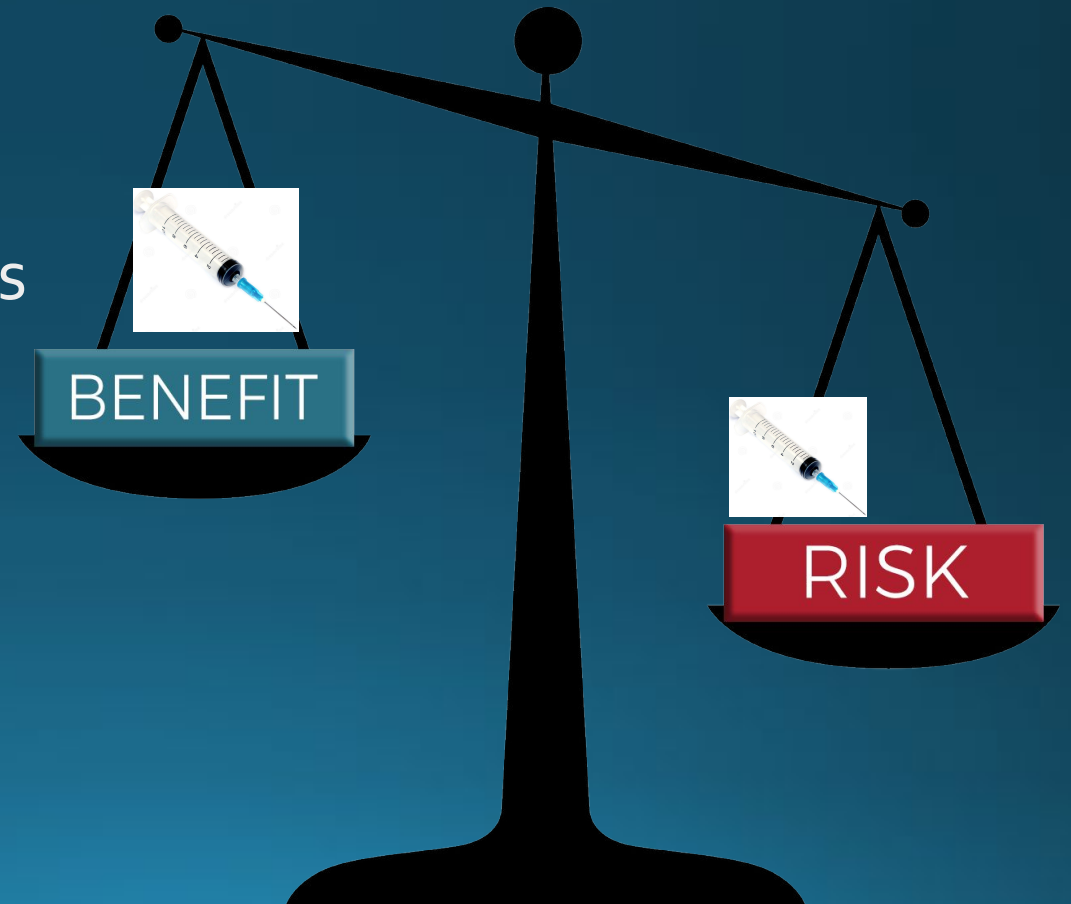


# COVID-19: Big Picture Perspective

- Risks associated with COVID-19 infection
  - Short-term
  - Long-term
- Benefits of vaccination
- Risks associated with COVID-19 vaccines
- Adding it all up
- Missing pieces





# Mortality – primary outcome of concern

## United States cases

Updated Jul 21 at 7:30 AM local

Confirmed  
89,881,058

+203,255

Deaths  
1,024,858

+592

[See breakdown](#)

## Global cases

Updated Jul 21 at 7:30 AM local

Confirmed  
565,190,546

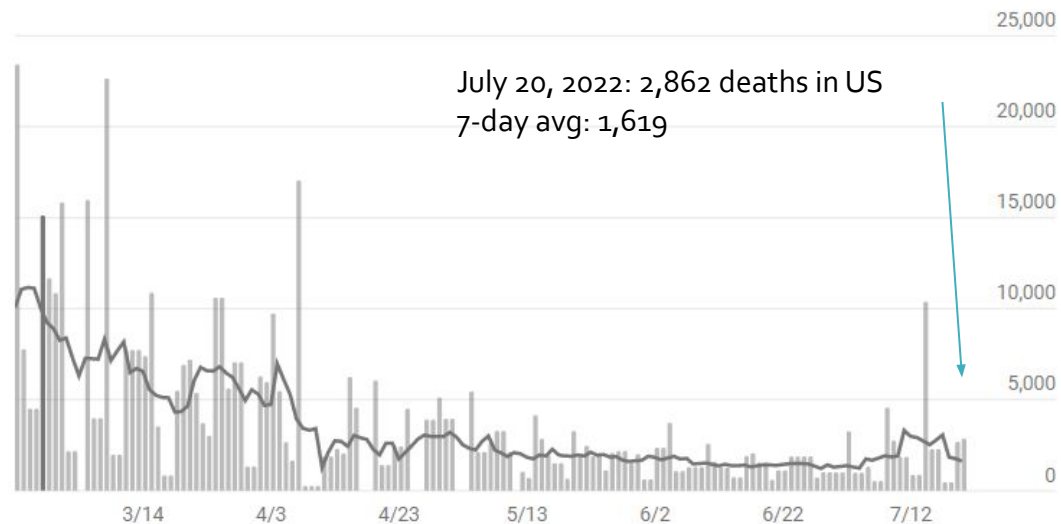
+1,558,074

Deaths  
6,374,336

+2,862

[See breakdown](#)

## Daily new deaths

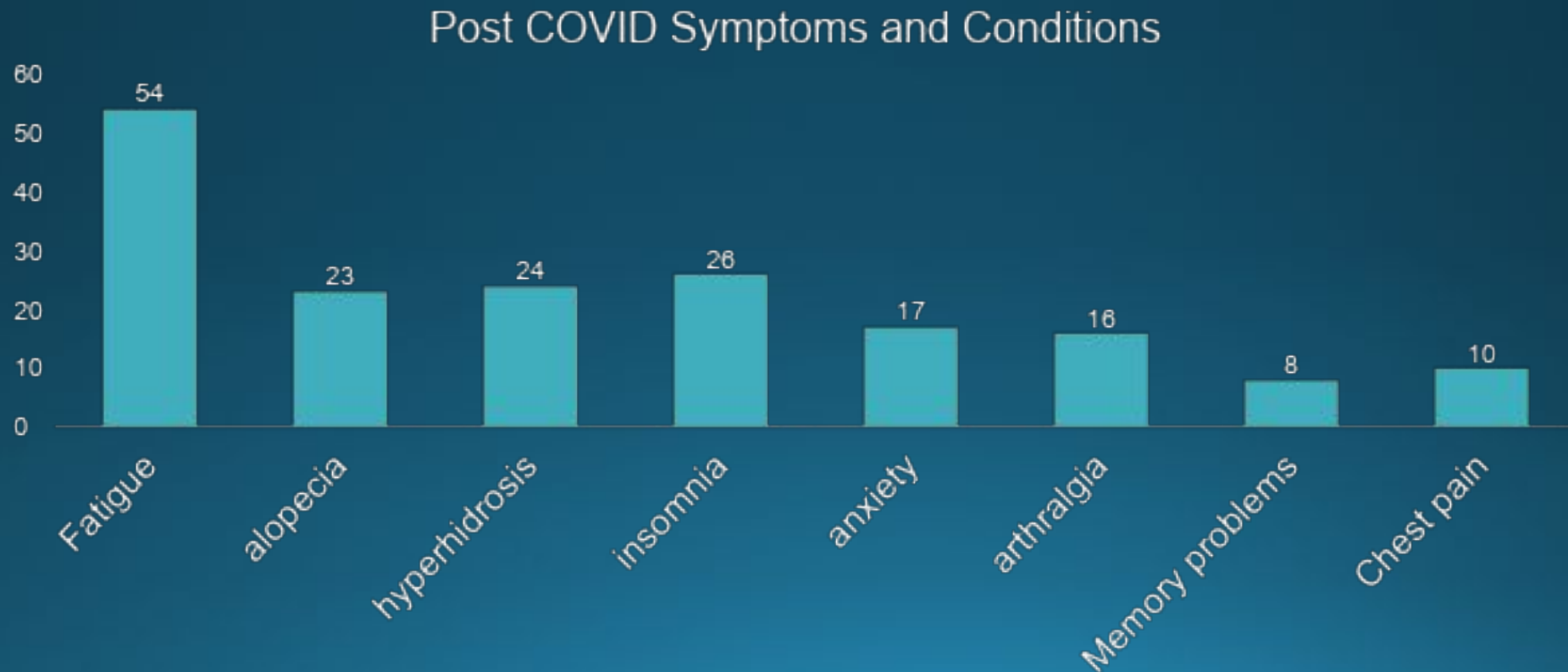




# Post-acute COVID-19 Syndrome and its prolonged effects: Systematic review

- 21 Articles included
- Most common lasting effects

Almas et al. Ann Med&Surg in press, 2022





# Post-COVID Inflammatory Syndrome

## Multisystem Inflammatory Syndrome and Autoimmune Diseases Following COVID-19: Molecular Mechanisms and Therapeutic Opportunities

Parastoo Hosseini<sup>1,2†</sup>, Mohammad Sadegh Fallahi<sup>3†</sup>, Gisou Erabi<sup>4</sup>, Majid Pakdin<sup>5</sup>, Seyed Mahdi Zarezadeh<sup>3</sup>, Arezoo Faridzadeh<sup>6,7</sup>, Sarina Entezari<sup>8</sup>, Arina Ansari<sup>9</sup>, Mohadeseh Poudineh<sup>10</sup> and Niloofar Deravi<sup>11\*</sup>



frontiers

Frontiers in Molecular Biosciences  
2022

JAMA Neurology | Original Investigation

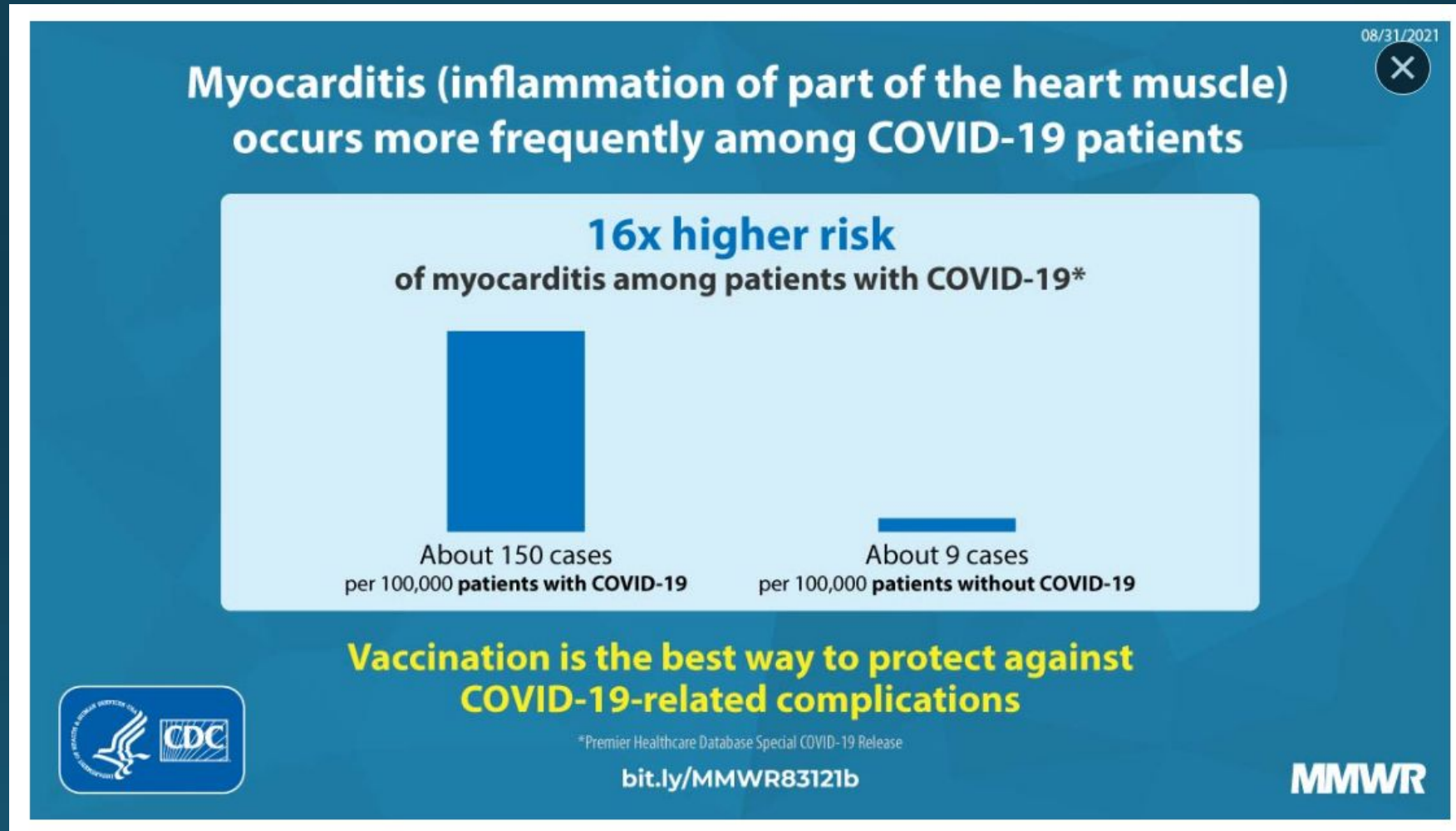
## Neurologic Involvement in Children and Adolescents Hospitalized in the United States for COVID-19 or Multisystem Inflammatory Syndrome

LaRovere et al., for the Overcoming COVID-19 Investigators,

2021

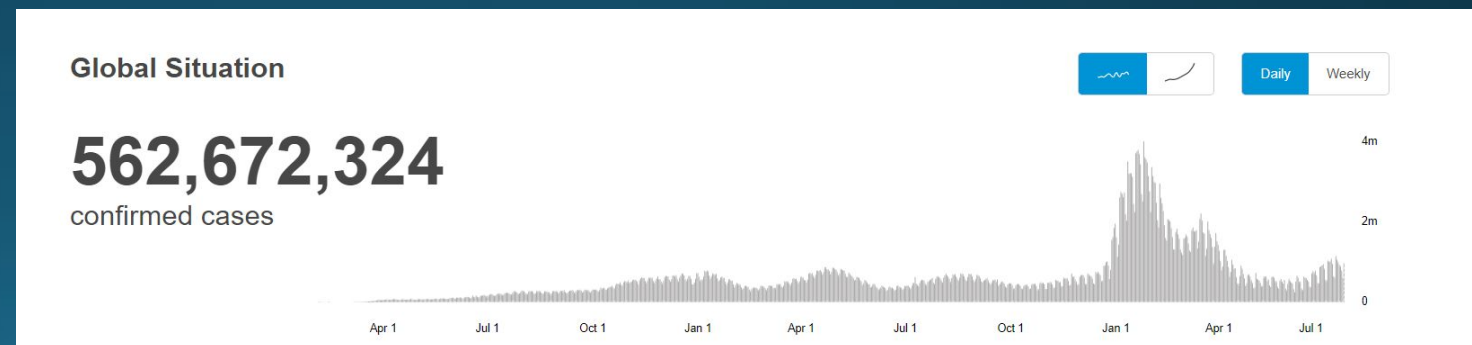
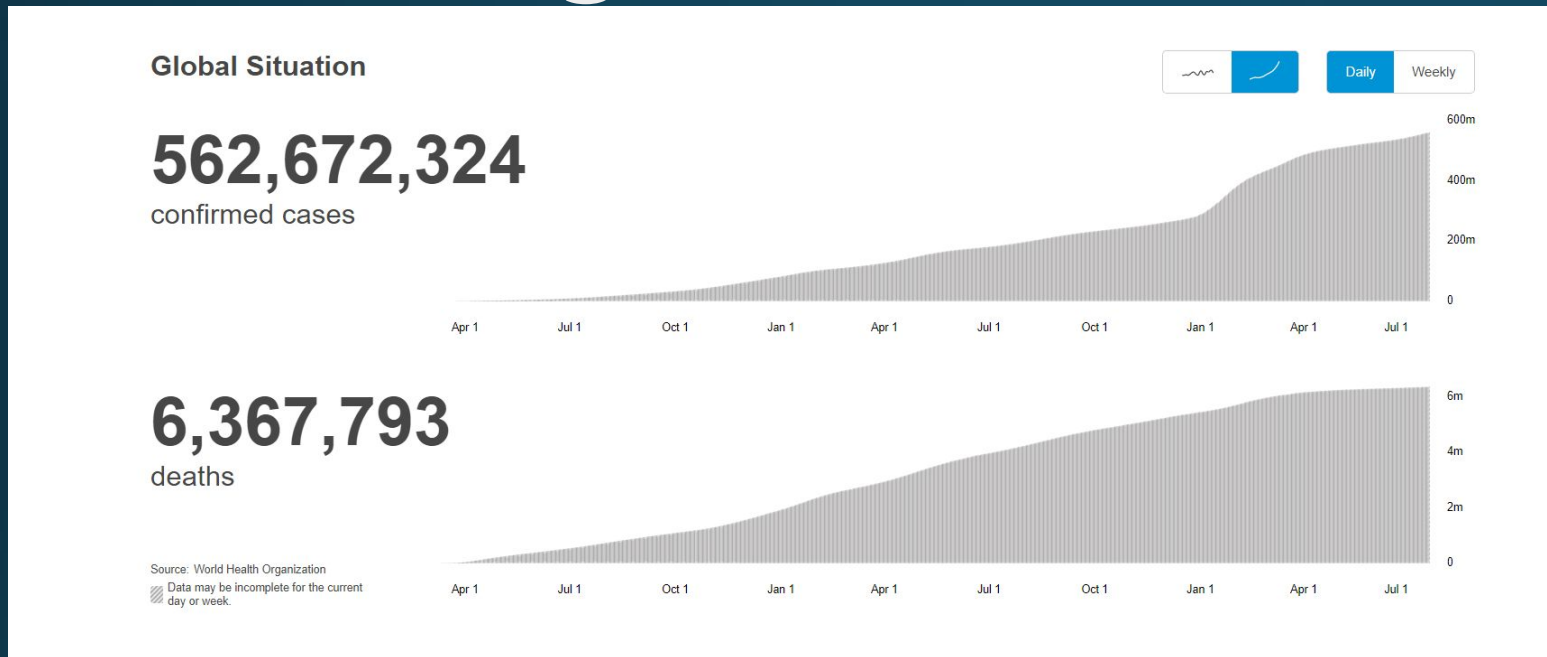


# COVID-19 Infection-Associated Myocarditis





# Slowing for now, but not going away





# Preventive Measures

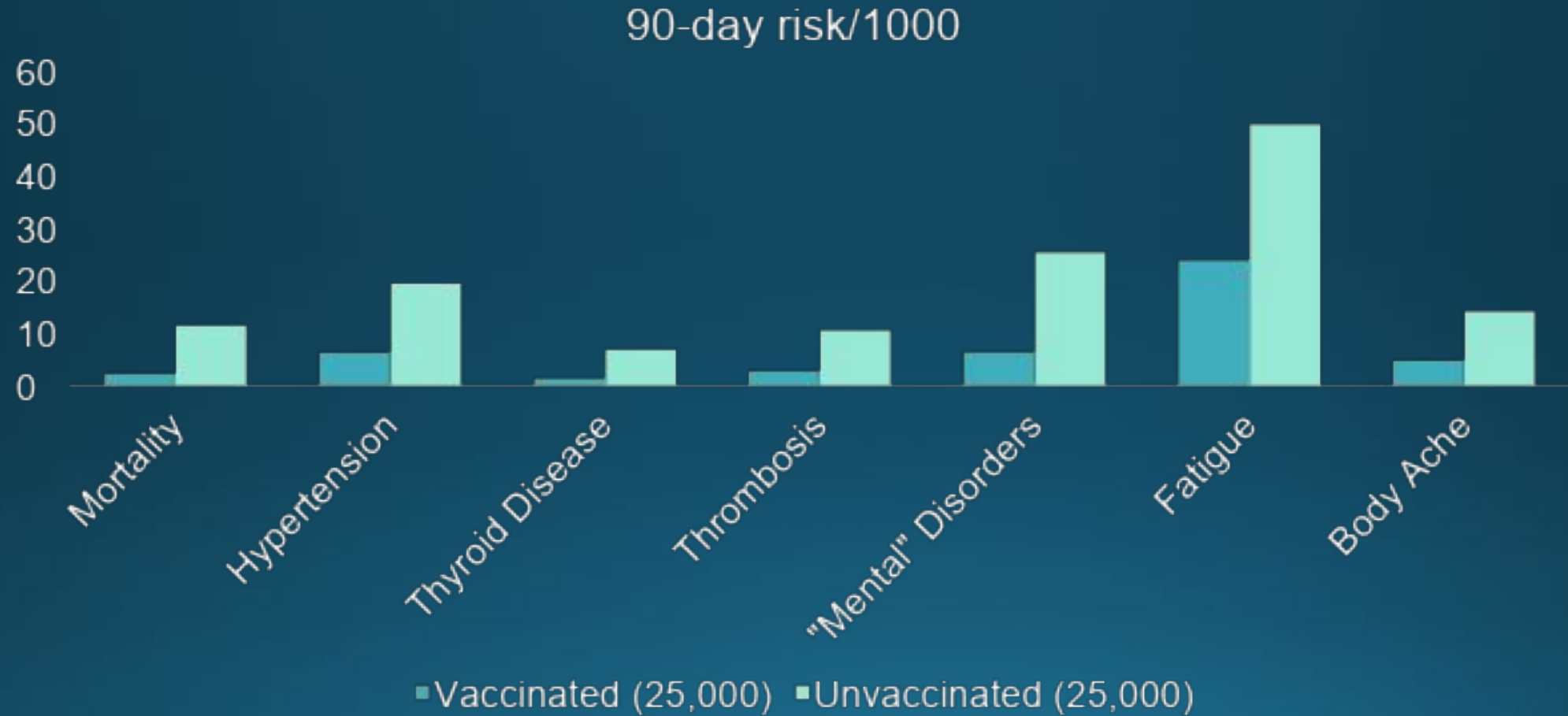
- Isolate
- Mask
- Vaccinate
  - Multiple different vaccines now available
  - In US predominantly:
    - Pfizer (mRNA)
    - Moderna (mRNA)
    - Johnson&Johnson (mRNA)
    - Novavax (July, 2022) (protein-based)
  - High levels of efficacy against
    - infection
    - severe disease



Vaccine	Effectiveness at preventing											
	Ancestral		Alpha		Beta		Gamma		Delta		Omicron	
	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection
AstraZeneca	94%	63%	94%	63%	94%	69%	94%	69%	94%	69%	71%	36%
CanSino	66%	62%	66%	62%	64%	61%	64%	61%	64%	61%	48%	32%
CoronaVac	50%	47%	50%	47%	49%	46%	49%	46%	49%	46%	37%	24%
Covaxin	78%	73%	78%	73%	76%	72%	76%	72%	76%	72%	57%	38%
Johnson & Johnson	86%	72%	86%	72%	76%	64%	76%	64%	76%	64%	57%	33%
Moderna	97%	92%	97%	92%	97%	91%	97%	91%	97%	91%	73%	48%
Novavax	89%	83%	89%	83%	86%	82%	86%	82%	86%	82%	65%	43%
Pfizer/BioNTech	95%	86%	95%	86%	95%	84%	95%	84%	95%	84%	72%	44%
Sinopharm	73%	68%	73%	68%	71%	67%	71%	67%	71%	67%	53%	35%
Sputnik-V	92%	86%	92%	86%	89%	85%	89%	85%	89%	85%	67%	44%
Other vaccines	75%	70%	75%	70%	73%	69%	73%	69%	73%	69%	55%	36%
Other vaccines (mRNA)	91%	86%	91%	86%	88%	85%	88%	85%	88%	85%	67%	45%



# Benefits: Less Mortality, Less MIS, Less Long COVID Breakthrough vs. Unprotected Infection





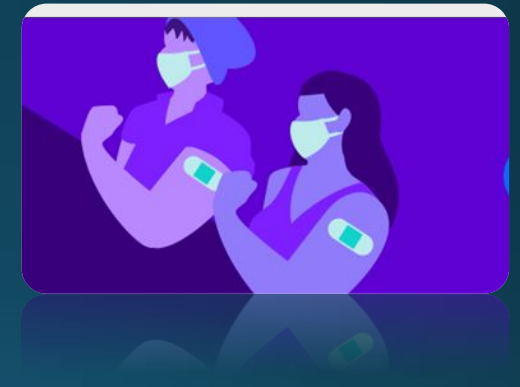
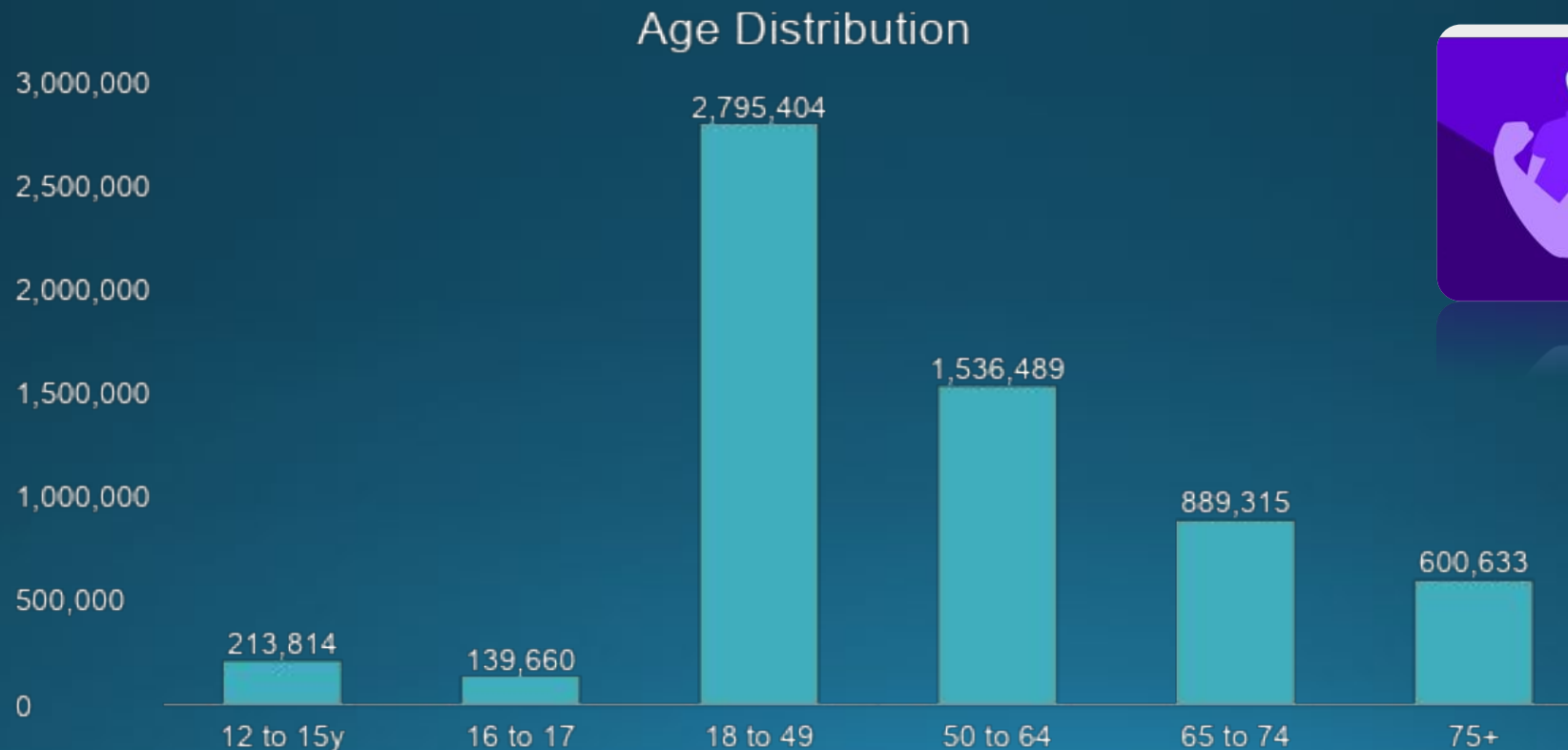
# Are mRNA COVID-19 Vaccines Safe?

JAMA | Original Investigation

Surveillance for Adverse Events After COVID-19

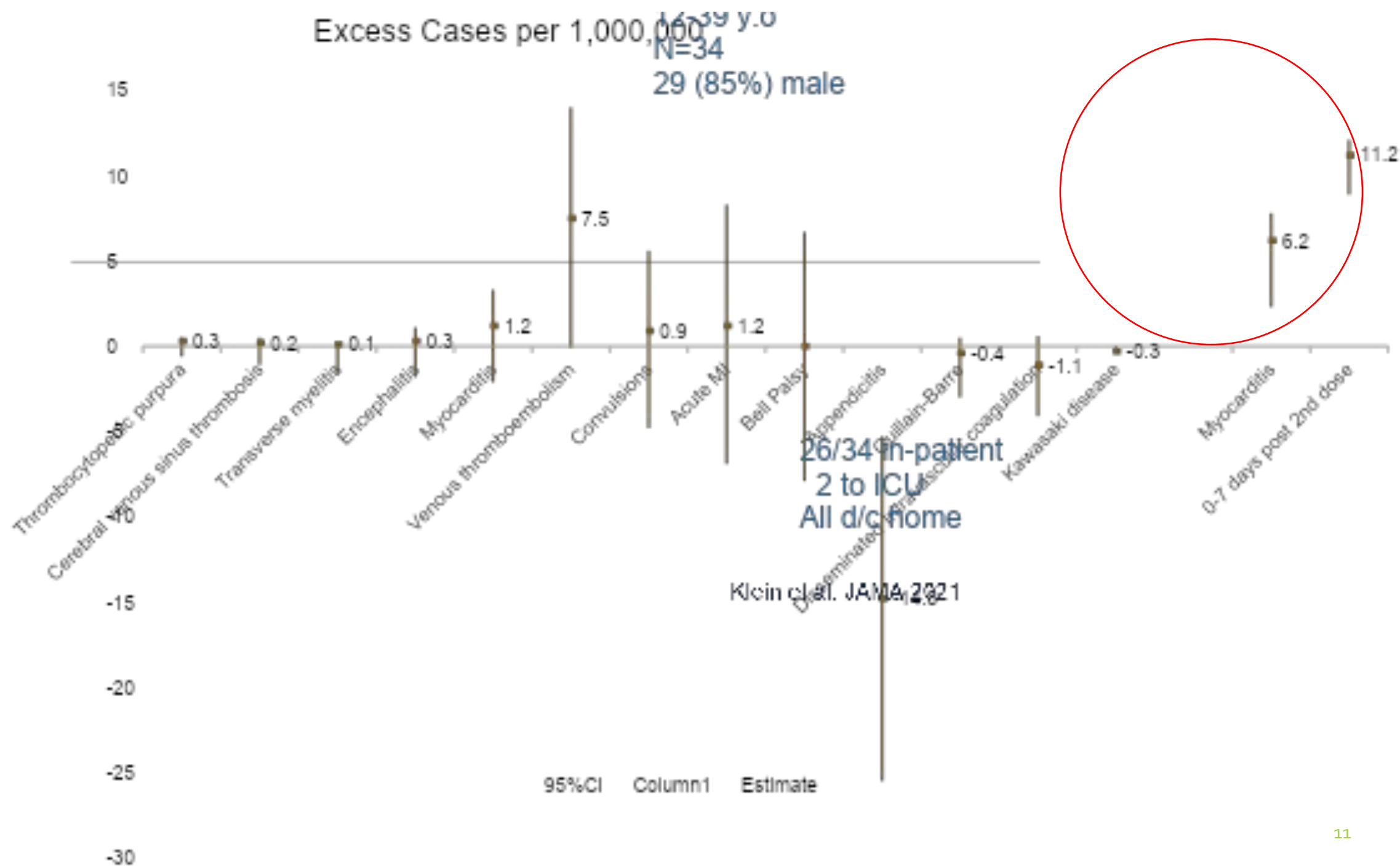
Klein et al. JAMA 2021

- 6,175,813 individuals  
11,845,128 COVID-19 vaccine doses (Pfizer & Moderna)



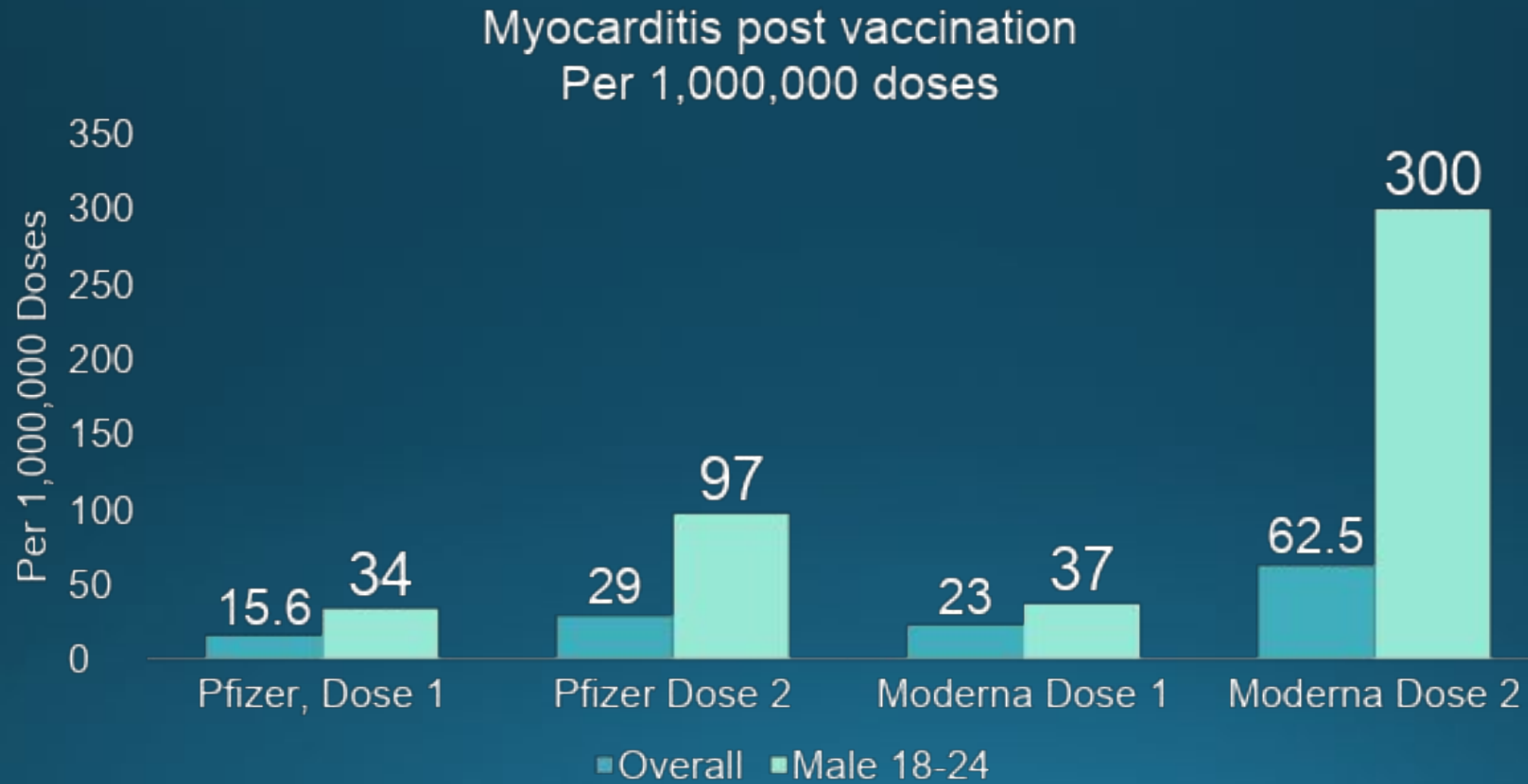


Excess cases per 1,000,000



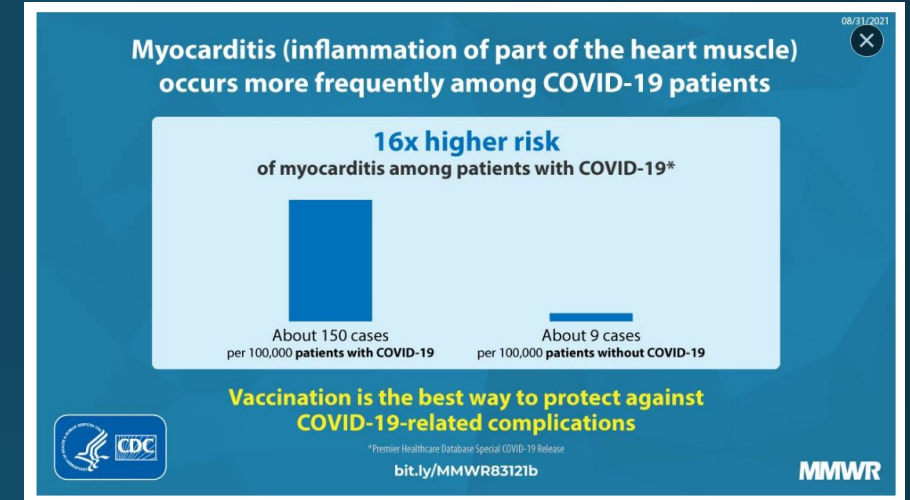
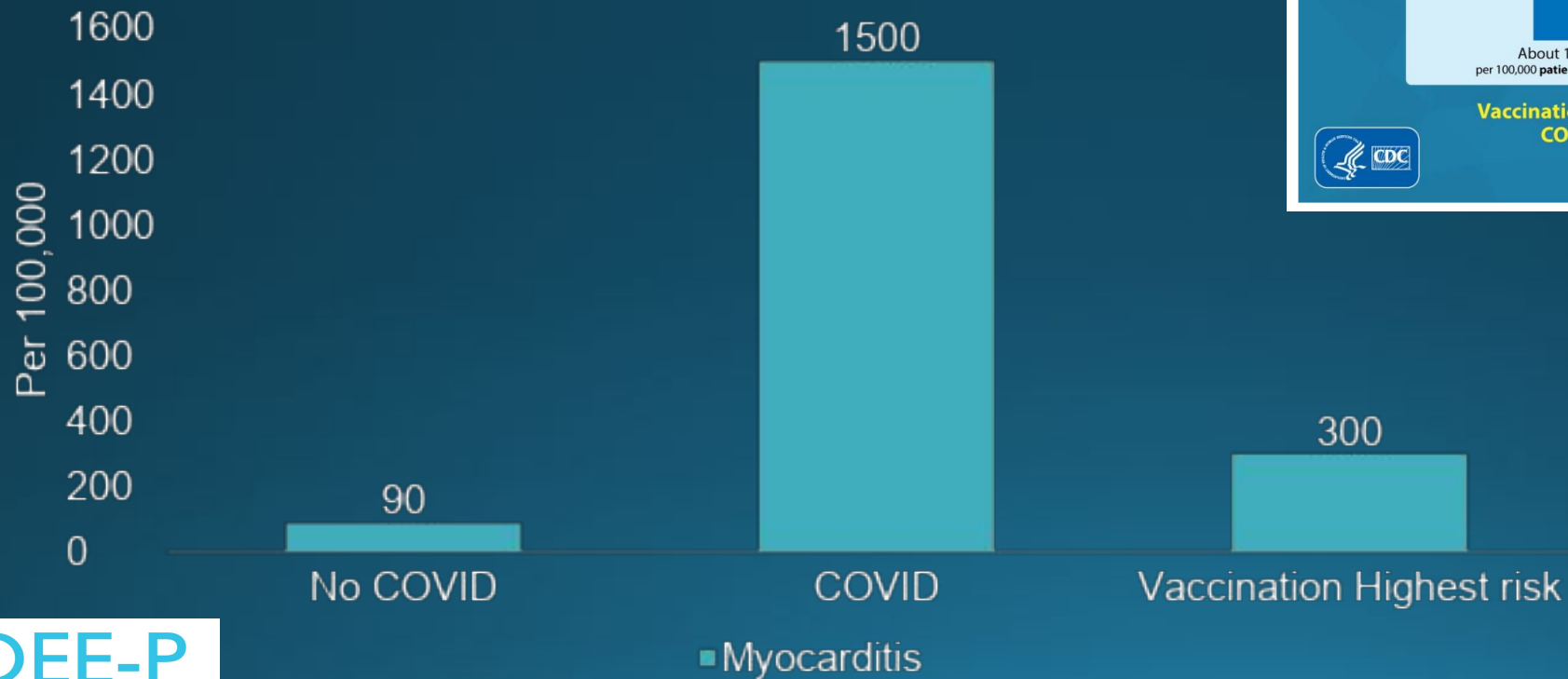


# COVID-19 Vaccine -Associated Myocarditis





# COVID-19 Vaccine and COVID-19 Infection-Associated Myocarditis

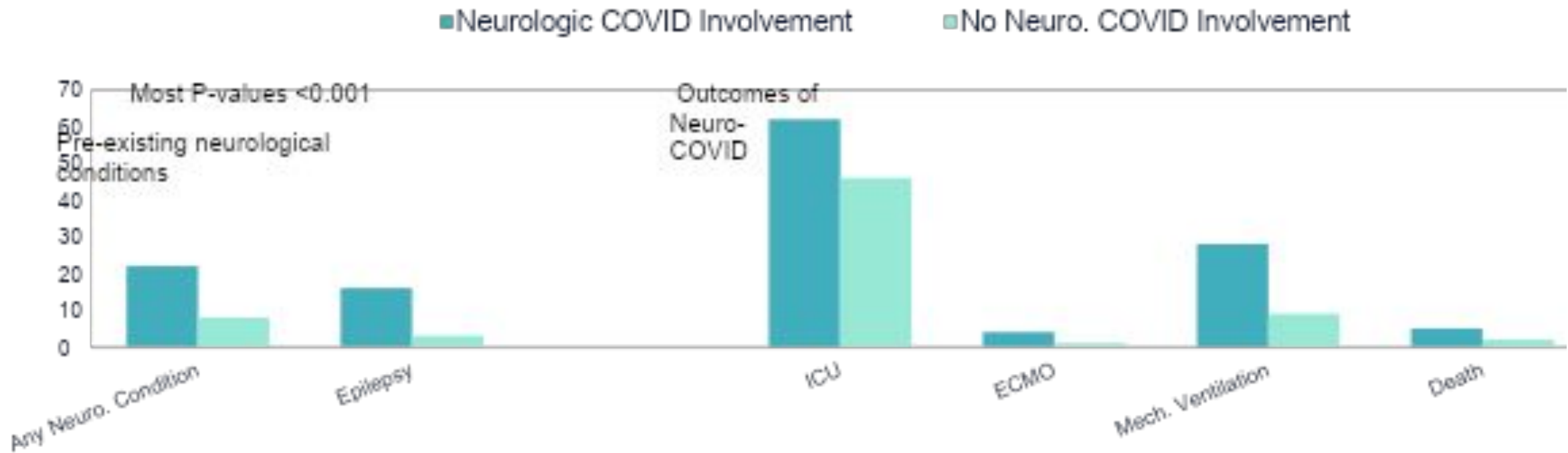




# Neurologic Involvement in Children and Adolescents Hospitalized in the United States for COVID-19 or Multisystem Inflammatory Syndrome

LaRovere et al., for the Overcoming COVID-19 Investigators, 2021

- 52 centers, March-December, 2020
- 1695 pediatric patients hospitalized with confirmed COVID-19 infections
  - **11%** pre-existing neurological conditions.
  - **6%** pre-existing epilepsy
- 365 (**22%**) Neuro-COVID involvement





# Adding it all up: General population and more specific considerations)

## VACCINE

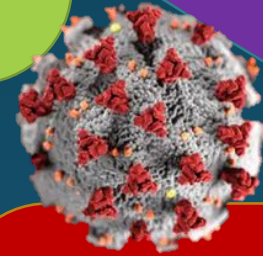
Decreased infection  
Decreased serious disease  
Decreased Mortality  
Decreased Post-acute complications

Take care of yourself!!!!  
Decreased transmission to  
your child with DEE  
Keeps you healthy to care  
for your child

Risks associated with vaccination are minimal.  
Worst case in comparison to infection

## Information Gaps

Risks specific to medically  
complex individuals  
Consideration for *your* child



## NO VACC

Significant morbidity  
High Hospitalization  
Significant Mortality  
Long-COVID  
Multisystem Inflammatory Syndrome



# Completing the DEE-P Connections COVID-19 Vaccine Survey Can Help Bridge this Gap in Knowledge

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

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

