



## Six Feet Distance May Not Be Enough To Prevent Virus Spread Indoors: Study



The researchers examined three factors: the amount and rate of air ventilated through a space, the indoor airflow pattern associated with different ventilation strategies and the aerosol emission mode of breathing versus talking.

Washington: Physical distancing of two metres - about six and a half feet - may not be enough to sufficiently prevent transmission of virus-carrying airborne aerosols indoors, according to a study.

The results, published in the journal *Sustainable Cities and Society*, suggest that physical distance alone is not enough to prevent human exposure to exhaled aerosols and should be implemented with other control strategies such as masking and adequate ventilation.

The researchers examined three factors: the amount and rate of air ventilated through a space, the indoor airflow pattern associated with different ventilation strategies and the aerosol emission mode of breathing versus talking. They also compared transport of tracer gas, typically employed to test leaks in air-tight systems, and human respiratory aerosols ranging in size from one to 10 micrometers.

Aerosols in this range can carry S-CoV-2, the virus that causes COVID-19.

"We set out to explore the airborne transport of virus-laden particles released from infected people in buildings," said Gen Pei, study first author and doctoral student at Pennsylvania State University in the US. "We investigated the effects of building ventilation and physical distancing as control strategies for indoor exposure to airborne viruses," Pei said. The study shows that virus-laden particles from an infected person's talking - without a mask - can quickly travel to another person's breathing zone within one minute, even with a distance of two meters.

"This trend is pronounced in rooms without sufficient ventilation," said Donghyun Rim, corresponding author and associate professor at Penn State. The researchers found that aerosols traveled farther and more quickly in rooms with displacement ventilation, where fresh air continuously flows from the floor and pushes old air to an exhaust vent near the ceiling.

This is the type of ventilation system installed in most residential homes, and it can result in a human breathing zone concentration of viral aerosols seven times higher than mixed-mode ventilation systems, they said. Many commercial buildings use mixed-mode systems, which incorporate outside air to dilute the indoor air and result in better air integration, according to the researchers.

"This is one of the surprising results: Airborne infection probability could be much higher for residential environments than office environments," Rim said.

"However, in residential environments, operating mechanical fans and stand-alone air cleaners can help reduce infection probability," said Rim. According to the researchers, increasing the ventilation and air mixing rates can effectively reduce the transmission distance and potential accumulation of exhaled aerosols.

However, they noted that ventilation and distance are only two options in an arsenal of protective techniques. "Airborne infection control strategies such as physical distancing, ventilation and mask wearing should be considered together for a layered control," Rim added. (Source: NDTV)

## COVID-19 Pandemic Cut Life Expectancy By Most Since World War Two –Study



LONDON, The COVID-19 pandemic reduced life expectancy in 2020 by the largest amount since World War Two, according to a study published on Monday by Oxford University, with the life expectancy of American men dropping by more than two years.

Life expectancy fell by more than six months compared with 2019 in 22 of the 29 countries analysed in the study, which spanned Europe, the United States and Chile. There were reductions in life expectancy in 27 of the 29 countries overall.

The university said most life expectancy reductions across different countries could be linked to official COVID-19 deaths. There have been nearly 5 million reported deaths caused by the new coronavirus so far, a Reuters tally shows.

"The fact that our results highlight such a large impact that is directly attributable to COVID-19 shows how devastating a shock it has been for many countries," said Dr Ridhi Kashyap, co-lead author of the paper, published in the International Journal of Epidemiology.

There were greater drops in life expectancy for men than women in most countries, with the largest decline in American men, who saw life expectancy drop by 2.2 years relative to 2019. Overall, men had more than a year shaved off in 15 countries, compared to women in 11 countries. That wiped out the progress on mortality that had been made in the previous 5.6 years.

In the United States, the rise in mortality was mainly among those of working age and those under 60, while in Europe, deaths among people aged over 60 contributed more significantly to the increase in mortality.

Kashyap appealed to more countries, including low- and middle-income nations, to make mortality data available for further studies. "We urgently call for the publication and availability of more disaggregated data to better understand the impacts of the pandemic globally," she said. (Source:Reuters)

## Health ID for Every Indian, Digitally Secure Records: PM



Ayushman Bharat Mission: The Health ID of every citizen will also "work as their health account, to which personal health records can be linked and viewed with the help of a mobile application." New Delhi: Every Indian will now get a digital health ID, Prime Minister Narendra Modi said on 27<sup>th</sup> September as he launched the Ayushman Bharat Digital Mission.

The government - which has said the Ayushman Bharat Digital Mission will play a key role in the digital health ecosystem, like that of the Unified Payments Interface in revolutionising payments - has underlined that "citizens will now only be a click-away from accessing healthcare facilities".

"Ayushman Bharat Digital Mission will now help connect digital health solutions across the country. All Indians will now get a digital health ID under this scheme. Every citizen's health record will now be digitally secure," the Prime Minister said, underlining that "digitisation will make healthcare easier".

The Health ID of every citizen will also "work as their health account, to which personal health records can be linked and viewed with the help of a mobile application," says the government. The access and exchange of "longitudinal health records of citizens will be enabled with their consent," an official statement says.

The newly launched mission "will play a big role in eliminating problems in medical treatment of poor and middle class," PM Modi said this morning in a televised address. "Today begins a Mission that has the power to bring a revolutionary change in India's health facilities. Three years ago, on Pandit Deendayal Upadhyaya's birth anniversary, Ayushman Bharat Yojana was implemented. I am happy that Ayushman Bharat Digital Mission is being started nationwide from today on its third anniversary," the Prime Minister said.

"130 crore Aadhar IDs, 118 crore mobile subscribers, about 80 crore internet users and 43 crore Jan Dhan Bank accounts - such a huge, connected infrastructure can't be found anywhere else in the world. This digital infrastructure - from ration to governance - is reaching every Indian in a transparent manner," the Prime Minister further elaborated, praising the UPI system and its reach. India is now working on a healthcare model that will work not just on curing diseases but preventing them too, he added. (Source: NDTV)

## Cancer Without Chemotherapy: ‘A Totally Different World’



A growing number of cancer patients, especially those with breast and lung cancers, are being spared the dreaded treatment in favor of other options. Dr. Seema Doshi, a dermatologist near Boston, thought it was a foregone conclusion that she would have to undergo chemotherapy when a cancerous lump was found in her breast in 2019. Credit...Lauren Justice for The New York Times Dr. Seema Doshi was shocked and terrified when she found a lump in her breast that was eventually confirmed to be cancerous. “That rocked my world,” said Dr. Doshi, a dermatologist in private practice in the Boston suburb of Franklin who was 46 at the time of her diagnosis. “I thought, ‘That’s it. I will have to do chemotherapy.’” She was wrong.

Dr. Doshi was the beneficiary of a quiet revolution in breast cancer treatment, a slow chipping away at the number of people for whom chemotherapy is recommended. Chemotherapy for decades was considered “the rule, the dogma,” for treating breast cancer and other cancers, said Dr. Gabriel Hortobagyi, a breast cancer specialist at MD Anderson Cancer Center in Houston. But data from a variety of sources offers some confirmation of what many oncologists say anecdotally — the method is on the wane for many cancer patients.

Genetic tests can now reveal whether chemotherapy would be beneficial. For many there are better options with an ever-expanding array of drugs, including estrogen blockers and drugs that destroy cancers by attacking specific proteins on the surface of tumors. And there is a growing willingness among oncologists to scale back unhelpful treatments. The result spares thousands each year from the dreaded chemotherapy treatment, with its accompanying hair loss, nausea, fatigue, and potential to cause permanent damage to the heart and to nerves in the hands and feet. The diminution of chemotherapy treatment is happening for some other cancers, too, including lung cancer, the most common cause of cancer deaths in the United States, killing more than 69,000 Americans each year. (Breast cancer is second, killing 43,000.)

Still, the opportunity to avoid chemotherapy is not evenly distributed, and is often dependent on where the person is treated and by whom. But for some patients who are lucky enough to visit certain cancer treatment centers, the course of therapy has changed. Now, even when chemotherapy is indicated, doctors often give fewer drugs for less time. “It’s a totally different world,” said Dr. Lisa Carey, a breast cancer specialist at the University of North Carolina. Dr. Robert Vonderheide, a lung cancer specialist at the University of Pennsylvania, remembers his early days on the job, about 20 years ago. “The big discussion was, Do you give patients two different types of chemotherapy or three?” he said. There was even a clinical trial to see whether four types of chemotherapy would be better.

“Now we are walking in to see even patients with advanced lung cancer and telling them, ‘No chemo,’” Dr. Vonderheide said. The breast cancer treatment guidelines issued by the National Cancer Institute 30 years ago were harsh: chemotherapy for about 95 percent of patients with breast cancer. The change began 15 years ago, when the first targeted drug for breast cancer, Herceptin, was approved as an initial treatment for about 30 percent of patients who have a particular protein on their tumor surface. It was given with chemotherapy and reduced the chance of a recurrence by half and the risk of dying from breast cancer by a third, “almost regardless of how much and what type of chemotherapy was used,” Dr. Hortobagyi said.

In a few studies, Herceptin and another targeted drug were even given without chemotherapy, and provided substantial benefit, he added. That, Dr. Hortobagyi said, “started to break the dogma” that chemotherapy was essential. But changing cancer therapies was not easy. “It is very scary,” to give fewer drugs, Dr. Hortobagyi said. “It is so much easier to pile on treatment on top of treatment,” he continued, “with the promise that ‘if we add this it might improve your outcome.’” But as years went by, more and more oncologists came around, encouraged by new research and new drugs.

The change in chemotherapy use is reflected in a variety of data collected over the years. A study of nearly 3,000 women treated from 2013 to 2015 found that in those years, chemotherapy use in early-stage breast cancer declined to 14 percent, from 26 percent. For those with evidence of cancer in their lymph nodes, chemotherapy was used in 64 percent of patients, down from 81 percent.

More recent data, compiled by Dr. Jeanne Mandelblatt, a professor of medicine and oncology at Georgetown, and her colleagues, but not yet published, included 572 women who were 60 or older and enrolled in a federal study at 13 medical centers. Overall, 35 percent of older women received chemotherapy in 2012. That number fell to 19 percent by the end of 2019. Cheaper and faster genetic sequencing has played an important role in this change. The technology made it easier for doctors to test tumors to see if they would respond to targeted drugs. Genetic tests that looked at arrays of proteins on cancer cells accurately predicted who would benefit from chemotherapy and who would not.

There are now at least 14 new targeted breast cancer drugs on the market — three were approved just last year — with dozens more in clinical trials and hundreds in initial development. Some patients have reaped benefits beyond avoiding chemotherapy.

The median survival for women with metastatic breast cancer who are eligible for Herceptin went from 20 months in the early 1990s, to about 57 months now, with further improvements expected as new drugs become available. For women with tumors that are fed by estrogen, the median survival increased from about 24 months in the 1970s to almost 64 months today. Now some are in remission 10 or even 15 years after their initial treatment, Dr. Hortobagyi said. “At breast cancer meetings, a light bulb went off. ‘Hey, maybe we are curing these patients,’” Dr. Hortobagyi said. (Source: New York Times)

## Britain Begins World's Largest Trial of Blood Test For 50 Types of Cancer



A DNA double helix is seen in an undated artist's illustration released by the National Human Genome Research Institute to Reuters on May 15, 2012. REUTERS/National Human Genome Research Institute/Handout

Britain's state-run National Health Service will begin the world's biggest trial of Grail Inc's ([GRAL.O](#)) flagship Galleri blood test that can be used to detect more than 50 types of cancer before symptoms appear. The Galleri test looks at the DNA in a patient's blood to determine if any come from cancer cells. Earlier diagnosis of cancers leads to dramatically increased survival rates.

The NHS said it wanted to recruit 140,000 volunteers in England to see how well the test worked as part of a randomised control trial. Half of the participants will have their blood sample screened with the Galleri test right away.

"We need to study the Galleri test carefully to find out whether it can significantly reduce the number of cancers diagnosed at a late stage," said Peter Sasieni, professor of cancer prevention at King's College London. "The test could be a game changer for early cancer detection and we are excited to be leading this important research."

Lung cancer is by far the most common cause of cancer death in the United Kingdom, accounting for around a fifth of all cancer deaths. Lung, bowel, prostate and breast cancers account for 45% of the United Kingdom's cancer deaths, the NHS said. U.S. life sciences company Illumina Inc ([ILMN.O](#)) said in August it had completed its \$7.1 billion acquisition of Grail. Illumina said it will operate Grail separately from its existing business. (Source: Reuters)

## COVID-19 Vaccine May Have Link With Menstrual Changes, Must Be Investigated: Study



COVID-19 Vaccine Study: If a link between vaccination and menstrual changes is confirmed, this will allow individuals seeking vaccination to plan in advance for potentially altered cycles, she explained.

London: A link between changes in the menstrual cycle and COVID-19 vaccination is plausible, and must be investigated, according to an editorial published in the peer-reviewed British Medical Journal today.

In the editorial, Victoria Male, a reproductive specialist at Imperial College London, UK noted that periods or unexpected vaginal bleeding are not listed as common side effects of COVID-19 vaccination. Over 30,000 such reports had been made to the UK Medicines and Healthcare Products Regulatory Agency (MHRA) surveillance scheme for adverse drug reactions by September 2, she said.

The expert, however, noted most people find that their period returns to normal the following cycle and, importantly, there is no evidence that COVID-19 vaccination adversely affects fertility. "One important lesson is that the effects of medical interventions on menstruation should not be an afterthought in future research," Ms Male said. MHRA states that its surveillance data does not support a link between changes to menstrual periods and COVID-19 vaccines, since the number of reports is low in relation to both the number of people vaccinated and the prevalence of menstrual disorders generally.

However, Ms Male said the way in which data is collected makes firm conclusions difficult. She argues in the editorial that approaches better equipped to compare rates of menstrual changes in vaccinated versus unvaccinated populations are needed. Reports of menstrual changes after COVID-19 vaccination have been made for both mRNA and adenovirus-vectored vaccines, she said.

This suggest that, if there is a connection, it is likely to be a result of the immune response to vaccination, rather than to a specific vaccine component, Ms Male said. The editorial also noted that the menstrual cycle may be affected by the body's immune response to the virus itself, with one study showing menstrual disruption in around a quarter of women infected with S-CoV-2.

If a link between vaccination and menstrual changes is confirmed, this will allow individuals seeking vaccination to plan in advance for potentially altered cycles, she explained. She suggests that doctors should encourage their patients to report any changes to periods or unexpected vaginal bleeding after vaccination to the MHRA's scheme. (Source: NDTV)