SRI MEENAKSHI TEMPLE
GOLDEN GROUP
COVD VACCINE – 01-09-2021

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COVD – ACTIVITY RISK SCORE

Low Risk: 1

Opening the mail

Low Risk: 2

Getting restaurant takeout

Pumping gasoline

Playing tennis

Going camping

Low-Moderate Risk: 3

Grocery shopping

Going for a walk, run, or bike ride with others

Playing golf

COVD – ACTIVITY RISK SCORE

Low-Moderate Risk: 4

Staying at a hotel for two nights
Sitting in a doctor's waiting room
Going to a library or museum
Eating in a restaurant (outside)
Walking in a busy downtown
Spending an hour at a playground

COVD – ACTIVITY RISK SCORE

Moderate Risk: 5

Having dinner at someone else's house
Attending a backyard barbecue
Going to a beach
Shopping at a mall

Moderate Risk: 6

Sending kids to school, camp, or day care
Working a week in an office building
Swimming in a public pool
Visiting an elderly relative or friend in their home

COVD – ACTIVITY RISK SCORE

Moderate-High Risk: 7

Going to a hair salon or barbershop
Eating in a restaurant (inside)
Attending a wedding or funeral
Traveling by plane
Playing basketball
Playing football
Hugging or shaking hands when greeting a friend

COVD – ACTIVITY RISK SCORE

High Risk: 8

Eating at a buffet

Working out at a gym

Going to an amusement park

Going to a movie theater

High Risk: 9

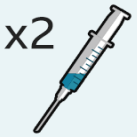
Attending a large music concert

Going to a sports stadium

Attending a religious service with 500-plus worshipers

Going to a bar

How some of the Covid-19 vaccines compare

Company	Type	Doses	How effective*	Storage	Cost per dose
Oxford Uni-AstraZeneca	Viral vector (genetically modified virus)	x2	62-90%	Regular fridge temperature	£3 ($4)
Moderna	RNA (part of virus genetic code)	x2	95%	-20C up to 6 months	£25 ($33)
Pfizer-BioNTech	RNA	x2 	95%	-70C	£15 ($20)
Gamaleya (Sputnik V)	Viral vector	x2	92%	Regular fridge temperature (in dry form)	£7.50 ($10)

*preliminary phase three results, not yet peer-reviewed

Source: Respective companies, WHO

BBC

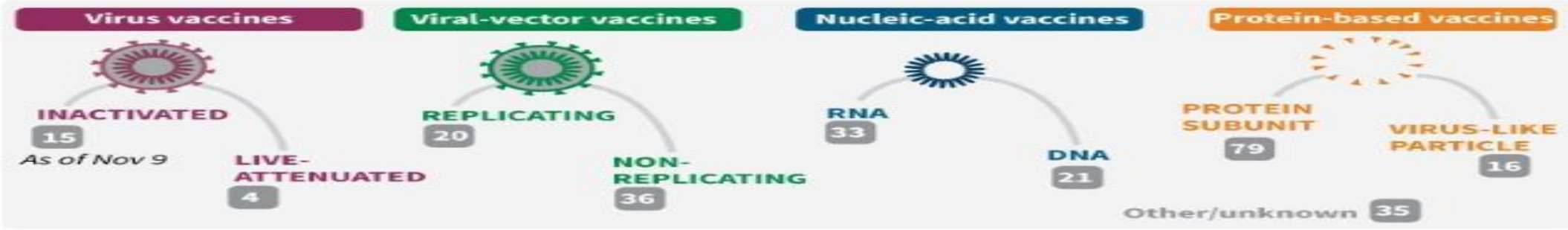
Potential Another Trial to Launch

Submitted to FDA for Review

Submitted to FDA for Review

Race for a Covid-19 vaccine

There are currently 259 vaccine candidates being tracked by the London School of Hygiene and Tropical Medicine



Development stages

As of Nov 9

	Pre-clinical	Phase I	I/II	II	III	Licensed
RNA	26	2	2	1	2	
DNA	15	1	5			
Non-replicating	27	5			4	
Replicating	16	2	2			
Inactivated	8		3	1	3	
Live-attenuated	3	1				
Protein subunit	64	9	4	1	1	
Virus-like particle	14	1	1			
Other/ unknown	32	3				

BioNTech/Fosun/ Pfizer
Moderna/NIAID
Uni of Oxford/ AstraZeneca
Janssen/ Johnson & Johnson
CanSino/ Beijing Institute
Gamaleya
Beijing Institute/ Sinopharm
Wuhan Institute/ Sinopharm
Sinovac/ Instituto Butantan
Novavax

Phases explained

Pre-clinical	Phase I	Phase II	Phase III	Licensed
• Antigen discovery • Vaccine formulation • Animal testing	• First human trials on small number of volunteers (10 - 100) • Checks for safety, strength of immune response, optimal dose	• Larger human group (100 - 1,000) • Focus on safety • Strength of immune response	• Large scale (1,000 - 10,000+) • Effectiveness of immune response • Safety on larger, more varied population	• Large-scale manufacture • Ongoing monitoring for safety and effectiveness

AFP *Source: Vaccine pipeline/Nature journal*

PFIZER VS. MODERNA VACCINE

Pfizer	Moderna
95% effective	94.5% effective
30 mcg doses given 21 days apart	100 mcg doses given 28 days apart
5 dose vials	10 dose vials
Must be diluted with 0.9% sodium chloride	No dilution required
Stored at -112 to -76 degrees Fahrenheit	Stored at -13 to -5 degrees Fahrenheit
36,621 trial participants	30,350 trial participants
Approved for use in people over the age of 16	Approved for use in people over the age of 18.
Published safety and final efficacy results from Phase 3 on December 10th, 2020	Announced primary efficacy analysis in Phase 3 on November 30, 2020

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MRNA TECHNOLOGY

mRNA technology was discovered over 30 years ago and has been studied for vaccine purposes for nearly two decades.

In fact, scientists have been working on a coronavirus vaccine since the SARS and MERS outbreaks but funding dried up. No funding, no scientific advancements. (Look at what we can accomplish when we fund science!)

Early-stage clinical trials using mRNA vaccines have been carried out for influenza, Zika, rabies, and cytomegalovirus (CMV).

Recent technological advancements in RNA biology and chemistry, as well as delivery systems, have mitigated these challenges and improved their stability, safety, and effectiveness.

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BOTH ARE MRNA VACCINES

COVID-19 mRNA vaccines provide instructions for our cells to make a harmless piece of what is called the "spike protein." The spike protein is found on the surface of the virus that causes COVID-19.

COVID-19 mRNA vaccines are given in the upper arm muscle. Once the instructions (mRNA) are inside the muscle cells, the cells follow the instructions and make the protein piece. **After the protein piece is made, the cell breaks down the instructions and gets rid of them.**

Next, the cell displays the protein piece on its surface (showing off its work). Our immune system recognizes that the protein doesn't belong there and begins making antibodies.

After **developing antibodies**, our immune system has learned how to protect against future infection.

The benefit of mRNA vaccines, like all vaccines, is those vaccinated gain this protection without ever having to risk the serious consequences of getting sick with COVID-19.

Facts about COVID-19 mRNA Vaccines

They cannot give someone COVID-19.

- mRNA vaccines do not use the live virus that causes COVID-19.

They do not affect or interact with our DNA in any way.

- mRNA never enters the nucleus of the cell, which is where our DNA (genetic material) is kept.
- The cell breaks down and gets rid of the mRNA soon after it is finished using the instructions.

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INGREDIENTS IN THE VACCINES

There has been complete transparency around ingredients. You can find the fact sheet posted online and in the reference section of this post.

mRNA

Lipids (including ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate), 2 [(polyethylene glycol)-2000]-N,N-ditetradecylacetamide, 1,2-Distearoyl-sn-glycero-3-phosphocholine, and cholesterol)

Potassium chloride

Monobasic potassium phosphate

Sodium chloride

Dibasic sodium phosphate dehydrate

Sucrose

Good news for those that may have concerns or are vaccine-hesitant. There is no aluminum, mercury, or food allergens.

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SIDE EFFECTS/IMMUNE RESPONSE

Most commonly reported side effects:

Injection site reaction
Fatigue
Headache
Muscle pain
Chills
Joint pain
Fever

This is called an "immune response."
This is response without infection and it's a good thing!

These short-term, easily managed side effects are significantly less risky than taking your chances with COVID-19 infection.

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99% SURVIVAL RATE

A commonly asked question is "why should I get vaccinated if the COVID-19 infection has a 99% survival rate?"

Surviving and thriving are incredibly different.

COVID-19 symptoms can persist for months. The virus can damage the lungs, heart, and brain, which increases the risk of long-term health problems. **Even young, otherwise healthy people can feel unwell for weeks to months after infection.**

How organs may be affected by COVID-19:

Heart: Imaging tests taken months after recovery from COVID-19 have shown lasting damage to the heart muscle, even in people who experienced only mild COVID-19 symptoms. This may increase the risk of heart failure or other heart complications in the future.

Lungs: The type of pneumonia often associated with COVID-19 can cause long-standing damage to the tiny air sacs (alveoli) in the lungs. The resulting scar tissue can lead to long-term breathing problems.

Brain: Even in young people, COVID-19 can cause strokes, seizures and Guillain-Barre syndrome — a condition that causes temporary paralysis. COVID-19 may also increase the risk of developing Parkinson's disease and Alzheimer's disease.

Short-term side effects and 95% vaccine efficacy > long term health damages from COVID-19 infection

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Can a COVID-19 vaccine make me sick with COVID-19?

No. None of the authorized and recommended COVID-19 vaccines or COVID-19 vaccines currently in development in the United States contain the live virus that causes COVID-19. This means that a COVID-19 vaccine **cannot** make you sick with COVID-19.

After getting a COVID-19 vaccine, will I test positive for COVID-19 on a viral test?

No. Neither the recently authorized and recommended vaccines nor the other COVID-19 vaccines currently in clinical trials in the United States can cause you to test positive on viral tests, which are used to see if you have a **current infection**.

If your body develops an immune response—the goal of vaccination—there is a possibility you may test positive on some antibody tests.

If I have already had COVID-19 and recovered, do I still need to get vaccinated with a COVID-19 vaccine?

Yes. Due to the severe health risks associated with COVID-19 and the fact that re-infection with COVID-19 is possible, vaccine should be offered to you regardless of whether you already had COVID-19 infection. CDC is providing recommendations to federal, state, and local governments about who should be vaccinated first.

At this time, experts do not know how long someone is protected from getting sick again after recovering from COVID-19. The immunity someone gains from having an infection, called natural immunity, varies from person to person. Some early evidence suggests natural immunity may not last very long.

Will a COVID-19 vaccination protect me from getting sick with COVID-19?

Yes. COVID-19 vaccination works by teaching your immune system how to recognize and fight the virus that causes COVID-19, and this protects you from getting sick with COVID-19.

WILL A COVID-19 VACCINE ALTER MY DNA?

- **No.** COVID-19 mRNA vaccines do not change or interact with your DNA in any way.

THE NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine

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ABSTRACT

BACKGROUND

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and the resulting coronavirus disease 2019 (Covid-19) have afflicted tens of millions of people in a worldwide pandemic. Safe and effective vaccines are needed urgently.

METHODS

In an ongoing multinational, placebo-controlled, observer-blinded, pivotal efficacy trial, we randomly assigned persons 16 years of age or older in a 1:1 ratio to receive two doses, 21 days apart, of either placebo or the BNT162b2 vaccine candidate (30 μg per dose). BNT162b2 is a lipid nanoparticle–formulated, nucleoside-modified RNA vaccine that encodes a prefusion stabilized, membrane-anchored SARS-CoV-2 full-length spike protein. The primary end points were efficacy of the vaccine against laboratory-confirmed Covid-19 and safety.

RESULTS

A total of 43,548 participants underwent randomization, of whom 43,448 received injections: 21,720 with BNT162b2 and 21,728 with placebo. There were 8 cases of Covid-19 with onset at least 7 days after the second dose among participants assigned to receive BNT162b2 and 162 cases among those assigned to placebo; BNT162b2 was 95% effective in preventing Covid-19 (95% credible interval, 90.3 to 97.6). Similar vaccine efficacy (generally 90 to 100%) was observed across subgroups defined by age, sex, race, ethnicity, baseline body-mass index, and the presence of coexisting conditions. Among 10 cases of severe Covid-19 with onset after the first dose, 9 occurred in placebo recipients and 1 in a BNT162b2 recipient. The safety profile of BNT162b2 was characterized by short-term, mild-to-moderate pain at the injection site, fatigue, and headache. The incidence of serious adverse events was low and was similar in the vaccine and placebo groups.

CONCLUSIONS

A two-dose regimen of BNT162b2 conferred 95% protection against Covid-19 in persons 16 years of age or older. Safety over a median of 2 months was similar to that of other viral vaccines. (Funded by BioNTech and Pfizer; ClinicalTrials.gov number, NCT04368728.)

The authors' affiliations are listed in the Appendix. Address reprint requests to Dr. Absalon at Pfizer, 401 N. Middletown Rd., Pearl River, NY 10965, or at judith.absalon@pfizer.com.

*A complete list of investigators in the C4591001 Clinical Trial Group is provided in the Supplementary Appendix, available at NEJM.org.

Drs. Polack and Thomas contributed equally to this article.

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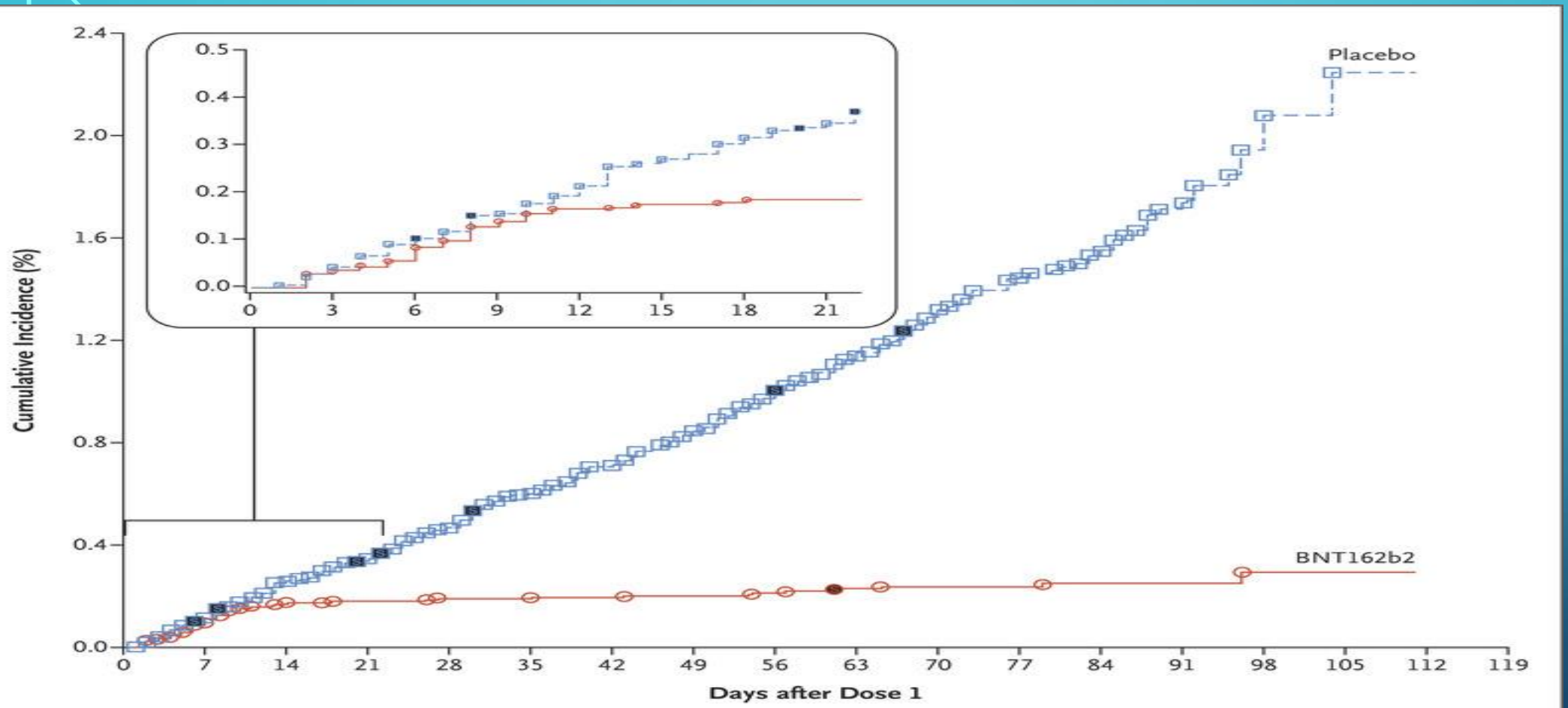

Efficacy End-Point Subgroup	BNT162b2, 30 μg (N=21,669)		Placebo (N=21,686)		VE (95% CI)
	No. of participants	Surveillance time *person-yr (no. at risk)*	No. of participants	Surveillance time *person-yr (no. at risk)*	*percent*
Covid-19 occurrence					
After dose 1	50	4.015 (21,314)	275	3.982 (21,258)	82.0 (75.6–86.9)
After dose 1 to before dose 2	39		82		52.4 (29.5–68.4)
Dose 2 to 7 days after dose 2	2		21		90.5 (61.0–98.9)
≥7 Days after dose 2	9		172		94.8 (89.8–97.6)

MODERNA VACCINE

From the start of the trial through Nov. 25, 2020,

- 196 cases of symptomatic COVID-19 at least 14 days after they received their second shot.
- One hundred and eighty-five cases (30 of which were classified as severe COVID-19) occurred in the placebo group
- and 11 cases (0 of which were classified as severe COVID-19) occurred in the group receiving mRNA-1273.
- The incidence of symptomatic COVID-19 was 94.1% lower in those participants who received mRNA-1273 as compared to those receiving placebo.

MODERNA VACCINE

236 cases of symptomatic COVID-19 at least 14 days after they received their first shot,
with 225 cases in the placebo group
and 11 cases in the group receiving mRNA-1273. The vaccine efficacy was 95.2% for this secondary analysis.

US VACCINATIONS BY THE NUMBERS

- People that Received the 1st Dose
  - 6,688,231
- Total Doses Distributed
  - 22,137,350
- CDC | Updated: Jan 8, 2021 as of 9:00am ET
-

REFERENCES

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PLEASE GET VACCINATED

The vaccine benefits outweigh the known risks of contracting COVID-19.

When the vaccine reaches your group, please get the vaccine. The sooner we vaccinate and establish herd immunity the sooner we can remove our masks and hug our friends again.

- Your friendly public health professional

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HOW TO REGISTER FOR THE VACCINE :

VACSTRAC.HCTX.NET

https://houstonemergency.org/covid-19-vaccines/

THANK YOU