A COMMUNITY CONVERSATION

LET'S TALK ABOUT HEALTH

UNIVERSITY of MARYLAND MEDICAL SYSTEM

Long COVID and Vaccines for Children

12/15/2021

Today's Speaker

Gregory Schrank, MD MPH

Dr. Greg Schrank attended medical school at the Lewis Katz School of Medicine at Temple University in Philadelphia. He went on to complete Internal Medicine residency training at the NYU School of Medicine, where he also served as a chief medical resident, followed by a fellowship in Infectious Diseases at Beth Israel Deaconess Medical Center/Harvard Medical School. While there, he completed additional fellowship training in infection control and hospital epidemiology. After fellowship, Dr. Schrank joined the faculty at the University of Maryland School of Medicine as an Assistant Professor of Medicine in the Division of Infectious Diseases. He sees patients at the R Adams Cowley Shock Trauma Center and serves as an Associate Hospital Epidemiologist for the University of Maryland Medical Center. During the COVID-19 pandemic, he served as an Incident Commander for the COVID-19 response at the University of Maryland Medical Center during the Spring and Fall surges of 2020 and more recently as a subject matter expert for University of Maryland Medical System's vaccination efforts.

A Way to Take Charge- Use Ask Me 3®

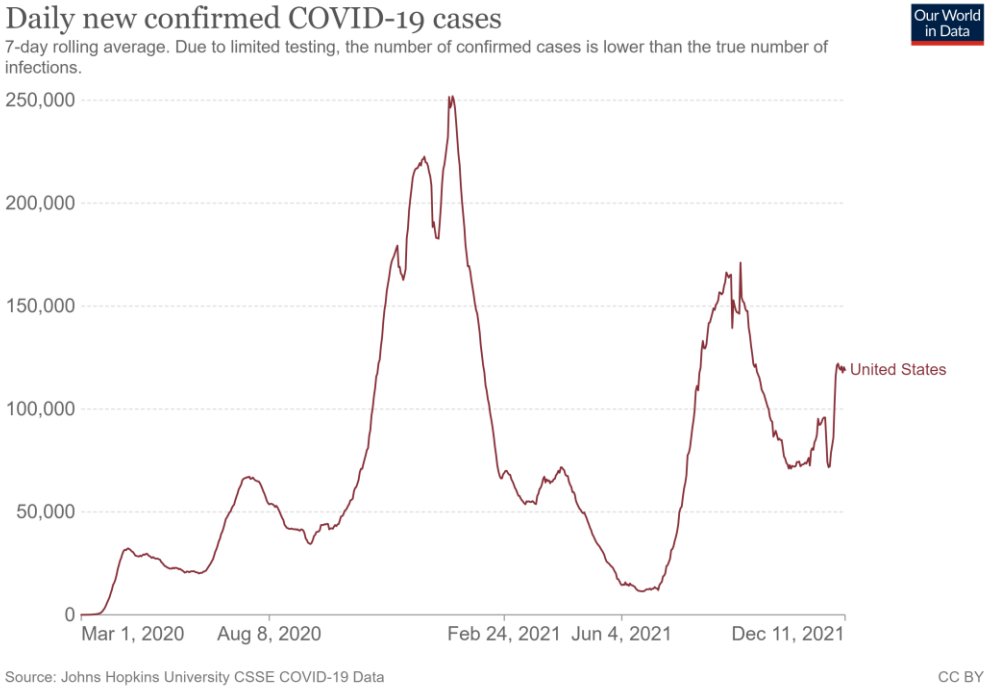
Ask Me 3 is a program that suggests using three simple, straightforward questions when talking to your doctor, nurse, pharmacist or health care provider about your health:

1. **What is my main problem?**
2. **What do I need to do?**
3. **Why is it important for me to do this?**

“Long COVID”

What we know so far

The COVID-19 Pandemic



About 14% of COVID-19 cases are severe and require hospitalization

- Age
- Medical conditions
- Social determinants

Cases	49 million
Deaths	797,000

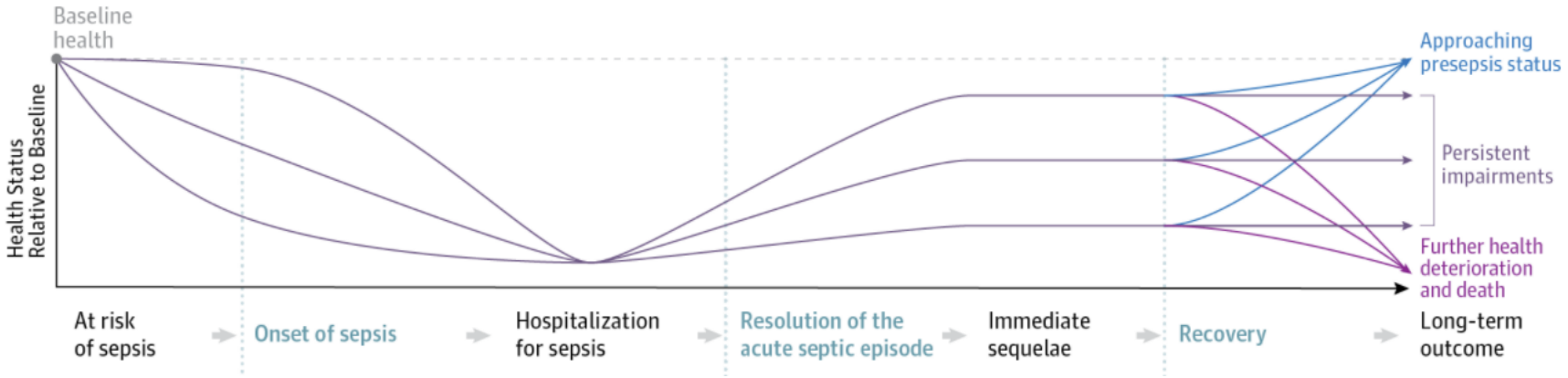
Ourworldindata.org
Johns Hopkins University Coronavirus Resource Center
Stokes EK et al. CDC MMWR 2020

Post-Sepsis and Post-ICU Syndrome

- **Before the pandemic**: A clear link between sepsis/critical illness and long-term symptoms
  - Post-intensive Care Syndrome – symptoms that remain after critical illness
    - ICU-acquired weakness: Half of patients in the ICU for at least one week
    - Cognitive dysfunction (difficulty with thoughts): 30-80% of patients
    - Post-traumatic Stress Disorder (PTSD): depression, anxiety, difficulty with sleep
  - Post-sepsis – severe or critical illness due to an infection
    - Over 1 million individuals in the US survive an episode of sepsis each year
    - One-sixth have persistent physical disability
    - Many are readmitted to the hospital: 12% of all US hospital readmissions
    - One-third die in the year following the sepsis episode

SCCM.org
Prescott HC. JAMA 2018.
Mayr FB. JAMA 2017.
Iwashyna TJ. JAMA 2010.

Post-Sepsis Clinical Course



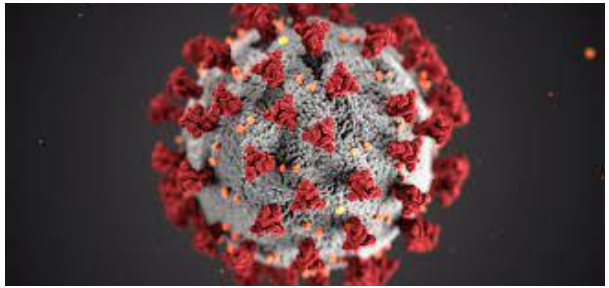
Prescott HC. JAMA 2018.

Symptoms After Other Infections

- Post-treatment Lyme Disease Syndrome
  - 5-15% of people infected with Lyme Disease
  - Fatigue, muscle or joint pain, and difficulty thinking persisting for 6 months after antibiotic treatment
- Myalgic Encephalomyelitis (Chronic Fatigue Syndrome)
  - Possible relationship with Epstein-Barr virus, the cause of mononucleosis
  - Can be sudden in onset along with other symptoms of viral infection
    - Severe fatigue with chronic bone or muscle pain
    - Painful lymph nodes may be present
    - Treatment is targeted to symptoms.

Feder HM. NEJM 2007.
Lantos PM. Clin Infect Dis 2021.
Hickie I. BMJ 2006.
Jones JF. Ann Intern Med 1985.
Image: The Independent, May 2021.

What is “Long COVID”?

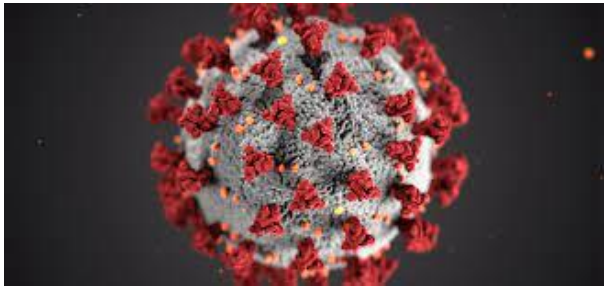


- Different names
  - Long COVID or long haulers
  - Post-COVID conditions
  - Post-acute sequelae of SARS-CoV-2 infection (PASC)
- **Physical and mental symptoms that develop during or after COVID-19 and continue for <u>at least 2 months (3 months from onset of COVID-19 illness)</u>**
  - Lack of return to usual state of health
  - Not explained by an alternative diagnosis
  - Not related to the active viral infection

CDC.gov

Why Does it Occur?

- Exact cause remains unknown and an active area of research
  - Potentially due to the body's immune response to infection
  - Triggers a reaction that can cause ongoing tissue injury and inflammation



Ledford. Nature 2021.
Di Sante. medRxiv pre-print 2021.

Who is at risk for Long COVID?

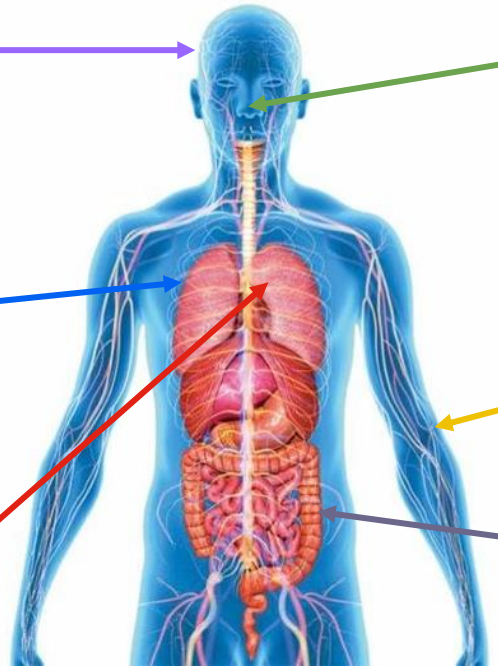
- Can affect people across the spectrum of COVID-19 illness
  - Mild to severe disease requiring hospitalization
  - Estimated to affect 10-50% of people after infection
    - Likely impacts millions in the US though exact number unknown
    - Risk after infection varies by study
- Prognosis and time to improvement is variable
  - May depend on baseline health and severity of symptoms
  - Can last for months – even among those with initial mild COVID infection

CDC.Gov
Menges D. PLOS One 2021.
Augustin M. Lancet Europe 2021.

What are some of the symptoms?

Brain fog/Poor Memory
Headache
Sleep problems
Lightheadedness
Anxiety

Loss of Taste
Changes in Taste
Loss of Smell



Cough
Shortness of Breath

Muscle pain
Joint pain
Severe fatigue
Impaired function

Chest pain
Palpitations

Poor appetite
Diarrhea

Using Ask Me 3®

Statement (problem)

Two months ago, I was diagnosed with COVID when I was tested before traveling. I only had a runny nose and headache at the time, but now I feel so tired I can hardly manage to leave the house and often feel like I can't remember things I did earlier in the day.

Q: What is the problem?

A: Long COVID or Post-COVID Conditions can occur in up to 50% of adults after infection, even if the initial symptoms were mild.

Q: What do I need to do?

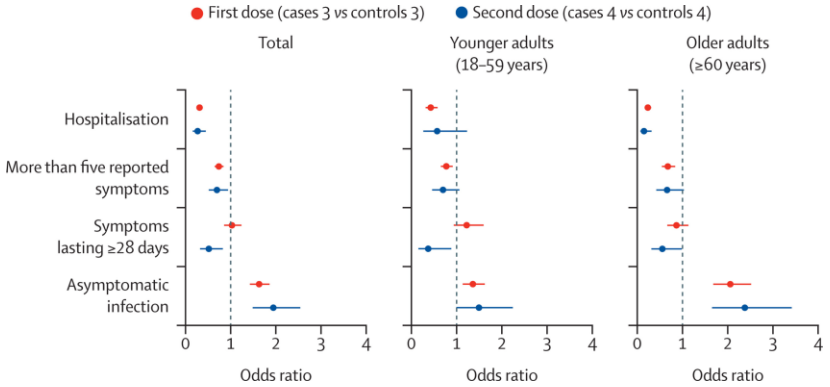
A: Talk to your doctor who can help to determine if these symptoms are related to your prior COVID-19 infection or if they have another cause.

Q: Why is it important for me to do this?

A: Long COVID can significantly impact a person's life, including their ability to work and perform day-to-day activities. Seeing your doctor is an important first step in developing a treatment plan.

How Does Vaccination Affect the Risk of Long COVID?

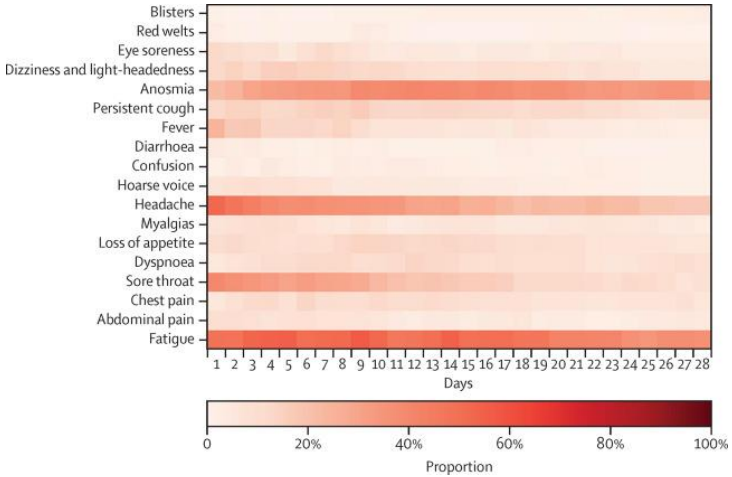
- An active area of research
- One study in the UK of over 1 million people identified a lower odds of symptoms lasting >28 days among vaccinated people
- Other studies have suggested that vaccination may improve the severity of symptoms



Antonelli M. Lancet Infectious Diseases 2021.
Arnold DT. medRxiv 2021.

Are Children at Risk of Long COVID?

- Fewer studies looking at risk in children
  - May be less common in children but exact risk is unknown
  - Ranges 0-13%
  - Signs of ongoing inflammation among those with symptoms
- Symptoms are similar
  - Fatigue
  - Shortness of breath
  - Difficulty concentrating
- May resolve faster than in adults but more study needed



Buonsenso D. Acta Pediatr 2021.
Brackel CLH. Pediatric Pulmonology 2021.
Radtke T. JAMA 2021.
Molteni E. Lancet Child and Adolescent Health 2021.

Using Ask Me 3®

Statement (problem)

I have three children at home. Two of them are too young to be vaccinated and go to day care. My oldest child is in middle school and has a learning disability. I worry about their risk of getting COVID, especially because there is so much we don't know about long term symptoms.

Q: What is the problem?

A: COVID-19 can infect children and lead to long term symptoms, just like in adults.

Q: What do I need to do?

A: If your child is eligible, getting them vaccinated reduces their risk of infection. If you have questions about the vaccine, talk to your child's pediatrician. When more people in the family are vaccinated (and boosted) it makes the entire family safer – especially the vulnerable and very young.

Q: Why is it important for me to do this?

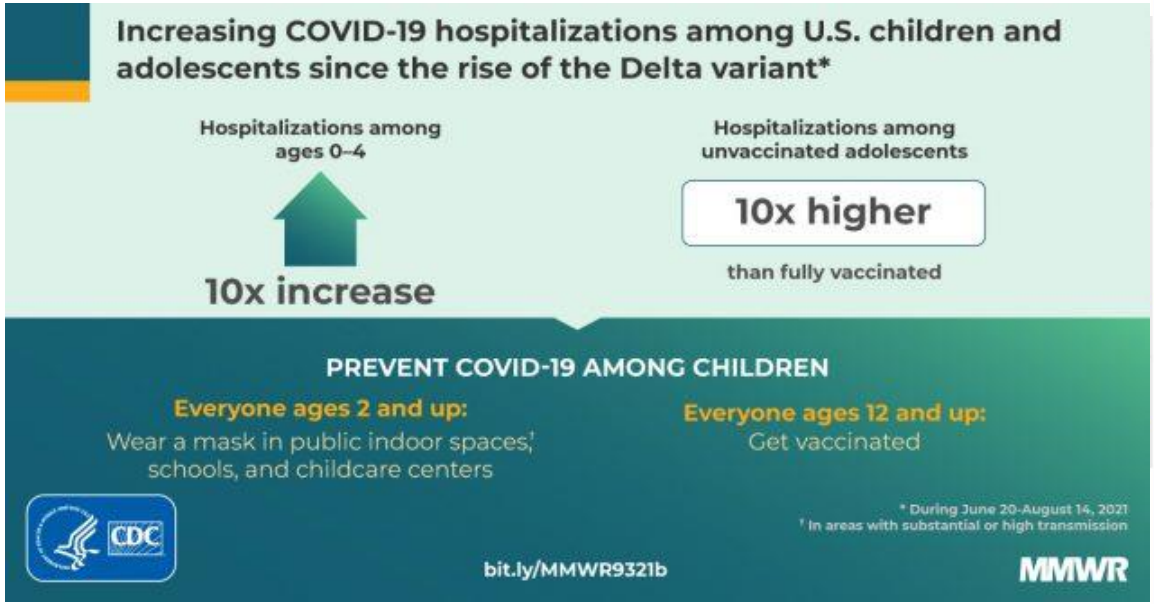
A: Vaccination is the best tool we have to prevent the spread, infection, and the complications of COVID-19

COVID-19 Vaccines and Children

Protecting our youngest

Kids and the COVID-19 Pandemic

- Over 7 million cases of COVID-19 among children
  - Likely underestimated
  - Increasing
  - 17% of all cases
  - 2-4% of hospitalizations
    - Currently 1% in MD



CDC.Gov
American Academy of Pediatrics
Maryland Department of Health
Delahoy MJ. CDC MMWR 2021.

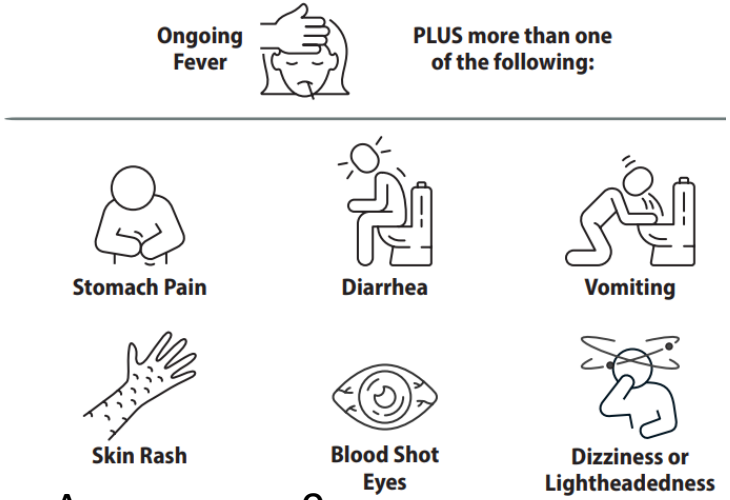
Severe Outcomes Are Less Common But Still Occur

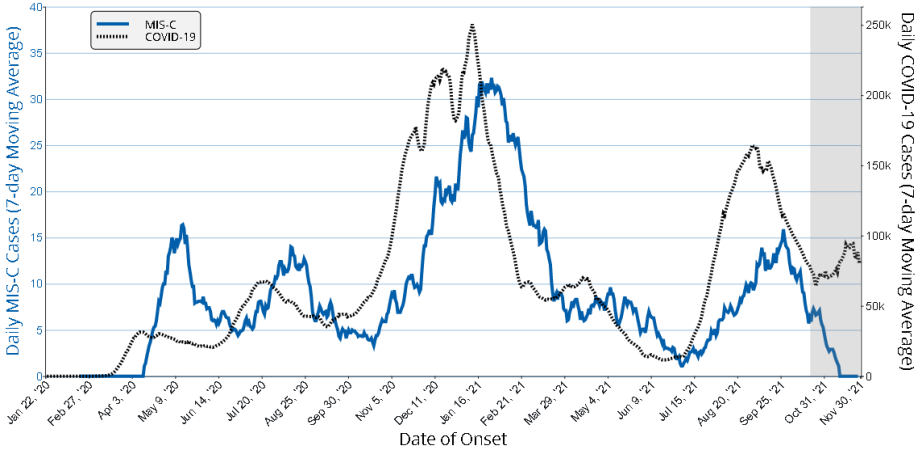
Ages	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	All Ages
January	7	6	4	2	2	1	1	1	1	1	1
February	13	7	5	4	4	2	2	2	1	2	1
March	15	8	6	6	5	4	3	3	3	5	3
April	7	7	6	6	5	4	3	3	3	5	3
May	11	8	5	6	5	4	3	3	5	6	3
June	13	11	7	6	5	4	4	6	7	8	6
July	13	8	5	6	5	4	3	4	6	7	7
August	7	6	4	2	1	1	1	2	3	3	3
September	7	5	4	2	1	1	1	1	3	2	2
October	7	6	4	2	2	1	2	3	3	3	3

Case Earliest Date by End of Week*

CDC.Gov
Kaiser Family Foundation

Multisystem Inflammatory Syndrome





- Average age 9 years
  - Most between 5-11
- Leads to hospitalization
- Over 100 cases reported in Maryland

CDC.gov

Missed School

- Learning loss due to the pandemic
  - Isolation for COVID-19 infection
  - Quarantine for exposures
- Social and emotional impact of remote learning
- Vaccination lowers the risk of infection
  - Reduces transmission to others, even when breakthrough infection occurs

Lipsitch M. Nature Reviews Immunology 2021.

Using Ask Me 3®

Statement (problem)
I have a 6-year-old daughter with asthma. She needs to use an inhaler everyday and has even been hospitalized with an exacerbation. I worry about what would happen if she got infected with COVID-19, but I am also unsure about the possible side effects of the vaccine.

Q: What is the problem?
A: COVID-19 is less severe in children but can still rarely cause serious illness and lead to hospitalization. This is especially true for kids with underlying health conditions.

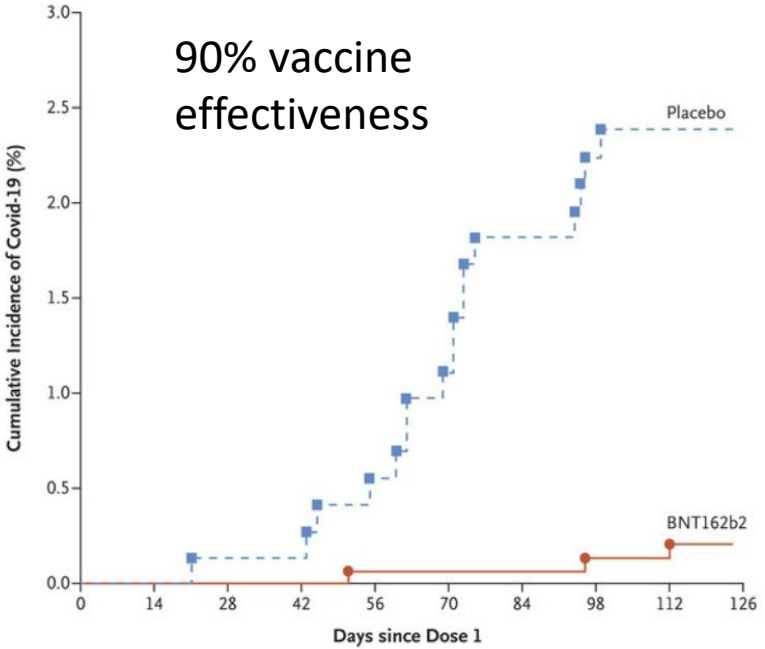
Q: What do I need to do?
A: Talk to your child's pediatrician about your concerns. Speak to trusted friends and family who have taken their children to get vaccinated. Read about the vaccine from a trusted source like the CDC.

Q: Why is it important for me to do this?
A: Even if rare, even one serious complication from COVID in a child is one too many. Vaccines are a safe and effective way at preventing severe infection and making sure your child stays safe during the pandemic.

COVID-19 Vaccine for Ages 5-11

- Pfizer vaccine authorized for kids 5-11 in early November
- Clinical Trial
  - Randomized 2:1 to receive vaccine or placebo
  - Lower dose than used in adults/kids >12
  - ~2200 kids at 90 sites in 4 countries
    - 79% white, 6% Black, 7% Multiracial
    - 21% Hispanic/Latino

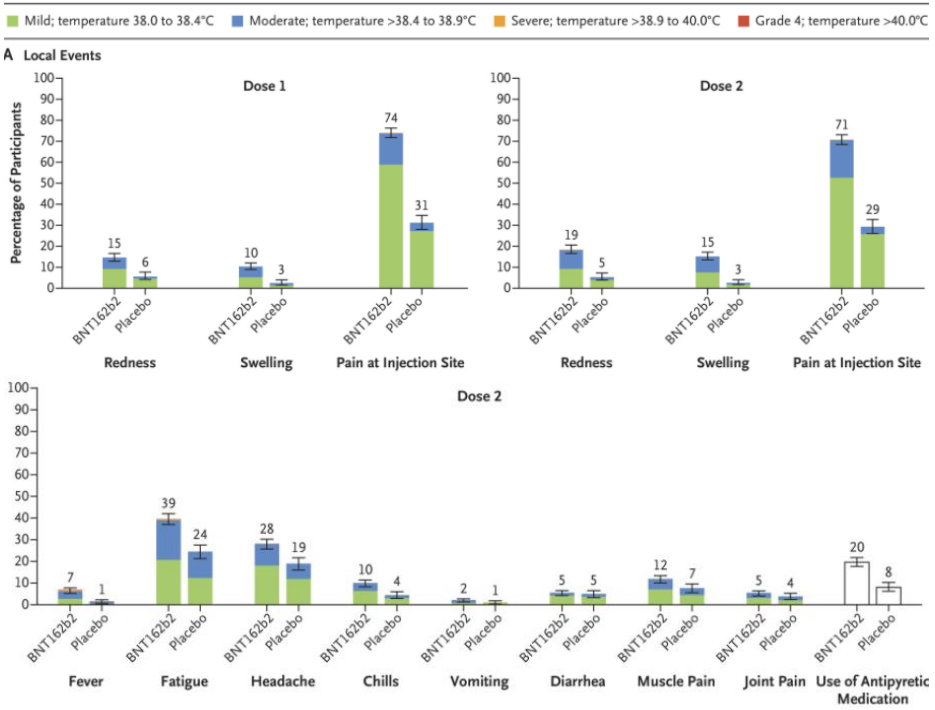
90% vaccine effectiveness



Walter EB. NEJM 2021.

Vaccine Safety and Side Effects

- Side effects similar to those seen in adults
  - Less common
- Mild to moderate and last 1-2 days
- 5 million doses given to 5–11 year-olds across the US so far
  - No serious safety signals
  - No cases of myocarditis identified



Studies in younger children ongoing

Walter EB. NEJM 2021.
CDC.gov

Questions & Answers

A COMMUNITY CONVERSATION

LET'S TALK ABOUT HEALTH

A recording of this webinar will be posted within 48 hours at www.umms.org/letstalk

Previous webinars including Technology/Telehealth, Accessing Care/Ask Me 3®, Children's Health/Safety, Men's Health, Women's Health, Diabetes, Lung Disease, COVID-19 Vaccines, Heart Health, Advance Directives, Asthma and Stroke Prevention, Fall Prevention, Dementia, Long COVID and Pediatric COVID Vaccines are also available for viewing.

Join us in January 19, 2022, 12:00 pm

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UNIVERSITY of MARYLAND MEDICAL SYSTEM

Pharmacy and Medication Management

Thank you!