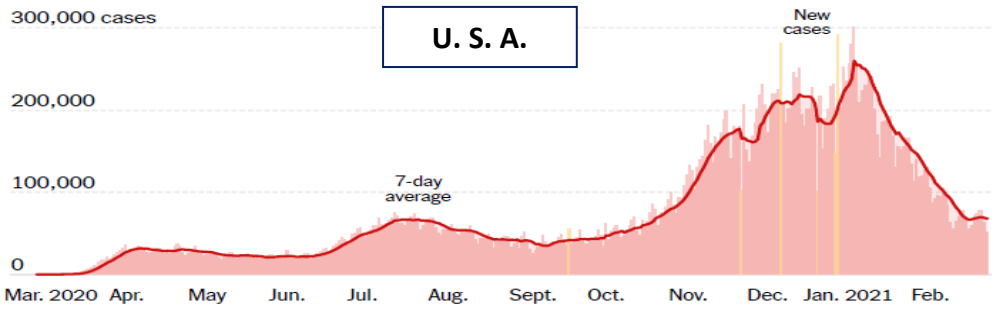
COVID-19 UPDATE – MONDAY, MARCH 1, 2021

Dear Members of the DoM Community,

Good morning to you on this first anniversary of the first identified case of COVID-19 in the state of New York. It was a 39-year-old healthcare worker who lives in Manhattan and contracted the virus while traveling in Iran. A lot has happened since that day. This is reflected by the year-long data shown in this newsletter.

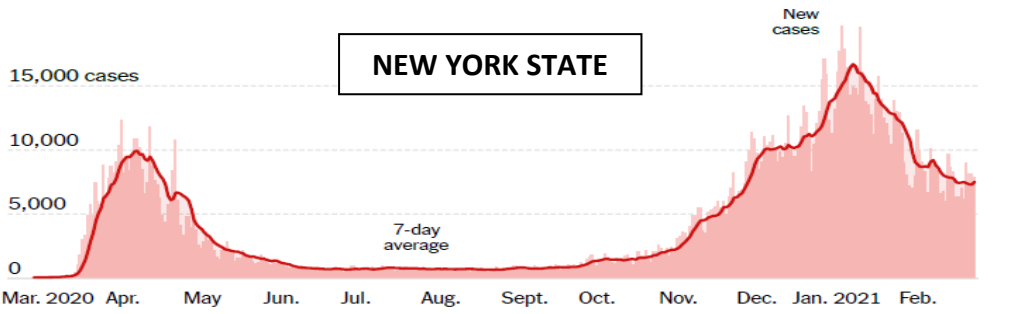
1. Nationwide COVID-19 Data

The rate of decline in U.S. daily COVID cases has slowed down in the last few days.



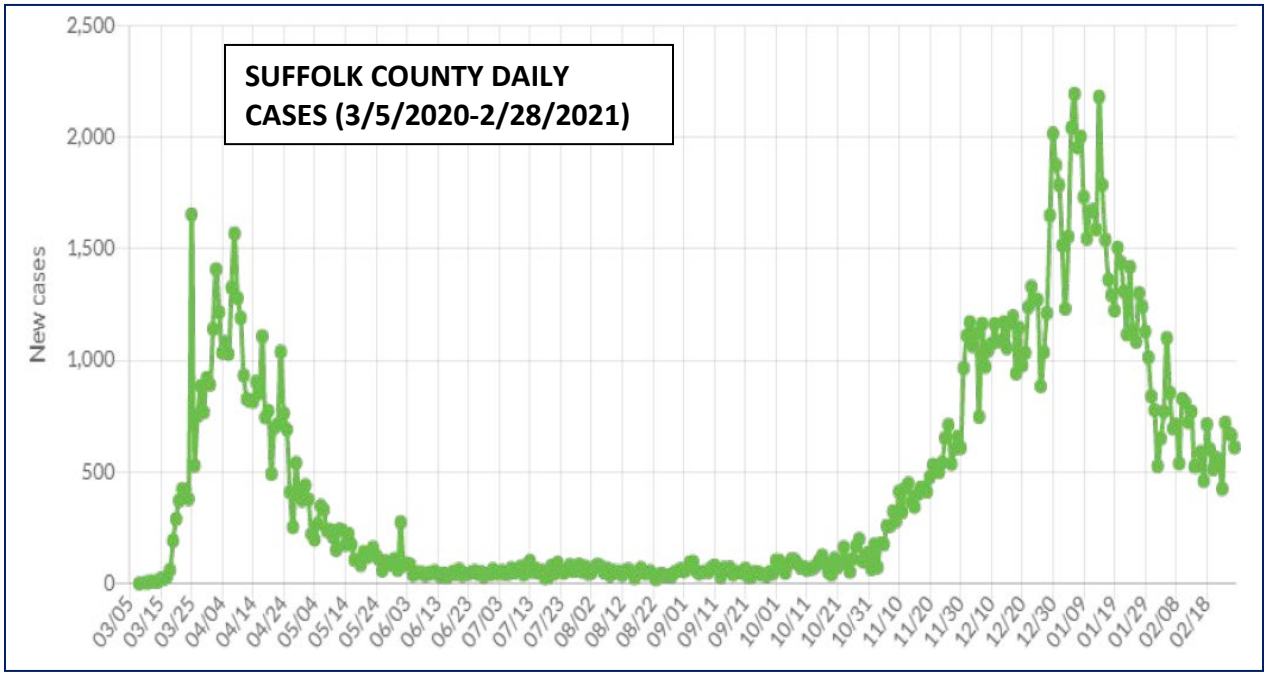
	TOTAL REPORTED	ON FEB. 28	14-DAY CHANGE
Cases	28.6 million+	50,925	−26% ↘
A week ago	28.1 million+	55,195	-44%
Deaths	512,979	1,129	−21% ↘
A week ago	498,654	1,247	-32%
Hospitalized		47,352	−30% ↘

2. New case numbers in New York State are stay high.



	TOTAL REPORTED	ON FEB. 28	14-DAY CHANGE
Cases	1.6 million+	7,827	−12% ↘
A week ago	1.5 million +	6,237	-14%
Deaths	47,143	118	−24% ↘
A week ago	46,346	113	-24%
Hospitalized		5,259	−22% ↘

3. New case numbers in Suffolk County are also staying high.



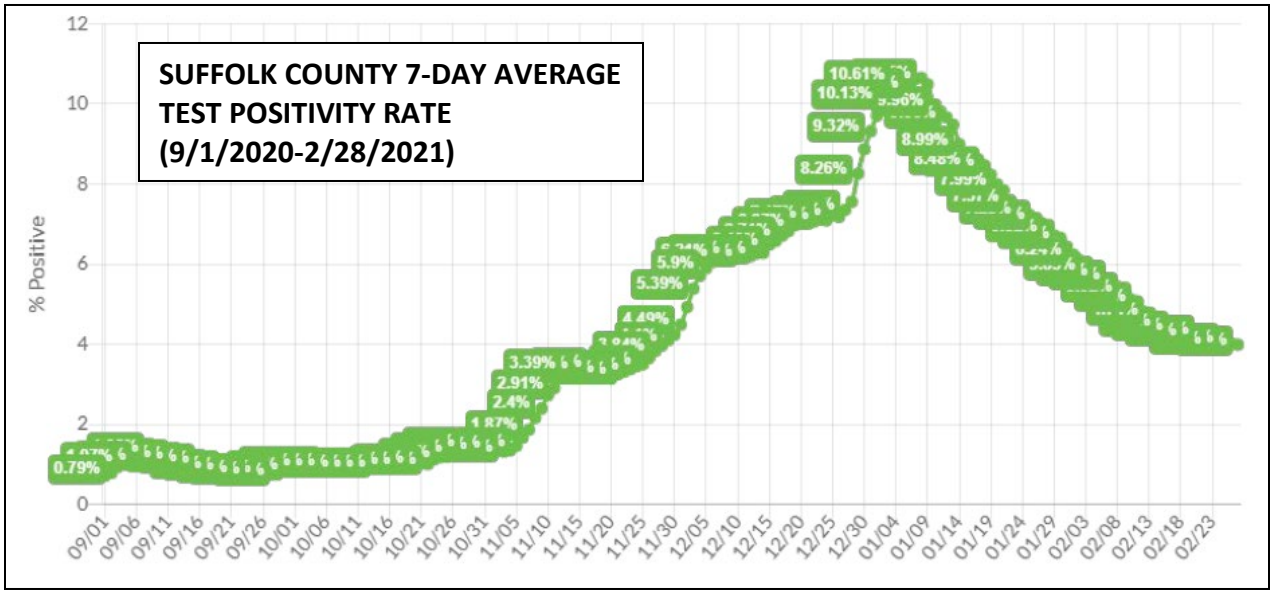
COVID-19 Testing in Suffolk County:

On February 28,

- 15,987 COVID-19 tests were administered.
- 611 new cases were reported.; 7-day average = 602, an **increase of 41** from one week ago.
- 162,243 total cases have been reported since March.
- 3.8% tested positive; **7-day average = 4.0%**, same as a week ago (see graph below for 6-month trend).

Fatalities:

- 3,076 total fatalities, an increase of 45 from one week before.



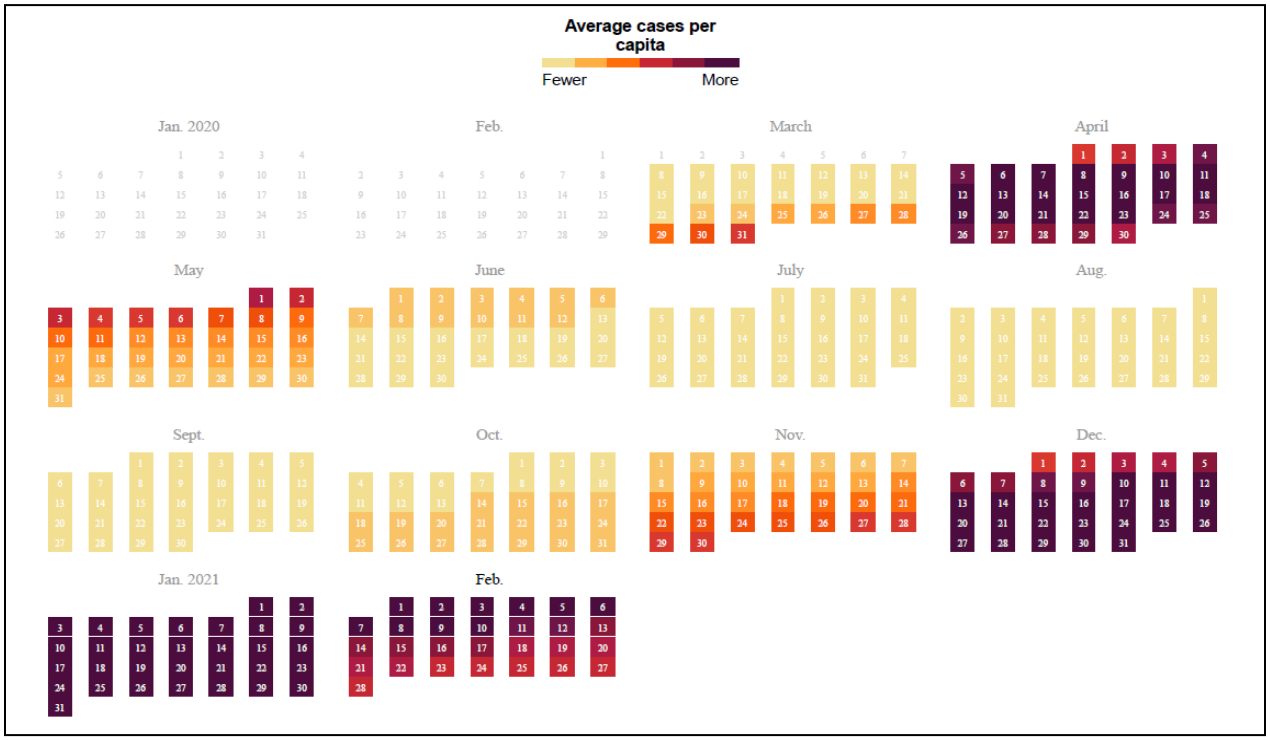
COVID-19 Hospitalizations:

- 454 individuals were hospitalized, a decrease of 7 from one week before.
- 111 patients were in the Intensive Care Unit (ICU), an increase of 12 from a week ago.

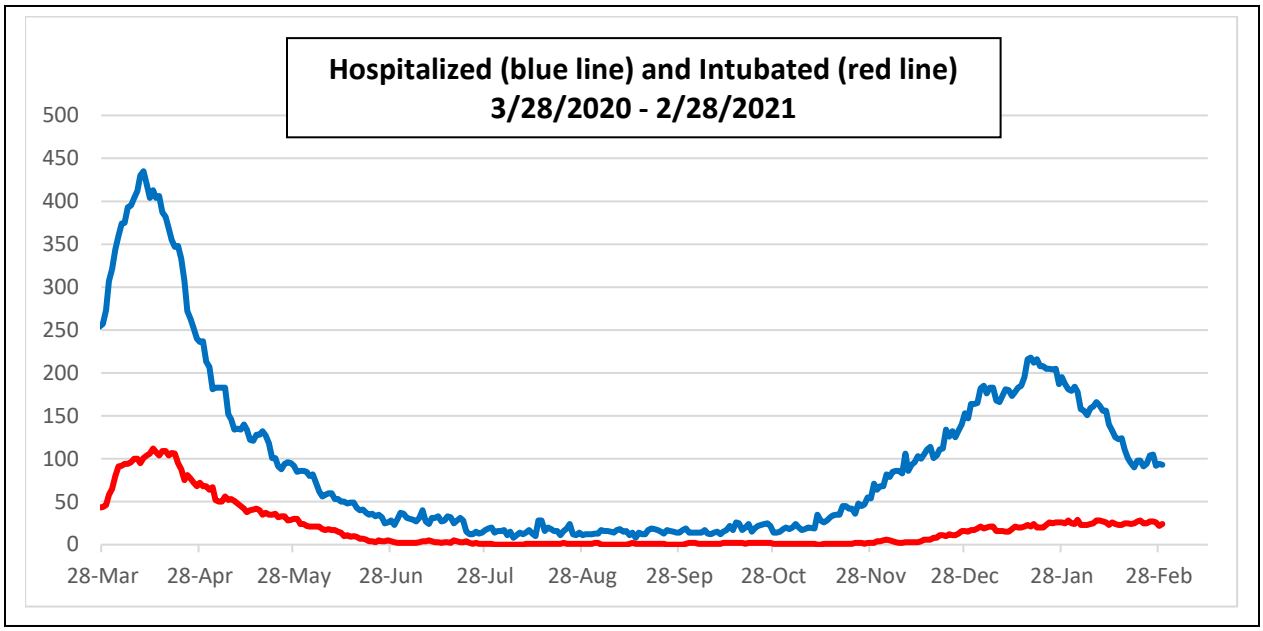
Cases in Suffolk County Remain at Very High-Risk Level – It is important to maintain precaution.

A county is at a **very high-risk** level if it reported between 160 and 640 cases per 100,000 people during the past two weeks. This is equivalent to a daily rate between 11 and 46 cases per 100,000 people. **Current Suffolk County 14-day average daily rate is 40 cases per 100,000 people**.

The number of days in which case numbers were highest (deep purple color in the graph below) in last April was 18 days and that in the recent surge, 63 days.



4. Daily COVID-19 Hospitalization Data in SBUH



At midnight Sunday, February 28, SBUH census is as follows (see figure above for all-time trend of hospitalization).

- 93 COVID + inpatients, a decrease of 5 from one week before.
    - 24 patients were in ICU level of care; 18 on ventilators; 11 in ICR.
    - COVID admissions on Sunday = 6.
    - COVID live discharges =53.
    - COVID-related deaths = 3.
- Total SBUH census = 621; 480 are Medicine/Surgery (109% capacity).
- COVID ICU census declining with continued high acuity.
- Large Number of RN procedural staffing returning next week.
- Resident deployment for COVID ended over the weekend.
- Department licensed independent practitioners (LIPs) redeployed to cover COVID ICU.

5. Vaccination Program Update (sources = CDC, NYS DOH, and NYT)

As of February 28, the status of COVID vaccine rollout is as follows.

COVID-19 Vaccine Distributed and Administration (as of 2/28/2021)

Region	Total Distributed	Total Administered	Percent Administered	Percent Population (one shot)	Percent Population (two shots)
US	96,402,490	75,236,003	78%	15%	7.5%
NY	5,757,205	4,225,250	73%	42%*	7.4%
LI	673,955**	554,640	82%	18%	6.8%

*New Yok state ranks #38 among states in percent population receiving at least one shot.
**LI distributed doses do not include those distributed by the Federal Long Term Care Facility program.

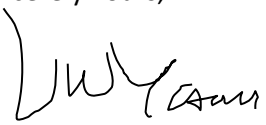
6. Viral variants found in New York state based on sequencing data by Wadsworth.

- The **B.1.1.7** variant, commonly referred to as the "**UK variant**," has a 35% to 75% increase in transmissibility over the predominant strain currently circulating. There have been at least 170 detections of this variant in New York.
- The **B.1.351** variant, commonly referred to as the "**South African variant**," has a 150% increase in transmissibility, and existing vaccines may not provide as much protection against it. There is increasing concern about infections with this strain, even if the individual had been infected with a different strain previously. There have been at least 2 detections of this variant in New York.
- The **P.1** variant, commonly referred to as the "**Brazilian variant**," is the one we know the least about, but preliminary data suggests an increase in transmissibility. There have been no findings of P.1 in New York, but it has been found in other states.
- The **B.1.526** variant has recently become prevalent in New York State, particularly in the New York City metropolitan area. This variant has mutations in the spike protein that contribute to immune escape from monoclonal antibodies as well as neutralizing antibodies in COVID-19 convalescent plasma.

7. The following two pages contain the recently published summary information on **the efficacy and safety** of the two currently available mRNA vaccines, **BNT162b2 (Pfizer)** and **mRNA-1273 (Moderna)**. A third vaccine, **Janssen Ad26.Cov2.S. (Johnson & Johnson)**, received emergency use authorization from the FDA on Saturday. This vaccine is given as a single dose and can be stored at standard refrigeration temperatures up to 3 months.

Once again, I hope the information provided here is useful to you in keeping track of the progression of the pandemic. Thank you for your attention and please stay safe.

Sincerely Yours,



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The NEW ENGLAND JOURNAL of MEDICINE
NJEM (2020) Dec 31 383, 2603-2615.

RESEARCH SUMMARY

Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine

F.P. Polack, et al. DOI: 10.1056/NEJMoa2034577

CLINICAL PROBLEM

Safe and effective vaccines to prevent severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and Covid-19 are urgently needed. No vaccines that protect against betacoronaviruses are currently available, and mRNA-based vaccines have not been widely tested.

CLINICAL TRIAL

A randomized, double-blind study of an mRNA vaccine encoding the SARS-CoV-2 spike protein.

43,548 participants ≥16 years old were assigned to receive the vaccine or placebo by intramuscular injection on day 0 and day 21. Participants were followed for safety and for the development of symptomatic Covid-19 for a median of 2 months.

RESULTS

Safety:
Vaccine recipients had local reactions (pain, erythema, swelling) and systemic reactions (e.g., fever, headache, myalgias) at higher rates than placebo recipients, with more reactions following the second dose. Most were mild to moderate and resolved rapidly.

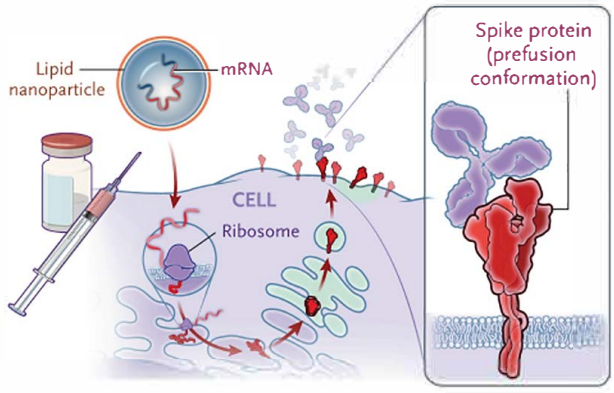
Efficacy:
The vaccine showed protection 7 days after the second dose; 95% efficacy was observed.

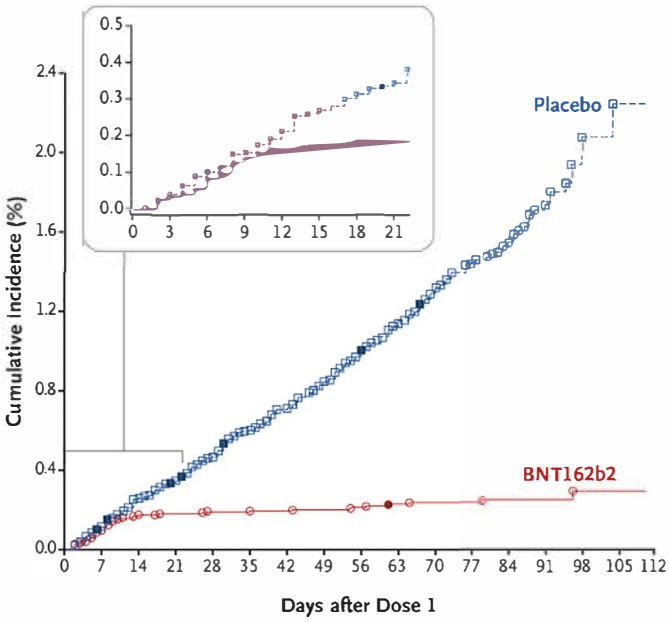
LIMITATIONS AND REMAINING QUESTIONS

Further study is required to understand the following:

- Safety and efficacy beyond 2 months and in groups not included in this trial (e.g., children, pregnant women, and immunocompromised persons).
- Whether the vaccine protects against asymptomatic infection and transmission to unvaccinated persons.
- How to deal with those who miss the second vaccine dose.

Links: Full article | Quick Take | Editorial





Vaccine efficacy of 95% (95% credible interval, 90.3 –97.6%)

CONCLUSIONS

Two doses of an mRNA-based vaccine were safe over a median of two months and provided 95% protection against symptomatic Covid-19 in persons 16 years of age or older.

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The NEW ENGLAND JOURNAL of MEDICINE
NEJM (2021) Feb 4 384, 403-416.

RESEARCH SUMMARY

Efficacy and Safety of mRNA-1273 SARS-CoV-2 Vaccine

L.R. Baden, et al. DOI: 10.1056/NEJMoa2035389

CLINICAL PROBLEM

The Covid-19 pandemic continues and expands. Additional data regarding vaccines to prevent symptomatic severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection are needed. The mRNA-1273 vaccine is a lipid-encapsulated mRNA vaccine encoding the prefusion stabilized spike protein of SARS-CoV-2.

CLINICAL TRIAL

A randomized, double-blind trial to evaluate the efficacy and safety of mRNA-1273.

30,420 participants ≥18 years old were assigned to receive either the vaccine or placebo in two intramuscular injections 28 days apart. Participants were followed for safety and the development of laboratory-confirmed, symptomatic Covid-19 over a median of 2 months after the second dose.

RESULTS

Safety:
Vaccine recipients had higher rates of local reactions (e.g., pain, erythema, swelling) and systemic reactions (e.g., headache, fatigue, myalgia) than placebo recipients. Most reactions were mild to moderate and resolved over 1–3 days.

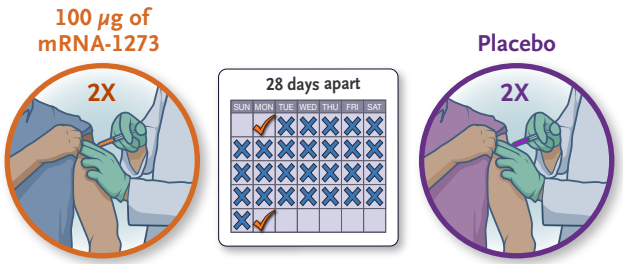
Efficacy:
The incidence of Covid-19 was lower among vaccine recipients than among placebo recipients as early as 14 days after the first dose. Protection in the vaccine group persisted for the period of follow-up.

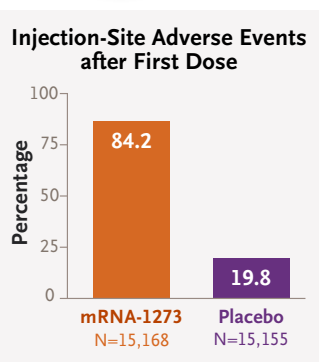
LIMITATIONS AND REMAINING QUESTIONS

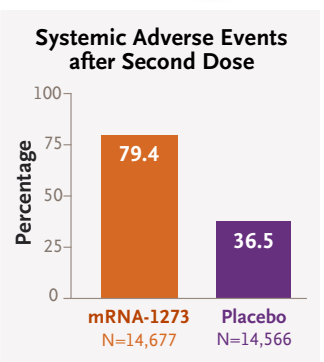
Further study is required to understand the following:

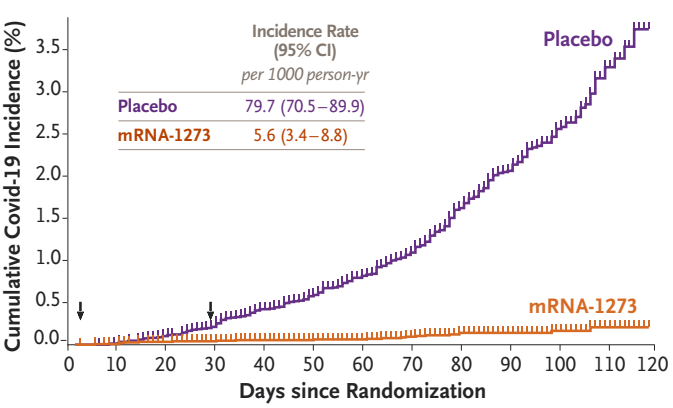
- Safety and efficacy over a longer period of time, in a larger population, and in pregnant women and children.
- Whether the vaccine protects against asymptomatic infection and transmission to unvaccinated persons.
- How to care for those who miss the second vaccine dose.

Links: Full article | NEJM Quick Take | Editorial









	mRNA-1273 Vaccine N=14,550	Placebo N=14,598
Symptomatic Covid-19	11	185
Severe Covid-19	0	30

Vaccine efficacy of 94.1% (95% CI, 89.3–96.8%; P<0.001)

CONCLUSIONS

Two doses of a SARS-CoV-2 mRNA-based vaccine were safe and provided 94% efficacy against symptomatic Covid-19 in persons 18 or older.

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