

DR. Hong's PHARMACY CLASSROOM

**Innovation in Teaching and Learning
Watching for Success**

October 27, 2021

FROM

YouTube Channel

<https://www.youtube.com/watch?v=iYOaebLhuuI>

**Science Content and Learning Tips
Reviews**

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High Efficacy was Observed in 5 to <12 Year Olds Descriptive Analysis of First COVID-19 Occurrence From 7 Days After Dose 2

Subjects WITHOUT Evidence of Infection Prior to 7 Days After Dose 2

Efficacy Endpoint	BNT162b2 (10 µg) N=1305		Placebo N=663		VE (%) (95% CI)	
	n	Surveillance Time (n)	n	Surveillance Time (n)		
First COVID-19 occurrence ≥7 days after Dose 2	3	0.322 (1273)	16	0.159 (637)	90.7	(67.7, 98.3)

No severe cases of COVID-19 were reported
No cases of MIS-C were reported

Total surveillance time: 1000 person-years for all subjects within each group at risk for the endpoint

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CC-27

$$\begin{aligned} & \text{Absolute Risk Reduction (ARR)} \\ &= \text{Control Event Rate} \\ & \quad (\text{Minus}) \\ & \quad \text{Intervention Event Rate} \\ &= (16/663) - (3/1305) \\ &= 0.0218 \quad (2.18\%) \end{aligned}$$



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COVID Vaccine

NNT

= Number of People needed
to vaccinated to prevent

1 COVID case

$$= 1 / ARR$$



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= Number of People needed
to vaccinated to prevent

1 COVID case

$$= 1 / ARR$$

$$= 1 / 2.18\% = \underline{45.8} \sim 46$$



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$$\frac{1 \text{ case}}{46 \text{ vaccinated}} = \frac{x \text{ case}}{1 \text{ Million vaccinated}}$$

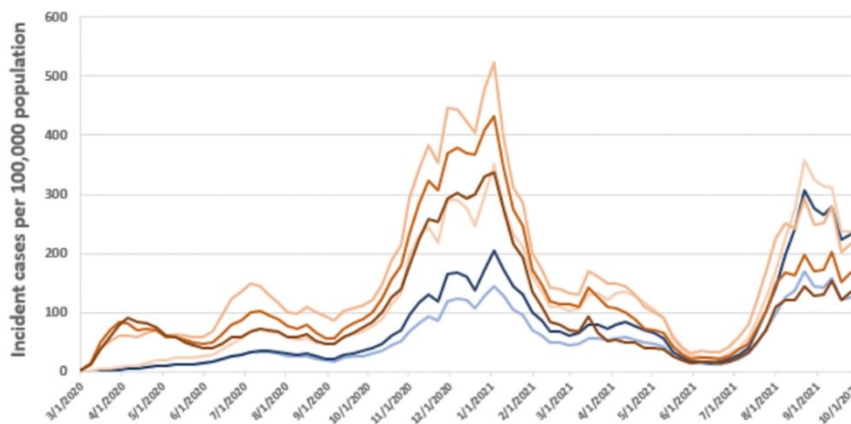
$$x = \underline{\underline{21739 \text{ cases}}}$$



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COVID-19 Weekly Cases per 100,000 Population by Age — March 1, 2020–October 10, 2021



>1.9 million
cases among
children 5-11
years of age



Case earliest date by end of week
— 0-4 years — 5-11 years — 12-17 years — 18-49 years — 50-64 years — ≥65 years

<https://covid.cdc.gov/covid-data-tracker/#demographicsovertime>

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Summary: COVID-19 Epidemiology in Children Aged 5-11 years

- **Children 5-11 years of age are at least as likely to be infected with SARS-CoV-2 as adults**
 - Over 1.9 million reported cases; seroprevalence estimates of >40% in May – June 2021
 - Seroprevalence data suggests that children less likely to be reported as cases than adults
- **Children 5-11 years of age are at risk of severe illness from COVID-19**
 - >8,300 hospitalizations to date
 - Hospitalization rates 3x times as high for non-Hispanic Black, non-Hispanic American Indian/Alaska Native, and Hispanic children as for non-Hispanic White children
 - Cumulative hospitalization rates similar to pre-pandemic influenza-associated hospitalization rates, despite mitigation measures
 - Severity comparable among children hospitalized with influenza and COVID-19
 - Approximately 1/3 of hospitalized children 5-11 years require ICU admission
 - MIS-C most frequent among children 5-11 years
 - Post-COVID conditions have been seen in children
- **Secondary transmission from young school age children can and does occur in both household and school settings**
- **COVID-19 in children leads to lost in-person learning and other adverse outcomes**



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5-11 years infected with COVID-19

~ 1.9 million

Hospitalization ~ 8300

Only 82% due to COVID = ~6806

1/3 had no comorbidity = ~2246

Out of 1.9 million Rate = 0.12%

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NNT

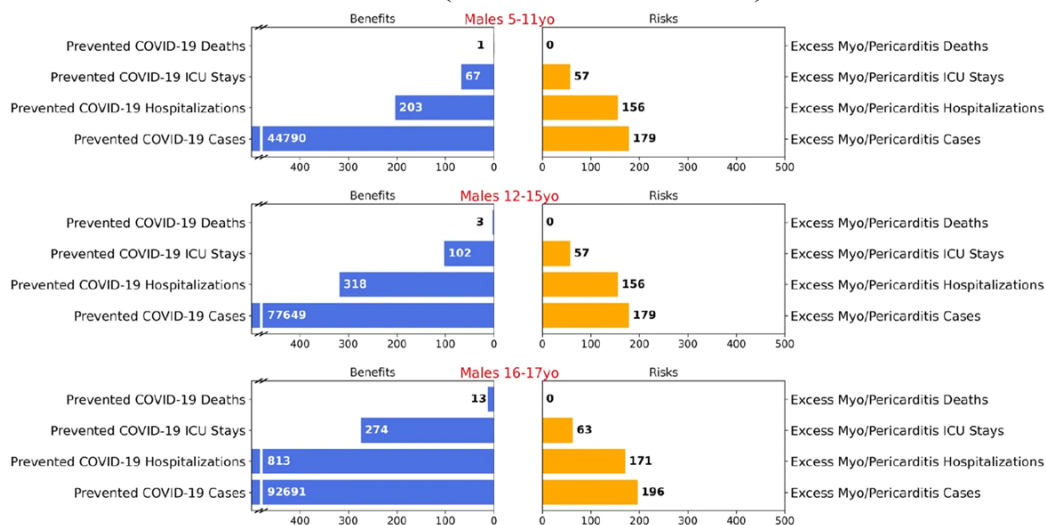
$$\frac{1 \text{ case}}{46 \text{ vaccinated}} = \frac{X \text{ case}}{1 \text{ Million vaccinated}}$$

$$X = \frac{21739 \text{ cases}}{0.12\%}$$



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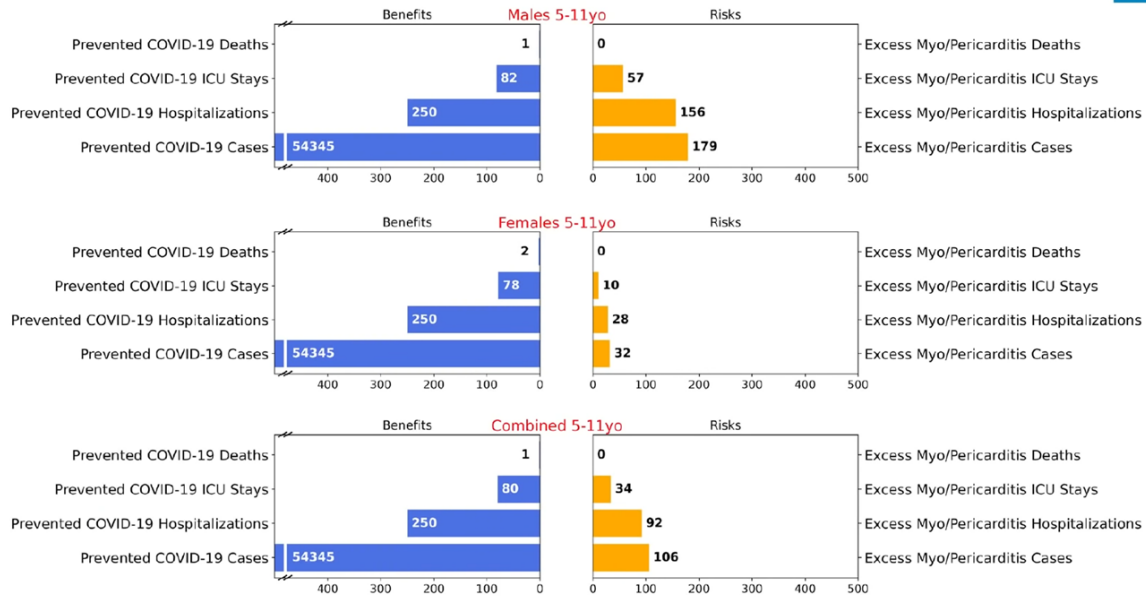
MALES (Cases Per Million)



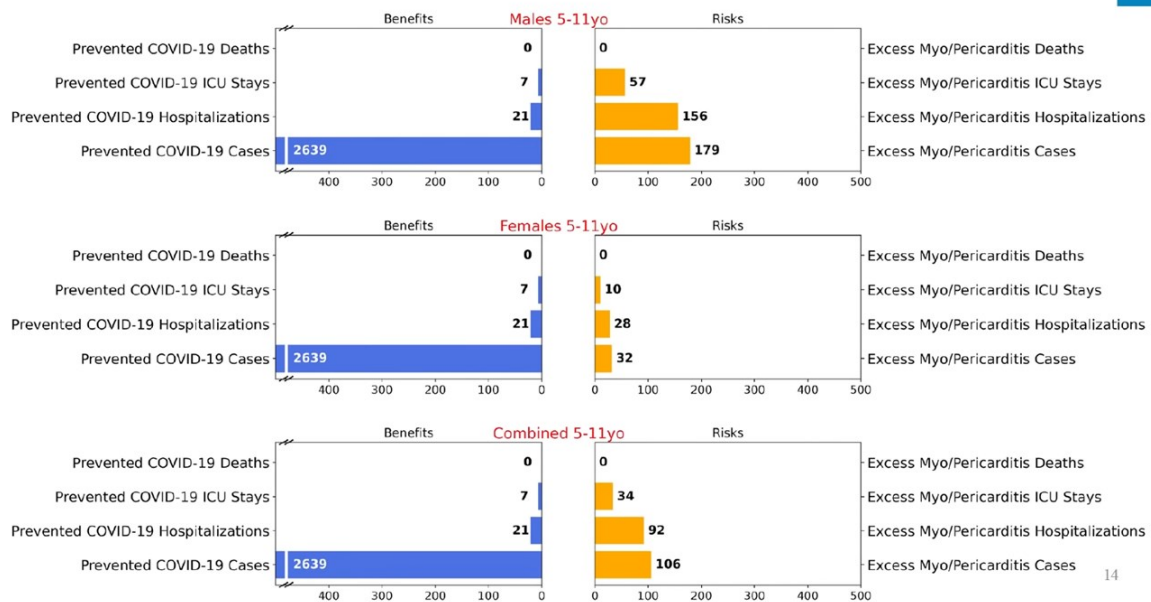
Note:

- Median hospitalization length of stay is 6 days for COVID and 1 day for vaccine related myocarditis

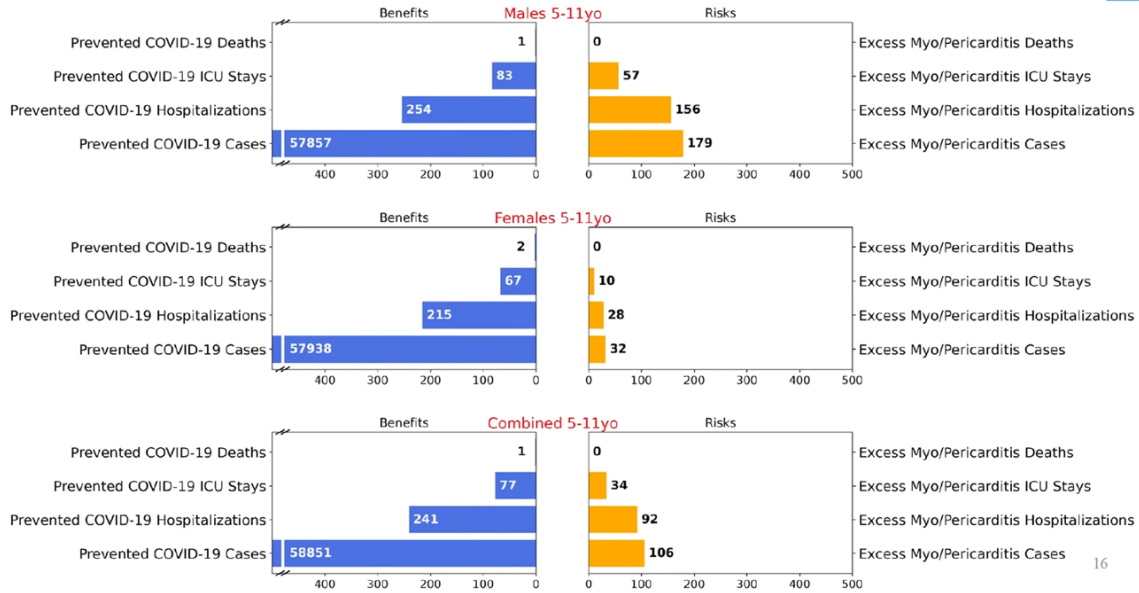
Scenario 2: Cases Per 1 Million Fully- Vaccinated



Scenario 3: Cases Per 1 Million Fully- Vaccinated

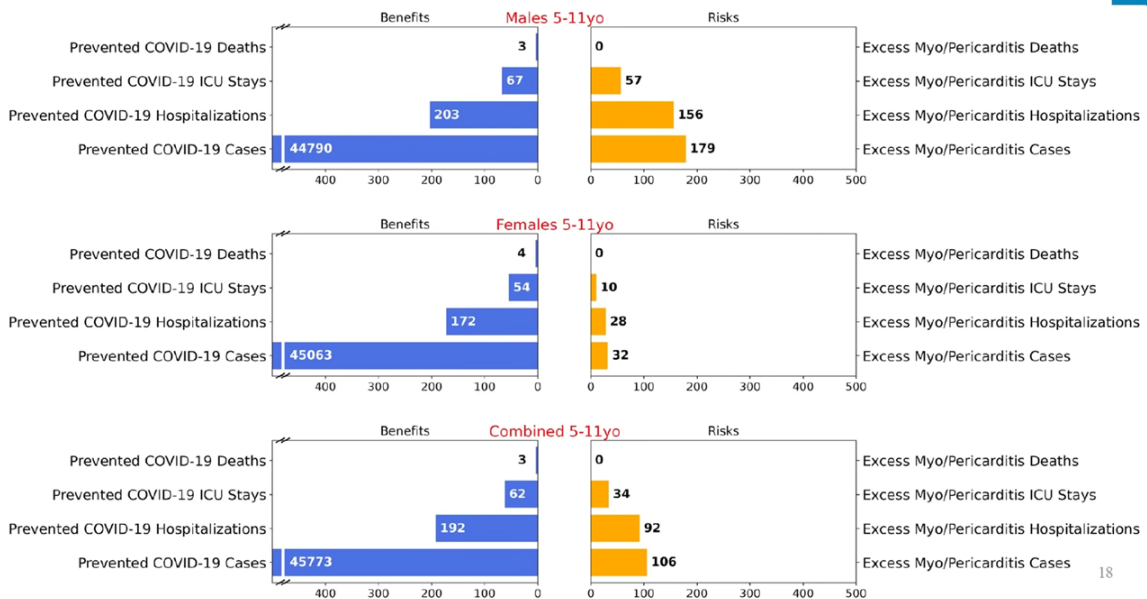


Scenario 4: Cases Per 1 Million Fully- Vaccinated



16

Scenario 5: Cases Per 1 Million Fully- Vaccinated



18

Scenario 6: Cases Per 1 Million Fully- Vaccinated

