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 **The Indian EXPRESS**

'Booster dose may provide protection in subsequent waves'

As many as seven private hospitals began the drive of administering the precautionary Covid-19 vaccine to all those above the age of 18 from April 10 onwards. All those who have completed nine months after receiving the second dose are eligible.

Written by [Parul](#) | Chandigarh |
April 18, 2022 4:28:29 am



People are also now moving towards the booster dose of Covid vaccination, and experts have advised that it is only wise to get the dose. (PTI/File)

With a steady decline in the number of Covid cases, there has also been an ease in restrictions pertaining to Covid. People are also now moving towards the booster dose of Covid vaccination, and experts have advised that it is only wise to get the dose.

 **The Indian EXPRESS**

Coronavirus News Live Updates: India records 1,274 new Covid-19 cases, 1 death; active cases at 11,860

Covid-19 India Live News Updates: The recovery rate remained unchanged at 98.76 per cent and 928 recoveries were reported on Monday.

By: [Express Web Desk](#) | New Delhi |
Updated: April 19, 2022 12:20:23 pm



The daily positivity rate was at 0.31 per cent while the weekly positivity rate stood at 0.34 per cent. (Express Photo)

Covid-19 India Live Updates: A day after India saw a 90 per cent jump in daily cases, the country recorded

Continued in page No.14

“Considering the fact that vaccination protects from [Covid-19](#) disease severity, hospitalisation and death among patients, it is wise to get the booster dose after nine months of completion of two doses of Covid-19 vaccination. It is seen that immune response wanes off with time in about 9-12 months’ time which should be boosted up with another dose. There is evidence that since Covid vaccines also induce cell mediated immunity and offer cross-protective immunity against different variants of virus, the dose may provide protection in the subsequent waves,” said Prof Madhu Gupta, Department of Community Medicine and School of Public Health, PGI and Principal Investigator for the clinical trials of the Oxford Covid-19 vaccine at the institute.

As many as seven private hospitals began the drive of administering the precautionary Covid-19 vaccine to all those above the age of 18 from April 10 onwards. All those who have completed nine months after receiving the second dose are eligible.

Bedi Hospital, Sector 33, Healing Hospital, Sector 34, Chandigarh City Hospital, Santokh Hospital, Sector 38, Jindal IVF Memorial, Sector 20 D, Chaitanya Hospital, Sector 44 and Cloudnine Hospital Industrial Area, Phase II, presently have a stock of 1,700 doses, including Covishield and [Covaxin](#) vaccine. According to Dr Suman Singh, Director Health Services, the booster dose is important and the private hospitals can buy more stock from the central government, once the doses are over.

The cost of a booster dose at private hospitals is Rs 380.

According to Dr Ramneek Bedi, Advisor, World Medical Association, the vaccination programme of booster dose has started for people above 18 years and both on-the-spot and through online registration. But, at the moment, only 15 to 20 people are getting the dose in a day. “The number may increase in the coming days. At present the cases are fewer,

and so are the numbers. Many have also not completed nine months after the second dose,” said Dr Bedi.

“The booster dose should be taken by all as immunity generated by the second dose wanes. In some countries a second booster is also being considered. The only group which has not yet been cleared for boosters is young children (age limit varies). Serum Institute of India has suggested that booster dose should be given six months after the second dose instead of nine months,” said Prof Rakesh Kochhar, former head, Department of Gastroenterology, PGI.

 **The Indian EXPRESS**

Explained: Covid-19 cases rising in India, making sense of the trends

Daily new Covid-19 cases are rising in Delhi and Haryana, as are active cases nationwide. Lifting of restrictions could be a reason, but it's too early to worry about a fourth wave when no new variant has been detected.

Written by [Amitabh Sinha](#) | Pune |
Updated: April 19, 2022 11:29:39 am



Covid-19 testing in Jammu. Over 10 states and Union territories are currently reporting cases in single digits, many of them no cases at all. (PTI)

On Sunday, [Delhi reported 517 new cases of coronavirus](#), up almost four times since 131 at the

beginning of this month. In Haryana, the count has increased by four times until Sunday, although the number is less than that in Delhi. For the first time since the third week of January, active cases in the country have begun to rise again. The quantum of the rise is still very small, but the increasing trend has continued for four days now.



‘COVID spread’ increased by 500% in last 15 days among Delhi-NCR residents, claims survey

The ‘COVID network prevalence’ marks an over 500 per cent increase in the last 15 days, said LocalCircles, the firm that conducted the survey.

By: [PTI](#) | New Delhi |
April 17, 2022 5:00:16 pm



The survey received inputs from 11,743 residents located in all districts of Delhi and NCR. (Express Photo by Praveen Khanna)

The number of people in Delhi-NCR reporting someone getting COVID in their close social network has risen by 500% in the last 15 days, a survey has claimed.

Around 19 per cent residents of Delhi-NCR responding to a survey revealed they have one

or more individuals in their close network who has had COVID in the last 15 days.

The ‘COVID network prevalence’ marks an over 500 per cent increase in the last 15 days, said LocalCircles, the firm that conducted the survey. The survey received inputs from 11,743 residents located in all districts of Delhi and NCR, the firm said.

It asked the respondents: “How many individuals (including children) do you have in your close social network (family, friends, neighbours, colleagues) in Delhi-NCR that have had COVID in the last 15 days?” In response, the majority of the respondents, 70 per cent, said: “No one in the last 15 days”. An 11 per cent said “1 or 2”, eight per cent said “3-5”, and another 11 per cent “couldn’t say”.

The similar question the firm asked on April 2 had found that only three per cent residents had someone in their close social network who were infected with COVID in the last 15 days.

The survey results come as Delhi witnesses a sudden surge in the COVID cases.

Delhi on Saturday recorded 461 fresh COVID-19 cases — 5.33 per cent of all who were tested — and two deaths, according to the data shared by the city health department.

Around 67 per cent of the respondents were men, and 33 per cent were women, said LocalCircles.

It claimed that the survey was conducted among only validated citizens, who had to be registered with LocalCircles to participate in the survey.

India questions WHO's methodology to calculate COVID mortalities

The Union health ministry issued a statement in response to a New York Times article titled *India Is Stalling WHO's Efforts to Make Global Covid Death Toll Public*, saying the country has on several occasions shared its concerns with the global health body over the methodology used.

By: [PTI](#) | New Delhi |
Updated: April 17, 2022 3:44:52 pm

India on Saturday questioned the World Health Organisation's methodology to estimate [COVID-19](#) mortalities in the country, saying using such a mathematical modelling cannot be applied to estimate the death figures for such a vast nation of geographical size and population.

The Union health ministry issued a statement in response to a New York Times article titled *India Is Stalling WHO's Efforts to Make Global Covid Death Toll Public* dated April 16, saying the country has on several occasions shared its concerns with the global health body over the methodology used.



Bengaluru Live News: A medic collects swab sample of a man for Covid-19 test. (PTI Photo)

India has been in regular and in-depth technical exchange with the World Health Organisation

(WHO) on the issue. The analysis, which uses mortality figures directly obtained from Tier I set of countries, uses a mathematical modelling process for Tier II countries (which includes India), the ministry said.

Also Read: Speculative and misinformed: Govt on Lancet's report on high COVID deaths in India

"India's basic objection has not been with the result (whatever they might have been), but rather the methodology adopted for the same.

"The model gives two highly different sets of excess mortality estimates of when using the data from Tier I countries and when using unverified data from 18 Indian states. Such a wide variation in estimates raises concerns about validity and accuracy of such a modelling exercise," the ministry said in the statement.

According to the health ministry, India has shared its concerns with the methodology along with other member states through a series of formal communications, including six letters issued to WHO (on November 17, December 20, 2021; December 28, 2021; January 11, 2022; February 12, 2022; and March 2, 2022) and virtual meetings held on December 16, 2021, December 28, 2021, January 6, 2022, February 25, 2022 and the SEARO Regional Webinar held on February 10, 2022.

During these exchanges, specific queries have been raised by India along with other member states — China, Iran, Bangladesh, Syria, Ethiopia and Egypt — regarding the methodology, and use of unofficial sets of data.

The concern specifically includes on how the statistical model projects estimates for a country of geographical size and population of India and also fits in with other countries which have smaller population, the statement said.

Such one size fit all approach and models which are true for smaller countries like Tunisia may not

be applicable to India with a population of 1.3 billion.

"WHO is yet to share the confidence interval for the present statistical model across various countries," the statement said.

"India has asserted that if the model is accurate and reliable, it should be authenticated by running it for all Tier I countries and if the result of such exercise may be shared with all member states," it said.

The model assumes an inverse relationship between monthly temperature and monthly average deaths, which does not have any scientific backing to establish such peculiar empirical relationship.

India is a country of continental proportions, climatic and seasonal conditions vary vastly across different states and even within a state and therefore, all states have widely varied seasonal patterns.

"Thus, estimating national level mortality based on these 18 states data is statistically unproven," the statement stated.

The Global Health Estimates (GHE) 2019 on which the modelling for Tier II countries is based, is itself an estimate. The present modelling exercise seems to be providing its own set of estimates based on another set of historic estimates, while disregarding the data available with the country, the statement said.

"It is not clear as to why GHE 2019 has been used for estimating expected death figures for India, whereas for the Tier I countries, their own historical datasets were used when it has been repeatedly highlighted that India has a robust system of data collection and management," it stated.

In order to calculate the age-sex death distribution for India, WHO determined standard

patterns for age and sex for the countries with reported data (61 countries) and then generalised them to the other countries (incl. India) who had no such distribution in their mortality data.

Based on this approach, India's age-sex distribution of predicted deaths was extrapolated based on the age-sex distribution of deaths reported by four countries (Costa Rica, Israel, Paraguay and Tunisia), the ministry said in the statement.

Of the covariates used for analysis, a binary measure for income has been used instead of a more realistic graded variable. Using a binary variable for such an important measure may lend itself to amplifying the magnitude of the variable.

WHO has conveyed that a combination of these variables was found to be most accurate for predicting excess mortality for a sample of 90 countries and 18 months (January 2020-June 2021). The detailed justification of how the combination of these variables is found to be most accurate is yet to be provided by WHO, the statement noted.

"The test positivity rate for Covid in India was never uniform throughout the country at any point of time. But, this variation in Covid positivity rate within India was not considered for modelling purposes.

"Further, India has undertaken COVID-19 testing at a much faster rate than what WHO has advised. India has maintained molecular testing as preferred testing methods and used Rapid Antigen as screening purpose only. Whether these factors have been used in the model for India is still unanswered," the statement stated.

Containment involves a lot of subjective approach (such as school closing, workplace closing, cancelling of public events) to quantify itself. But, it is actually impossible to quantify

various measures of containment in such a manner for a country like India, as the strictness of such measures have varied widely even among the states and districts of India. Therefore, the approach followed in this process is very much questionable.

“In addition, subjective approach to quantify such measures will always involve a lot of biasness which will surely not present the real situation. WHO has also agreed about the subjective approach of this measure. However, it is still used,” the statement said.

According to the statement, during interactions with WHO, it has also been highlighted that some fluctuations in official reporting of COVID-19 data from some of the Tier I countries, including the USA, Germany, France, defied knowledge of disease epidemiology.

Further inclusion of a country like Iraq which is undergoing an extended complex emergency under Tier I countries raises doubts on WHO's assessment in categorisation of countries as Tier I/II and its assertion on quality of mortality reporting from these countries.

“While India has remained open to collaborate with WHO as data sets like these will be helpful from the policy making point of view, India believes that in-depth clarity on methodology and clear proof of its validity are crucial for policymakers to feel confident about any use of such data.,” the statement said.

“It is very surprising that while New York Times purportedly could obtain the alleged figures of excess COVID-19 mortality in respect to India, it was unable to learn the estimates for other countries!,” the statement added

India's 'warm' vaccine candidate effective against Delta, Omicron variants in mice: Study

By: [Lifestyle Desk](#) CSIRO's evaluation of the different Mynvax formulations will support the selection of the most suitable candidate and dosage for planned human clinical trials in India

By: [Lifestyle Desk](#) | | New Delhi |
April 16, 2022 5:30:45 pm



The vaccine candidate, by the Indian Institute of Science (IISc) in Bengaluru and biotech start-up company Mynvax, uses a part of the viral spike protein (Source: Getty Images/Thinkstock)

A heat-stable [COVID-19](#) vaccine that is being developed in India and does not need cold chain storage has generated strong antibody response against [coronavirus](#) variants, including Delta and [Omicron](#), according to a study on mice.

The vaccine candidate, by the Indian Institute of Science (IISc) in Bengaluru and biotech start-up company Mynvax, uses a part of the viral spike protein called the receptor-binding domain (RBD), which allows the virus to connect with the host cell to infect it.

The team, including researchers from Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO), noted that most

vaccines require refrigeration to remain effective. The heat-tolerant COVID-19 vaccine candidate can be stored at 37 degrees Celsius for four weeks and at 100 degrees Celsius for up to 90 minutes.

In comparison, the [Oxford-AstraZeneca vaccine](#), known as Covishield in India, must be kept between 2-8 degrees Celsius and the Pfizer preventive requires specialised cold storage at minus 70 degrees Celsius.

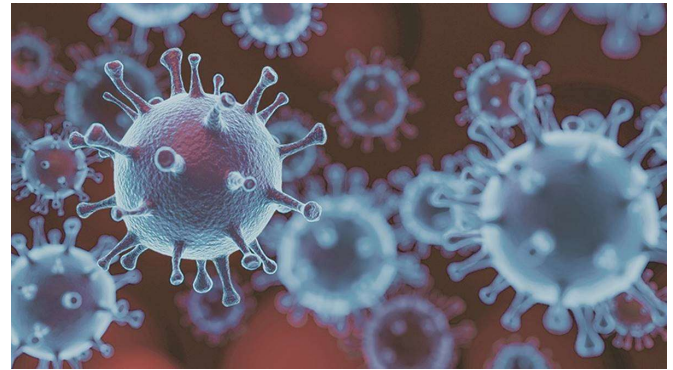
The latest study, published recently in the journal *Viruses*, assessed vaccinated mice sera (blood samples) for efficacy against key coronavirus variants, including Delta and [Omicron](#).

The study found that mice immunised with different formulations of the vaccine elicit high titres (unit to measure amount or concentration) of antibodies that neutralise SARS-CoV-2 variants VIC31 (reference strain), Delta and Omicron variants of coronavirus.

Compared to VIC31, there was an average 14.4-fold reduction in neutralisation against the Omicron variant for one formulation of the Mynvax vaccine and a 16.5-fold reduction for another formulation.

The corresponding values for reduction in neutralisation against [Delta variant](#) were 2.5 and 3, according to the researchers.

"The average 14.4- or 16.5-fold reduction in neutralisation against Omicron BA.1.1 for the monomeric and trimeric formulations, respectively, compares favourably with equivalent reductions observed with leading COVID-19 vaccines," the authors of the study noted.



The study found that similar to BA.1, BA.2 subvariant of Omicron appears to largely escape the immunity induced by COVID-19 vaccines. (Source: Getty Images/Thinkstock)

"Our findings suggest that monomeric formulations are suitable for upcoming Phase I human clinical trials and that there is potential for increasing the efficacy with vaccine matching to improve the responses against emerging variants," they wrote in the journal.

Monomeric and trimeric formulations refer to different shapes and combinations that can be used to develop the [vaccine](#).

CSIRO's evaluation of the different Mynvax formulations will support the selection of the most suitable candidate and dosage for planned human clinical trials in India.

The heat tolerance of the [vaccine](#) and its ability to withstand transient thermal shocks is particularly promising to address the vaccine inequity that affects most low- and lower-middle-income countries, the researchers added.

Over 10 billion doses of COVID-19 vaccines have been administered globally and 51 countries have reached more than 70 per cent of their population. However, this is only 11 per cent in low-income countries.

A new Covid-19 breath test holds promise, but wide use may still be far off

The machine required to conduct the tests is large — about the size of a carry-on suitcase — and can be used only by trained operators supervised by health care professionals.

By: [New York Times](#) |

Updated: April 16, 2022 6:55:34 pm



The device's pricing has not yet been finalized, but the co-founders said Friday they hope to be able to offer licenses or subscriptions that translate to a cost of about \$10 to \$12 per test. (The New York Times)

Written by Emily Anthes

[Coronavirus](#) infections might soon be flagged with a puff of exhaled breath, after the Food and Drug Administration on Thursday authorized the first breath-based [COVID-19](#) test in the United States.

The emergency-use authorization of the InspectIR COVID-19 Breathalyzer is a meaningful milestone in the yearslong quest to develop more breath-based diagnostics, as well as innovative new tests for COVID-19, experts said. And it is likely to be the first of many similar breath-based COVID-19 tests, experts said.

"I think this is a really exciting development for the entire field of breath analysis," said Cristina Davis, associate vice chancellor of Interdisciplinary Research and Strategic Initiatives at the University of California, Davis, who has been developing her own coronavirus test. "This is a huge step forward."

But breath tests still pose real-world challenges, and this particular device has several practical limitations, scientists said. The machine required to conduct the tests is large — about the size of a carry-on suitcase — and can be used only by trained operators supervised by health care professionals.

And many devices would be needed for wide-scale screening, given that each machine can process only about 20 samples an hour, according to InspectIR Systems, a small, five-person company based in Frisco, Texas.

The company cited high accuracy rates for its tests, but some experts said they wanted to examine the data underlying its application to the FDA before endorsing this test method.

It could take 10 to 12 weeks for the first devices to hit the market, John Redmond, co-founder of InspectIR Systems, said Friday. The company said it planned to produce about 100 devices a week, according to the FDA, but it was not immediately clear when production would reach that level.

InspectIR hopes to lease the analyzers to other businesses, including health care facilities and companies that run mobile or pop-up testing sites. They could be used to test travelers at airports or workers in an office building, the co-founders said, adding there has already been interest from professional sports leagues and companies in the travel industry.

The device's pricing has not yet been finalized, but the co-founders said Friday they hope to be

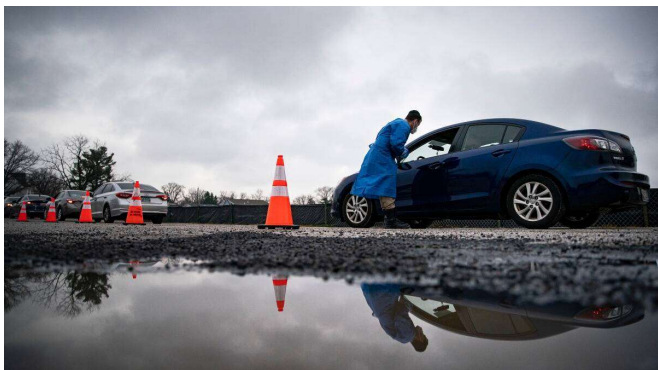
able to offer licenses or subscriptions that translate to a cost of about \$10 to \$12 per test.

The Indian EXPRESS

Is Covid-19 more dangerous than driving? How scientists are parsing Covid risks

Scientists are thinking anew about how to discuss Covid risks. Some have studied when people could unmask indoors if the goal was not only to keep hospitals from being overrun but also to protect immunocompromised people.

By: [New York Times](#) |
April 18, 2022 2:27:19 pm



A worker checks in people arriving at a drive-through COVID-19 testing site in Baltimore, Dec. 30, 2021. (Al Drago/The New York Times)

Written by Benjamin Mueller

Like it or not, the choose-your-own-adventure period of the pandemic is upon us.

Mask mandates have fallen. Some free testing sites have closed. Whatever parts of the United States were still trying to collectively quell the pandemic have largely turned their focus away from communitywide advice.

Now, even as case numbers begin to climb again and more infections go unreported, the onus has fallen on individual Americans to decide how much risk they and their neighbors face from the [coronavirus](#) — and what, if anything, to do about it.

For many people, the threats posed by COVID have eased dramatically over the two years of the pandemic. Vaccines slash the risk of being hospitalized or dying. Powerful new antiviral pills can help keep vulnerable people from deteriorating.

But not all Americans can count on the same protection. Millions of people with weakened immune systems do not benefit fully from vaccines. Two-thirds of Americans, and more than one-third of those 65 and older, have not received the critical security of a booster shot, with the most worrisome rates among Black and Hispanic people. And patients who are poorer or live farther from doctors and pharmacies face steep barriers to getting antiviral pills.

These vulnerabilities have made calculating the risks posed by the virus a fraught exercise. Federal health officials' recent suggestion that most Americans could stop wearing masks because hospitalization numbers were low has created confusion in some quarters about whether the likelihood of being infected had changed, scientists said.

"We're doing a really terrible job of communicating risk," said Katelyn Jetelina, a public health researcher at the University of Texas Health Science Center at Houston. "I think that's also why people are throwing their hands up in the air and saying, 'Screw it.' They're desperate for some sort of guidance."

To fill that void, scientists are thinking anew about how to discuss COVID risks. Some have studied when people could unmask indoors if the goal was not only to keep hospitals from being

overrun but also to protect immunocompromised people.

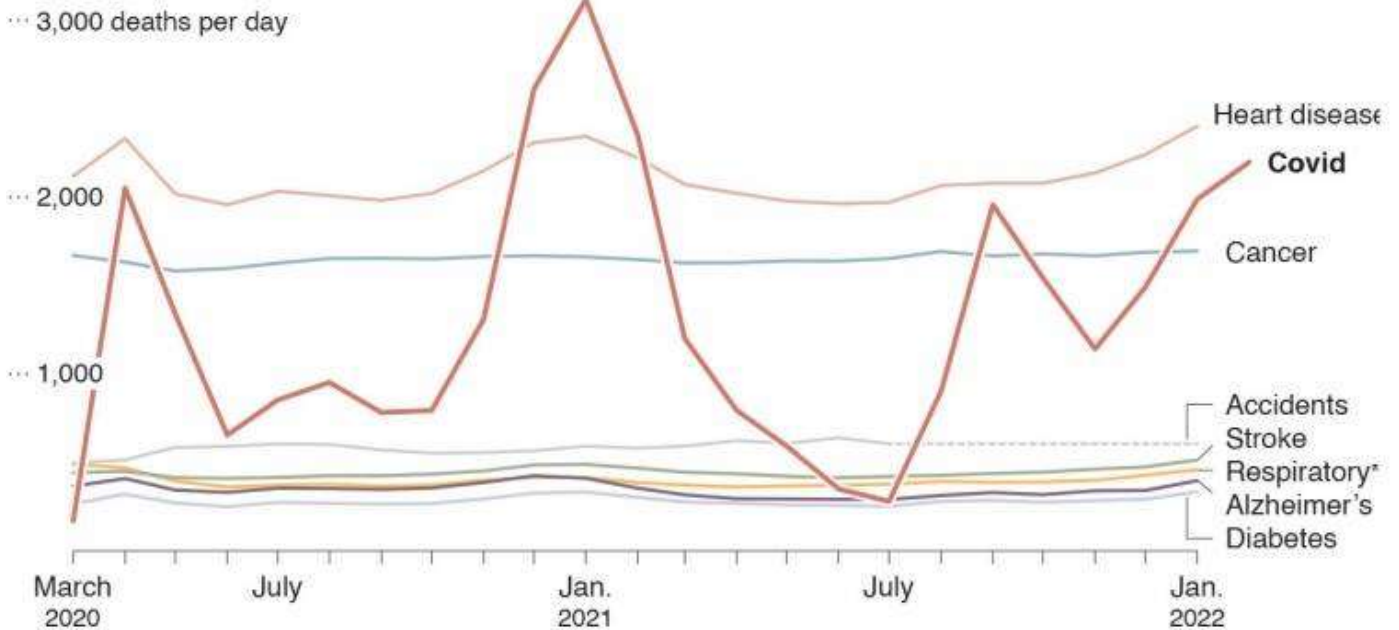
Others are working on tools to compare infection risks to the dangers of a wide range of activities, finding, for instance, that an average unvaccinated person 65 and older is roughly as

to make choices about keeping themselves and others safe, especially while the tools for fighting COVID remained beyond some Americans' reach.

"As much as we wouldn't like to believe it," said Anne Sosin, who studies health equity at

Causes of Death

Covid has been among the top three causes of death in the United States for most of the last two years.



Source: Peterson-KFF Health System Tracker. *Note: Chronic lower respiratory disease, including chronic obstructive pulmonary disease, chronic bronchitis, emphysema and asthma.

THE NEW YORK TIMES

The coronavirus remains new enough and its long-term effects unpredictable enough that measuring the threat posed by an infection is a thorny problem. (Source: The New York Times)

Dartmouth College, "we still need a society-wide approach to the pandemic, especially to protect those who can't benefit fully from vaccination."

likely to die from an [omicron](#) infection as someone is to die from using heroin for 18 months.

But how people perceive risk is subjective; no two people have the same sense of the chances of dying from a year and a half of heroin use (about 3%, by one estimate).

And beyond that, many scientists said they also worried about this latest phase of the pandemic heaping too much of the burden on individuals

Collective Metrics

While COVID is far from America's only health threat, it remains one of its most significant. In March, even as deaths from the first omicron surge plummeted, the virus was still the third leading cause of death in the United States, behind only heart disease and [cancer](#).

More Americans overall have been dying than would have in normal times, a sign of the virus's broad toll. As of late February, 7% more Americans were dying than would have been

expected based on previous years — a contrast with Western European nations like Britain, where overall deaths have lately been lower than expected.

How much virus is circulating in the population is one of the most important measures for people trying to gauge their risks, scientists said. That remains true even though case numbers are now undercounting true infections by a large margin because so many Americans are testing at home or not testing at all, they said.

Even with many cases being missed, the Centers for Disease Control and Prevention now places most of the Northeast at “high” levels of viral transmission. In parts of the region, case numbers, while far lower than during the winter, are nearing the peak rates of autumn's [delta variant](#) surge.

Much of the rest of the country has what the CDC describes as “moderate” levels of transmission.

COVID versus driving

Even two years into the pandemic, the coronavirus remains new enough, and its long-term effects unpredictable enough, that measuring the threat posed by an infection is a thorny problem, scientists said.

Some unknown number of people infected will develop long COVID, leaving them severely debilitated. And the risks of getting COVID extend to others, potentially in poor health, who may consequently be exposed.

Still, with far more immunity in the population than there once was, some public health researchers have sought to make risk calculations more accessible by comparing the virus with everyday dangers.

Estimating Risk

A micromort is a unit of measurement for risk. One micromort represents an estimated one-in-a-million chance of dying. Efforts to make the same estimates for Covid can vary widely depending on methodology.

Risk of dying from activity	Micromorts
Flying commercial 7,500 miles	1
Driving 250 miles	1
Motorcycling 25 miles	4
Scuba diving	5
Running a marathon	7
Skydiving	10
Anesthesia	10
Driving one year	100
Giving birth	210
Base jumping	430
Commercial fishing	1,020
Active service in Afghanistan, 2011	5,000
Baby's first year of life	6,600
Climbing Mt. Everest	12,000
Using heroin for one year	19,700

Sources: The Norm Chronicles, by Michael Blastland; Estimating Everyday Risk, by Hannah A.D. Keage and Tobias Loetscher THE NEW YORK TIMES

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Still, with far more immunity in the population than there once was, some public health researchers have sought to make risk calculations more accessible by comparing the virus with everyday dangers.

The comparisons are particularly knotty in the United States: The country does not conduct the random swabbing studies necessary to estimate infection levels, making it difficult to know what share of infected people are dying.

Cameron Byerley, an assistant professor in mathematics education at the University of Georgia, built an online tool called COVID-Taser, allowing people to adjust age, vaccine status and health background to predict the risks of the

virus. Her team used estimates from earlier in the pandemic of the proportion of infections that led to bad outcomes.

Her research has shown that people have trouble interpreting percentages, Byerley said. She recalled her 69-year-old mother-in-law being unsure whether to worry earlier in the pandemic after a news program said people her age had a 10% risk of dying from an infection.

Byerley suggested her mother-in-law imagine if, once out of every 10 times she used the restroom in a given day, she died. "Oh, 10% is terrible," she recalled her mother-in-law saying.

Byerley's estimates showed, for instance, that an average 40-year-old vaccinated over six months ago faced roughly the same chance of being hospitalized after an infection as someone did of dying in a car crash in the course of 170 cross-country road trips. (More recent vaccine shots provide better protection than older ones, complicating these predictions.)

For immunocompromised people, the risks are higher. An unvaccinated 61-year-old with an organ transplant, Byerley estimated, is three times as likely to die after an infection as someone is to die within five years of receiving a diagnosis of stage 1 breast cancer. And that transplant recipient is twice as likely to die from COVID as someone is to die while scaling Mount Everest.

With the most vulnerable people in mind, Dr. Jeremy Faust, an emergency physician at Brigham and Women's Hospital in Boston, set out last month to determine how low cases would have to fall for people to stop indoor masking without endangering those with extremely weakened immune systems.

He imagined a hypothetical person who derived no benefit from vaccines, wore a good mask, took hard-to-get prophylactic medication, attended occasional gatherings and shopped

but did not work in person. He set his sights on keeping vulnerable people's chances of being infected below 1% over a four-month period.

To achieve that threshold, he found, the country would have to keep masking indoors until transmission fell below 50 weekly cases per 100,000 people — a stricter limit than the CDC is currently using but one that he said nevertheless offered a benchmark to aim for.

"If you just say, 'We'll take masks off when things get better' — that's true I hope — but it's not really helpful because people don't know what 'better' means," Faust said.

This article originally appeared in The New York Times.

Continued from page no.1

Coronavirus News Live Updates: India records 1,274 new Covid-19 cases, 1 death; active cases at 11,860

..... 1,274 new Covid-19 cases and one death in the 24 hours ending 8 am Tuesday, according to the Union Ministry of Health and Family Welfare. Active cases currently stand at 11,860 and comprise 0.03 per cent of the total infections. The recovery rate remained unchanged at 98.76 per cent and 928 recoveries were reported on Monday. The daily positivity rate was at 0.31 per cent while the weekly positivity rate stood at 0.34 per cent.

Delhi's Covid-19 positivity rate on Monday jumped to 7.72 per cent as the city recorded 501 fresh cases, 16 less than the previous day, according to health department data. Officials said that last time the positivity rate was above seven per cent in the city on January 29 (7.4 per cent) and on January 28 (8.6 per cent). The Delhi

Disaster Management Authority (DDMA) will take stock of the situation and meet on April 20.

Meanwhile, noting that Kerala reporting Covid-19 data after a gap of five days has skewed India's key monitoring indicators of the pandemic such as cases, deaths and positivity rate, the Centre has asked the state to provide updated Covid-19 data daily.

INDIA'S COVID-19 VACCINATION COVERAGE
186.72 CRORE

Doses Given	1 st Dose	2 nd Dose	Precaution Dose
Healthcare Workers (HCWs)	1.04 Crore	1 Crore	46.14 Lakh
Frontline Workers (FLWs)	1.84 Crore	1.75 Crore	71.74 Lakh
Age Group 12-14 Years	2.47 Crore	4.69 Lakh	-
Age Group 15-18 Years	5.79 Crore	4.06 Crore	-
Age Group 18-44 Years	55.53 Crore	47.32 Crore	41.7 K
Age Group 45-59 Years	20.28 Crore	18.69 Crore	1.44 Lakh
Over 60 Years	12.68 Crore	11.64 Crore	1.35 Crore

*As on 19 April 2022

[India questions WHO's methodology to calculate Covid-19 mortalities](#)

India on Saturday questioned the World Health Organization's methodology to estimate [Covid-19](#) mortalities in the country, saying using such a mathematical modelling cannot be applied to estimate the death figures for such a vast nation of geographical size and population.

The Union health ministry issued a statement in response to a New York Times article titled India Is Stalling WHO's Efforts to Make Global Covid-19 Death Toll Public dated April 16, saying the country has on several occasions shared its

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India has been in regular and in-depth technical exchange with the World Health Organization (WHO) on the issue. The analysis, which uses mortality figures directly obtained from Tier I set of countries, uses a mathematical modelling process for Tier II countries (which includes India), the ministry said.



Covid cases up, UP & Haryana make masks must in districts next to Delhi

In UP, masks have been made mandatory in Gautam Buddha Nagar, Ghaziabad, Hapur, Meerut, Bulandshahr and Baghpat. Most of the new cases reported in the state on Sunday were from two of these districts.

By: [Express News Service](#) | New Delhi | Updated: April 19, 2022 7:11:29 am

WITH [Covid-19](#) cases rising again, the Uttar Pradesh and Haryana governments on Monday made masks mandatory in the districts surrounding Delhi. The Delhi Disaster Management Authority (DDMA) is also likely to discuss the mandatory use of masks in the capital at its meeting on Wednesday.

Delhi, UP and Haryana scrapped the fine for not wearing masks in public in the first week of April.

In UP, masks have been made mandatory in Gautam Buddha Nagar, Ghaziabad, Hapur, Meerut, Bulandshahr and Baghpat. Most of the new cases reported in the state on Sunday were from two of these districts. While 76 new cases were reported from Gautam Buddha Nagar, 33 were from Ghaziabad, 7 from Lucknow, 2 each

from Meerut and Bulandshahr, and one from Baghpat on Sunday. These are also the districts with the highest number of active cases. Of the 695 active cases in Uttar Pradesh, Gautam Buddha Nagar has 280, Ghaziabad 113, Lucknow 41, Meerut 11, Bulandshahr 5, and Baghpat 2.



Delhi, UP and Haryana scrapped the fine for not wearing masks in public in the first week of April. File

In Haryana, Health Minister Anil Vij said masks will be made mandatory in Gurgaon, Faridabad, Sonapat and Jhajjar. Of the 238 new cases reported in the state on Monday, 198 were from Gurgaon and 22 from Faridabad; more than half the districts in the state reported no new case.

Sources said genome sequencing of the samples tested in UP showed the [Omicron](#) variant, which drove the surge in January. According to sources, the [XE variant](#) (a recombinant variant of Omicron's sub lineages BA.1 and BA.2) hasn't been detected. The samples of new cases in Haryana have been sent for genome sequencing in Rohtak.

In Delhi, the number of new cases remained over 500 for two days in a row, with 501 new cases reported on Monday. The city has been seeing an increasing positivity rate as well — it was 7.72% on Monday. This could be due to a sharp drop in the number of tests after the January wave, with only symptomatic people getting tested.

New research: 4th dose gives extra protection from severe Covid-19, study finds

Rates of confirmed SARS-CoV-2 infection and severe Covid-19 found were lower after a fourth dose than after only three doses.

By: [Express News Service](#) | New Delhi |
Updated: April 16, 2022 8:29:54 am



A 85-year-old man receiving a booster vaccination in central Frankfurt. (AP Photo/File)

A 85-year-old man receiving a booster vaccination in central Frankfurt. (AP Photo/File)

Studies on various vaccines globally have shown that an additional dose provides extended protection against [Covid-19](#). Now, a study from Israel has found that four doses offer greater protection against severe disease than three, but the protection against infection itself was brief. India has started rolling out a 'precautionary' (third) dose for the general population.

ISRAEL DRIVE: Israel began giving the fourth dose to citizens over age 60 on January 2 this year. The vaccine in use there, from Pfizer BioNTech, uses the mRNA platform (in India, the two main vaccines, Covishield and [Covaxin](#), use different platforms). The study, conducted between January 10 and March 10 when

the [Omicron](#) variant was predominant, has been published in The New [England](#) Journal of Medicine.

The researchers used Israeli Health Ministry data on 12.5 lakh persons aged 60 or older. It estimated the rate of confirmed infection and severe Covid starting at 8 days after the fourth dose, compared with the rate among persons who had got only three doses, and among persons who had received a fourth dose 3 to 7 days earlier.

FINDINGS: Rates of confirmed SARS-CoV-2 infection and severe Covid-19 found were lower after a fourth dose than after only three doses. Protection against confirmed infection appeared short-lived, but protection against severe illness did not wane during the study period.

The unadjusted number of cases of severe Covid-19 per 100,000 person-days was: 1.5 in those who got four doses, 3.9 in those who got three doses, and 4.2 in the internal control group (fourth dose 3 to 7 days earlier). When adjusted, the rate of severe Covid in the fourth week after the fourth dose was lower than that in the three-dose group by a factor of 3.5, and was lower than that in the internal control group by a factor of 2.3.

Protection against severe illness did not wane during 6 weeks after the fourth dose. The adjusted rate was lower than in the three-dose group by a factor of 2.0 and was lower than that in the internal control group by a factor of 1.8. But this protection waned in later weeks, the study said.

Equitable distribution of Covid-19 vax remains a major concern, say experts

The spread of the Omicron BA2 variant underscores the importance of targeted immunisation and should focus all minds to ensure full course vaccinations are administered to the elderly, vulnerable populations.

By: [Express News Service](#) | Pune |
Updated: April 16, 2022 9:55:10 am



The Covid-19 vaccine manufacturing scale-up has seen 372 partnerships forged, of which 88 per cent (329) include technology transfer or fill and finish. (File)

Even as over 13 billion doses of [Covid-19](#) vaccines have been produced and 11 billion have been administered across the world, experts at a virtual briefing of the International Federation of Pharmaceutical Manufacturers Association (IFPMA) have said that equitable distribution of vaccines remains a major concern.

The spread of the [Omicron](#) BA2 variant underscores the importance of targeted immunisation and should focus all minds to ensure full course vaccinations are administered to the elderly, vulnerable populations.

Sufficient vaccines are available to continue inoculation programmes since more than 7.98 billion doses could be produced this year. More than half of the doses forecast to be produced this year will be Covid-19 vaccines produced by companies that are a member of IFPMA along with their partners, who are in technology transfer agreements with them.

"The trend that we predicted last year that Covid-19 vaccine supplies will outstrip global demand has been proven correct," said Thomas Cueni, Director General, IFPMA.

The Covid-19 vaccine manufacturing scale-up has seen 372 partnerships forged, of which 88 per cent (329) include technology transfer or fill and finish. About 51 manufacturing and production agreements were made in developing countries (LICs and LMICs).

In addition, several important commitments have been made by biopharmaceutical companies that are set to change Africa's vaccine manufacturing landscape in years to come. "To continue to advocate that vaccine equity is caused by scarcity of vaccines due to a lack of technology transfer flies in the face of the facts – both for the numbers of vaccines available but also for the way vaccines are made. The reasons for the woeful inequity are manifold but cannot be laid at the door of intellectual property," Cueni explained.

"We remain steadfast in our verdict that the proposed World Trade Organization's TRIPS waiver is a solution in search of a problem. It is a distraction and is misleading in its promise of equity for this pandemic. And it sends the wrong signal to innovators for future pandemics," he added.

At present, there are 271 vaccines in pre-clinical and 147 in clinical phases and there are 1,827 treatment candidates in clinical trials

Explained: அமெரிக்கா மற்றும் ஐரோப்பாவில் குழந்தைகளை பாதிக்கும் 'மர்ம' கல்லீரல் நோய்!

மர்மமான கல்லீரல் நோயின் பாதிப்புகள் அமெரிக்கா, இங்கிலாந்து உட்பட ஸ்பெயின், டென்மார்க் மற்றும் நெதர்லாந்து ஆகிய நாடுகளில் பதிவாகியுள்ளன.

Written by [WebDesk](#)
April 19, 2022 11:23:46 am

அமெரிக்கா மற்றும் இங்கிலாந்து உள்ளிட்ட நாடுகளில் உள்ள சுகாதார அதிகாரிகள், குழந்தைகளில் கண்டறியப்பட்ட மர்மமான கல்லீரல் நோய் குறித்து விசாரித்து வருகின்றனர். இது என்ன நோய் மற்றும் அதன் சாத்தியமான காரணங்கள் என்ன என்பது இங்கே!

மர்ம கல்லீரல் நோயின் பாதிப்புகள் எந்தெந்த இடங்களில் பதிவாகியுள்ளன?

மர்மமான கல்லீரல் நோயின் பாதிப்புகள் அமெரிக்கா, இங்கிலாந்து உட்பட ஸ்பெயின், டென்மார்க் மற்றும் நெதர்லாந்து ஆகிய நாடுகளில் பதிவாகியுள்ளன. ஆனால் இதுவரை, உயிரிழப்பு எதுவும் ஏற்படவில்லை.

ஏப்ரல் 6 ஆம் தேதி, இங்கிலாந்தின் சுகாதார பாதுகாப்பு நிறுவனம் (UKHSA), ஜனவரி 2022 முதல் 74 குழந்தைகளில் ஹெபடைடிஸ் (கல்லீரல் அழற்சி) பாதிப்புகள் பற்றி மருத்துவர்களும், விஞ்ஞானிகளும் ஆராய்ந்து வருவதாகக் கூறியது. அனைத்து ஹெபடைடிஸ் வைரஸ்களும் (A, B, C, D மற்றும் E) இந்த நோய்க்கான காரணங்களில் இருந்து விலக்கப்பட்டுள்ளதாக உலக சுகாதார நிறுவனம் கூறுகிறது. இந்த நிகழ்வுகளில் சிலவற்றில் அடினோவைரஸ்கள் மற்றும் SARS-CoV-2 கண்டறியப்பட்டதாக அது மேலும் கூறியது.

அமெரிக்காவில், அலபாமா மாகாணத்தில் அக்டோபர் 2021 முதல் 1-6 வயதுக்குட்பட்ட ஒன்பது குழந்தைகளிடையே இந்த பாதிப்புகள் பதிவாகியுள்ளன. இந்த குழந்தைகளில் சிலருக்கு சிறப்பு பிரிவுகளுக்கு மாற்றப்பட வேண்டிய தேவையும், ஆறு பேருக்கு கல்லீரல் மாற்று அறுவை சிகிச்சை செய்யப்பட்டது.

சில நோயாளிகள் SARS-CoV-2 /அல்லது அடினோவைரஸுக்கு' பாசிட்டிவாக சோதிக்கப்பட்டாலும், வைரஸ்களின் மரபணு குணாதிசயங்கள் நிகழ்வுகளுக்கு இடையில் ஏதேனும் சாத்தியமான தொடர்புகளைத் தீர்மானிக்க ஆய்வு மேற்கொள்ளப்பட வேண்டும் என்று உலக சுகாதார நிறுவனம் அறிவுறுத்துகிறது.

மர்ம நோய்க்கான சாத்தியமான காரணம் என்ன?

இந்த நிகழ்வுகளில், தொற்று ஏற்படுத்தும் வழக்கமான ஹெபடைடிஸ் (ஹெபடைடிஸ் ஏ மற்றும் ஈ) வைரஸ்கள் கண்டறியப்படவில்லை. அந்த நேரத்தில் மர்மமான நோய்க்கான சாத்தியமான காரணங்களில் ஒன்று அடினோவைரஸ்கள் எனப்படும் வைரஸ்களின் குழுவாக இருக்கலாம், இது ஜலதோஷம் போன்ற பொதுவான சுவாச நோய்களை ஏற்படுத்துகிறது என்று இங்கிலாந்தின் சுகாதார பாதுகாப்பு நிறுவனம் கூறியது.

அடினோவைரஸால் பாதிக்கப்பட்ட பெரும்பாலான மக்கள் எந்த பெரிய சிக்கல்களும் இல்லாமல் நோயிலிருந்து மீண்டு வருகிறார்கள். இருப்பினும், அரிதாக, ஹெபடைடிஸ் என்பது வைரஸால் ஏற்படும் ஒரு அரிய சிக்கலாக இருக்கலாம். அசுத்தமான மேற்பரப்புகளைத் தொடுவதன் மூலமும், சுவாசப் பாதை வழியாகவும் அடினோவைரஸ்கள் மனிதனுக்கு மனிதனுக்குப் பரவுவது சாத்தியமாகும்.

கல்லீரலை பாதிக்கும் ஹெபடைடிஸ், பல காரணங்களால் ஏற்படலாம் மற்றும் சிகிச்சையளிக்கப்படாவிட்டால் உயிருக்கு ஆபத்தானது.

கருமையான சிறுநீர், வெளிர் மற்றும் சாம்பல் நிற மலம், தோல் அரிப்பு, மஞ்சள் நிற கண்கள் மற்றும் தோல், அதிக உடல் வெப்பநிலை, தசை

மற்றும் மூட்டு வலி மற்றும் பசியின்மை ஆகியவை இதன் அறிகுறிகளாகும்.

அலபாமாவின் சுகாதாரத் துறை வெள்ளிக்கிழமை வெளியிட்ட அறிக்கையில், குழந்தைகள்' இரைப்பை குடல் நோய் மற்றும் கல்லீரல் செயலிழப்பு உள்ளிட்ட பல்வேறு அளவிலான கல்லீரல் பாதிப்பு அறிகுறிகளுடன் தங்களை வெளிப்படுத்தியதாகக் கூறியது. அவர்களின் பகுப்பாய்வுகளின்படி, அடினோவைரஸ் 41 உடன்' ஹெபடைடிஸ் தொடர்பு இருக்கலாம்.

ஹெபடைடிஸ் ஒரு அடினோவைரஸால் ஏற்படுகிறது என்ற கோட்பாட்டை அறிவியல் இதழ் அங்கீகரித்துள்ளது, ஏனெனில் இங்கிலாந்தில் பாதிக்கப்பட்ட குழந்தைகளில் பாதி பேர் அதற்கு நேர்மறை சோதனை செய்துள்ளனர்.

“ஆனால் இதுவரை, மர்மத்தைத் தீர்க்க முடியாத அளவுக்கு ஆதாரங்கள் மிக மெல்லியதாக உள்ளதாக ஆராய்ச்சியாளர்கள் மற்றும் மருத்துவர்கள் கூறுகிறார்கள்.” என்று பத்திரிகை அறிக்கை தெரிவித்தது.



India's 'warm' vaccine candidate effective against Delta, Omicron variants in mice: Study

CSIRO's evaluation of the different Mynvax formulations will support the selection of the most suitable candidate and dosage for planned human clinical trials in India

By: [Lifestyle Desk](#) | New Delhi | April 16, 2022 5:30:45 pm

A heat-stable [COVID-19](#) vaccine that is being developed in India and does not need cold chain storage has generated strong antibody response against [coronavirus](#) variants, including

Delta and [Omicron](#), according to a study on mice.



The vaccine candidate, by the Indian Institute of Science (IISc) in Bengaluru and biotech start-up company Mynvax, uses a part of the viral spike protein (Source: Getty Images/Thinkstock)

The vaccine candidate, by the Indian Institute of Science (IISc) in Bengaluru and biotech start-up company Mynvax, uses a part of the viral spike protein called the receptor-binding domain (RBD), which allows the virus to connect with the host cell to infect it.

The team, including researchers from Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO), noted that most vaccines require refrigeration to remain effective. The heat-tolerant COVID-19 vaccine candidate can be stored at 37 degrees Celsius for four weeks and at 100 degrees Celsius for up to 90 minutes.

In comparison, the [Oxford-AstraZeneca vaccine](#), known as Covishield in India, must be kept between 2-8 degrees Celsius and the Pfizer preventive requires specialised cold storage at minus 70 degrees Celsius.

The latest study, published recently in the journal *Viruses*, assessed vaccinated mice sera (blood samples) for efficacy against key coronavirus variants, including Delta and [Omicron](#).

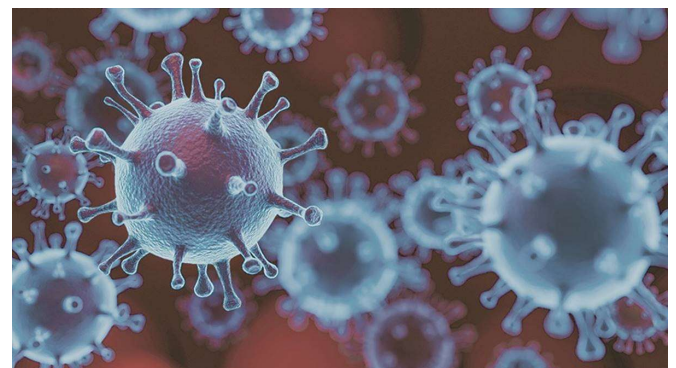
The study found that mice immunised with different formulations of the vaccine elicit high

titres (unit to measure amount or concentration) of antibodies that neutralise SARS-CoV-2 variants VIC31 (reference strain), Delta and Omicron variants of coronavirus.

Compared to VIC31, there was an average 14.4-fold reduction in neutralisation against the Omicron variant for one formulation of the Mynvax vaccine and a 16.5-fold reduction for another formulation.

The corresponding values for reduction in neutralisation against [Delta variant](#) were 2.5 and 3, according to the researchers.

"The average 14.4- or 16.5-fold reduction in neutralisation against Omicron BA.1.1 for the monomeric and trimeric formulations, respectively, compares favourably with equivalent reductions observed with leading COVID-19 vaccines," the authors of the study noted.



The study found that similar to BA.1, BA.2 subvariant of Omicron appears to largely escape the immunity induced by COVID-19 vaccines. (Source: Getty Images/Thinkstock)

"Our findings suggest that monomeric formulations are suitable for upcoming Phase I human clinical trials and that there is potential for increasing the efficacy with vaccine matching to improve the responses against emerging variants," they wrote in the journal.

Monomeric and trimeric formulations refer to different shapes and combinations that can be used to develop the [vaccine](#).

CSIRO's evaluation of the different Mynvax formulations will support the selection of the most suitable candidate and dosage for planned human clinical trials in India.

The heat tolerance of the [vaccine](#) and its ability to withstand transient thermal shocks is particularly promising to address the vaccine inequity that affects most low- and lower-middle-income countries, the researchers added.

Over 10 billion doses of COVID-19 vaccines have been administered globally and 51 countries have reached more than 70 per cent of their population. However, this is only 11 per cent in low-income countries.

The Indian EXPRESS

New research: Heart inflammation risk after Covid-19 jabs is very low, finds study

The researchers found no statistically significant difference between the incidence of myopericarditis following Covid-19 vaccination and other vaccinations (56 per million).

Written by [Anuradha Mascarenhas](#) | Pune
Updated: April 13, 2022 8:14:45 am

The overall risk of heart inflammation (myopericarditis) following [Covid-19](#) vaccination is very low, affecting 18 people per million vaccine doses, a study in *The Lancet Respiratory Medicine* has found. The researchers found no statistically significant difference between the incidence of myopericarditis following Covid-19 vaccination and other vaccinations (56 per million).



A health worker vaccinates a beneficiary in Navi Mumbai. (Express Photo: Amit Chakravarty)

THE CONDITION: Myopericarditis is a condition that causes inflammation of the heart muscle and, in some cases, severe permanent heart damage. It is most often caused by viruses, but in rare instances can also occur after vaccination .

DATABASE: The researchers looked at more than 400 million doses from global databses, and analysed more than 20 studies with reported incidences of myopericarditis following any type of vaccination between January 1947 and December 2021 .

Of these, 11 studies looked specifically at Covid-19 vaccinations, covering over 395 million doses – nearly 300 million of which were mRNA vaccines. The rest of the studies covered other vaccinations such as smallpox (2.9 million doses), influenza (1.5 million doses), and others (5.5 million doses).

FINDINGS: Among COVID-19 vaccinations, the risk of myopericarditis (18 cases per million dases) was higher for those who received mRNA vaccines (22.6 per million) compared to non-mRNA vaccines (7.9 per million). Reported cases were also higher in people below 30 (40.9 per million), males (23 per million), and following the second dose (31.1 per million).

“The occurrence of myopericarditis following non-Covid-19 vaccination could suggest that myopericarditis is a side effect of the

inflammatory processes induced by any vaccination and is not unique to the SARS-CoV-2 spike proteins in Covid-19 vaccines or infection," said co-author Dr Jyoti Somani, an infectious diseases specialist at National University Hospital, Singapore.



Explained: What is the 'mystery' liver disease affecting children in the US and Europe?

Cases of this mysterious liver disease have been reported in Spain, Denmark and the Netherlands, besides the US and UK. No deaths have occurred yet.

By: [Explained Desk](#) | New Delhi |
Updated: April 19, 2022 7:11:41 am

Health officials in countries, including the US and the United Kingdom, are investigating cases of a [mysterious liver disease](#) detected in children. We take a look at what the disease is all about and the possible causes of it.

Which places have reported cases of the mystery liver illness?

Cases of this mysterious liver disease have been reported in Spain, Denmark and the Netherlands, besides the US and UK. So far, no deaths have been reported.

On April 6, the UK's Health Security Agency (UKHSA) stated that doctors and scientists were investigating about 74 cases of hepatitis (liver inflammation) in children since January 2022. The WHO says that all the hepatitis viruses (A, B, C, D and E) have been excluded as causes of the

disease. It added that adenoviruses and SARS-CoV-2 were detected in some of these cases.

In the US, the state of Alabama has reported cases among nine children between the ages 1-6 years since October 2021.

The WHO has said that some of these children required transfer to specialist units and six underwent liver transplants. So far, the WHO advises: "While some cases tested positive for SARS-CoV-2 and/or adenovirus, genetic characterization of viruses should be undertaken to determine any potential associations between cases."

What could be a possible cause of the mystery illness?

Among these cases, the usual viruses that cause infectious hepatitis (hepatitis A and E) were not detected. The UKHSA also said at the time that one of a number of potential causes of the mysterious disease could be a group of viruses called adenoviruses, which cause common respiratory illnesses such as the common cold.

Most people infected with an adenovirus recover from the illness without any major complications. However, rarely, hepatitis can be a rare complication resulting from the virus. Human to human transmission of adenoviruses is possible by touching contaminated surfaces and through the respiratory route.

Hepatitis, which affects the liver, can occur because of a number of reasons and can be life threatening if not treated. Its symptoms include dark urine, pale and grey-coloured stool, itchy skin, yellowing of the eyes and skin, high temperature, muscle and joint pain and loss of appetite among others.

Alabama's health department said in a statement released Friday that the children presented themselves with symptoms of gastrointestinal illness and varying degrees of

liver injury including liver failure. As per their analyses, there could be a possible association of the hepatitis with Adenovirus 41.

Science magazine endorsed the theory that the hepatitis is being caused by an adenovirus, since upto half of the children infected in the UK have tested positive for it. "But so far, the evidence is too thin to resolve the mystery, researchers and physicians say," the magazine reported.



Different strains of tuberculosis can attack lungs, finds study

It could help break the cycle of rapid transmission of Tb, the second leading infectious killer in the world after covid-19, according to the World Health Organisation. The disease mechanisms uncovered in the study could also provide answers about why treatments work in some patients but not others.

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ANI | , New Brunswick (new Jersey)

According to a new study, two strains of bacteria causing [tuberculosis](#) have only minor genetic differences but attack the [lungs](#) in a completely different way.

The findings of the study were published in the journal, 'Nature Communications'.

It could help break the cycle of rapid transmission of Tb, the second leading [infectious](#) killer in the world after covid-19, according to the World Health Organisation. The disease mechanisms uncovered in the study could also provide answers about why treatments work in some patients but not others

"These findings implicate strain differences as having an important [effect](#) on the response of lung alveolar macrophages and how tuberculosis manifests itself in the body and how it is transmitted," said study author Padmini Salgame, associate director of the Public Health Research Institute at Rutgers New Jersey Medical School.

"We also believe it will inform anyone hoping to devise more effective treatments," she added.

To better understand transmission and how it relates to treatment outcomes, the researchers focused on the impact these two strains of Mycobacterium tuberculosis have on the lungs. Though the strains differ slightly in their gene sequences, one is regarded as "high transmission" because it spreads easily and the second as "low transmission" because it does not infect as readily. TB bacteria are spread through the air when persons with TB disease in their lungs cough, speak or even sing.

Using strains identified in a Rutgers collaborative study with researchers at Nucleo de Doencas Infecciosas (NDI) in Brazil comparing "high transmission" and "low transmission" households of people with TB, the scientists studied the immune pathways that the pathogen triggered in the lungs of the infected mice.

In mice infected with the high transmission strain, their lungs quickly formed clumps of immune cells known as granulomas that encased the invading bacteria, stopping the development of a more virulent disease. In most cases, the granulomas broke down eventually, spilling their contents. Researchers believe that if the escaped bacteria are close enough to the bronchial airway, they could be expelled into the air as infectious aerosols.

"By inducing granulomas with the potential to develop into cavitory lesions that aid bacterial escape into the airways, high transmission M. tuberculosis strains are poised for greater

transmissibility," said Salgame, who is also a professor in the Department of Medicine.

In mice infected with the low transmission strain, the invading bacteria were slow to activate the lung alveolar macrophages and ended up producing patches of inflammation within the lungs that did not allow the bacteria to escape into airways and allowed them to conglomerate and intensify the infection, Salgame said.

The discovery of the different trajectories taken by the strains gives hope to new approaches to stopping transmission and treatment.

"We have long known that some individuals with TB are more infectious than others," Salgame said.

"However, until now, the mechanisms responsible for this variability in transmission between individuals with TB have not been well understood," she concluded.



Thane district sees decline in TB cases with area becoming green zone

Following the State Health Department's analysis related to screening and treatment of tuberculosis, Thane District's rural areas were declared to be in the red zone due to poor performances related to TB awareness in February this year; the cases saw a decline after various campaigns and awareness programmes

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By Ankita G Menon, Thane

Thane district has seen a decline in tuberculosis (TB) cases with the district now in the green zone from its previous red zone.

Following the State Health Department's analysis related to screening and treatment of TB, Thane District's rural areas were declared to be in the red zone due to poor performances related to TB awareness in February this year. The cases saw a decline after various campaigns and awareness programmes.

In 2020, rural areas of Thane district recorded 2,162 TB cases whereas in 2019, it was 3,525. The pandemic diverted the focus from TB to Covid. Moreover, as the symptoms were similar, fewer people came forward to test for TB.

"Due to the lockdown and Covid protocols, it was difficult to reach out to those who were undergoing TB treatment in rural areas of the district. Despite being part of the green zone, we are continuing with our awareness campaigns. Next week, in a joint effort with private hospitals and our volunteers, screening and testing for TB will be undertaken in Bhiwandi. Those who have been detected with TB will also be guided regarding availability of free medications and treatments with the government," said Dr AS Munjal, district medical officer for TB, Thane rural.

The rural areas were declared to be a part of the red zone as there was no screening or testing for TB conducted on a regular basis, and hidden patients existed. Now that the Zilla Parishad has encouraged door-to-door screening and awareness through various medical camps, the rural areas are a part of the green zone.

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