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The Indian EXPRESS

Explained: What is endemic stage of a pandemic, and how far is India from getting there?

The UK has eased restrictions while new measures in California approach Covid-19 as being endemic. What does endemic stage mean, how far is India from getting there, and what changes in control measures?

Written by Anonna Dutt | New Delhi |
Updated: February 23, 2022 8:41:11 am

Some experts agree that precautions such as masking should remain in place. (AP)

People with Covid-19 will no longer legally need to isolate in United Kingdom and the tests are likely to be scaled back as part of a plan to live with Covid-19. California too has announced a shift to an endemic approach to Covid-19 that will focus on watching out for new variants and reacting quickly to outbreaks rather than issuing mandates for masking

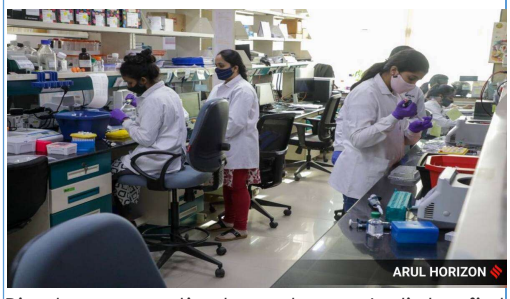
The Indian EXPRESS

GEMCOVAC-19: India's own mRNA Covid vaccine slow in making, but steady at higher temperature

If the mRNA technology has been a gamechanger in how vaccines are made, what has been remarkable is the painstaking manner in which scientists, biotechnologists, pharmacists, analytical and production personnel have laboured to come out with the Indian version of mRNA Covid-19 vaccine.

Written by Anuradha Mascarenhas | Pune
Updated: February 28, 2022 10:23:30 am

Scientists at work at Gennova



Biopharmaceuticals, where India's first homegrown mRNA covid vaccine was made.

The vials are thoroughly washed with water for injection – (WFI) the purest form of water – .....

Continued in page No.4

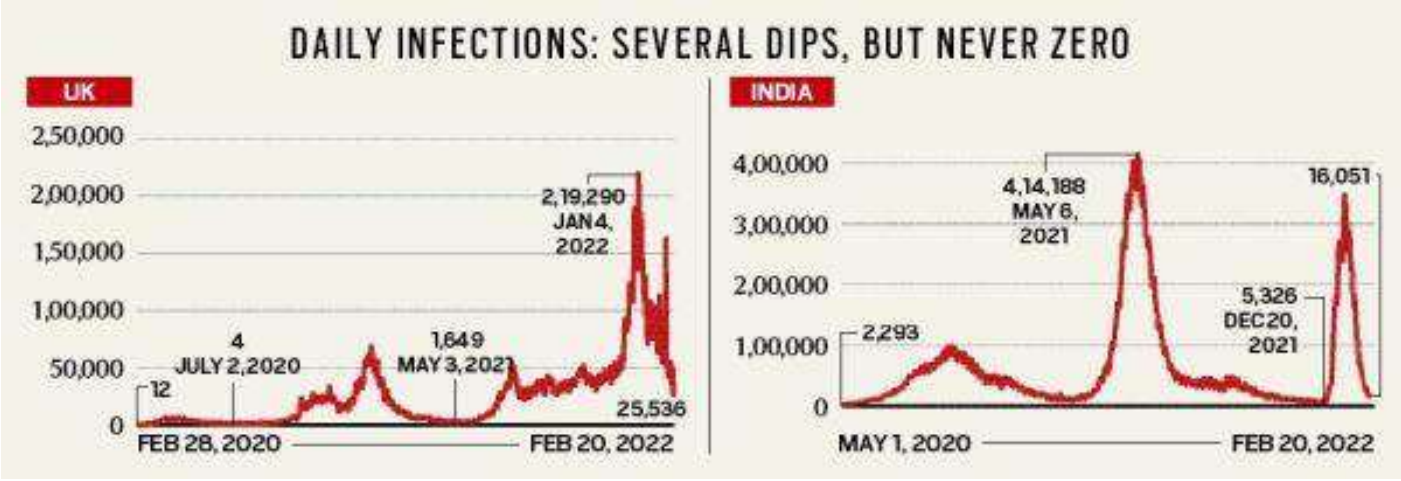
indoors.

A look at what an endemic stage of Covid-19 will look like, how the world will reach there, and what it will mean for control measures such as masking, social distancing in India and vaccination globally:

What does endemic stage mean, and are we there yet?

An infection becomes endemic when the rates become static in a given geographical location, meaning that the pathogen causing the disease — SARS-CoV-2 in this case — is likely to remain in circulation without causing large outbreaks as witnessed over the last two years.

Although the number of infections in India is consistently declining, experts say they cannot give a deadline on when the disease will become endemic. It will depend on the number of susceptible people in the population, vaccination rates, and emergence of new variants that are able to evade the immune response.



Daily infections: several dips, but never zero

"Endemic means that the virus will continue circulating in the population and there will be periodic ups and downs when the conditions are favourable to the virus and less favourable to humans. Take, for example, flu which goes up in the winters and when the season is changing because of lower immunity in people or dengue which goes up after monsoons because of the availability of vectors. Covid-19 also may become seasonal and cause disease in the vulnerable," said Dr Pramod Garg, director, Translational Health Science and Technology Institute (THSTI)-Faridabad.

An important determinant for whether we can "technically" say that the disease is endemic would be a representative sero-survey (population-level survey of antibodies against SARS-CoV-2) and laboratory susceptibility studies, said Dr Amit Singh, associate professor, Centre for Infectious Disease at the Indian Institute of Science-Bangalore.

"We can say that the disease is endemic only after we see that a majority of the people have immunity against the infection either through previous exposure or vaccination. If a representative sero-survey shows over 90% positivity, we can assume that. But we also need to see whether these antibodies can effectively protect against the current variants and a neutralisation study would tell us that," Dr Singh said.

Does it mean we are safer?

A disease becoming endemic does not mean it is harmless. In an editorial in Nature, Oxford University professor on viral evolution Dr Aris Katzourakis argued, "A disease can be endemic and both widespread and deadly. Malaria killed

more than 600,000 people in 2020. Ten million fell ill with tuberculosis that same year and 1.5 million died. Endemic certainly does not mean that evolution has somehow tamed a pathogen so that life simply returns to normal."

He added, "Nor does it suggest guaranteed stability: there can still be disruptive waves from endemic infections, as seen with the US measles outbreak in 2019." Researchers are also wary of new variants emerging. Another Nature article on the virus's future course said, "The sky-high circulation of the Delta variant and the rise of Omicron — aided by inequitable vaccine roll-outs to lower-income countries and minimal control measures in some wealthy countries such as the United States and the United Kingdom — offer fertile ground for SARS-CoV-2 to take additional surprising evolutionary leaps."

How will control measures change if the disease becomes endemic?

Although experts have pushed for easing of restrictions, they say that there is a need to maintain high levels of testing and good genomic surveillance.

"We need to maintain high levels of testing and ensure that the cases get reported. Testing is quite less in smaller cities and villages and with home testing becoming available even in bigger cities like Delhi, people are not reporting if they test positive. Testing can tell us whether infections are going up or down," said Dr Singh. He also insisted on good genomic surveillance.

Talking about genomic surveillance when the disease becomes endemic, Dr Rakesh Mishra, former director of Centre For Cellular And Molecular Biology-Hyderabad which is one of the ten central labs of India's genomic surveillance consortium, said, "It is not always about the numbers. During the peak of a wave, a lot of sequencing makes no sense. It is more important in a period of lull. That is the time to not relax."

The best way to find new variants, he said, was to "One, conduct a general survey; sequence probably 1% or 2% of the positive cases. Two, wherever there are more cases from an area, we should sequence immediately. Third, we need to keep a very close eye on hospitalised cases. The sample of any person admitted to the hospital with positive Covid-19 should be certainly sequenced. If they needed to come to the hospital with severe symptoms, it may be because of a new variant."

Should we continue to mask up?

"There is no real benefit in declaring that the disease is now endemic," Dr Mishra said. "What is the hurry to remove restrictions? If we live with the new normal, we will be protecting the economy as well. We don't know when a new variant might emerge. If we look at omicron, it did not cause severe disease in India but in the US it led to high rates of hospitalisations and deaths. US is a smaller country, it is a richer country. We cannot afford to do what they did. We have all suffered, let us not fall into the ditch of a new variant," he said.

Other experts agreed that the precautions should remain in place.

Another concern with officially declaring Covid-19 endemic would be fewer resources being made available for measures such as vaccination. "There is a vaccine inequity; not all countries are vaccinated. If the disease is declared endemic, then the 10% vaccination rate in some countries will remain 10%' nobody will take care of that," said Dr Singh.

"The more a virus replicates, the greater the chance that problematic variants will arise, most probably where spread is highest. The Alpha variant was first identified in the United Kingdom, Delta was first found in India and Omicron in

southern Africa — all places where spread was rampant," Dr Katzourakis wrote in the Nature editorial.

The Indian EXPRESS

Daily Covid infections drop below 10,000; active cases now at over 1.02 lakh

With this, India's daily positivity rate stands at 1.11 per cent. The total number of recoveries rose to more than 4.23 crore (4,23,07,686) after 16,765 Covid patients recovered on Sunday.

By: Express Web Desk | New Delhi |
Updated: February 28, 2022 9:30:39 am

Health workers administer Covid-19 vaccine doses to elders at the IIT-Madras campus, in Chennai (PTI, File)

Daily cases of Covid-19 cases dropped below 10,000 on Monday as India recorded 8,013 infections in the last 24 hours, according to data released by the Union Ministry of Health and Family Welfare. Active cases presently stand at 1,02,601, comprising 0.24 per cent of the country's total caseload.

With this, India's daily positivity rate stands at 1.11 per cent. The total number of recoveries rose to more than 4.23 crore or 4,23,07,686 after 16,765 Covid-19 patients recovered on Monday.

Meanwhile, with 119 patients succumbing to the deadly disease, India's death toll rose to 5,13,843. The total number of vaccinations administered as part of the nationwide inoculation drive rose to 1,77,50,86,335.

Classes 1-7 to return to school in Odisha

Students of classes 1-7 in Odisha will return to school Monday after nearly two years with a week-long rapport building exercise, PTI reported.

The government had announced earlier that the schools would reopen from February 14, but had to defer the reopening after district collectors sought additional time for undertaking cleaning, bush cutting and minor repairs.

Class 1 student develops Covid symptoms in Delhi

A private school in North Delhi decided to switch back to online classes after a class 1 student developed mild Covid-like symptoms, PTI reported.

The student had on Thursday attended the school at Model Town, but his parents informed the administration on Saturday that he had developed Covid-like symptoms like headache and pain, it said.

Continued from page no.1

GEMCOVAC-19: India's own mRNA Covid vaccine slow in making, but steady at higher temperature

……temperature is set at 350 degree C before being filled with the vaccine in a high speed filling machine and getting loaded into the lyophiliser. It is exactly at this stage that scientists

with Pune's Gennova Biopharmaceuticals, after multiple trials, arrived at the key formulation that would ensure the country's first homegrown mRNA Covid- 19 vaccine is heat stable.

"Yes, we have been the slowest in the process but the main aim was to ensure that the vaccine, unlike those in the West which have to be stored at sub-zero temperatures, can be stored between 2 to 8 degree celsius. We had to innovate to suit our local needs as to what is affordable and deployable. Our vaccine GEMCOVAC 19 can be stored at the temperature of a standard medical refrigerator," said Dr Sanjay Singh, CEO of Gennova Biopharmaceuticals.

If the mRNA technology has been a gamechanger in how vaccines are made, what has been remarkable is the painstaking manner in which scientists, biotechnologists, pharmacists, analytical and production personnel at the firm have laboured for a year and a half to come out with the Indian version of mRNA Covid-19 vaccine. This process may have taken this long but for Dr Singh, a biochemist who had worked on malaria vaccines at the US-based National Institutes of Health, and the team, designing a vaccine using the same mRNA technology against the Omicron variant barely took 60 days.

"mRNA technology has an advantage where the raw material can be kept and a vaccine can be produced in a month or two or three if there is a new variant – That is precisely what we did with Omicron – we came out with the vaccine in 60 days," Dr Singh adds.

The excitement is visible at the Research and Development building of Gennova Biopharmaceuticals at Hinjewadi. "Animal studies have been completed and now approval is awaited from the drug regulator to go ahead with human clinical trials," said 45-year-old Dr Swarnendu Kaviraj, scientist and, in charge of analytical development and formulation development of the vaccine. "We knew that all mRNA vaccines have to be kept at sub-zero temperatures which is not possible in a country like India," he said. "That was the foremost challenge. The lyophilisation technology is not new but the lyophilised mRNA vaccine is unique. We performed hundreds of trials before arriving at the right formulation and right condition to ensure a heat stable mRNA vaccine," he said.

The conversion from liquid to powder form of the vaccine takes place via lyophilisation. (This is freeze drying – a prcess where the water is removed from the product after it is frozen and placed under vacuum, allowing the ice to change directly from solid to vapour without passing through a liquid phase). "However just removing water by lyophilising the mRNA vaccine will not work. Here, the surrounding pressure had to be tweaked and then kept stable to ensure the characteristics of the vaccine is the same as it was before lyophilisation. For that, the key part was to add an external agent which, at a certain critical concentration, keeps it stable under lyophilised conditions."

The process has been an unbelievable one, adds Dr Ajay Singh, scientist and in charge of the mRNA vaccine development department. "At the culture room, we have even made a dummy virus – which is not infective but can show that antibodies are working. It has the spiked protein from SARS-CoV-2 but does not have the replicating genome of the SARS-CoV2 virus. It will not infect and can be used in the lab and this pseudo virus neutralisation assay is used to test whether the antibodies generated against the vaccine can block the virus," Dr Singh said. Assisting the team are dozens of young biochemists, biotechnologists and scientists like the youngest one, 24-year-old Renuka K, who had joined as an intern two years ago. "It just

feels so amazing to be a part of this entire process," she said.

At the manufacturing facility just 300 metres away from the main Research and Development building of Gennova, around 50,000 vials are loaded in the lyophiliser across 12 shelves. Abhijit Bhagwat, production in-charge, monitors whether vials are intact before being transferred to the manufacturing area. Senior manager Vinod Halnor who has to get into a series of changing rooms to wear the proper protective gear before handling an automatic machine just to press the command that starts the process of filling the vials, said it is great to be a part of this effort. It takes five days for the lyophiliser to run the cycle and then the vials are sent back via the conveyor belt for the final sealing and packing. "There are pre-defined parameters that are displayed on these machines with different temperatures and different time points to convert the liquid into powder. Once the government gives us the go ahead, we have the capacity to initially manufacture at least 80 lakh to a crore doses per month, with a plan in place to augment the production to 5 crore doses per month," added Dr Mukherjee.

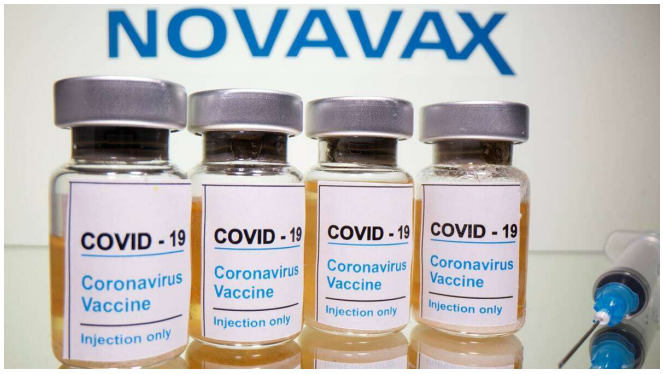
Dr Singh recalled the occasion when PM Narendra Modi after a virtual meeting with Bill Gates during the Grand Challenges annual meeting in October 2020 had asked the CEO about the possibility of an mRNA vaccine. "Yes we can," Dr Singh had said. Phase 2 trial data across 400 participants has been submitted and while the phase 3 trial has been completed and data – which has a very good safety profile – is being presented. While it is anticipated that the product known by the trade name GEMCOVAC-19 will be in the market subject to regulatory clearance, the focus is also on booster trials using the vaccine designed against Omicron. "All documents have been submitted to the office of the DCGI for the Omicron clinical trial," Dr Mukherjee added.

The Indian EXPRESS

SII seeks permission for phase-3 study of Covid vaccine Covovax as booster dose in adults

The Drugs Controller General Of India (DCGI) had approved Covovax for restricted use in emergency situations in adults on December 28. The vaccine is yet to be included in the country's inoculation programme.

February 27, 2022 7:20:00 pm



Covovax is manufactured by technology transfer from Novavax and is approved by the European Medicines Agency for conditional marketing authorisation and also granted emergency use listing by WHO. (File Photo)

Serum Institute of India has sought permission from India's drug regulator to conduct a phase-3 study of its COVID-19 vaccine Covovax as a booster dose in adults, official sources said on Sunday.

The Drugs Controller General Of India (DCGI) had approved Covovax for restricted use in emergency situations in adults on December 28. The vaccine is yet to be included in the country's inoculation programme.

Prakash Kumar Singh, Director, Government and Regulatory Affairs at SII had last week submitted an application to DCGI seeking nod for phase-3, observer-blind, randomised, controlled study to

evaluate the safety and immunogenicity of Covovax as booster dose on those who have received primary vaccination either with Covishield or Covaxin at least three months ago, an official source said.

Singh has stated that many countries are already administering booster doses to their citizens considering the uncertainties of the COVID-19 pandemic.

"We are sure that your approval for conducting this clinical trial will ensure an early availability of Covovax for booster dose use for people of our country as well as the world in line with our prime minister's vision of 'Making in India for the World'," Singh is learnt to have stated in the application.

"Our firm is committed to providing world-class life-saving vaccines at an affordable price under the visionary leadership of our CEO Adar C Poonawalla. We request you to grant us permission to conduct a phase-3 clinical trial for booster dose of Covovax in Indian adults."

Covovax is manufactured by technology transfer from Novavax and is approved by the European Medicines Agency for conditional marketing authorisation and also granted emergency use listing by WHO.

In August 2020, the US-based vaccine maker Novavax Inc had announced a licence agreement with SII for the development and commercialisation of NVX-CoV2373, its COVID-19 vaccine candidate, in low and middle-income countries and India. PTI PLB

The Indian EXPRESS

New research points to Wuhan market as pandemic origin

Together, they represent a significant salvo in the debate over the beginnings of a pandemic that has killed nearly 6 million people globally and sickened more than 400 million.

By: **New York Times** |
February 27, 2022 11:08:31 am

Written by Carl Zimmer and Benjamin Mueller

Scientists released a pair of extensive studies Saturday that point to a market in Wuhan, China, as the origin of the coronavirus pandemic. Analyzing data from a variety of sources, they concluded that the coronavirus was very likely present in live mammals sold in the Huanan Seafood Wholesale Market in late 2019 and suggested that the virus twice spilled over into people working or shopping there. They said they found no support for an alternate theory that the coronavirus escaped from a laboratory in Wuhan.

A poster advising against the consumption of wild animals in Wuhan, China, on Jan. 22, 2021. A pair of extensive studies released on Feb. 25, 2022 point to the Huanan Seafood Wholesale Market here as the origin of the coronavirus pandemic. (Gilles Sabri/The New York Times)

"When you look at all of the evidence together, it's an extraordinarily clear picture that the pandemic started at the Huanan market," said Michael Worobey, an evolutionary biologist at the University of Arizona and a co-author of both studies.

The two reports have not yet been published in a scientific journal that would require undergoing peer review.

Together, they represent a significant salvo in the debate over the beginnings of a pandemic that has killed nearly 6 million people globally and sickened more than 400 million. The question of whether the coronavirus outbreak began with a spillover from wildlife sold at the market, a leak from a Wuhan virology lab or some other way has given rise to pitched geopolitical battles and debates over how best to stop the next pandemic.

But some outside scientists who have been hesitant to endorse the market origin hypothesis said they remained unconvinced. Jesse Bloom, a virus expert at the Fred Hutchinson Cancer Research Center, said in an interview that there remained a glaring absence of direct evidence that animals at the market had themselves been infected with the coronavirus.

"I think what they're arguing could be true," Bloom said of the new studies. "But I don't think the quality of the data is sufficient to say that any of these scenarios are true with confidence."

In their new study, Worobey and his colleagues present evidence that wild mammals that might have harbored the coronavirus were being sold in December 2019. But no wildlife was left at the market by the time Chinese researchers arrived in early 2020 to collect genetic samples.

The authors of the new study include researchers who previously published smaller reports that had pointed toward a similar conclusion but were based on much less detail. Their earlier analysis suggested that the first known case of the coronavirus was a vendor at the Huanan market.

An aerial view of Wuhan, China, on Jan. 18, 2021. A pair of extensive studies released on Feb. 25, 2022 point to the Huanan Seafood Wholesale Market here as the origin of the coronavirus pandemic. (Gilles Sabri /The New York Times)

In a separate line of research, scientists at the Chinese Center for Disease Control and Prevention carried out a new analysis of the genetic traces of coronaviruses collected at the market in January 2020. Previous studies have shown that the viruses sampled from early cases of COVID belonged to two main evolutionary branches. The Huanan market samples included both branches, the scientists reported in a study they posted online Friday.

Worobey, who said he was not aware of the study until it was made public, said that their findings are consistent with the scenario he and his colleagues put forward for two origins at the market.

"The beauty of it is how simply it all adds up now," said Jeremy Kamil, a virus expert at Louisiana State University Health Sciences, who was not involved in the new study.

The Huanan Seafood Wholesale Market was an early object of suspicion when COVID first swept across Wuhan. Toward late December 2019, a few people who worked at the market developed a mysterious form of pneumonia. On

Dec. 30, public health officials told hospitals to report any new cases of pneumonia linked to the market.

It also became clear at the end of December that a new coronavirus was to blame for the mysterious pneumonia. Coronaviruses have a disturbing history in China: In 2002, another coronavirus sparked the epidemic of severe acute respiratory syndrome, or SARS, which killed 774 people. Scientists later concluded that the virus originated in bats, spread to wild mammals, and then jumped to humans at markets where the mammals were sold.

Fearing a replay of SARS, Chinese officials ordered the Huanan market closed. Wuhan police shut it down Jan. 1, 2020. Workers clad in hazmat suits washed and disinfected the stalls.

Chinese scientists said they found the virus in dozens of samples taken from surfaces and sewers in the market but not in any swabs taken from animals in the market.

The link to the market seemed to weaken as the coronavirus spread. Meanwhile, questions arose about the research carried out at a lab in the city, the Wuhan Institute of Virology, where scientists studied coronaviruses.

For the new studies, Worobey and his colleagues estimated the latitude and longitude of 156 cases of COVID in Wuhan in December 2019. The highest density of cases centered around the market.

The researchers then mapped cases in January and February. They used data collected by Chinese researchers from Weibo, a social media app that created a channel for people with COVID to seek help. The 737 cases drawn from Weibo were concentrated away from the market, in other parts of central Wuhan with high populations of elderly residents.

The patterns pointed to the market as the origin of the outbreak, the studies found, with the coronavirus then spreading to the surrounding neighborhoods before moving out farther across the city. The researchers ran tests that showed it was extremely unlikely that such a pattern could be produced merely by chance.

The Indian EXPRESS

Let's talk about this: What has the pandemic done to our social skills?

In the last two years, over the course of the pandemic, our social skills have taken a hit. As the world prepares to open up, how ready are we to return to our older connections and the conversations they generated?

Written by **Dipanita Nath** |
Updated: February 27, 2022 7:43:19 am

No longer on mute: Getting back to normal lives is going to take its time after the pandemic. (Credit: Bivash Barua)

Tanveer Inamdar, CEO of Pune-based VertexXInc, a social venture start-up, can sum up a business pitch in 30-40 seconds, his emails comprise one or two lines, chats have become one of two **emojis** and important instructions are short voice-messages. "When my team comes up with a good design or plan, I send them a star

emoji. It means 'good', 'go ahead', 'this is my green signal' and everything positive," he says…..

The Indian EXPRESS

How the pandemic has affected periods

Weight gain and increased alcohol consumption, which many people also reported during the pandemic, are known to contribute to changes in cycles as well

By: **The Conversation** |
February 26, 2022 8:50:36 pm

Heavy exercise or extreme dieting can result in missing periods. (Source: Pixabay)

The coronavirus has had many impacts over the past two years – including, it seems, on **periods**. Many people have reported disturbances to their menstrual cycles, some noticing changes after catching the virus, others following vaccination. For some, disruptions didn't follow either, but were still noticeable.

But before trying to determine these changes' causes, it's important to note that people's cycles do vary. While it's commonly suggested that a predictable **28-day cycle** with five days of bleeding is normal, this is only an average. For most menstruators, it's not their reality.

Indeed, **menstrual bleeding** length, heaviness and cycle length are all naturally variable, differing between people and even in the same person over time. According to the International Federation of Gynaecology and Obstetrics, a variation in cycle length of up to eight days is normal.

The **menstrual cycle** is controlled by a mixture of hormones regulated by the hypothalamus and pituitary gland in the brain together with the ovaries – what's collectively known as the HPG axis. Disruptions to the body can interrupt the axis releasing **hormones**, which can impact different aspects of the menstrual cycle, such as length and symptoms.

For example, heavy exercise or extreme **dieting** can result in missing periods, though this is reversible once food intake increases or exercise is reduced. We therefore need to take care when assessing self-reported changes to menstrual cycles – other influences could be at play.

Nevertheless, something's been going on, and the **stress** of the pandemic could be a factor. Stress is known to suppress the HPG axis, and past studies have found associations between stress and menstrual irregularity or bleeding length.

We know that mental health in the UK deteriorated during the first lockdown, with stress and **depression** rising. And in an online survey, 46 per cent people said they had seen a change to their menstrual cycle during the pandemic, such as to the severity of premenstrual symptoms or cycle length. Stress is a plausible if unconfirmed cause.

That said, other pandemic changes could be influential too. Weight gain and increased **alcohol consumption**, which many

people also reported during the pandemic, are known to contribute to changes in cycles as well.

What about vaccines?

Shortly after **COVID vaccines** became available, reports began to appear of them impacting menstrual cycles – particularly that they affected cycle length, making them both shorter and longer. Unfortunately, questions about menstruation have been excluded from much of the COVID vaccine research, including their trials, so there isn't much research on how many people have experienced menstrual changes. That said, a small number of studies have investigated this.

A US study of 4,000 people found that receiving the first vaccine dose had no impact on the timing of the next menstrual bleed. But after receiving the second, people experienced a small delay – just under half a day on average. This difference had disappeared by the third cycle post **vaccine**. Interestingly, those who received two doses in one cycle had an increased cycle length of two days, which returned to normal by cycle three post vaccine.

It's difficult, though, to untangle the effects of the vaccine from the impact of living through the **stressful pandemic**. In a Norwegian study of over 5,500 people, 41% of participants reported menstrual disturbances after receiving their second vaccine. But crucially, 38 per cent reported disturbances before ever receiving any vaccine, the most common symptom being a heavier than usual period.

This suggests either that disturbances to menstrual cycles are normal, or that if the pandemic does cause changes to cycles, the impacts of **COVID vaccines** are small. These studies both validate the experiences of people describing menstrual changes, but also provide reassurance that these changes are transient.

There are a number of reasons why vaccines could affect cycles, including the body's immune response to the vaccine, which can influence the hormones controlling the menstrual cycle. Certainly, reports of menstrual changes after **vaccination** are not new. In 1913, a New York doctor found a relationship between the typhoid vaccine and menstrual change. A more recent study found increased odds of short-term menstrual cycle changes after receiving the **HPV vaccine**.

With the COVID vaccines, when there are changes these appear to be short lived, and the vaccines haven't been shown to impact fertility. This should perhaps be added to what menstruating people are told to expect from vaccination, so they can plan around it.

Reporting menstrual changes as a side-effect could encourage pharmaceutical companies and researchers to place menstrual and **reproductive health** more centrally in medical research, meaning we have better data for vaccines and medicines in the future. Anyone in the UK experiencing changes to their cycles is encouraged to report these to the Yellow Card scheme, which logs potential vaccine side-effects.

COVID can also cause changes

It's also been suggested that in the face of severe illness, such as COVID, the body temporarily reduces **ovulation** (which can impact menstrual bleeding) to redirect energy away from reproduction and towards fighting off infection. Another cause could be the massive inflammatory effects that COVID has on the body, which in turn impacts menstrual cycle disturbances.

There's some data to back up COVID having an influence. A study comparing the menstrual cycles of 237 patients with COVID to their cycles from beforehand found that 18% of mildly ill and 21% of severely ill patients had longer cycles than

previously. These changes had returned to normal within two months of hospital discharge.

So it seems that COVID vaccines and infection with the coronavirus can affect the menstrual cycle, and while not definitively proven, it's plausible that pandemic stress does too. Changes seem to return to normal after a few months, but if you experience new issues with your menstrual cycle or changes to your cycles are long lasting, please discuss this with your doctor.

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