

COVID-19 VACCINES FOR CHILDREN WITH ORGAN TRANSPLANT

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THE UNIVERSITY
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Faculty of Medicine



Vaccine
Evaluation
Center



DISCLOSURES

- I am a co-investigator for vaccine studies funded by GlaxoSmithKline and Sanofi-Pasteur
- All funds have been paid to the BC Children's Hospital Vaccine Evaluation Centre. I have not received any personal payments

TOPICS FOR TODAY

- Update on **COVID vaccine** in children living with organ transplant: what do we know & what do we not yet know?
- **Varicella (chickenpox) vaccine**: who can get it and where to get it?

CHILDREN AND COVID-19 INFECTION

- Children less likely to become sick with COVID-19 than adults
- Younger children (younger than 12 years old) less likely to become sick with COVID-19 than older children



CHILDREN AND COVID-19 INFECTION – ORGAN TRANSPLANT

- Usually mild illness, can have complications
- Children waiting for transplant – risk of infections depends on illness and medications you are taking
- Children living with transplant at higher risk of infections – also depends on illness and medications you are taking
- Risk of getting COVID also depends on how much COVID is present in the community/ around you



CHILDREN AND COVID-19 – OTHER COMPLICATIONS



Mental health

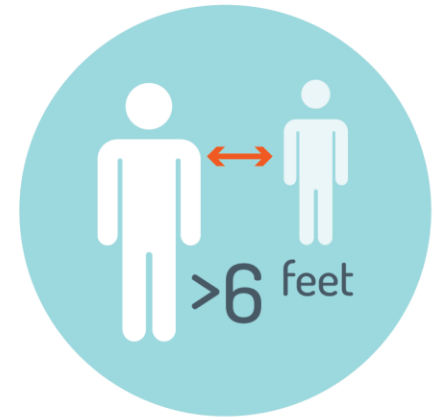
CHILDREN AND COVID-19 – OTHER COMPLICATIONS

Multisystem inflammatory syndrome in children (MIS-C)

- Can happen 2-6 weeks after you are exposed to COVID-19 virus
- Different parts of your body become inflamed
- Children can have fever, rash, blood-shot eyes, trouble breathing, vomiting, diarrhea, confusion
- Hospital stay, medication
- More common in 'school age' children compared to 'pre school' children
- Not very common, but seeing several cases in BC/other countries and provinces

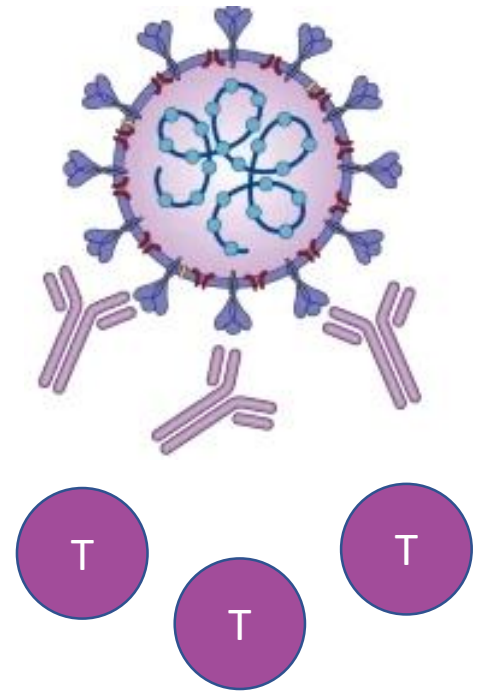
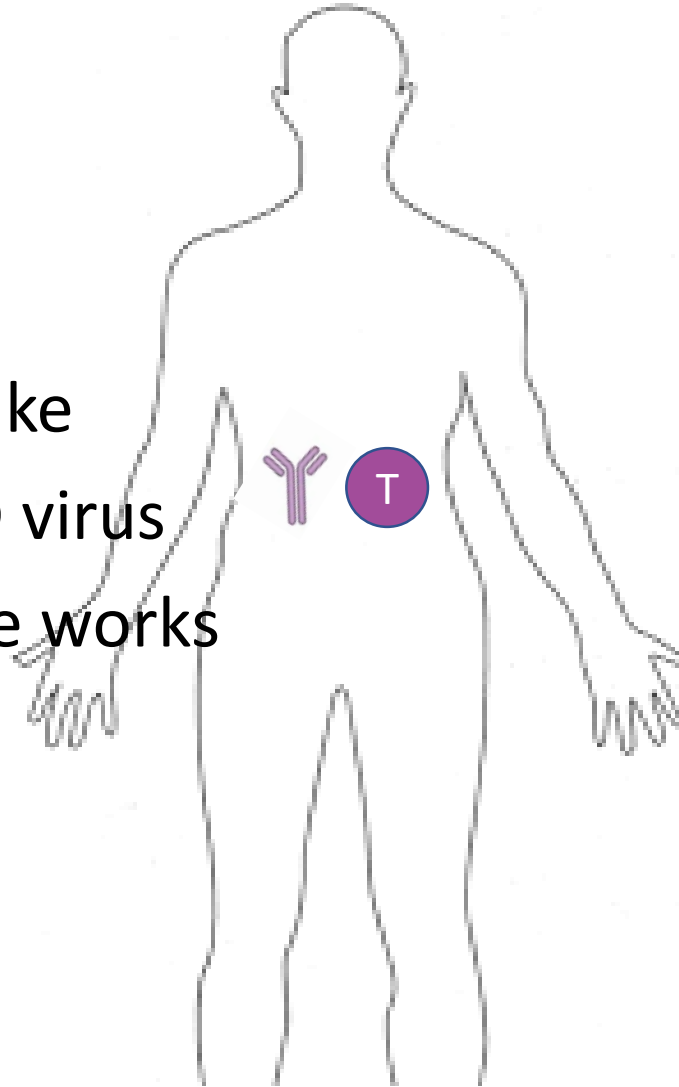
COVID-19 VACCINES CURRENTLY APPROVED FOR CHILDREN/TEENS AGE 12 - 18

- Pfizer/BioNTech
 - (*Moderna - soon?*)
- } **mRNA vaccines**



HOW DOES COVID-19 mRNA VACCINE WORK?

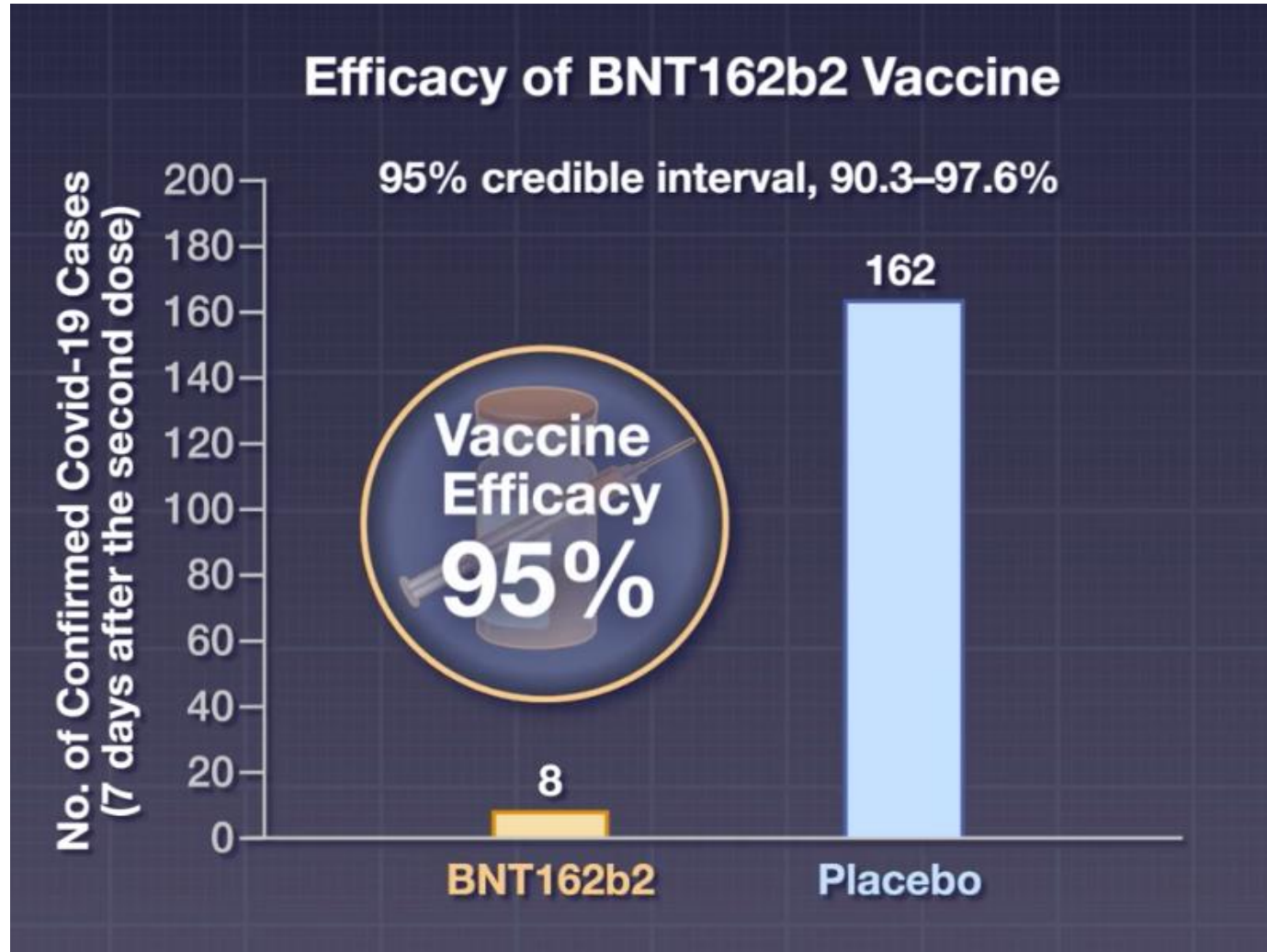
- Not a live vaccine
- Cannot get COVID from vaccine
- Vaccine “teaches” your body to make **antibodies** and **T cells** against COVID virus
- Takes about 2 weeks before vaccine works



IS COVID-19 mRNA VACCINE EFFECTIVE?



Pfizer/BioNTech mRNA vaccine in people 16 +



- 43, 548 people
 - 50% vaccine
 - 50% placebo (“dummy”)

IF 100 PEOPLE GET 2 DOSES OF VACCINE:

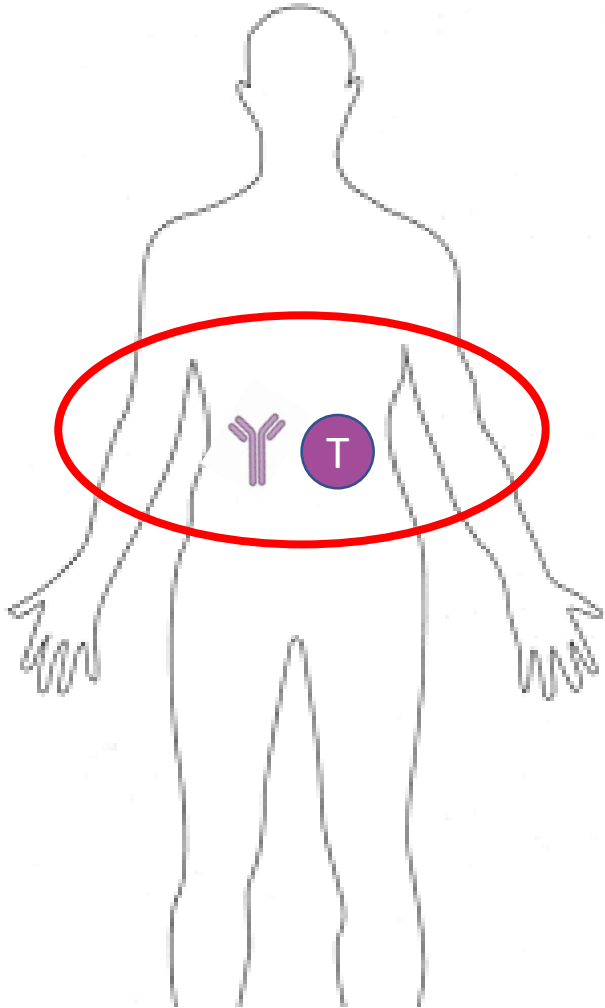
~ 95 WILL BE PROTECTED

~ 5 WILL STILL GET INFECTION

BNT162b2 (Pfizer/BioNTech) mRNA vaccine in people 12 -15

- US trial, 2 doses of Pfizer
- 2,260 teenagers age 12 to 15
- 18/1130 teens who got placebo (“dummy vaccine”) became infected
- 0/ 1130 teens who got vaccine became infected
- Vaccine 100% effective
- Side effects similar to those experienced by young adults
- Antibody numbers higher than in young adults
- Long term follow up for side effects (2 years) on-going

IS COVID-19 VACCINE EFFECTIVE IN PEOPLE WITH ORGAN TRANSPLANT?



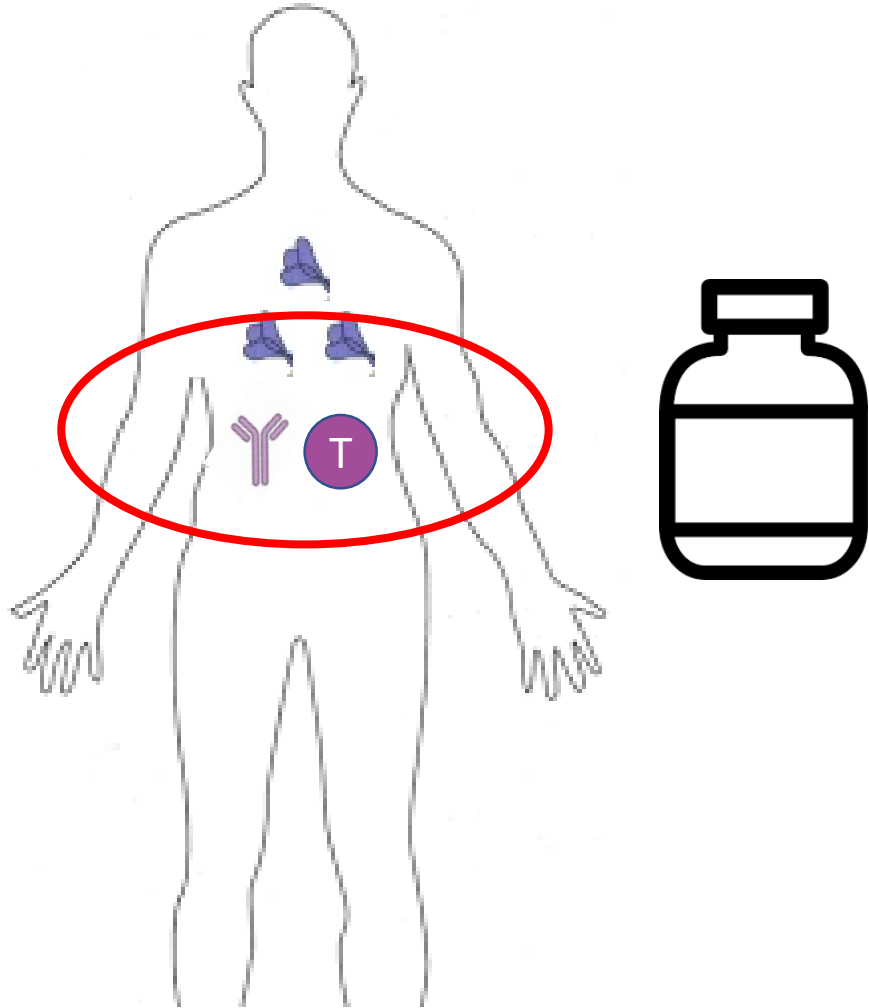
- Anti-rejection medication affects your body's ability to produce antibodies and T-cells
- Several studies from adults with organ transplant
- Transplant recipients lower antibody numbers after COVID vaccine
- Some people only had antibodies after 2nd dose
- Some transplant recipients have no detectable antibodies after two doses of COVID vaccine

I'm a Vaccinated Transplant Recipient. I Don't Have Antibodies. Now What?

May 24, 2021

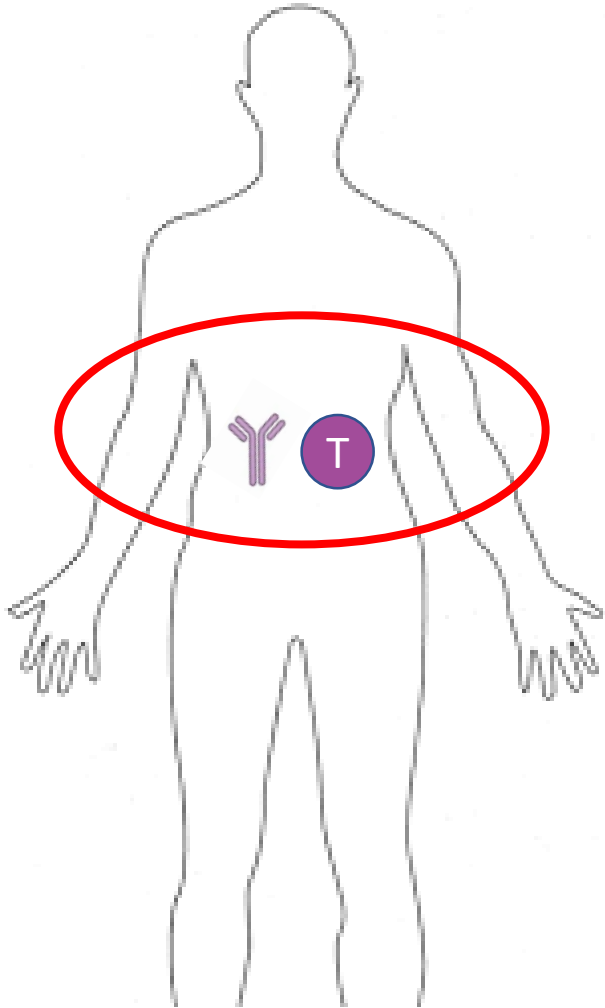


IS COVID-19 VACCINE EFFECTIVE IN PEOPLE WITH ORGAN TRANSPLANT?



- Not all transplant recipients are the same: age, medication, other illnesses
- We don't know "how much" antibody you actually need for protection
- We haven't measured protection from T-cells yet – better measure than antibodies?
- This is not a new issue – also true for other vaccines
- Transplant recipients who get "flu" vaccine generally have lower antibody numbers but still protected from severe flu
- COVID VACCINE AFTER TRANSPLANT GIVES SOME PROTECTION, MAY NOT WORK IN EVERYBODY, MAY NEED EXTRA DOSES

IS COVID-19 VACCINE EFFECTIVE IN PEOPLE BEFORE ORGAN TRANSPLANT?



- Vaccines generally more effective before transplant than after transplant
- Depends on medical conditions and medications you are taking
- Ideally given at least 2- 4 weeks before transplant for effectiveness
- Getting vaccinated won't delay your transplant
- You can get second dose after transplant

HOW ABOUT INTERVAL BETWEEN DOSE 1 and DOSE 2

- First dose “primes” your body to respond to second dose
- Clinical trials done with a 4 week interval
- Real life data, somewhat longer interval probably better for developing immunity
- Previously 16 week interval – with increased vaccine supply now aiming for 8-12 weeks between Dose 1 and Dose 2

IS COVID-19 mRNA VACCINE SAFE?

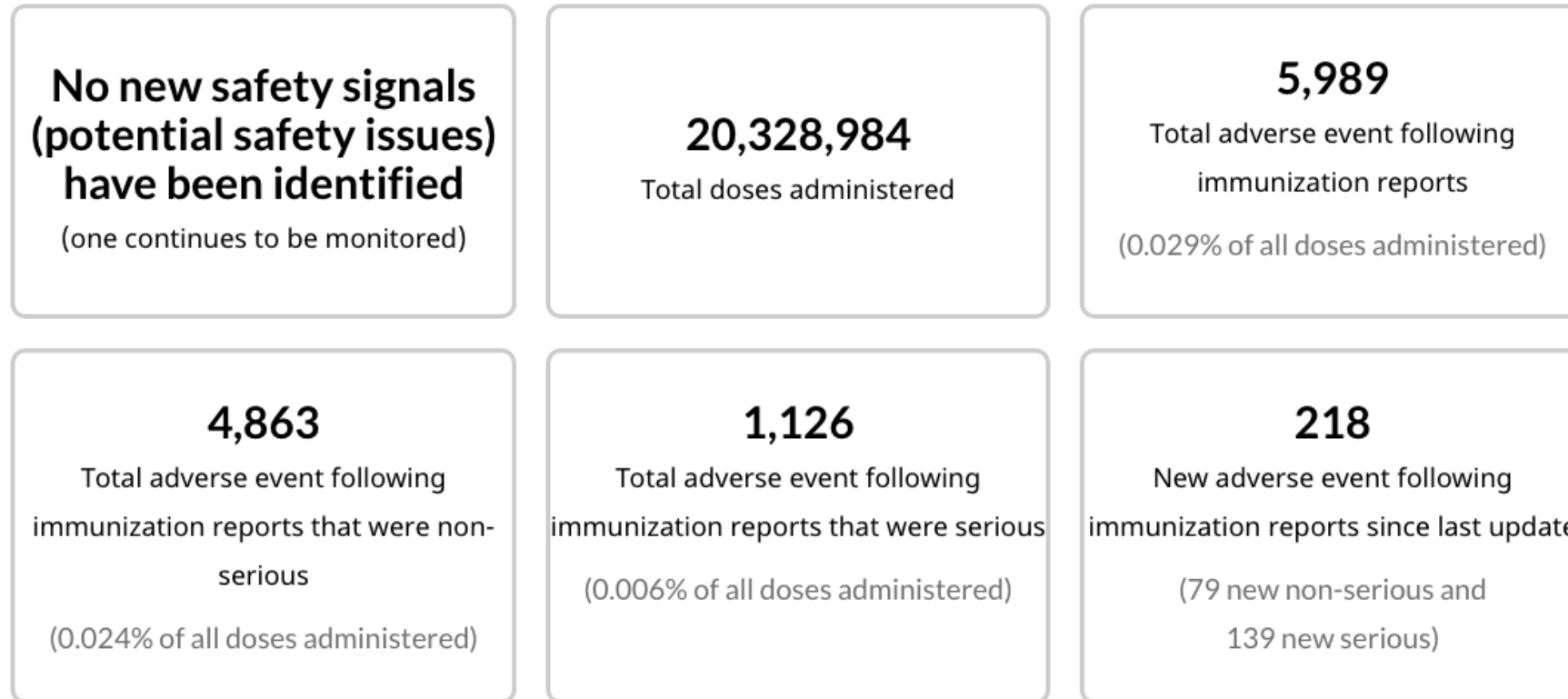


- Clinical trials cannot pick-up all safety concerns
- On-going monitoring for side effects when vaccine used in “real life”
- Important to report side effects – especially unusual ones
- Not all side effects reported are “caused” by vaccine

SIDE EFFECT	OUT OF 10 PEOPLE IN CLINICAL TRIAL
	“Pfizer”
LOCAL	
Pain at vaccination site	~7 to 8/10
SYSTEMIC	
Fatigue	~3 to 5/10
Headache	~3 to 5/10
Fever	~1 /10
Chills	~1 to 4/10
Muscle pain	~1 to 4/10
Joint pain	~1 to 2/10
*lower in >55y compared with 18-55y; slightly higher after 2 nd dose	

ON-GOING MONITORING – CANADIAN PUBLIC HEALTH (ALL DATA PUBLIC DOMAIN)

What you need to know up to and including May 21, 2021



- Side effects should be reported, especially when serious or rare
- Not every side effect reported is caused by vaccine – needs to be investigated

<https://health-infobase.canada.ca/covid-19/vaccine-safety/>

COVID VACCINE AND MYOCARDITIS (heart inflammation)?

AAP News

Report details 7 cases of myocarditis after COVID-19 vaccination

Melissa Jenco, News Content Editor

June 04, 2021

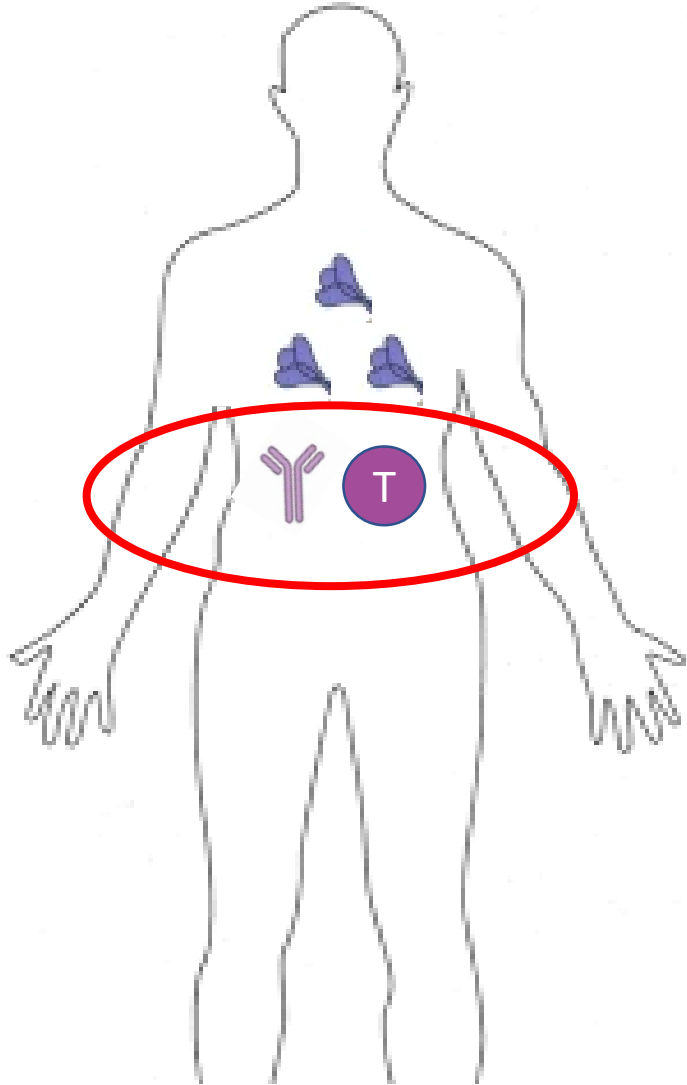


Editor's note: For the latest news on COVID-19, visit <http://bit.ly/AAPNewsCOVID19>.

A new report takes a close look at seven teen boys who developed myocarditis after COVID-19 vaccination, each of whom had similar symptoms, timing and outcomes.

- 5.8 million US adolescents have received COVID-19 vaccine (Pfizer) to date
- Reported this week: 7 US teenage boys diagnosed with heart inflammation (myocarditis) a week after vaccine
- Myocarditis symptoms: chest pain, fever
- Resolved with treatment (anti-inflammatory)
- Not yet clear if myocarditis caused by vaccine or something else – ongoing investigations
- No changes to vaccine recommendations for teenagers at present

IS COVID-19 VACCINE SAFE IN SOLID ORGAN RECIPIENTS?



- Not a live vaccine
- Cannot get COVID from vaccine
- Based on what we know so far – side effects similar to side effects in people who didn't have organ transplant

SHOULD MY CHILD GET COVID-19 VACCINE?

- Currently approved for people 12 years of age and older
- Recommended for children with organ transplant or awaiting organ transplant
- Vaccine may not offer complete protection from COVID, but we think it will provide some protection
- On balance:
 - Risk of having a severe side effect from vaccine is less than a risk of becoming sick with COVID-19

WHO SHOULD NOT GET COVID-19 VACCINE?

- Small number of people in whom vaccine won't be effective, should wait with their vaccine:
 - Less than 1 month after transplant
 - Treated for acute organ rejection within the last month
 - Treated with Rituximab, Alectuzumab less than 3 months ago
- Allergy to PEG, talk to your healthcare provider

SHOULD MY CHILD GET COVID-19 VACCINE?

- COVID-19 vaccine can be given together with other vaccines
- Let your healthcare team know if you think you/your child had unusual/ serious side effects from vaccine
- Talk to your healthcare team if you have questions!

WHEN WILL COVID-19 VACCINE BE AVAILABLE FOR YOUNGER CHILDREN?

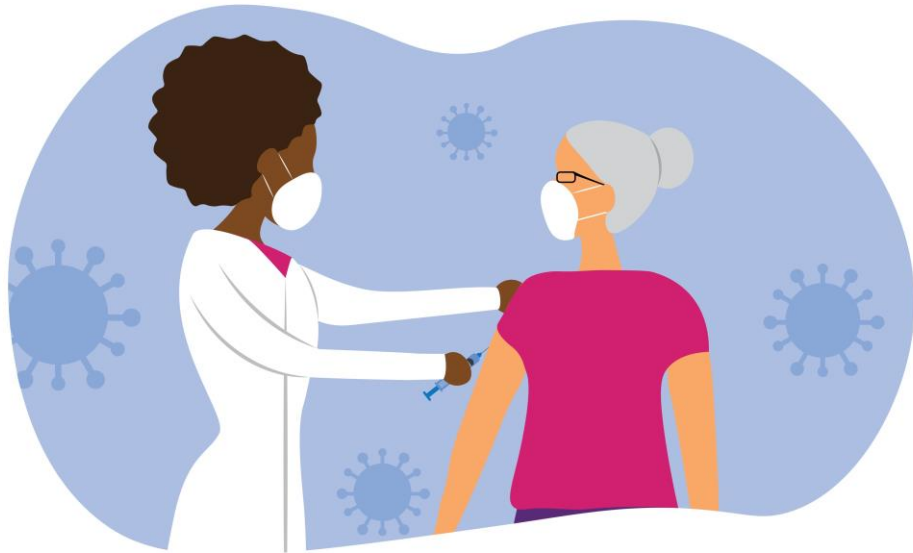


- Pfizer and Moderna vaccine tested in younger children down to 6 months of age
- What dose?
- More information in 2021

ARE PFIZER AND MODERNA VACCINES INTERCHANGEABLE?

- Both mRNA vaccines, both equally effective, can get first dose of Pfizer and second dose with Moderna, or the other way around
- Currently only Pfizer approved in children 12-18, Moderna likely approved soon
- Children should receive Pfizer vaccine, however if your child received Moderna you don't need to repeat the first dose

SHOULD OTHER PEOPLE IN MY HOME GET COVID-19 VACCINE?



- Adults at higher risk of COVID-19 infection than children
- Getting vaccinated also reduces COVID-19 asymptomatic carriage/ ability to pass it on to others without getting sick
- Getting vaccine will protect you and may help protect your child

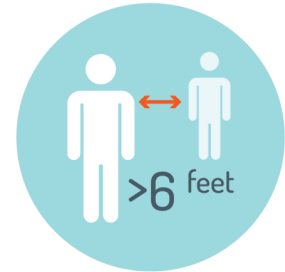
WHAT HAPPENS AFTER MY CHILD AND
FAMILY ARE VACCINATED AGAINST COVID?

WILL THERE BE MORE 'WAVES' OF COVID-19 INFECTIONS?

- We don't know yet
- COVID-19 is a "seasonal" infection (more transmission in fall/winter months)
- Emergence of new variants (strains of virus spread faster, more severe disease)
- Non mRNA vaccines (AstraZeneca, J&J) have somewhat reduced effectiveness against new variants
- Not everyone will be vaccinated/ protected from vaccine
- Transmission will probably change with changes in public health restrictions, travel etc.

PROTECTIVE MEASURES AFTER COVID-19 VACCINE?

- 79% of people in BC age 12 and older have received first dose – aiming for 90%
- Currently: everybody should continue following public health recommendations (wash hands, mask, social distancing) even if you are vaccinated
- BC will gradually lift public health restrictions when number of new COVID infections and hospitalizations in the community also down
- Current reopening plan – masks recommended (but not mandatory) as of July 1
- Full reopening by early September



WHEN CAN A CHILD WITH ORGAN TRANSPLANT STOP WEARING A MASK AND RETURN TO 'NORMAL' ACTIVITIES?

- We have to assume that transplant recipients will receive 'less' protection from COVID vaccine
- No reliable way to test how much protection/ how long it will last
- Younger children currently not eligible for vaccine, this may change in the coming months
- Recommend wearing a mask, avoid large gatherings even if you are vaccinated
- Update later this summer based on infection rates in the province, public health recommendations for general population and for people with immune compromise specifically

STUDIES ABOUT COVID VACCINE IN CHILDREN WITH TRANSPLANT?

- Enroll in a registry to report side-effects – CANVAS (available now)
- Canadian study about COVID vaccine safety and effectiveness in children with organ transplant – hopefully open by summer 2021
- Study bloodwork (antibodies and T-cells) added to your usual bloodwork
- Results will have to be interpreted – we don't know how much Ab or T-cells you need to be protected
- Will send out information when study started



**Canadian National Vaccine Safety Network (CANVAS)
COVID-19 Safety Surveillance**

Visit canvas-covid.ca for full study information and enrolment.

About the CANVAS-COVID Study

Family Immunization Clinic – BC Children’s Hospital



Ambulatory Care Building (Main Level, Entrance 21)
4480 Oak Street

Vancouver
BC V6H 3V4
Clinic phone: 604-875-3000
Clinic fax: 604-875-2311

FamilyImmunizationClinic@cw.bc.ca

- COVID-19 vaccine available at Family Immunization Clinic (most days of the week)
- Book in advance, explain you are waiting for organ transplant/ organ transplant recipient
- Can also vaccinate family members if eligible for COVID vaccine!
- Don't forget about other vaccines

COVID VACCINATION CLINICS IN YOUR COMMUNITY

- If you were 16 years of age or older in April you received a letter to say that you are eligible for first dose
- Everyone can now receive vaccine without a letter
- To register for vaccine go to:
<https://www2.gov.bc.ca/gov/content/covid-19/vaccine/register>
- If you are an adult going for vaccine appointment you can bring your child with you without prior registration
- You can register only one child, but also bring siblings to get vaccinated with single registration

<https://www2.gov.bc.ca/gov/content/covid-19/vaccine/youth>

QUESTIONS, COMMENTS

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