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Covid-19 Basics For All- Starter Pack

There is SO much information in our faces everyday! Knowing how to find, and sometimes translate, accurate and up to date information is critical in stopping this pandemic!

In this pack you will find easily understood point form facts that, in my experience, people are most frequently confused by. They are quick, clear points organized by topic for easy reference. I have also provided a few tips for finding and understanding reliable, accurate information.

There are also some points to get everyone thinking about the situation in greater depth. I have provided all the sources used in creating this document as web links; they are sorted by topic. Refer to them for more information, share them with others who are looking for proof. Always be sure to fact check, find more data, and provide the sources when you share facts with people!

I translate science, I am NOT an immunologist, or anything anywhere close, please be sure to check anything you are unsure of before sharing. The best part of science is we are always learning more! The facts may change as we find out more, be sure to check for updates to the data from recent publications! If you catch something inaccurate, or new data comes out, please email me so I can update it! We are in this together!

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Some Science Translated

For the Number People:

Risk levels:

In this Table a **higher number = lower risk**. One Person in Every (# in cell) experienced (description at top of column)

Example: In the US, one in every 62 unvaccinated people who contracted Covid-19 have died, compared to one in every 17408 vaccinated people.

Data collected October 15th 2021		Have had covid-19	Who had Covid-19 and Died	Were vaccinated but got Covid 19	Were Vaccinated and died of Covid 19	
USA	One person in every	7	62	Not Available	17408	
CANADA	One person in every	22	59	662	55096	
UK	One person in every	8	53	Not Available	74219	
COSTA RICA	One person in every	9	80	Not Available	Not Available	

Raw data

October 15 2021	Country's Population	Total Covid Cases	Deaths from Covid-19	Vaccines Administered	Total Breakthrough Cases	Vaccinated Covid-19 deaths	October 15 2021
USA	329500000	45236796	731931	378000000	Not available	10857	USA
CANADA	38000000	1695914	28729	57300000	43266	520	CANADA
UK	67200000	8689949	162620	95000000	Not available	640	UK
Costa Rica	5100000	555970	6946	6120000	Not available	Not available	Costa Rica

Antibodies 101:

- Your body needs to make Antibodies in order to fight off viruses.
- When you catch a virus, your body's defense systems get to work creating specialized warships made to seek and destroy that specific virus.
- When you get a vaccine, the same thing happens! The vaccine makes your body think it has caught the virus, so it gets to work making warships! You get the protection without the danger of actually catching the virus!
- A vaccine is just the blueprints of a virus! You get handed the plans to the Death star and your body's rebel force prepares to take it down!
- After your childhood vaccines, and the viruses you caught, you can have a hangar full of over a dozen different warships ready for battle!
- If you have contact with a virus for a second time, while the warships are active, and there are a lot of them, they'll destroy the virus at first contact with the body, before it settles in and starts multiplying.
- It takes a lot of energy to keep producing huge numbers of each type of warship, so once the threat is gone, manufacturing slows, and the remaining fleet gets put into hangers until they may be needed again.
- If in the future, you catch the same virus, or a virus you have been vaccinated against, your body can pull the warships out of the hangars and begin manufacturing. This leads to a faster response and keeps you healthier!
- Sometimes your body accidentally destroys an entire fleet you had in safe keeping, this is why we need a booster!
- Some viruses are really crafty and can hide in our body waiting for the manufacturing to stop and can pop backout months or even years later, when the body's guard is down.
- We don't always know how well our body will respond to a future infection.
- Variants happen when gradual changes in a virus's DNA accumulate to change the way it interacts with our body. The more that a virus is able to reproduce, the faster that variants are able to take over.

The Antibodies from getting Covid 19:

- Not everyone who gets covid will make antibodies, several studies show over [36%](#) of people never developed any antibodies to keep them protected!
- The first sets of data show if you did make antibodies, they will be active for at least 6 months.
- Unvaccinated people can get Covid 19 again, even with antibodies present.
- Being vaccinated even if you have had covid greatly reduces your risk of reinfection. As the saying goes, practice makes perfect - the more your body knows about a virus, the better it will be at fighting it.

The Antibodies from the Covid 19 vaccine:

- The antibodies stay active up to 18 months.

- Antibodies have also been found in the nose and mucus membranes of people who received Pfizer or Moderna, leading to a quicker immune response and less likelihood of spreading the virus if it does break through.
- 90% of people vaccinated with Pfizer build enough antibodies to protect from Covid 19, this is what a “90% efficacy rate” means.
- Very rarely, a vial of the vaccine just does not work how it was supposed to. In these cases, someone who is vaccinated will not build immunity.
- That is why everyone getting vaccinated is so important, so that they can protect the people who’s vaccines didn't work.

Breakthrough Cases:

- Though very unlikely, some people who have been fully vaccinated can still get Covid 19, this is being called a breakthrough case.
- Most breakthrough cases have been from slightly different versions of the virus, called variants, such as Delta.
- Vaccinated people who get Covid, generally have milder symptoms and a shorter period of infection.
- Vaccinated people are unlikely to be contagious, and if they are, their contagious period is shorter.
- The virus coming from a vaccinated person is less effective at infecting others.
- Almost all breakthrough cases were traced to contact with unvaccinated individuals.
- Certain people are at higher risk of breakthrough infection, a study from the UK highlighted people with: Down Syndrome, organ transplant, dementia, in an old age home, undergoing chemo, sickle cell disease, HIV/AIDS, and more.
- People of Indian heritage are twice as likely to suffer reinfection.

People with no symptoms:

- Between 60-85% of people who get covid have no symptoms at all, however, that does not mean damage was not done.
- Asymptomatic and non-severe cases still cause harm to the body and demand energy from the immune system to get better. Infection will weaken the immune system to other illnesses while healing from Covid 19! Moreover, asymptomatic people can still transmit the virus to others, who’s immune systems may not be as ready or equipt to fight it off.

The future of Covid:

- Covid 19 is here to stay.
- You likely have had one of Covid 19’s two sibling viruses before. They have caused colds and respiratory issues in people for 100s of years, but they are not spread as easily, or as dangerous.
- Once we get it under control, Covid will be like the flu or the common cold, both of which are caused by related viruses.

- We need the help of every eligible, vaccinatable person to get this health crisis under control!

Getting things under control:

MINIMUM for a community to slow infection rates

- The vaccines need to be more than 90% effective in stopping transmission to be effective. The data shows that this seems to be the case!
- The vaccines must be effective against variants. So far, results show they are effective against the current variants.
- More than 75% of the TOTAL population needs to be fully vaccinated.
- Keep up efforts to control the spread like social distancing and mask use until everyone is vaccinated.

What we need to do for better results

- Everyone who can needs to get vaccinated! Remember, kids can't, and some adults can't for medical reasons, we need to protect them!
- Vaccinated people have fewer issues with Covid 19, and it's almost impossible for them to spread it.
- When the majority are vaccinated, we will have this under control; Science has done its part, we need to do ours!

Herd Immunity:

- When most of the population is protected from contracting a virus, it stops the spread and protects those who can't develop antibodies. This is often referred to as *Herd Immunity*.
- We didn't reach herd immunity against many viruses without the help of vaccines.
- Polio, measles, and more are not an issue to most people because of vaccines that created herd immunity, or actually eliminated them! We are trying to reach herd immunity against dangerous HPV strains right now through vaccinating youth.
- Tetanus and Hepatitis A&B are contracted from our environment, not others, so we rely on vaccines to protect us.
- Vaccines have been so effective it's hard for most of us to remember what infectious disease looks like.
- We have not yet been able to create effective vaccines against some viruses like HIV or Herpes.
- The vast majority of the population has to have antibodies to stop the spread!
- With antibodies from a Covid infection only being present for 6 months, mass vaccination will be needed to reach herd immunity. Since antibodies from a Covid 19 infection only last for 6 months on their own, we need cooperative vaccination to reach herd immunity.

Covid 19 and you, after you beat the virus:

- Covid can cause lasting damage to the body, even in cases where people had no symptoms.

- Covid is a new virus and we are still learning about its effects, and will continue to do so for the next 50+ years.
- What we do know is that Covid can continue to cause problems for people after the body has beaten the virus.

Long lasting physical damage

- People who have recovered, have suffered from weakness, persistent headaches, digestive issues, heart problems, and joint pain etc... for months after getting covid.
- Debilitating exhaustion
- Covid has created autoimmune responses in some people, causing their bodies to attack their organs, leading to permanent damage.
- Swelling of the testicles could lead to fertility issues.
- In one study, 50% of people who had covid, but never suffered any obvious symptoms, had serious lung damage.
- Asymptomatic people were also shown to have heart damage, in one study, the Asymptomatic people suffered worse heart damage than the symptomatic.
- Children examined in China showed damage to organ systems as well. Some children have even died from Multi Organ Failure from damage done months earlier by a Covid infection.
- Possible permanent loss of smell or taste.

Long lasting mental damage

- Covid affects your brain as well, many people are still having issues 6-12 months later
- As may as 35% of people with covid infections develop cognitive deficits, they are less capable after Covid 19
- Have trouble communicating
- Struggle with memory recall
- Have moments of confusion and feel disoriented
- Depression and anxiety etc...
- Major mental health crisis

Why the recommendations and mandates keep changing

- Covid-19 is brand new!
- Science isn't your dad, it won't say "because I told you so".
- The scientific community adapts their understanding of things when new data is provided.
- There are thousands of teams of scientists and health organizations around the world crunching data, and running experiments to learn more about Covid-19.
- Organizations like the WHO, CDC, and NHS, are sharing information and making recommendations based on the information available at that moment.
- Seeing change in recommendations and mandates is a good thing! It means governments are figuring out the best ways to keep people safe as scientists continue to learn more!

Covid and pregnancy

Covid and children

The new vaccines

Vaccine complications

Tips for finding good data and thinking critically

- More often than not, we get our information from major news outlets, social media, or word of mouth.
- However, none of these have to prove that the information that they are sharing is true, or accurate, and some do not even intend to spread inaccurate information.
- Going to the original source of the data can be really helpful!

Quick Questions to Check Info

- Who is the information from? What is their connection to the topic?
- Is it a personal opinion, or backed up with fact?
- Do they have a bias? Who benefits from the sharing of this information?
- Are they providing sources to back up their information? Can you easily fact check?
- Is this word of mouth? Was causation proven in this personal experience?
- Can you find research to back up what you were just told?

Causation VS Correlation

Proving a the Cause of something:

- Humans are experts in finding patterns, finding out why things happen, and understanding the cause of things. This is part of what has made us such a successful species
- Sometimes we get a little over excited when we notice a pattern, and assume what we observed is the cause. But there can be other factors at play in the situation that we didn't notice!
- A pattern is when two different sets of data go up or down in similar ways over time.
- When Event A happens often, we see lots of Thing B. When Event A happens rarely, we almost never see Thing B. Just because Event A and Thing B go up and down at the same time, does not prove that A is the cause of B or B is the cause of A, this observation is a correlation until it can be proven to be related, then the relationship would be an example of causation!
- When we observe a pattern, and we can prove that one thing causes another, this is called causation
- When we observe a pattern, but we can't prove that one thing causes another, this is called correlation
- It is very difficult to prove causation in science! When data is analyzed by scientists, they have to take into account all of the other possibilities that could have caused the pattern.

Some things may just happen at the same time (correlation), but not be directly caused by each other.

- When looking at information, make sure they have proved the cause, and not just published a correlation. Think about other factors that could have caused the pattern.

Some examples of Correlation VS Causation:

- You are more likely to drown if there is ice cream in your freezer.
 - Is the ice cream in your freezer the cause of drowning? No, you are just more likely to both be swimming, and have ice cream during the summer. This is a correlation.
- The more time you spend exercising, the more likely you are to get Skin Cancer
 - Does exercise cause skin cancer? Not that could be proved. What was proved was that people who live in sunnier climates exercise more, and get more exposure to the sun. This is a correlation.
- When the average amount of cheese eaten per person in the US goes down, less people die from getting tangled in their bedsheets
 - Can nationwide cheese sales impact the chances of people suffocating in bed? No. Sometimes it's just a weird coincidence!

An example of a correlation based paper:

Vaccine rates don't impact the rate of Covid-19 spread:

The article: Subramanian, S.V., Kumar, A. Increases in COVID-19 are unrelated to levels of vaccination across 68 countries and 2947 counties in the United States. *Eur J Epidemiol* (2021). This article claims that having more vaccinated people in an area does not reduce the number of Covid 19 cases in that area. However, not all areas are the same, there are many factors that influence the rate of transmission outside of just vaccination. More than just the levels of transmission need to be looked at to get a real understanding of how the vaccine is working!

- Testing rates and access to medical attention - The article says South Africa and Vietnam have less transmission despite low vaccination rates compared to some first world countries. I argue that many of the cases in countries such as these are not confirmed or reported.
- How long ago people were vaccinated- Israel has a high reinfection rate even though they have a high vaccination rate. Israel was so effective at vaccinating its adults that many of them were vaccinated over a year ago now. The immuno response from the vaccine is no longer as effective. In areas where vaccine rollout was smooth and fast, boosters are needed.
- The data reported- Some countries are not sharing accurate info, either due to infrastructure issues that make it impossible to collect it all, or for other reasons. For example, Costa Rica was on the UK red list for months, while its neighbour Nicaragua was not. All of the first-hand information coming from Nicaraguan said the covid situation was very serious, but the reports leaving the country did not match.
- Population mobility- What percentage of the population moves, how often, how far? With limited mobility there is less risk of transmission. Mobility is related to wealth, poorer

populations in the US and in other countries have had less access to vaccines, but also move around less. They don't travel as far or often, and have fewer people coming into their populations from outside.

- Population density- How closely do people live together? When people live closely together and have more contact with one another you will have more transmission.
- Government mandates and their enforcement- Populations who wear masks and social distance, work from home, avoid seeing family who don't live in your home etc... have less transmission. This is another variable that needs to be taken into account.

Tips for finding reliable info that's up to date

- Check for the most up to date info from places like the CDC, WHO, and NHS, or other government or international health agencies.
- Search keywords in Google Scholar to find primary sources about what you want to know.
- When reading a news article, click the link to the original study to make sure they represented or interpreted the facts properly.
- Ask an academic friend if they will help you find or interpret studies that help you answer your questions.
- Remember, there may not be an answer yet! Reading peoples' guesses is not reliable, especially if they are not experts in the field.
- Always check the date of publication! Information is coming fast, there may be new data that proves what you are reading wrong.
- Journal articles provide a list of sources for the information they provide. Checking the sources can lead you to more info
- When reading a scientific journal article, you can often see if other authors have cited this article in their work. This usually means those papers are related and newer, be sure to check them out as well.

Points to Consider

Your Wellbeing:

- Your body is at major risk! Covid causes lasting damage to the body, even in cases where people had no symptoms.
- Covid is a new virus and we are still learning about its effects, and will continue to do so for the next 50+ years. What we do know is that Covid can continue to cause problems for people after the body has beaten the virus.
- The numbers show that the vaccines are much safer than Covid. Vaccines aren't new science, J&J and Astrazeneca are oldschool vaccines produced the same way as the flu vaccine.

- The other two use a technology we have been testing for a long time to be ready for this kind of situation. That's why they were ready so fast. Nothing in the vaccine is dangerous or experimental anymore than any other product you consume.

Greater Good:

- I wanted to get vaccinated because I want to protect myself and my community. The vaccine stops you from possibly causing someone to die because you gave them Covid.
- Unvaccinated people have been responsible for spreading covid to vaccinated individuals, albeit rarely. They can also spread it to children too young to be vaccinated, or people who can't receive the vaccine for medical reasons.
- One major issue that has been made worse around the world, is access to medical care. Unvaccinated people with Covid are filling up medical facilities and making it harder, sometimes impossible, for people with other medical issues to get the help they need. Vaccinated people are dying of heart attacks, head injuries, or other preventable causes waiting for medical attention because the emergency rooms are over capacity with unvaccinated individuals with Covid.
- How do we deal with unvaccinated people putting financial strain on public healthcare systems? If you actively choose not to be vaccinated, should you have to pay for your Covid treatment? If it can be proven that you spread Covid to someone else who was vaccinated, should you have to pay for their care? Is refusing care for unvaccinated individuals more unethical than ignoring the societal need for herd immunity?

Government Control and Law:

- I understand the frustration and anger that comes from the government telling me what to do with my body. I have many political concerns, but to me, this is first and foremost a global public health crisis. I want to be protected and protect my community. I can fight policy and make change in my country a lot easier as a healthy, living person. I love to stick it to the man, but I am not willing to risk my own and others' lives to do so!
- There are many precedents for laws that are made for the common good and wellbeing of communities.
- Seatbelts don't always save the life of someone in a car crash, but they often do, so the law is that we put them on. The vaccine will likely save your life, so it should be the law that everyone gets it.
- The government says you can't drink and drive, because you put your life at increased risk, and might kill other people while doing it. Over 70% of people with Covid don't have any symptoms, so choosing not to be vaccinated and going into public means you are a risk to others.
- Most people do not drink and drive on purpose because they are mad that the government told them they shouldn't.
- Say someone who chose not to be vaccinated gives covid to someone with a compromised immune system who couldn't get vaccinated, and they die. Should the unvaccinated individual be held accountable, like a drunk driver would?

- Do you feel vaccinated people should have the right to know if you are vaccinated or not so that they can assess the risk of spending time with you? If you choose not to share this info or lie, what should happen?

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