

VACCINES & COVID-19

LONG COVID SCOTLAND

Kevin T. Kavanagh, MD, MS Health Watch USA sm

June 8, 2024



HISTORY OF VACCINES



Smallpox Vaccination Mandate George Washington & the Continental Army

1775: "Washington eventually made the bold decision to inoculate all American troops who had never been sickened with smallpox at a time when inoculation was a crude and often deadly process. His gamble paid off. The measure staved off smallpox long enough to win a yearslong fight with the British. In the process, Washington pulled off the first massive, state-funded immunization campaign in American history."



The process was "Variolation" where a piece of puss laden material from an infected person was placed into a wound of the individual to be inoculated. The fatality rate was 5 to 10 percent. But far better than the 30% fatality of smallpox.

https://www.history.com/news/smallpox-george-washington-revolutionary-war

HISTORY: Smallpox Vaccination Mandate George Washington & the Continental Army

There are two important over arching lessons.

 First, vaccine mandates in certain circumstances can be necessary and they are not "anti-American".
 Second, a vaccine is not free of complications, but, you are less likely to develop these complications with the vaccine than without one.

U S A Vatch

The premise behind vaccination is to give an experience to the body of a mild infection, which avoids most of the complications but imparts immunity. Often boosters are needed.





TYPES OF VACCINES





Health Watch

The New York Times

Last Updated Aug. 31, 2022

https://www.nytimes.com/inter active/2020/science/coronaviru s-vaccine-tracker.html

Le	Leading vaccines									
De	veloper	How It Works	Phase	Status						
	Pfizer-BioNTech	mRNA	3	Approved in U.S., other countries. Emergency use in many countries.						
*>	Sinopharm	Inactivated	3	Approved in China, Bahrain. Emergency use in many countries.						
	Oxford-AstraZeneca	ChAdOx1	2 3	Approved in Brazil, India. Emergency use in many countries.						
*	Sinovac	Inactivated	3	Approved in China. Emergency use in many countries.						
	Moderna	mRNA	3	Approved in U.S., Canada, Switzerland. Emergency use in many countries.						
	Novavax	Protein	3	Approved in Canada, South Korea. Emergency use in several countries.						
0	Bharat Biotech	Inactivated	3	Approved in India. Emergency use in other countries.						
	Johnson & Johnson	Ad26	3	Approved in Canada. Limited in U.S. Emergency use in many countries.						
•	Baylor-Biological E	Protein	3	Emergency use in India, Botswana.						
	Gamaleya	Ad26, Ad5	3	Approved in Russia. Emergency use in many countries.						





VACCINE NAME: <u>Comirnaty</u> (also known as <u>tozinameran</u> or <u>BNT162b2</u>) EFFICACY: <u>91%</u> DOSE: 2 doses, 3 weeks apart TYPE: <u>Muscle injection</u> STORAGE: Freezer storage only at -13°F to 5°F (-25°C to -15°C)

mRNA vaccines:

-- Decrease complications by exposing the individual to a very limited part of the virus (spike protein) and to a very small number of ingredients.

-- There is no adjuvants in mRNA vaccines.

Ehe New York Eimes

Pfizer's COVID-19 Vaccine Ingredients

The ingredients for the Pfizer-BioNTech vaccine are available on the pharmaceutical company's website.

Here's the complete list of ingredients, according to Pfizer-BioNTech:

- mRNA
- Lipids (including ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2hexyldecanoate), 2 [(polyethylene glycol)-2000]-N,Nditetradecylacetamide, 1,2-Distearoyl-sn-glycero-3- phosphocholine, and cholesterol)
- Potassium chloride
- Monobasic potassium phosphate
- Sodium chloride
- Dibasic sodium phosphate dihydrate
- Sucrose







VACCINE NAME: <u>Comirnaty</u> (also known as <u>tozinameran</u> or <u>BNT162b2</u>) EFFICACY: <u>91%</u> DOSE: 2 doses, 3 weeks apart TYPE: <u>Muscle injection</u> STORAGE: Freezer storage only at -13°F to 5°F (-25°C to -15°C)



VACCINE NAME: <u>mRNA-1273</u> or <u>Spikevax</u> EFFICACY: Preventing Covid-19 illness: <u>93.2%</u>. Preventing severe disease: <u>98.2%</u>. DOSE: <u>2 doses</u>, <u>4 weeks apart</u> TYPE: <u>Muscle injection</u> STORAGE: <u>30 days with refrigeration</u>, <u>6 months at -4°F (-20°C)</u>

National Institutes of Health

Two ingredients of concern are:

- Lipids (they form the delivery mechanism)
 -- There can be rare by serious reactions
- 2. mRNA
 - -- Rapidly broken down by the cells.
 - -- Does not change the genetics or enter the cells nucleus.



Polyethylene glycol (PEG) is a cause of anaphylaxis to the Pfizer/BioNTech mRNA COVID-19 vaccine -- Why you wait 30 mins after having an mRNA vaccine. -- Occurs about 1 case per million

-- Occurs about 1 case per million. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8251011/

Spike Protein made by the mRNA vaccines is a much smaller quantity than the massive amount of Spike Protein produced by an infection.

The mRNA dosage for Moderna is greater than for Pfizer. 100 micrograms versus 30 micrograms.





VACCINE NAME: NVX-CoV2373 (also known as Covovax or Nuvaxovid) EFFICACY: <u>90.4</u>% DOSE: <u>2 doses</u>, <u>3 weeks apart</u> TYPE: <u>Muscle injection</u> STORAGE: <u>Stable in refrigerator</u>

Protein Based vaccines:

-- Novavax developed a number of vaccines for diseases by attaching viral proteins to microscopic particles. Does not use PEG, uses Matrix-M adjuvant.

Ehe New Hork Eimes

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-- Adjuvanted Vaccine which is active against the XBB.1.5 linage of Omicron is currently available.

-- This protein-based method has been used for more than 30 years in other vaccines, such as the hepatitis B vaccine.

-- Some evidence of less side effects than mRNA.

https://www.scientificamerican.com/article/is-the-novavax-covid-vaccine-better-than-mrna-vaccines-what-we-know-so-far/ https://www.tandfonline.com/doi/full/10.1080/14760584.2022.2098719





VACCINE NAME: Vaxzevria (also known as AZD1222, or Covishield in India)
EFFICACY: 74% against symptomatic Covid19; 100% against severe or critical
Covid-19.
DOSE: 2 doses
TYPE: Muscle injection
STORAGE: Stable in refrigerator for at least 6 months

Viral Vector Vaccines:

Over the course of 2021, 2.5 billion doses of Vaxzevria were distributed worldwide. An independent study estimated that the vaccine saved six million lives. Vaxzevria shown in expert review to provide equally effective protection against COVID-19 hospitalisation and death as mRNA vaccines (astrazeneca.com)







BBC

After more than three billion doses, the Oxford-AstraZeneca Covid vaccine is being withdrawn.



It said the rise of new coronavirus variants meant demand had shifted to the newer updated vaccines.

Its vaccine was estimated to have saved millions of lives during the pandemic, but also caused rare, and sometimes fatal, blood clots.

In the race to lift the world out of pandemic lockdowns, the Covid vaccine was developed by scientists at the University of Oxford in record time. A process that normally takes 10 years was accelerated down to about 10 months.



The Dispatch

Posts Claim Falsely That AstraZeneca Is Withdrawing Its COVID Vaccine Because of Blood Clots

Alex Demas Thu, May 16, 2024 at 11:14 AM EDT · 4 min read

↑ O

It is true that AstraZeneca's COVID vaccine—also called Vaxzevria—is being withdrawn from markets, and AstraZeneca did recently acknowledge that the vaccine can cause blood clots in a small subset of recipients. However, there is no evidence that the two events are related. Blood clotting was first identified as a risk of the vaccine by medical regulators more than three years ago, and AstraZeneca announced that the product was being withdrawn for economic reasons. The vaccine was never used in the U.S.

U S A Health Watch

https://www.yahoo.com/news/posts-claim-falsely-astrazeneca-withdrawing-151427505.html





The New York Times

Josh Holder - Last Updated March 13, 2023





EFFICACY



Before COVID-19 vaccines, 18% of hospitalized patients and 44% of those admitted to an intensive care unit (ICU) died.

SARS-CoV-2 infection in the United States during May 1– December 1, 2020, before vaccines became available. <u>https://wwwnc.cdc.gov/eid/article/30/6/23-1285_article</u>







Leonard D. Schaeffer Center for Health Policy & Economics

"The global COVID-19 vaccination campaign saved 2.4 million lives in 141 countries and could have saved about 670,000 more had the vaccines been distributed equitably, according to a working paper from the USC Schaeffer Center for Health Policy & Economics and Brown University." <u>https://healthpolicy.usc.edu/article/covid-vaccine-lives-saved-study/</u>



Vaccinated people* who received an updated COVID-19 vaccine were

14X less likely to die

compared with those who received no vaccine

3X less likely to die

compared with those who received only the original COVID-19 vaccine(s)

* Completed the original COVID-19 vaccine primary series with or without original booster(s)



bit.ly/mm7206a3

February 10, 2023

MMWR

CS337950-A

U S A Health Watch COVID-19 Incidence and Mortality Among Unvaccinated and Vaccinated Persons Aged ≥12 Years (youtube.com)

https://www.youtube.com/watch?v=FpTKit6u9Wc



The independent source for health policy research, polling, and news.

Share of COVID-19 Deaths by Vaccination Status, 30 Jurisdictions In the U.S., September 2021 To August 2022, Age 65 and Older

All adults | Adults age 50 and older | Elderly ages 65 and older

Unvaccinated Vaccinated with primary series Vaccinated with booster



NOTE: Partially vaccinated people are excluded from this CDC data source. Share of adult population by vaccination status is for the end of each month.

SOURCE: KFF analysis of CDC data • PNG

https://www.kff.org/policy-watch/why-do-vaccinated-people-represent-most-covid-19-deaths-right-now/²⁰

KFF



Health Watch

\equiv KFF

The independent source for health policy research, polling, and news.

Figure 2

Share Of Adult U.S. Population (Ages 18 And Older), By COVID-19 Vaccination Status



NOTE: People who did not complete primary series vaccination are categorized as unvaccinated. SOURCE: KFF analysis of CDC data • PNG



In a high risk group of individuals

40% of the deaths occurred in 20% of the unvaccinated people. and 39% of the deaths occurred in 55% of boosted individuals.

https://www.kff.org/policy-watch/why-do-vaccinated-people-represent-most-covid-19-deaths-right-now/²¹

-- MONOVALENT XBB.1.5

Overall Vaccine Effectiveness in preventing symptomatic disease was -- 58% (95% CI = 48%-65%) among those who received testing 7-59 days after receipt of updated vaccine and -- 49% (95% CI = 36%-58%) among those who received testing 60-119 days after receipt of updated vaccine.



https://www.cdc.gov/mmwr/volumes/73/wr/mm7304a2.htm

DURABILITY



-- MONOVALENT XBB.1.5

"These early estimates include the period only through 119 days since vaccination, a relatively brief postvaccination period, with no substantial waning. Because consistent patterns of waning VE were observed after original monovalent and bivalent COVID-19 vaccination, waning of VE is expected with more time since updated vaccination, especially against less severe outcomes such as symptomatic infection."



https://www.cdc.gov/mmwr/volumes/73/wr/mm7304a2.htm

Source: Ministry of Health of Israel



מחוסנים בשתי מנות עד 31/01/2021 אשפוזים, תחלואה קשה ותמותה



מספר מאושפזים, 16-59 בקרב מחוסנים בשתי מנות עד 31/01/2021



מספר חולים קשה ונפטרים לפי שבוע, 16-59 בקרב מחוסנים בשתי מנות עד 31/01/2021



Title: Ages 15 to 59 year olds who were vaccinated in two doses by (Jan. 31, 2021) Hospitalizations, severe morbidity and mortality **Red** separated by age: how many vaccinated people hospitalized Vertical Axis Red: Number of people hospitalized Horizontal Axis: Week of Hospitalization *Black/gray:* how many life threatening situations (gray) and deaths (black). Vertical Axis: Number of People with Life threatening illness (Black is dead) Horizontal Axis: Week of difficult cases or death

Source: Ministry of Health of Israel



Health Wate

מחוסנים בשתי מנות עד 31/01/2021 אשפוזים, תחלואה קשה ותמותה



מספר מאושפזים, +60 בקרב מחוסנים בשתי מנות עד 31/01/2021



60+ מספר חולים קשה ונפטרים לפי שבוע, בקרב מחוסנים בשתי מנות עד 31/01/2021



Title: Over the age of 60 years who were vaccinated in two doses by (Jan. 31, 2021) Hospitalizations, severe morbidity and mortality **Red** separated by age: how many vaccinated people hospitalized Vertical Axis Red: Number of people hospitalized Horizontal Axis: Week of Hospitalization **Black/gray:** how many life-threatening situations (gray) and deaths (black). Vertical Axis: Number of People with Life threatening illness (Black is dead) Horizontal Axis: Week of difficult cases or death

משרד

Source: Ministry of Health of Israel

מאומתים לאחר קבלת חיסון בקרב קב' המחוסנים הראשונים



• 1,848,568 אנשים שחוסנו ב-2 מנות עד 1,848,568

• <u>מ-07/02 עד 10/07</u>

- בוצעו 1,152,914 בדיקות PCR באוכלוסייה זו
- (אומתו לנגיף (1,181+ משבוע שעבר **5,770**
 - מתוכם
 - (+59) אושפזו **495** •
 - **334** הגיעו למצב קשה או יותר (39+)
 - (+6) נפטרו **123** •

Those who are not vaccinated need to become vaccinated and, similar to Israel, those over the age of 60 who were fully vaccinated before January of this year, should be considered for a booster. Title: Verified after receiving the vaccine, Among the first vaccinated group From the 1,848,568 people that received two doses of the vaccine by Jan. 31, 2021: From 07/02 to 10/07 (From Feb. 7, 2021 to July 10, 2021) 1,152,194 got PCR tested

5,770 got corona since vaccination, of which:

- * 495 were hospitalized
- * 334 were difficult cases or worse (life
- threatening)
- * 123 died

FOR OLDER HIGH RISK INDIVIDUALS

Infection Control $TODAY^{\circ}$

COVID-19 Booster Shots for Older Americans Might be Needed

August 2, 2021

Kevin Kavanagh, MD

https://www.infectioncontroltoday.com/view/covid-19-booster-shots-for-older-americans-might-be-needed

Israel to Offer COVID-19 Booster Shots to Older Citizens

July 29, 2021 Kevin Kavanagh, MD

https://www.infectioncontroltoday.com/view/latest-data-point-to-a-need-for-covid-19-booster-shots



CDC: A booster is recommended every 5 to 6 months. Needless to say, this is a large number of shots and is sub-optimal.

IMPRINTING



Persistent immune imprinting occurs after vaccination with the COVID-19 XBB.1.5 mRNA booster in humans

Immune imprinting describes how the first exposure to a virus shapes immunological outcomes of subsequent exposures to antigenically related strains. We showed that the XBB.1.5 booster elicited neutralizing antibody responses against current variants that were dominated by recall of pre-existing memory B cells previously induced by the Wuhan-Hu-1 spike. Therefore, immune imprinting persists after multiple exposures to Omicron spikes through vaccination and infection, including post XBB.1.5 booster vaccination, which will need to be considered to guide future vaccination.

https://www.cell.com/immunity/fulltext/S1074-7613(24)00092-X

Imprinting - FDA VRBPAC Meeting - Jan 29, 2023

Omicron BA.4/BA.5 Monovalent and Bivalent Boosters in Mice Substantially Increase Omicron Neutralization Responses to all Omicron Variants Including BA.4/5

> Compared to BNT162b2 Neutralizing BA.4/5 titers increase by ~6.2 fold [mono BA.4/5] or ~2.6 fold (bivalent BA.4/5)

Day 7 PD3



Mice preimmunized with 2 doses of BNT162b2; boosters given at day 104 post Dose 2 Vaccines administered at 1 mcg dose level; Wild type, Wuhan-Hu-1; LOD, Limit of Detection

Health Watch



RISKS





Vaccine Volume 42, Issue 9, 2 April 2024, Pages 2200-2211



COVID-19 vaccines and adverse events of special interest: A multinational Global Vaccine Data Network (GVDN) cohort study of 99 million vaccinated individuals

Large Multi-National Study.

184 million doses of Pfizer36 million doses of Moderna23 million doses of Oxford/AstraZeneca

https://www.sciencedirect.com/science/article/pii/S026 4410X24001270?via%3Dihub

Identified the following risks:

Pfizer/BioNTech (BNT162b2)

Odds Ratio of 2.86 for Myocarditis after 2nd Dose.

Moderna (mRNA-1273)

Odds Ratio of 3.78 was seen for Acute Disseminated Encephalomyelitis after 1st dose. -- May be as high as one chance in 33,333. Odds Ratio of 6.10 for Myocarditis after 2nd Dose.

Oxford/AstraZeneca (ChAdOx1)

Odds Ratio of 3.23 was seen for Cerebral Sinus Thrombosis after 1st dose.

Odds Ratio of 2.49 for Guillain-Barre Syndrome after 1st dose.

Odds Ratio of 1.31 for Myocarditis after 2nd Dose. Odds Ratio of 6.91 for Pericarditis after 3rd Dose.





Myocarditis

WELL BEFORE THE VACCINE I WROTE THIS ARTICLE.

Infection Control

Is COVID-19 Primarily a Heart and Vascular Disease?

September 8, 2020 Kevin Kavanagh, MD



https://www.infectioncontroltoday.com/view/is-covid-19-primarily-a-heart-and-vascular-diseases



Myocarditis

Myocarditis risk significantly higher after COVID-19 infection vs. after a COVID-19 vaccine

Among almost 43 million people in England who received at least one COVID-19 vaccine dose, the risk of myocarditis was substantially higher in the four weeks after COVID-19 infection than after a first dose of a COVID-19 vaccine, according to new study in Circulation **Related Images**





Concerns about Myocarditis - Misinformation

This is a known but rare complication.

The highest risk is those who are 18 to 25 years old after the second vaccine dosage. This risk may be significantly higher with the Moderna as opposed to the Pfizer vaccine <u>https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)00791-7/fulltext#bib25</u>

Among 18–39-year-olds, both mRNA vaccines were associated with increased risk of myocarditis and pericarditis in the 0-7 days post-vaccination, particularly after dose 2 –We estimated 22.4 excess cases per million second doses after Pfizer and 31.2 excess cases per million second doses after Moderna

Rapid Cycle Analysis (RCA) to Monitor the Safety of COVID-19 Vaccines in Near Real-Time within the Vaccine Safety Datalink (cdc.gov)

With the possible exception of the second dosage of Moderna in young males, the risk of myocarditis after vaccination is less than that of infection.

Long COVID & POTs Are More Concerning

Even though few case reports exist about POTS (Postural Orthostatic Tachycardia Syndrome) due to COVID-19 vaccination, the evidence is not strong enough currently. A recent cohort study performed on 284,592 individuals showed that the incidence of POTS is high 90 days after the COVID-19 vaccine when compared to 90 days before the vaccine. An individual with SARS-CoV-2 infection has five times the chance of being affected by POTS when compared to vaccinated individuals who get infected with SARS-CoV-2.



https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10065129/



BENEFITS





Vaccines Help to Prevent:

Hospitalizations

• Death

Long COVID

- Occurs in 20% to 30% of COVID-19 cases
- In the USA 6.9% of adult population currently have long COVID
- Long term fatality rate of 8.4 per 1000 in non-hospitalized patients or just under 1%. More than double the deathrate of acute COVID-19. <u>https://www.nature.com/articles/s41586-021-03553-9</u>

Prevention of Long COVID

- A recent study by Maryam Nayyerabadi and colleagues has reported a 40% reduction of long COVID symptoms in patients who were vaccinated after developing an acute infection.(1)
- At least 8 meta-analyses have concluded that vaccines offer a degree of protection against long COVID.(1-8)
- A recent systematic review and meta-analysis by Alexandre Marra and colleagues(8) deduced that for individuals who received 3 vaccine doses, there was a 69% efficacy against long COVID.
- Lundberg-Morris and colleagues(9) has reported a dose response relationship related to the number of vaccine doses received and the chances of not developing long COVID. There was a 21% reduction with receiving one vaccine does, a 59% reduction receiving two doses and a 73% reduction after three doses.(9)

1. Byambasuren O, Stehlik P, Clark J, Alcorn K, Glasziou P. Effect of covid-19 vaccination on long covid: systematic review. BMJ Med. 2023;2(1):e000385. doi:10.1136/bmjmed-2022-000385 2. Nayyerabadi M, Fourcade L, Joshi SA, et al. Vaccination after developing long COVID: Impact on clinical presentation, viral persistence, and immune responses. Int J Infect Dis. Nov 2023;136:136-145. doi:10.1016/j.ijid.2023.09.006

3. Gao P, Liu J, Liu M. Effect of COVID-19 Vaccines on Reducing the Risk of Long COVID in the Real World: A Systematic Review and Meta-Analysis. Int J Environ Res Public Health. Sep 29 2022;19(19)doi:10.3390/ijerph191912422

4. Watanabe A, Iwagami M, Yasuhara J, Takagi H, Kuno T. Protective effect of COVID-19 vaccination against long COVID syndrome: A systematic review and meta-analysis. Vaccine. Mar 10 2023;41(11):1783-1790. doi:10.1016/j.vaccine.2023.02.008

5. Ceban F, Kulzhabayeva D, Rodrigues NB, et al. COVID-19 vaccination for the prevention and treatment of long COVID: A systematic review and meta-analysis. Brain Behav Immun. Jul 2023;111:211-229. doi:10.1016/j.bbi.2023.03.022

6. Notarte KI, Catahay JA, Velasco JV, et al. Impact of COVID-19 vaccination on the risk of developing long-COVID and on existing long-COVID symptoms: A systematic review. EClinicalMedicine. Nov 2022;53:101624. doi:10.1016/j.eclinm.2022.101624

7. Tsampasian V, Elghazaly H, Chattopadhyay R, et al. Risk Factors Associated With Post-COVID-19 Condition: A Systematic Review and Meta-analysis. JAMA Intern Med. Jun 1 2023;183(6):566-580. doi:10.1001/jamainternmed.2023.0750

8. Marra AR, Kobayashi T, Callado GY, et al. The effectiveness of COVID-19 vaccine in the prevention of post-COVID conditions: a systematic literature review and meta-analysis of the latest research. Antimicrob Steward Healthc Epidemiol. 2023;3(1):e168. doi:10.1017/ash.2023.447 9. Lundberg-Morris L, Leach S, Xu Y, et al. Covid-19 vaccine effectiveness against post-covid-19 condition among 589 722 individuals in Sweden: population based cohort study. BMJ. Nov 22 2023;383:e076990. doi:10.1136/bmj-2023-076990 41



Centers for Disease Control and Prevention CDC 24/7: Saving Lives, Protecting People™

Long COVID

Household Pulse Survey

Currently experiencing long COVID, as a percentage of all adults

Phase	Phase 4.0						Break 10		
Time Period	Mar 5 - Apr 1, 2024		Feb 6 - Mar 4, 2024		Jan 9 - Feb 5, 2024		Nov 27, 2023	Oct 18 - Oct 30, 2023	
Group	Percent	95% CI	Percent	95% CI	Percent	95% CI	Jan 8, 2024	Percent	95% CI
National Estimate									
United States	6.9	6.5 - 7.2	6.7	6.3 - 7.2	6.8	6.4 - 7.2		5.3	5.1 - 5.6
By Age									
18 - 29 years	6.9	5.9 - 8.1	7.8	5.8 - 10.2	6.6	5.5 - 7.9		5.4	4.4 - 6.6
30 - 39 years	7.2	6.4 - 8.1	6.2	5.4 - 7.0	7.3	6.4 - 8.3		5.4	4.7 - 6.3
40 - 49 years	8.1	7.3 - 8.9	7.4	6.8 - 8.1	8.1	7.3 - 8.9		6.5	5.8 - 7.3
50 - 59 years	7.4	6.7 - 8.2	7.9	7.2 - 8.7	7.7	6.9 - 8.5		6.1	5.4 - 6.8
60 - 69 years	6.2	5.5 - 6.9	6.2	5.4 - 7.2	6.4	5.6 - 7.2		4.7	4.2 - 5.2
70 - 79 years	5.3	4.5 - 6.3	5.0	4.2 - 6.0	4.3	3.7 - 4.9		3.6	3.0 - 4.3
80 years and above	4.3	2.6 - 6.7	4.6	3.1 - 6.5	3.8	2.5 - 5.5		2.8	1.5 - 4.8



https://www.cdc.gov/nchs/covid19/pulse/long-covid.htm



eurostat and concentration issues - Jan. 29, 2024

Among the EU countries, the highest shares of people facing difficulties in remembering or concentrating were recorded in Finland (33.6%), Denmark (26.7%), the Netherlands (26.0%), Sweden (25.2%) and Estonia (24.9%). In contrast, the lowest percentages were reported in Cyprus (5.7%), Malta (6.5%), Ireland (7.3%), Bulgaria (7.9%) and Hungary (8.0%).



https://ec.europa.eu/eurostat/en/web/products-eurostat-news/w/ddn-20240129-1

Young Adults Can Contract Long COVID



Many young people suffer from brain fog after the pandemic

15.2.2023 07:00:00 CET | If Non-life Insurance

Sweden: "One in three young adults (18 to 24), 32 percent, experience that they have brain fog. This is shown by a survey from the insurance company If. A fifth of the respondents are worried about suffering from exhaustion due to brain fog ."

Overall "A total of 14 percent experience brain fog."

https://via.tt.se/pressmeddelande/3340271/manga-unga-lider-av-hjarndimma-efter-pandemin



The Washington Post Democracy Dies in Darkness



They're young and athletic. They're also ill with a condition called POTS.

Short for postural orthostatic tachycardia syndrome, POTS is diagnosed when a patient's heart rate goes berserk, jumping way above normal when changing position from lying down to standing. First described more than 150 years ago, the syndrome has proliferated since the coronavirus pandemic. Recent studies suggest 2 to 14 percent of people infected with the coronavirus may go on to develop POTS. In recent years, doctors specializing in the condition have noticed a curious and disproportionate subset of patients: young, highly trained athletes who are female.

Young Children Can Also Contract Long COVID



Health Wate

Brain, Behavior, and Immunity Available online 10 May 2024 In Press, Journal Pre-proof ⑦ What's this?



Prevalence and co-occurrence of cognitive impairment in children and young people up to 12-months post infection with SARS-CoV-2 (Omicron variant)

• 12 months after SARS-CoV-2 infection, around 7 % of children and young people report 'brain fog'.

• 2.4% of children and young people experienced persistent cognitive impairment at 3-, 6- and 12-months after SARS-CoV-2 infection.

https://www.sciencedirect.com/science/article/pii/S0889159124003891



The New York Times



How Bad Is a Second (or Third or Fourth) Case of Covid?

Reinfection and long Covid

The chances you will get long Covid from a reinfection are fairly unpredictable — several experts interviewed for this story used the metaphor of Russian roulette. The milder your symptoms, the less likely you are to get long Covid, said Dr. Peter Chin-Hong, an infectious disease specialist at the University of California, San Francisco. But every time you get infected, no matter the severity, there is always a chance that you can develop longer-term symptoms.

https://www.nytimes.com/2023/08/17/well/live/covid-reinfection.html



Mike Hoerger, PhD MSCR MBA 🤣 @michael_hoerger · Mar 13

PMC COVID-19 Forecast, March 11, 2024

Cumulative SARS-CoV-2 Infections Per Person (U.S.), with 4-year Linear Projection







nature

High-dimensional characterization of post-acute sequelae of COVID-19

Ziyad Al-Aly [™], <u>Yan Xie</u> & <u>Benjamin Bowe</u>

Between 30 to 90 days post COVID-19 in non-hospitalized patients. there is a 0.84% excess death rate. <u>https://www.nature.com/articles/s41586-021-03553-9</u>

Acute and postacute sequelae associated with SARS-CoV-2 reinfection

Benjamin Bowe, Yan Xie & Ziyad Al-Aly ⊠

Health Wat

Compared to those with no reinfection, those who had reinfection exhibited an increased risk of all-cause mortality (HR = 2.17, 95% CI = 1.93–2.45) and excess burden of all-cause mortality estimated at 19.33 (95% CI = 15.34– 23.82) per 1,000 persons at 6 months

https://www.nature.com/articles/s41591-022-02051-3

naturemedicine

New research shows that individuals who develop COVID-19 are at an increased risk for death. -- If not hospitalized this risk persists for a year, but if hospitalized, the risk persists for at least 3 years. -- Overall, one can argue that 1.62% of those infected with COVID-19 will die of the delayed effects of the virus (not counting the deaths from the acute infection). -- If hospitalized this figure is 7.4%.

https://www.nature.com/articles/s41591-024-02987-8

naturemedicine

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Year

Fig. 1: Cumulative excess death rate and incidence rate ratio of PASC in COVID-19 groups by care setting of the acute phase.







Health Wat

Natural Versus Vaccine Immunity

Remember Premises of vaccines: The premise behind vaccination is to give an experience to the body of a mild infection, which avoids most of the complications but imparts immunity. Often boosters are needed.

Thus, if at high risk, one can choose to become infected every one or two years and eventually develop Long COVID or to be boosted every 5 to 6 months and decrease your chance of contracting Long COVID.

We obviously need better vaccines and anti-virals.

Mucosal vaccine show great promise but have been slow to come to market.

Other preventive strategies are necessary such as better ventilation and wearing N95 masks in high-risk indoor environments.



"I STILL WEAR A MASK IN CROWDED INDOOR SPACES,

BECAUSE IT REDUCES MY RISK OF CONTRACTING COVID-19, FLU AND OTHER RESPIRATORY VIRUSES. "

COVID-19, flu and other respiratory illnesses remain a threat, especially to older adults and people with underlying health conditions. Masks are one way to protect yourself. Practice other precautions as needed based on your health status.



THANK YOU

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THE LANCET Infectious Diseases

ARTICLES | ONLINE FIRST

Relative vaccine protection, disease severity, and symptoms associated with the SARS-CoV-2 omicron subvariant BA.2.86 and descendant JN.1 in Denmark: a nationwide observational study

Participants infected with BA.2.86 had 1.52 (95% CI 1.25–1.86) times the odds, and those infected with JN.1 had 1.60 (1.27–2.02) times the odds, of having received the XBB.1.5 vaccine at least 7 days before their infection compared with participants infected with a non-BA.2.86 variant. The severity analysis showed no evidence of association between the infecting variant and the risk of COVID-19 hospitalisation (odds ratio 1.04 [95% CI 0.86–1.26] for BA.2.86 and 1.07 [0.85–1.34] for JN.1).



The XBB.1.5 vaccine had 52-60% lower effectiveness at preventing BA.2.86/JN.1 infection based on higher odds of vaccination. The vaccine remained valuable for reducing severe disease despite being less able to stop mild BA.2.86/JN.1 breakthrough infections.