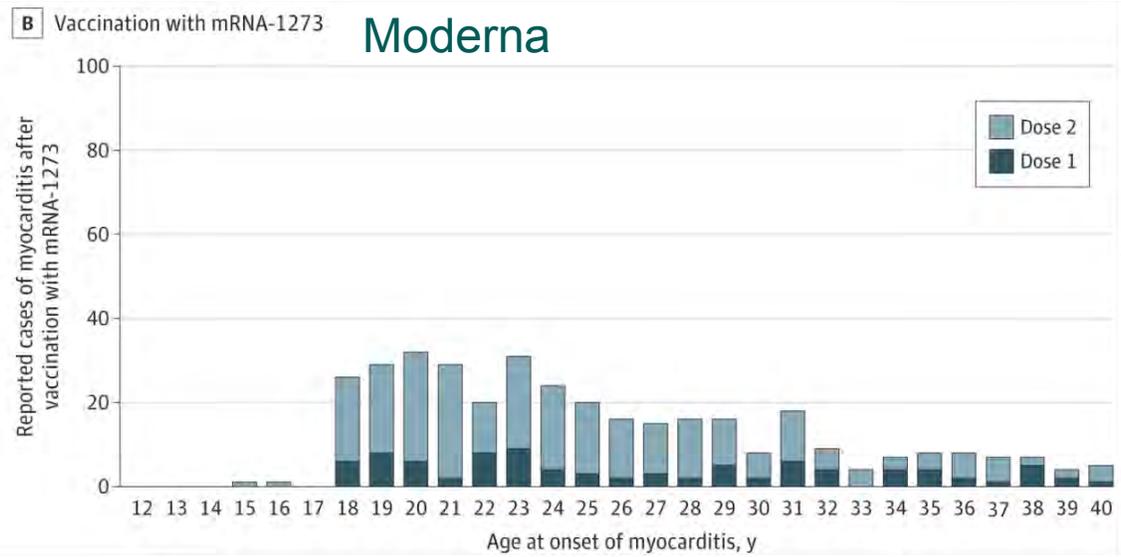
[bit.ly/MMWR83121b](https://bit.ly/MMWR83121b)

**MMWR**

# COVID Vaccines and Myocarditis



114,246, 837 first doses given  
 95, 532, 396 second doses given

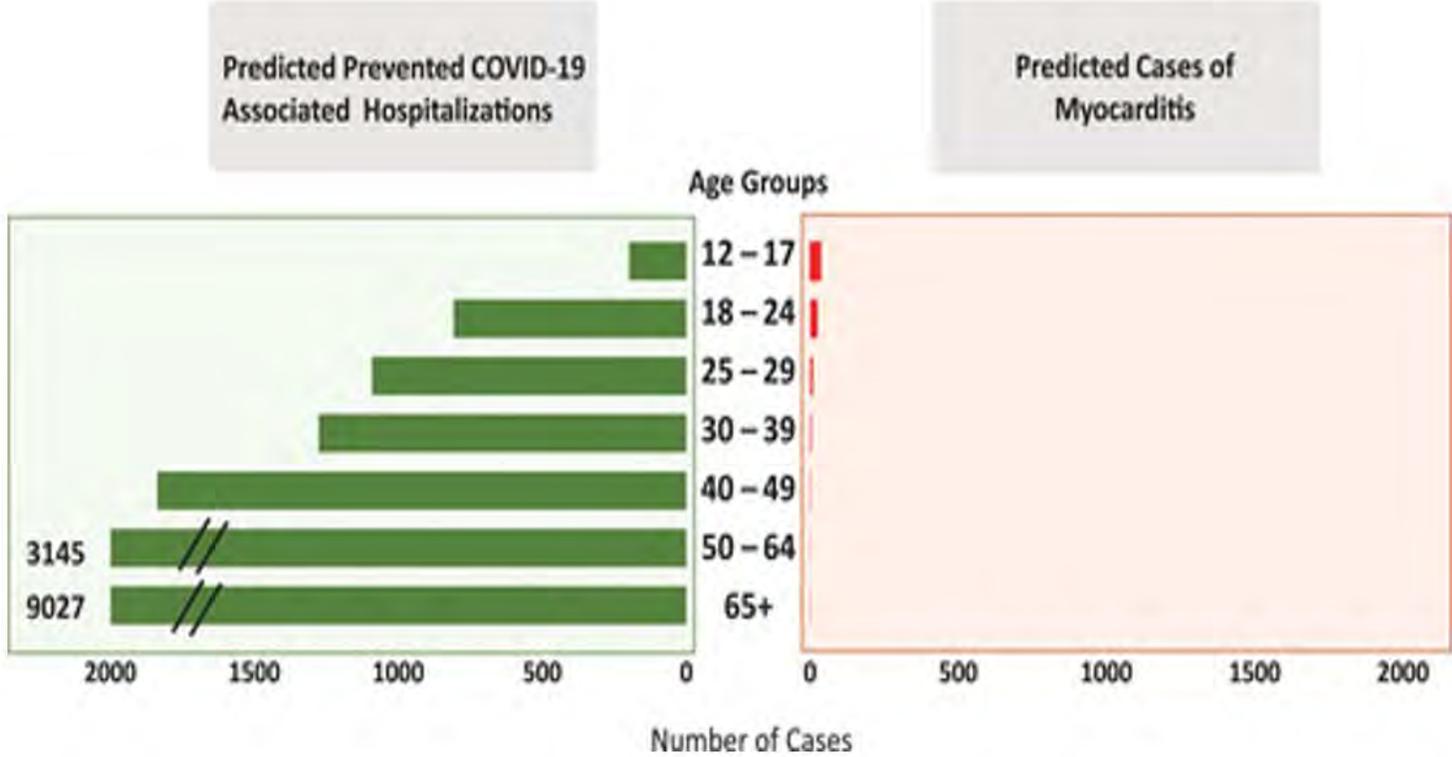


78, 158, 611 first doses given  
 66, 163, 001 second doses given

Among those >40 years of age, there were a total of 8 reports of myocarditis after either vaccine.

Oster et al, JAMA, 2022

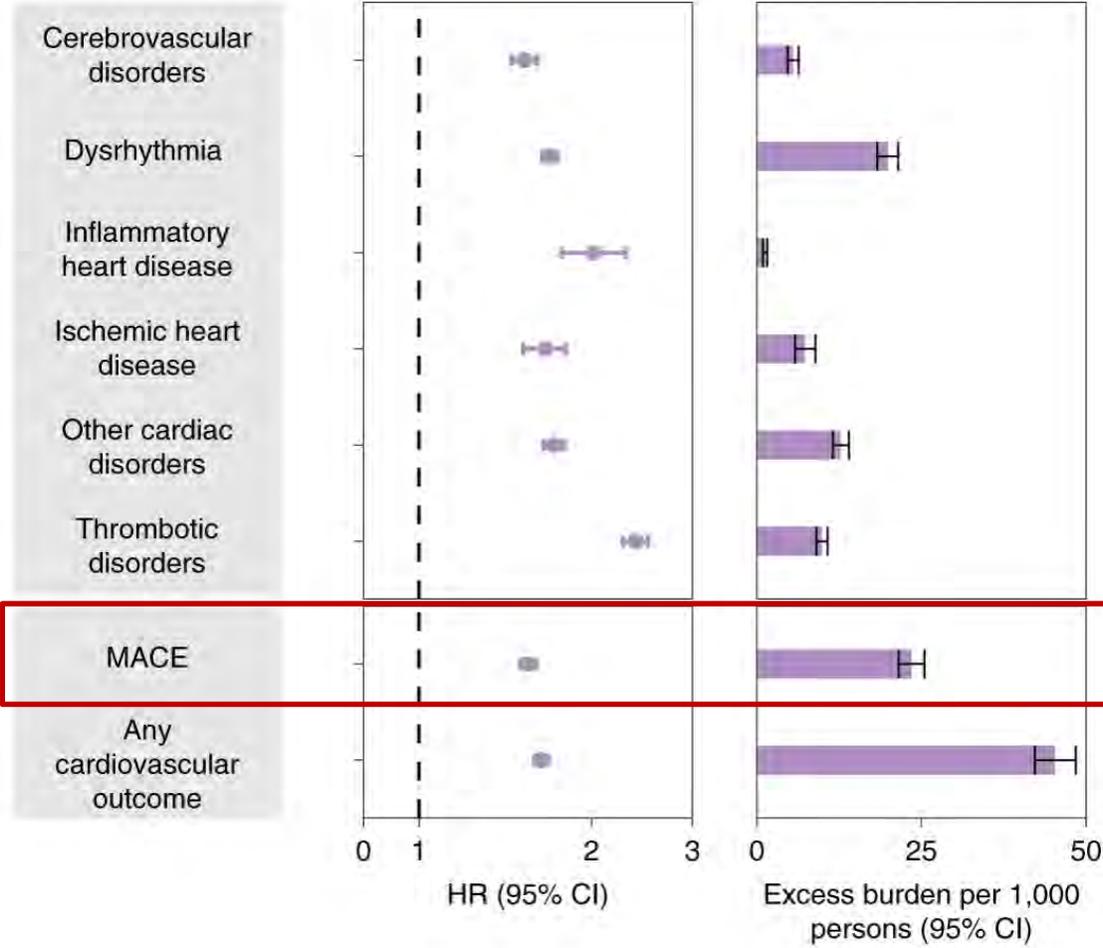
# COVID-Vaccine and Myocarditis



Biykem Bozkurt. Circulation. Myocarditis With COVID-19 mRNA Vaccines, Volume: 144, Issue: 6, Pages: 471-484, DOI: (10.1161/CIRCULATIONAHA.121.056135)

© 2021 American Heart Association, Inc.

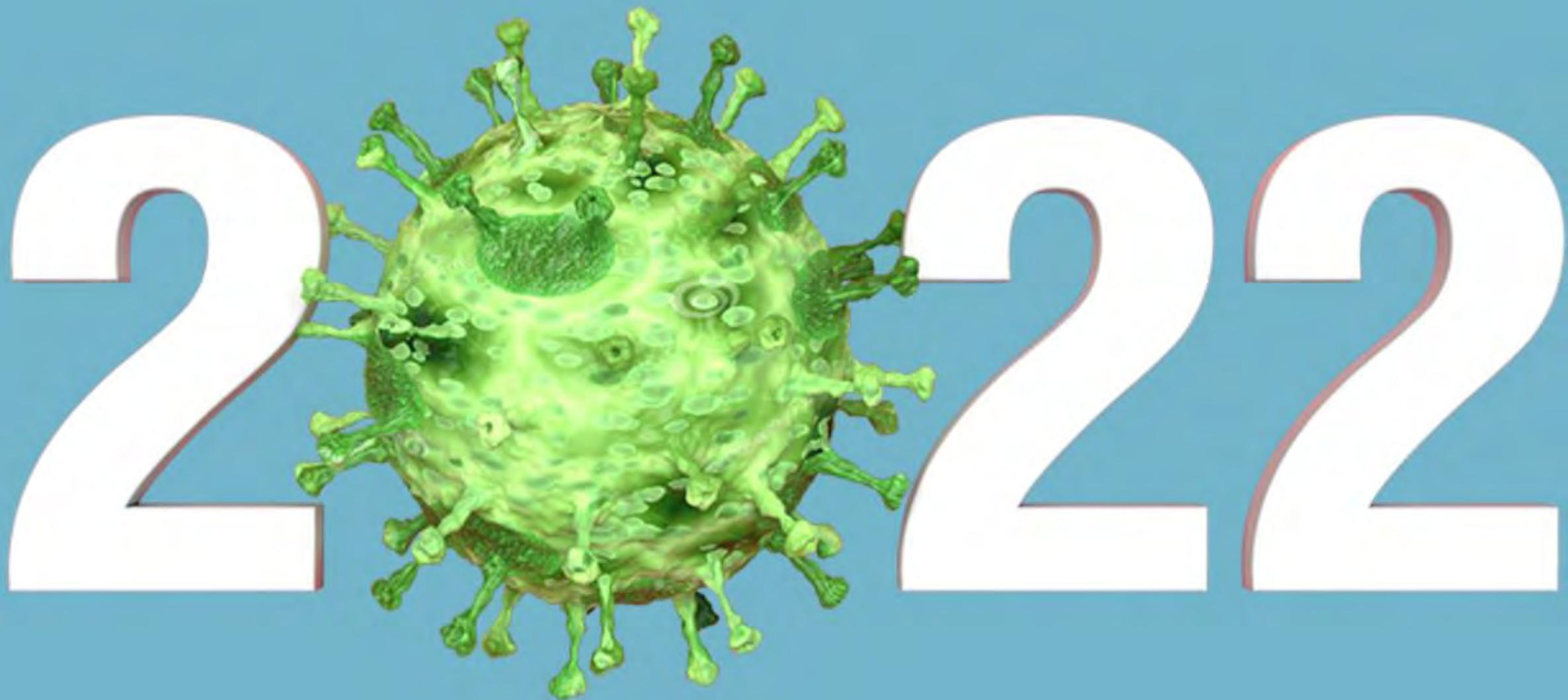
# COVID-19 Infection Increases Risk of CV Events



Risk is highest in those that required hospitalization or ICU admission

Risk increases measurably even in those with “mild cases”

Xie, Nature Medicine, 2022





**Time to create or rebuild  
healthy habits and take  
control of your physical  
and mental well-being**



Get on track with healthier eating habits.

### BLUE & PURPLE

- blackberries
- blueberries
- black currants
- dates
- eggplants
- grapes
- plums
- prunes
- purple figs
- raisins

### RED & PINK

- beets
- cherries
- cranberries
- pink grapefruit
- pomegranates
- radicchio
- red radishes
- red apples
- red grapes
- red peppers
- red potatoes
- rhubarb
- strawberries
- tomatoes
- watermelons



# EAT MORE COLOR

The best way to get all of the vitamins, minerals and nutrients you need is to eat a variety of colorful fruits and veggies. Add color to your plate each day with the five main color groups.

### GREEN

- artichokes
- asparagus
- avocados
- bok choy
- broccoli
- Brussels sprouts
- celery
- collard greens
- cucumbers
- peas
- green beans
- green cabbage
- green grapes
- green onions
- green peppers
- kale
- kiwis
- leeks
- limes
- mustard greens
- okra
- pears
- peas
- romaine lettuce
- snow peas
- spinach
- sugar snap peas
- watercress
- zucchini

### WHITE

- bananas
- cauliflower
- garlic
- Jerusalem artichokes
- mushrooms
- onions
- potatoes
- parsnips
- shallots

### ORANGE & YELLOW

- acorn squash
- butternut squash
- apricots
- cantaloupes
- carrots
- corn
- grapefruit
- lemons
- mangoes
- nectarines
- oranges
- orange peppers
- papayas
- peaches
- pineapples
- pumpkins
- summer squash
- sweet potatoes
- tangerines
- yams
- yellow apples
- yellow peppers
- yellow squash



# 2022: Jumpstart Healthy Eating Habits



## LEARN THE SALTY SIX

Limit the amount of sodium you eat each day. Learn the Salty Six. These common foods can be loaded with excess sodium:

- Breads & Rolls
- Pizza
- Sandwiches
- Cold Cuts & Cured Meats
- Soups
- Burritos & Tacos



**THE FACTS ON FAT**

The American Heart Association recommends replacing bad (saturated) fats with good (unsaturated) fats as part of a healthy eating pattern.

**LOVE IT**  
UNSATURATED (POLY & MONO)

**LIMIT IT**  
SATURATED

**LOSE IT**  
ARTIFICIAL TRANS FAT, HYDROGENATED OILS & TROPICAL OILS

• Lowers rates of cardiovascular and all-cause mortality  
• Lowers bad cholesterol & triglyceride levels  
• Provides essential fats your body needs but can't produce itself

• Increases risk of cardiovascular disease  
• Raises bad cholesterol levels

• Increases risk of heart disease  
• Raises bad cholesterol levels



### **Fit in 150+**

Get at least 150 minutes per week of moderate-intensity aerobic activity or 75 minutes per week of vigorous aerobic activity (or a combination of both), preferably spread throughout the week.



### **Move More, Sit Less**

Get up and move throughout the day. Any activity is better than none. Even light-intensity activity can offset the serious health risks of being sedentary.



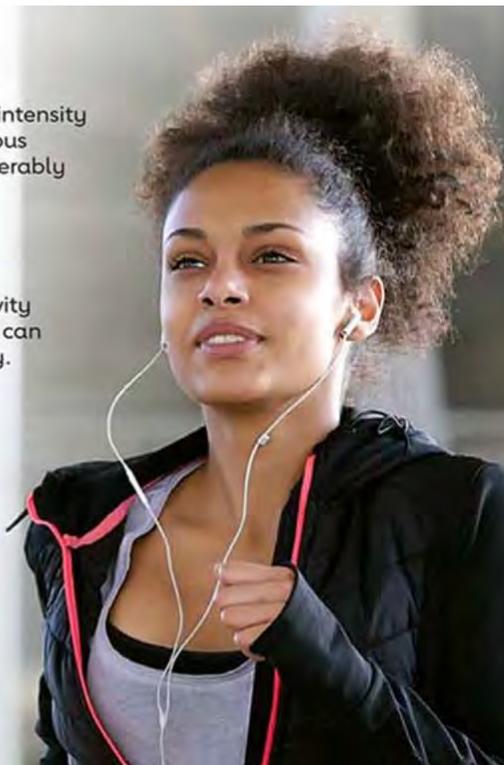
### **Add Intensity**

Moderate to vigorous aerobic exercise is best. Your heart will beat faster, and you'll breathe harder than normal. As you get used to being more active, increase your time and/or intensity to get more benefits.



### **Add Muscle**

Include moderate- to high-intensity muscle-strengthening activity (like resistance or weight training) at least twice a week.

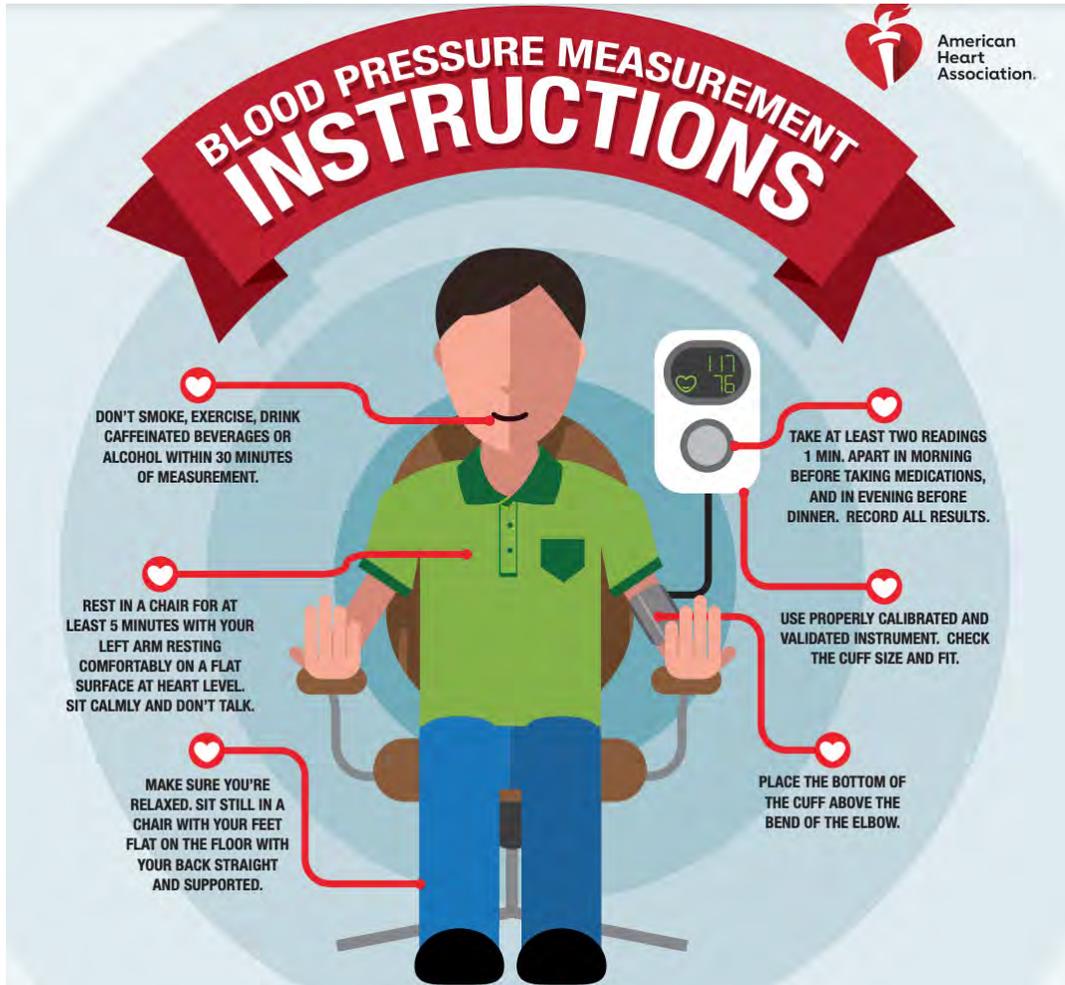


# Small changes can make a big difference.



**Ask  
about  
your blood  
pressure and  
cholesterol numbers.**

# Know Your Numbers: Blood Pressure



BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)	and/or	DIASTOLIC mm Hg (lower number)
<b>NORMAL</b>	LESS THAN 120	and	LESS THAN 80
<b>ELEVATED</b>	120 – 129	and	LESS THAN 80
<b>HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1</b>	130 – 139	or	80 – 89
<b>HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2</b>	140 OR HIGHER	or	90 OR HIGHER
<b><u>HYPERTENSIVE CRISIS</u> (consult your doctor immediately)</b>	HIGHER THAN 180	and/or	HIGHER THAN 120

# Know Your Numbers: Cholesterol



# FIGHT STRESS WITH HEALTHY HABITS



1. **Slow down.**

Plan ahead and allow enough time to get the most important things done without having to rush.

2. **Snooze more.**

Try to get seven to nine hours of sleep each night. To fight insomnia, add mindfulness and activity.

3. **Let worry go.**

The world won't end if a few things fall off of your plate. Give yourself a break and just breathe.

4. **Laugh it up.**

Laughter makes us feel good. Don't be afraid to laugh out loud, even when you're alone.

5. **Get connected.**

A daily dose of friendship is great medicine. Make time to call friends or family so you can catch up.

6. **Get organized.**

Use "to do" lists to help you focus on your most important tasks and take big projects one step at a time.

7. **Practice giving back.**

Volunteer your time or spend time helping out a friend. Helping others helps you.

8. **Be active every day.**

Exercise can relieve mental and physical tension. Find something you think is fun and stick with it.

9. **Give up the bad habits.**

Too much alcohol, tobacco or caffeine can increase blood pressure. Cut back or quit to decrease anxiety.

10. **Lean into things you can change.**

Make time to learn a new skill, work toward a goal, or to love and help others.

Learn more at [heart.org/HealthyForGood](https://heart.org/HealthyForGood)



2



22



# **In 2022, Let Us Help You:**

- 1. Create or rebuild healthy habits**
- 2. Take control of your well-being**
- 3. Check in with your healthcare provider**



**Thank You for Your Time and  
Attention**