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- Scientific Tit-bits! (Inaugural Series)

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It’s B.M. Dablu, not BMW
COVID-19 has affected everyone, but different sections of society are affected in different ways. Of course, this is what we would expect in a large, diverse and highly inequitable country. Let us look at a few groups, to see how they are responding to COVID-19 challenges.

House-help and drivers, in most cases, are barred from entering housing societies, so people are doing their own work – or quarrelling with their neighbors. There are numerous examples where some families refused to follow the society’s ‘rules’ and brought their house-help back. Some days later, several Corona cases were detected and the entire building had to be quarantined. Perhaps the infections were caused by residents moving about, not by the incoming maid.

Women in financially stable families are pleasantly surprised. The husband and sons who never lifted a little finger, help with cleaning, cooking, or at least cutting vegetables, and children who live elsewhere and rarely call, now call up regularly, not only to enquire about their health but also to get the recipe for that biryani grandmother used to make. The middle class is spending more on labor-saving goods like dishwashers. Many who have vacuum cleaners are upgrading to robots. Amazon, in fact, ran out of stocks of cleaning robots. With the monsoon arriving, people are looking to buy clothes-driers.

For COVID-19 warriors – doctors, nurses, hospital staff, police, Asha workers, sanitation staff watchmen etc. – it is surely the worst time of their lives, with constant danger of infection, longer working hours, and no increase (sometimes, a reduction) in pay.

For students, many classes are being held on line – even kindergarten classes, for half an hour twice a week, because the phone also can be used and these days everyone has a smartphone, lower income groups are not left out. Results, for school finals and senior classes, are in limbo.

Senior citizens are suffering if they live alone, but those with family or young friendly neighbors around them seem to be thriving. Grandmothers have learnt how to navigate the net, their music groups have gone high-tech, with classes and group singing online, they sing bhajans, listen to pravachans and classical music. Music impresarios are arranging for vintage ‘concerts’ available on platforms like Zoom or Google Meet; Webinars are being arranged on various subjects, from cookery to finance. Many of these are free. One wonders how we could have survived Corona without internet. It’s not just news or entertainment websites. Entire families from across the globe ‘meet’ on special occasions, or the immediate family does so weekly just to video-chat and perhaps play some games.

Another group – almost exclusively women – is grateful that many liquor shops are still closed. Daily drinkers will always find a way, but the vast majority, who indulge in moderation, will remain sober until Mission Begin Again 9.0., but liquor is never straightforward, especially for low-income women with troublesome husbands. Complete unavailability means lower expenses and maybe fewer beatings. If the black-market price is within reach, it’s business as usual, but if he goes out and doesn’t find liquor, or finds it too expensive, he comes home angry. A doctor friend who works in a BPL community, says that many men are drinking less simply because their wives, who finance the habit, are out of work.

Finally, there are the privileged ones, who are suffering grievously. One such person was complaining how her life had been turned upside down. “It’s crazy – no driver, no cook, not even one maid. We must eat regular veggies (who knows where they are grown?) because it’s impossible to get organic produce anymore, everyone is depressed, even my doggie, who cannot go for walks because my dog-guy cannot come”.

No laughing matter

It’s insensitive to make jokes about a disease that has cost more than 20,000 lives, but what else can we do? India has more than 7 lakh cases, although the Chairman of the national COVID-19 task force had suggested (and later denied that he had suggested) that that new daily cases would drop to zero by the end of May! Hospitals are overwhelmed. Courts are being forced to rule on issues like doctors’ salaries, quarantine procedures, and disposal of medical waste, which should ideally be taken care of by administrators and health professionals.

Rules on testing and quarantine are constantly changing. Even lockdowns are confusing: Maharashtra declared it was opening, but now seven municipal corporations around Mumbai have announced a 10-day lockdown. On the positive side, companies are gradually re-opening, and migrants who fled the cities are coming back. According to the railways, nearly 5 lakh migrants returned to the Mumbai metropolitan region in June. The auto sector is moving again. Maruti-Suzuki, Toyota-Kirloskar, Hyundai (cars) and Hero Motors (two-wheelers) all report that business in June was three to four times higher than May, although much lower than June 2019.

India’s case fatality rate (percentage of infected patients dying) is far lower than most countries: less than 3% in India, compared to 4.6% in Germany, 4.8% in USA, and a frightening 14% in the UK. There are probably multiple reasons for this difference, but age-related issues are important. First, we have a young population. Senior citizens, who are most likely to die, are a much smaller percentage of our population compared to developed countries. Secondly, old people in the West tend to be clustered in care homes, where infections spread quickly. In India, seniors usually live with the family, and receive more care and attention in times like this.

What next?

Nobody knows. Parts of India may be approaching their peak or may even have crossed it, meaning that the curve will soon be flattened, or perhaps we will see a second wave of infections as the economy opens and people move around, with or without masks. We are not the most disciplined of nations, perhaps, as some epidemiologists suspect, the virus will mutate into a form that is more infectious but less virulent: it will spread faster but cause milder infections and fewer deaths.

If we want to be optimistic, perhaps states will work with the Centre to implement some of the numerous reforms announced recently. Some of these reforms, in agriculture, banking, corporate law, ration cards, electricity bills and property rates, will not directly help to fight COVID-19, but they will contribute to long-term economic growth once we pass this crisis. COVID-19 will not last forever. Even as we fight to survive today, with masks, sanitizers and distancing, let us look at how we can thrive tomorrow.

Today, we really must follow rules.
In the last few months of the pandemic one thing that was noticed very clearly was that we still have problems in creating awareness about safety. People have been taking safety measures such as not going out, wearing masks, not gathering, social distancing and many others but only when they were compelled to do so. The moment the force was removed people again went back to unsafe practices. Either our population does not care much about safety or the regulators and scientists failed to convince them that it is necessary to adhere to safety measures to avoid the virus and to remain healthy. Several people show their concern for the effective way to avoid contamination after they go out and come home, from grocery and other essential shopping. There are so many different versions of safety procedures and it is such a chaotic condition. Even the laypersons realized that there are differences so they would not know which ones are authentic.

We have not prepared common people for such situations. We have been teaching our students in schools and colleges math's and chemistry and physics and all kinds of things but not adequate steps to keep themselves safe. We must develop proper protocols of safety and make sure everyone understands and follows the same. They must be told the importance of such things so they would appreciate its usefulness. Just telling them to do things without explanation becomes a compulsion which they would reject the moment the restrictions are taken off. That is why inspite of such complete lockdown for about 3 months cases were still rising and deaths were mounting. We must start teaching kids in schools’ importance of safety and make sure they understand its importance. We must also use very clear and unambiguous language and make sure that in such cases the enforcers also understand it. Media can play a big role in this but again they love to sensationalize things and so different versions come from them.

We need authentic information that common people would believe and consider it as the only authentic source. An independent body would be better in this case than a government body which is usually under government control. The way US FDA was bowing down to the President shows that it is very difficult for them to be independent. A medical or a scientific body would be better equipped to take on this role. WHO has been giving out the necessary guidelines & safety measures timely to stay safe that would be helpful in avoiding the infection risk. More such medical & scientific bodies must come together to educate the population in large and in simple terms to understand as even when this pandemic is over there will be many viral situations that would affect us in future. We must start preparing for such situation starting right now.

Prof Jagdish Pai, Executive Director, PFNDAI
PROTEIN FOODS AND NUTRITION DEVELOPMENT ASSOCIATION OF INDIA

Diabetes has roots in childhood

Researchers have found that people who develop type 2 diabetes as an adult may show early signs of susceptibility at an early age of eight, decades before it is likely to be diagnosed. For the study, published in the journal Diabetes Care, the research team looked at the effects of a genetic risk score for developing type 2 diabetes as an adult on metabolism measured from blood samples taken from the participants when they were aged eight, 16, 18, and 25 years.

"We knew that diabetes doesn’t develop overnight. What we didn’t know is how early in life the first signs of disease activity become visible and what these early signs look like," said study lead author Joshua Bell from the University of Bristol in the UK.

"We addressed these by looking at the effects of being more genetically prone to type 2 diabetes in adulthood on measures of metabolism taken across early life. This would not have been possible without the Children of the 90s study," Bell added.

The study tracked over 4,000 participants in the children of the 90s.

— IANS

Parents’ attempts to control teens may stunt their progress

The constant attempts by parents, to psychologically control their teenage children may bring difficulties in social relationships and educational attainment by the time they [teens] reached age 32, suggests a recent study.

The findings, from researchers at the University of Virginia, are published in Child Development, a journal of the Society for Research in Child Development.

"Parents, educators, and clinicians should be aware of how parents’ attempts to control teens may actually stunt their progress," said Emily Loeb, a postdoctoral researcher at the University of Virginia, who was the lead author on the study.

"This style of parenting likely creates more than a temporary setback for adolescent development because it interferes with the key task of developing autonomy at a critical period," Loeb added.

Past research has identified psychological control as problematic parenting behaviour. Parents attempt to control their children in this way through intrusive and harshly manipulative means (e.g., withdrawing love and affection when the parent is angry at the child, making the child feel guilty for upsetting the parent).

Children whose parents use this tactic tend to have problems such as lower grades and lower self-esteem, likely because the children are discouraged from asserting themselves and gaining independence.

— ANI
Effects of environmental factors on coronavirus decoded

There might be seasonal outbreaks of COVID-19 in the post-pandemic period if the weather favours the spread of the disease

AGENCIES / Houston

Environmental conditions affect the stability of the novel coronavirus in human nasal mucus and sputum, according to a study which suggests there might be seasonal outbreaks of COVID-19 in the post-pandemic period if the weather favours the spread of the disease. Researchers, including Jeremiah Matson from Marshall University in the US, noted that the novel coronavirus, SARS-CoV-2 is less stable at higher humidity and warmer temperatures.

In the study, published in the journal Emerging Infectious Diseases, SARS-CoV-2 was mixed with human nasal mucus and sputum specimens, which were then exposed to three different sets of temperature and humidity for up to seven days. The scientists said samples were collected throughout the study and analysed for the presence of infectious virus as well as the viral genetic material RNA alone, which is not infectious. They said viral RNA was consistently detectable throughout the seven-day study, while infectious virus was detectable for up to nearly 12-48 hours, depending on the environmental conditions.

"The virus is more stable at low-temperature and low-humidity conditions, whereas warmer temperature and higher humidity shortened half-life," the scientists noted in the study. —PTI

This is why the far & near sides of Moon are different

AGENCIES / New York

The composition of the Moon's near side that is perpetually Earth-facing is oddly different from its far side which always faces away from Earth and scientists think they finally understand why.

These are linked to an important property of rock signature KREEP – short for rock enriched in potassium (chemical symbol K), rare-earth elements (REE, which include cerium, dysprosium, erbium, europium, and other elements which are rare on Earth) and phosphorus (chemical symbol P), according to a study published in the journal Nature Geoscience.

On the Moon's perpetually Earth-facing near side, on any given night, or day, one can observe dark and light patches with the naked eye. Early astronomers named these dark regions "maria", Latin for "seas", thinking they were bodies of water by analogy with the Earth.

Using telescopes, scientists were able to figure out over a century ago that these were not in fact seas, but more likely craters or volcanic features.

They also identified a new type of rock signature they named KREEP which was associated with the maria. But why volcanism and this KREEP signature should be distributed so unevenly between the near and far sides of the Moon again presented a puzzle.

These clues are linked to an important property of KREEP. Potassium (K), thorium (Th) and uranium (U) are radioactively unstable elements. This means that they occur in a variety of atomic configurations that have variable numbers of neutrons. —IANS
How brain maps interpersonal ties

AGENCIES / Washington

The closer you feel to people emotionally, the more similarly you represent them in your brain, while, people who feel social disconnection tend to have a lonelier, neutral self-representation, according to a recent study.

“If we had a stamp of neural activity that reflected your self-representation and one that reflected that of people whom you are close to, for most of us, our stamps of neural activity would look pretty similar. Yet, for lonelier people, the neural activity was really differentiated from that of other people,” explained senior author Meghan L. Meyer, an assistant professor of psychological and brain sciences, and director of the Dartmouth Social Neuroscience Lab.

The study was comprised of 50 college students and community members ranging from age 18 to 47. Before going to an fMRI scanner, participants were asked to name and rank five people whom they are closest to and five acquaintances.

During the scan, participants were asked to make trait judgments about themselves, the people they are closest to and the acquaintances that they had just named, and five celebrities. Participants were asked to rate how much a trait described as a person (such as if the person is friendly) on a scale from 1 to 4 (from not at all to very much).

The closer participants felt to someone, the more similar their brain represented them throughout the social brain, including in the medial prefrontal cortex (MPFC), the region associated with the concept of self.

Lonelier people showed less neural similarity between themselves and others in the MPFC, and the demarcations between the three cliques were blurrier in their neural activity. In other words, the lonelier people are, the less similar their brain looks when they think about themselves and others.

——ANI

Maternal depression must be treated as early as possible

AGENCIES / Washington

There is a higher risk of behavioural problems and poor development with the babies of mothers who suffer from long-term depression, suggest the findings of a study that analysed depression levels in 892 mothers and the development and behaviour of 978 children.

The research was led by the University of Queensland researchers who used data from the Australian Longitudinal Study on Women’s Health, in the study published in the Journal of Paediatric and Perinatal Epidemiology.

They compared maternal depression before, during and after pregnancy, and found duration was more influential than timing.

Researcher Dr Katrina Moss said the study found one in five women experienced depression once, while 11 per cent experienced a reoccurrence. "The longer a mother suffered maternal depression, the worse the outcomes for the child," Dr Moss said.

"Mothers may worry that if they’ve been depressed during pregnancy then it’s too late to do anything about it, but reducing depressive symptoms at any stage is better for them and their children ——ANI

Donkeys are singing in a camels wedding and praising one another. Donkeys are praising the beauty of the camels and camels likewise are praising about the good singing and pleasant voice of the donkeys.

While sitting in the front row of a football match, Johnny’s friend asks, “Where he got the tickets from?”

“From my brother”, replies Little Johnny.

Friend: “Awesome, and where is your brother?”

Johnny chuckles, “At home, looking for his tickets!”

A couple is lying in bed. Husband says, “I am going to make you the happiest woman in the world.”

Wife says, “I’ll miss you.”

Judge: Why did you kill your wife instead of her lover?

Man: Honorable Sir, it is easier to shoot a woman once than to shoot a man every week.

Teacher: Santa, Is number “seven” “even or odd”.

Santa: Even.

Teacher: How are you making, seven to even?

Santa: Remove the “S”!

——ANI
Don’t rely on smart watches to spot heart rhythm disorders

AGENCIES
London

As smart watches like Apple Watch come with capabilities to identify common heart rhythm disorder like atrial fibrillation (AFib), researchers have warned that at the moment, wearables do not have a defined place in such risk assessment.

The Smart Watch market is expected to grow to 929 million connected devices by next year. There is evidence that devices can help detect atrial fibrillation but the accuracy varies.

“There still is a problem with a lot of false positives, where the device claims a person has atrial fibrillation, but they do not,” said Professor Jens Cosehs Nielsen of Aarhus University Hospital, Denmark.

“Furthermore, if a smartwatch picks up 30 minutes of incidental atrial fibrillation in a person with no symptoms, we have no data on whether anticoagulation prevents stroke in this situation,” he explained in a paper published in EP Europace, a journal of the European Society of Cardiology (ESC).

Wearables may be very valuable in the future but at the moment they do not have a defined place in risk assessment, the authors wrote. The probability of developing atrial fibrillation rises with increasing age, high blood pressure, obesity, diabetes, and prior heart attack.

Behaviour modification, such as reducing alcohol intake and losing weight, could prevent atrial fibrillation or delay onset. “Accurate risk assessment enables earlier diagnosis and intervention – with lifestyle changes or medication – that could be preventative,” said Nielsen.

“To get the correct answer in assessing risk, we must use the tools that have been proven to accurately predict the condition or outcome,” he emphasized.

In patients with atrial fibrillation, the possibility of stroke increases with advanced age, heart failure, high blood pressure, diabetes, prior stroke or heart attack, and in women. —IANS

Lazing in bed affects sleep quality at night

AGENCIES/ London

People are sleeping for longer hours during lockdowns and work from home scenario as they do not need to travel to workplaces but the quality of sleep has become worse in many, reveals new research. If the differences in sleep timing and duration between work days and days off become too large, this can lead to "social jetlag".

A latest survey by the University of Basel in Switzerland found respondents admitting sleeping up to 50 minutes longer than before the lockdown. One factor contributing to this could be that people no longer had to commute to work in the morning. Flexible working hours, no commuting and potentially more time to sleep led to a reduction in "social jetlag", according to psychologist Dr Christine Blume from the University of Basel. However, the reduction of "social jetlag" was not paralleled by an improvement in perceived sleep quality. To the contrary, those surveyed reported that their sleep quality actually deteriorated a little during the lockdown. —IANS

Study analyses after-effects of social isolation on people

AGENCIES
London

In line with the current lockdown phase imposed on many countries owing to the coronavirus crisis, a recent study analysed how the social isolation is going to impact on people. Loneliness affects both mental and physical health, but counter-intuitively it can also result in a decreased desire for social interaction.

To understand the mechanisms of this paradox, UCL researchers based at the Wolfson Institute and the Sainsbury Wellcome Centre investigated social behaviour in zebrafish. The results of the study have been published in eLife. Most zebrafish demonstrate pro-social behaviour, but approximately 10 per cent are loner fish who are averse to social cues and demonstrate different brain activity than their pro-social siblings.

However, even typically social zebrafish avoid social interaction after a period of isolation. PhD students Hande Tunbak and Mireya Vazquez-Prada, Postdoctoral Research Fellow Thomas Ryan, Dr Adam Kampff and Sir Henry Dale Wellcome Fellow Elena Drosati set out to test whether the brain activity of isolated zebrafish mimics that of loner fish or whether other forces were at play. —ANI

New drug more effective in prostate cancer treatment

AGENCIES
Sydney

Scientists have discovered a novel formulation of the prostate cancer drug abiraterone acetate that can dramatically improve the quality of life for people suffering from prostate cancer. Pre-clinical trials by the University of South Australia show the new formulation of the drug – currently marketed as Zytiga – improves the drug’s effectiveness by 40 per cent.

Developed by Professor Clive Prestidge’s Nanosctructure and Drug Delivery research group at University of South Australia’s Cancer Research Institute, the breakthrough discovery uses an oil-based oral formulation that not only enables a smaller dose of the drug to be effective, but also has the potential to dramatically reduce possible side effects, such as joint swelling and diarrhoea.

Despite Zytiga being the leading formulation to treat prostate cancer, lead researcher Dr Hayley Schultz said the new formulation will ultimately provide a better treatment for patients with prostate cancer.

—IANS

“Little Johnny, why is your sister crying?” yelled Grandma.
“Because I helped her”, came the reply.
“What on Earth did you help her with, then” “I helped her eat all her candies!” 😛
Pay attention if your blood group is A

According to a study, COVID-19 patients with Type A blood are more likely to develop severe infections and complications as compared to those with Type O

AGENCIES: Washington

The coronavirus can be deadly for some people or no big deal for others. It can put a patient on a ventilator facing lonely death or can come and go without leaving a mark. The scientists across the globe are working day and night to find out what are the factors due which this virus affects people differently.

The issue of disease variability "is the most critical question about COVID-19," The Washington Post quoted Edward Behrens, chief of the rheumatology division at Children's Hospital of Philadelphia. "Why do some people get sick? Why do some people have no problem at all?" he said.

However, National Institutes of Health Director Francis Collins on his blog has highlighted one potential breakthrough. He stated that the scientists developed an artificial intelligence tool that sorted the blood of COVID-19 patients and found 22 proteins that consistently appear among the patients who are severely ill.

The researchers have also found that COVID-19 victim who had Type A blood had a 50 percent higher risk of needing oxygen or a ventilator. Type O blood seemed to have a partial protective effect. Collins further stated in comparison to potential mutations and dosages, the most critical factor is the person getting infected - the "host." Not everybody hosts the COVID-19 virus in the same way. "The most critical factor is the person getting infected - the host," Collins stated.

Also, Jennifer Lighter, a hospital epidemiologist at NYU Langone found that obesity as one of the factors infecting people with COVID-19. COVID-19 patients with a body mass index between 30 and 34 - obese under CDC definitions - were twice as likely to be admitted to the ICU than patients with a BMI under 30.

Those with a BMI of 35 and over were three times more likely to die than those with a healthy BMI. "As we are opening up the nation, one idea is to consider opening up by risk groups," Lighter said while speaking to Wash Post. On a closer look, in the U.K., there has been "virtually no excess death" for people under age 45 since the pandemic began, said Carl Heneghan, director of the Center for Evidence-Based Medicine at Oxford University.

People who have little history of viral infections tend to have more severe reactions when they get infected later in life. --ANI

Healthy eating patterns lower heart disease risk

AGENCIES / New York

If you want to keep your heart health, take a note. Researchers have found that greater adherence to a variety of healthy eating patterns was associated with a lower risk of cardiovascular disease (CVD). The study focuses on eating patterns rather than individual ingredients and nutrients to better account for diverse cultural and personal food traditions and preferences.

"Our study indicates that greater adherence to any of the four healthy eating patterns we looked at is associated with a lower risk of cardiovascular disease and the health benefits persist across racial and ethnic groups," said study first author Zhilei Shan from Harvard TH Chan School of Public Health in the US.

To assess the associations of each pattern with CVD risk, the researchers looked at data from 74,590 women enrolled in the Nurses' Health Study, 90,384 women in the Nurses' Health Study II, and 43,339 men in the Health Professionals Follow-Up Study.

The study found that participants who adhered mostly to healthy eating patterns had a 14 percent to 21 percent lower risk of CVD when compared with those who adhered least. The findings also showed that these different healthy eating patterns were similarly effective at lowering CVD risk across racial and ethnic groups and other subgroups.

After 10 years, the wife starts to think, their child looks strange, so she decides to do a DNA test. She finds out that, the child is from completely different parents.

Wife: I have something very serious to tell you.
Husband: What is up?
Wife: DNA results says this is not our child.
Husband: Well you do not remember, do you?
When we were leaving the hospital, we noticed that our baby had wet and soiled its diapers and you said, "Please go change the baby, I'll wait for you here". That is when I went inside, got a clean child and left the dirty one there.

Moral: Never give a man a job, that does not belong to him.

Jyotiraditya Scindia: So, Mr. Tharoor would you like to join BJP next?
Tharoor: With recompense obeisance to your propoundment I will sedately ruminate on its efficacy and reciprocate proportionately.

In a Book Store: "Do you have a book called, 'Husband – The BOSS of the House!'?
Sales Girl: "Sir, comics are on the 1st floor".

Keemat: July – August 2020
Currently there are two types of diagnostic tests – molecular (RT-PCR) tests that detect the virus’s genetic material, and antigen tests that detect specific proteins on the surface of the virus.

**Types of Tests:** There are two different types of tests
- diagnostic tests and
- antibody tests.

A diagnostic test can show if you have an active coronavirus infection and should take steps to quarantine or isolate yourself from others. Currently there are two types of diagnostic tests – molecular (RT-PCR) tests that detect the virus’s genetic material and an antibody test looks for antibodies that are made by the immune system in response to a threat, such as a specific virus. Antibodies can help fight infections. Antibodies can take several days or weeks to develop after you have an infection and may stay in your blood for several weeks after recovery. Because of this, antibody tests should not be used to diagnose an active coronavirus infection.

Currently, researchers do not know if the presence of antibodies means that you are immune to the coronavirus in the future.

### DIFFERENT TYPES OF CORONAVIRUS TESTS

<table>
<thead>
<tr>
<th>Molecular Test</th>
<th>Antigen Test</th>
<th>Antibody Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Also known as...</td>
<td>Diagnostic test, viral test, molecular test, nucleic acid amplification tests (NAAT), RT-PCR tests</td>
<td>Rapid diagnostic test (Some molecular tests are also rapid tests.)</td>
</tr>
<tr>
<td>How the sample is taken...</td>
<td>Nasal or throat swab (most tests) Saliva (a few tests)</td>
<td>Nasal or throat swab</td>
</tr>
<tr>
<td>How long it takes to get results...</td>
<td>Same day (some locations) or up to a week</td>
<td>One hour or less</td>
</tr>
<tr>
<td>Is another test needed...</td>
<td>This test is typically highly accurate and usually does not need to be repeated.</td>
<td>Positive results are usually highly accurate but negative results may need to be confirmed with a molecular test.</td>
</tr>
<tr>
<td>What it shows...</td>
<td>Diagnoses active coronavirus infection</td>
<td>Diagnoses active coronavirus infection</td>
</tr>
<tr>
<td>What it cannot do...</td>
<td>Show if you ever had COVID-19 or were infected with the coronavirus in the past</td>
<td>Definitively rules out active coronavirus infection. Antigen tests are more likely to miss an active coronavirus infection compared to molecular tests. Your health care provider may order a molecular test if your antigen test shows a negative result but you have symptoms of COVID-19.</td>
</tr>
</tbody>
</table>

#### New diagnostic tests – Alternative methods & benefits.
- **Rapid, point-of-care diagnostic tests** use a mucus sample from the nose or throat but can be analyzed at the doctor’s office or clinic where the sample is collected and results may be available in minutes. It may be molecular or antigen tests.
- **At-home collection** tests are prescribed by a doctor but allow the patient to collect the sample at home and send it directly to the lab for analysis.
- **Saliva tests** allow a patient to spit into a tube rather than get their nose or throat swabbed. Saliva tests may be more comfortable for some people and may be safer for health care workers who can be farther away during the sample collection.

**Molecular Tests:** Many companies and labs have developed tests to diagnose COVID-19 based on detection of the virus’s genetic material in a sample from the patient’s nose or throat.

**Typical steps in this type of molecular testing are:**
- A health care professional orders a COVID-19 test. All COVID-19 tests, including those used with a home collection kit, require a prescription.
- **You or a health care professional use** a specialized, sterile swab to collect mucus from your nose or throat.
- **You or a health care professional put** the swab in a sterile container and seal it for transport to a lab.
- **During the shipping process,** the swab must be kept within a certain temperature range to keep the virus alive so that the test will be accurate. The sample must arrive at the lab within 72 hours.
- **A lab technician mixes** chemicals with the swab to extract the genetic material of any virus that may be on the swab. The lab technician uses special chemicals, called primers and probes, and a high-tech machine to conduct several controlled heating and cooling cycles to convert the virus’s RNA into DNA, and then make millions of copies of the DNA.
- **When DNA binds to specific probes,** a special type of light is produced that can be seen by the machine and the test shows a “positive” result for infection with SARS-CoV-2, the virus that causes COVID-19.
- **The FDA continues to work** with test developers to streamline the testing process, making more coronavirus tests available to more people in the future.

Keemat: July – August 2020
• Molecular diagnostic tests, that detect the genetic material of the virus itself are commonly used for diagnosing COVID-19 or active coronavirus infection, but this is not 100% accurate all the time.

Some things that may affect the test’s accuracy include:
• You may have the virus, but the swab might not collect it from your nose or throat.
• The swab or mucus sample may be accidentally contaminated by the virus during collection or analysis.
• The nasal or throat swab may not be kept at the correct temperature before it can be analyzed.
• The chemicals used to extract the virus genetic material and make copies of the virus DNA may not work correctly.

Understanding the basics of clinical trials

Courtesy: National Library of Medicine’s PubMed® database

What are clinical trials and why do people participate?
Clinical research is medical research that involves people like you. When you volunteer to take part in clinical research, you help doctors and researchers learn more about disease and improve health care for people in the future. Clinical research includes all research that involves people.

Types of clinical research include:
• Epidemiology, which improves the understanding of a disease by studying patterns, causes, and effects of health and disease in specific groups.
• Behavioral, which improves the understanding of human behavior and how it relates to health and disease.
• Health services, which looks at how people access health care providers and health care services, how much care costs, and what happens to patients because of this care.
• Clinical trials, which evaluate the effects of an intervention on health outcomes.

What are clinical trials & Why would I want to take part?
Clinical trials are part of clinical research and at the heart of all medical advances. Clinical trials look at new ways to prevent, detect, or treat disease. Clinical trials can study:
• New drugs or new combinations of drugs
• New ways of doing surgery
• New medical devices
• New ways to use existing treatments
• New ways to change behaviors to improve health
• New ways to improve the quality of life for people with acute or chronic illnesses.

The goal of clinical trials is to determine if these treatment, prevention, and behavior approaches are safe and effective. People take part in clinical trials for many reasons. Healthy volunteers say they take part to help others and to contribute to moving science forward. People with an illness or disease also take part to help others, but also to possibly receive the newest treatment and to have added (or extra) care and attention from the clinical trial staff. Clinical trials offer hope for many people and a chance to help researchers find better treatments for others in the future.

How does the research process work?
The idea for a clinical trial often starts in the lab. After researchers test new treatments or procedures in the lab and in animals, the most promising treatments are moved into clinical trials. As new treatments move through a series of steps called phases, more information is gained about the treatment, its risks, and its effectiveness.

Antigen Tests: Antigen tests usually provide results diagnosing an active coronavirus infection faster than molecular tests, but antigen tests have a higher chance of missing an active infection. If an antigen test shows a negative result indicating that you do not have an active coronavirus infection, your health care provider may order a molecular test to confirm the result.

Antibody Tests: Antibody tests may provide quick results, but should not be used to diagnose an active infection. Antibody tests only detect antibodies the immune system develops in response to the virus, not the virus itself, therefore the antibodies may not have developed yet. It can take days to several weeks to develop enough antibodies to be detected in a test.

What are clinical trial protocols?
Clinical trials follow a plan known as a protocol. The protocol is carefully designed to balance the potential benefits and risks to participants, and answer specific research questions. A protocol describes the following:
• The goal of the study
• Who is eligible to take part in the trial?
• Protections against risks to participants
• Details about tests, procedures, and treatments
• How long the trial is expected to last
• What information will be gathered

A clinical trial is led by a principal investigator (PI). Members of the research team regularly monitor the participants’ health to determine the study’s safety and effectiveness.

What is an Institutional Review Board?
Most, but not all, clinical trials in the United States are approved and monitored by an Institutional Review Board (IRB) to ensure that the risks are reduced and are outweighed by potential benefits. IRBs are committees that are responsible for reviewing research to protect the rights and safety of people who take part in research, both before the research starts and as it proceeds. You should ask the sponsor or research coordinator whether the research you are thinking about joining was reviewed by an IRB.

What is a clinical trial sponsor?
Clinical trial sponsors may be people, institutions, companies, government agencies, or other organizations that are responsible for initiating, managing or financing the clinical trial, but do not conduct the research.

What is informed consent?
Informed consent is the process of providing you with key information about a research study before you decide whether to accept the offer to take part. The process of informed consent continues throughout the study. To help you decide whether to take part, members of the research team explain the details of the study. If you do not understand English, a translator or interpreter may be provided.

The research team provides an informed consent document that includes details about the study, such as its purpose, how long it is expected to last, tests or procedures that will be done as part of the research, and who to contact for further information. The informed consent document also explains risks and potential benefits. You can then decide whether to sign the document. Taking part in a clinical trial is voluntary and you can leave the study at any time.
What are the different types of clinical trials?
- **Prevention trials** look for better ways to prevent a disease in people who have never had the disease or to prevent the disease from returning. Approaches may include medicines, vaccines, or lifestyle changes.
- **Screening trials** test new ways for detecting diseases or health conditions.
- **Diagnostic trials** study or compare tests or procedures for diagnosing a disease or condition.
- **Treatment trials** test new treatments, new combinations of drugs, or new approaches to surgery or radiation therapy.
- **Behavioral trials** evaluate or compare ways to promote behavioral changes designed to improve health.
- **Quality of life trials (or supportive care trials)** explore and measure ways to improve the comfort and quality of life of people with conditions or illnesses.

What are the phases of clinical trials?
Clinical trials are conducted in a series of steps called “phases”. Each phase has a different purpose and helps researchers answer different questions.
- **Phase I trials**: Researchers test a drug or treatment in a small group of people (20–80) for the first time. The purpose is to study the drug or treatment to learn about safety and identify side effects.
- **Phase II trials**: The new drug or treatment is given to a larger group of people (100–300) to determine its effectiveness and to further study its safety.
- **Phase III trials**: The new drug or treatment is given to large groups of people (1,000–3,000) to confirm its effectiveness, monitor side effects, compare it with standard or similar treatments, and collect information that will allow the new drug or treatment to be used safely.
- **Phase IV trials**: After a drug is approved by the FDA and made available to the public, researchers track its safety in the general population, seeking more information about a drug or treatment’s benefits, and optimal use.

What do the terms placebo, randomization, and blinded mean in clinical trials?
In clinical trials that compare a new product or therapy with another that already exists, researchers try to determine if the new one is as good, or better than, the existing one. In some studies, you may be assigned to receive a placebo (an inactive product that resembles the test product, but without its treatment value).

Comparing a new product with a placebo can be the fastest and most reliable way to show the new product’s effectiveness. However, placebos are not used if you would be put at risk — particularly in the study of treatments for serious illnesses — by not having effective therapy. You will be told if placebos are used in the study before entering a trial.

Randomization is the process by which treatments are assigned to participants by chance rather than by choice. This is done to avoid any bias in assigning volunteers to get one treatment or another. The effects of each treatment are compared at specific points during a trial. If one treatment is found superior, the trial is stopped so that the most volunteers receive the more beneficial treatment.

“Blinded” (or “masked”) studies are designed to prevent members of the research team and study participants from influencing the results. Blinding allows the collection of scientifically accurate data. In single-blind (“single-masked”) studies, you are not told what is being given, but the research team knows. In a double-blind study, neither you nor the research team are told what you are given; only the pharmacist knows. Members of the research team are not told which participants are receiving which treatment, to reduce bias. If medically necessary, however, it is always possible to find out which treatment you are receiving.

Who takes part in clinical trials?
Many different types of people take part in clinical trials. Some are healthy, while others may have illnesses. Research procedures with healthy volunteers are designed to develop new knowledge, not to provide direct benefit to those taking part. Healthy volunteers have always played an important role in research. Healthy volunteers are needed for several reasons. When developing a new technique, such as a blood test or imaging device, healthy volunteers help define the limits of “normal”. These volunteers are the baseline against which patient groups are compared and are often matched to patients on factors such as age, gender, or family relationship. They receive the same tests, procedures, or drugs the patient group receives.

Researchers learn about the disease process by comparing the patient group to the healthy volunteers. Factors like how much of your time is needed, discomfort you may feel, or risk involved depends on the trial. While some require minimal amounts of time and effort, other studies may require a major commitment of your time and effort, and may involve some discomfort. The research procedure(s) may also carry some risk. The informed consent process for healthy volunteers includes a detailed discussion of the study’s procedures and tests and their risks.

A patient volunteer has a known health problem and takes part in research to better understand, diagnose, or treat that disease or condition. Research with a patient volunteer helps develop new knowledge. Depending on the stage of knowledge about the disease or condition, these procedures may or may not benefit the study participants. Patients may volunteer for studies like those in which healthy volunteers take part. These studies involve drugs, devices, or treatments designed to prevent, or treat disease. Although these studies may provide direct benefit to patient volunteers, the main aim is to prove, by scientific means, the effects and limitations of the experimental treatment. Therefore, some patient groups may serve as a baseline for comparison by not taking the test drug, or by receiving test doses of the drug large enough only to show that it is present, but not at a level that can treat the condition.

Researchers follow clinical trials guidelines when deciding who can participate, in a study. These guidelines are called Inclusion/Exclusion Criteria. Factors that allow you to take part in a clinical trial are called “inclusion criteria”. Those that exclude or prevent participation are “exclusion criteria”. These criteria are based on factors such as age, gender, the type and stage of a disease, treatment history, and other medical conditions. Before joining a clinical trial, you must provide information that allows the research team to determine whether you can take part in the study safely. Some research studies seek participants with illnesses or conditions to be studied in the clinical trial, while others need healthy volunteers. Inclusion and exclusion criteria are not used to reject people personally. Instead, the criteria are used to identify appropriate participants and keep them safe, and to help ensure that researchers can find new information they need.

What do I need to know if I am thinking about taking part in a clinical trial?

**Risks and potential benefits**: Clinical trials may involve risk, as can routine medical care and the activities of daily living. When weighing the risks of research, you can think about these important factors:
- The possible harms that could result from taking part in the study
- The level of harm
- The chance of any harm occurring
Most clinical trials pose the risk of minor discomfort, which lasts only a short time. However, some study participants experience complications that require medical attention. In rare cases, participants have been seriously injured or have died of complications resulting from their participation in trials of experimental treatments. The specific risks associated with a research protocol are described in detail in the informed consent document, which participants are asked to consider and sign before participating in research. Also, a member of the research team will explain the study and answer any questions about the study. Before deciding to participate, carefully consider risks and benefits.

**Potential benefits:** Well-designed and well-executed clinical trials provide the best approach for you to:

- Help others by contributing to knowledge about new treatments or procedures.
- Gain access to new research treatments before they are widely available.
- Receive regular and careful medical attention from a research team that includes doctors and other health professionals.

**Risks:** Risks to taking part in clinical trials include the following:

- There may be unpleasant, serious, or even life-threatening effects of experimental treatment.
- The study may require more time and attention than standard treatment would, including visits to the study site, more blood tests, more procedures, hospital stays, or complex dosage schedules.

**What questions should I ask if offered a clinical trial?**

If you are thinking about taking part in a clinical trial, you should feel free to ask any questions or bring up any issues concerning the trial at any time. The following suggestions may give you some ideas as you think about your own questions.

**The study**

- What is the purpose of the study?
- Why do researchers think the approach may be effective?
- Who will fund the study?
- Who has reviewed and approved the study?
- How are study results and safety of participants being monitored?
- How long will the study last?
- What will my responsibilities be if I take part?
- Who will tell me about the results of the study and how will I be informed?

**Risks and possible benefits**

- What are my possible short-term benefits?
- What are my possible long-term benefits?
- What are my short-term risks, and side effects?
- What are my long-term risks?
- What other options are available?
- How do the risks and possible benefits of this trial compare with those options?

**Participation and care**

- What kinds of therapies, procedures and/or tests will I have during the trial?
- Will they hurt, and if so, for how long?
- How do the tests in the study compare with those I would have outside of the trial?
- Will I be able to take my regular medications while taking part in the clinical trial?
- Where will I have my medical care?
- Who will oversee my care?

**Personal issues**

- How could being in this study affect my daily life?
- Can I talk to other people in the study?

**Cost issues**

- Will I have to pay for any part of the trial such as tests or the study drug?
- If so, what will the charges likely be?
- What is my health insurance likely to cover?
- Who can help answer any questions from my insurance company or health plan?
- Will there be any travel or child care costs that I need to consider while I am in the trial?

**Tips for asking your doctor about trials**

- Consider taking a family member or friend along for support and for help in asking questions or recording answers.
- Plan what to ask — but do not hesitate to ask any new questions.
- Write down questions in advance to remember them all.
- Write down the answers so that they are available when needed.
- Ask about bringing a tape recorder to make a taped record of what is said (even if you write down answers).

*This information courtesy of Cancer.gov.*

**How is my safety protected?**

**Ethical guidelines:** The goal of clinical research is to develop knowledge that improves human health or increases understanding of human biology. People who take part in clinical research make it possible for this to occur. The path to finding out if a new drug is safe or effective is to test it on patients in clinical trials. The purpose of ethical guidelines is both to protect patients and healthy volunteers, and to preserve the integrity of the science.

**Informed consent:** Informed consent is the process of learning the key facts about a clinical trial before deciding whether to participate. The process of providing information to participants continues throughout the study. To help you decide whether to take part, members of the research team explain the study. The research team provides an informed consent document, which includes such details about the study as its purpose, duration, required procedures, and who to contact for various purposes. The informed consent document also explains risks and potential benefits. If you decide to enroll in the trial, you will need to sign the informed consent document and free to withdraw from the study at any time.

**IRB review:** Most, but not all, clinical trials are approved and monitored by an Institutional Review Board (IRB) to ensure that the risks are minimal when compared with potential benefits. An IRB is an independent committee that consists of physicians, statisticians, and members of the community who ensure that clinical trials are ethical and that the rights of participants are protected. You should ask the sponsor or research coordinator whether the research you are considering participating in was reviewed by an IRB.

**What happens after a clinical trial is completed?**

After a clinical trial is completed, the researchers carefully examine information collected during the study before making decisions about the meaning of the findings and about the need for further testing. After a phase I or II trial, the researchers decide whether to move on to the next phase or to stop testing the treatment or procedure because it was unsafe or not effective. When a phase III trial is completed, the researchers examine the information and decide whether the results have medical importance. Results from clinical trials are often published in peer-reviewed scientific journals. Peer review is a process by which experts review the

Keemat: July – August 2020
How does clinical research make a difference to me and my family?

What to Do When Other People Aren’t Social Distancing

SETH J. GILLIHAN, PHD, Clinical psychologist

I was recently on our afternoon hike with my wife and kids, dutifully wearing our masks and observing social distancing guidelines. Suddenly a runner without a mask passed us from behind, huffing and puffing his breath cloud into our shared air as he came within two or three feet of us. I was irritated that a person potentially could expose us to the coronavirus when we were doing our best to protect ourselves and others. If you are being strict with your social distancing, chances are there are people around you who are being less careful. While the majority seem to understand the need to limit contact with others to slow the spread of the coronavirus, people vary widely in their social distancing practices. Maybe you wear a face mask religiously in public, while many around you go mask less. Or maybe some people seem oblivious to the six-foot distance guidelines that you faithfully observe. You might be more careful about social distancing than some of your friends and neighbors, or even the people you live with. Maybe your spouse does not take the virus as seriously as you do, or your teenaged kids act like you are freaking out for no reason and ignore your pleas to social distance. What can you do if you find yourself in a situation where others are throwing caution to the wind?

Safely Considerations: First, be very careful about confronting a stranger about their social distancing practices. This topic is highly charged and has become a major point of contention in the debate about how and when to restart the economy. Attempts to change others’ behavior could potentially trigger a violent reaction, as has happened several times. You also risk prolonging contact with someone who is at an elevated risk for carrying the coronavirus, given their disregard for social distancing; if they approach you and start yelling, you could get infected. If you notice a persistent problem, contact those who are responsible for the space—for example, the manager of your grocery store or the authorities who oversee your local trails.

Beware of Catastrophizing: Keep in mind that the risk is low for contracting COVID-19 from very small deviations in the social distancing guidelines. For example, if a fellow hiker stumbles and briefly comes within five feet of you, it is unlikely you have just contracted the virus (which would also depend on their carrying it). While it might be frustrating to feel like others are not doing all they can to keep their distance, avoid making yourself more distressed than necessary.

Be Generous: I recently discovered that a family member and I had very different views on what constituted effective social distancing. We follow very similar practices, which I believed to be close to 100% compliant with the recommendations, while they saw us as being more like 89% compliant. I was shocked to learn that what I saw as an A+, they gave a B+. So those who are less careful than you might think they are doing a bang-up job of social distancing. Aim to make the kindest possible interpretation for why others are not being as scrupulous about social distancing. It may not be that they are “selfish”, “arrogant”, or “uninformed”. They might just have a different understanding of risk and of the need to take precautions, and might think they are being quite careful. Maybe they think, for example, that it’s okay to get close to you in the grocery store since you’re both wearing masks (though the CDC guidelines say “keep at least 6 feet between yourself and others, even when you wear a face covering”). Similarly, many people do not seem to know that their leashed pets also need to maintain social distance. Making a different judgment about the reason behind their behavior can make you feel less upset by it (even if the actions themselves are no less risky).

Communicate Honestly to Loved Ones: Let friends or family members know if you are concerned about their social distancing practices. You may not change their minds or their behavior, but at least you will know you did what you could to protect them and those they encounter. Be clear and firm about where your boundaries are. Do not feel pressured to change your behavior if local family or friends try to convince you to hang out with them. Even if they say you are being “ridiculous” or “paranoid”, you do not have to compromise what you believe is right and what you are comfortable with. The biggest challenge may come when you and a family member you live with do not agree on social distancing.

Talk openly with your loved one about your concern, using positive assertive communication:

• Take ownership for your thoughts and feelings, rather than making accusations. For example, say, “I worry that you’re going to bring the virus home to Grandpa”, rather than, “You’re being really stupid and selfish”.

• Say what is on your mind as calmly and rationally as possible. The fear you feel about the virus will likely lead to anger, but an aggressive tone will just put the other person on the defensive and lead nowhere.

• Listen to the other person’s perspective. Try to understand their thoughts and feelings, rather than listening only for what you disagree with. You may not agree with their conclusions, but it helps to know where they are coming from. If they feel truly heard they may also consider changing their behavior.

Control What You Can: Trying to make others do what you want is unlikely to work and usually only leads to frustration. Ultimately you can only control yourself. You cannot force your fellow pedestrians to give a wide berth on sidewalks and trails, for example, but you can take measures to stay as far from them as possible. You might need to limit your exposure to public spaces to the least busy times of day, or avoid narrow trails that make distancing difficult. Remind yourself of the value of accepting the limits of what you can control. This requires a deep level of acceptance, which does not mean resignation about this issue a great deal, even as you acknowledge that your control is limited.

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Dentist: Why one of your teeth is broken?
Man: I ate a murukku prepared by my wife that was very hard!
Dentist: If it was so hard, you should have refused to eat.
Man: Then all my 32 teeth would have been broken, Doctor.
Hungry for interaction after a season of quarantine, many are heading into reopened restaurants and bars, eager to sit down for a meal they did not cook, at someplace other than home. Yet as coronavirus cases climb now in nearly half of all states, and crowds at some eateries reflect pre-pandemic levels, some wonder: Is COVID on the menu tonight?

According to the FDA, the coronavirus does not appear to spread through food, the way some viruses and bacteria can. Instead, COVID germs travel through respiratory droplets, which means you could get sick if an infected person coughs or sneezes near you. Even just being around someone speaking makes you more likely to get the virus.

So just how safe is that table inside a restaurant?

“Our mantra is the more frequently and more closely you interact with other people, and the number of people you interact with, increases your risk,” says Grant Baldwin, PhD, co-leader of the CDC’s Community Interventions and At-Risk Task Force, COVID-19 Response. Restaurants are scrambling to recover after May sales plummeted to below normal expectations for the month.

**Before You Go**

When deciding what is safe and what is not for your family this summer, Baldwin suggests you check your local, state, and community orders and ask yourself some core COVID-19 questions:

- Are you or anyone you live with over age 65 or at risk of severe illness? The risk of getting a serious infection from COVID-19 increases with age and certain medical conditions.
- Do you and those you will be interacting with follow the same steps to prevent infection, such as wearing masks and washing hands?
- Can you maintain 6 feet of social distance in a reasonable way?
- How often will you need to share items? Sharing is not caring during a pandemic. As a rule, do not share items. But if you must, are you (or the restaurant) properly cleaning and disinfecting them between each use?
- What is the current level of COVID-19 spread in your community? “The lower the level of community transmission, the safer it is for you to go out”, says Baldwin.

**CDC Risk Rating**

The CDC ranks the risk of COVID exposure and spread in restaurants from lowest to highest risk:

- **Lowest risk:** No on-site dining. Food must be delivered or picked up and carried off site.
- **More risk:** Takeout, delivery, and drive-thru orders emphasized. On-site dining limited to outdoor seating with reduced capacity and tables spaced at least 6 feet apart.
- **Even more risk:** On-site dining with indoor and outdoor seating. Reduced seating capacity with tables placed at least 6 feet apart.
- **Highest risk:** On-site dining with no changes in seating.

When you are going out to eat, the CDC suggests that you ahead, not only for reservations, but to confirm that COVID-19 safety measures are being followed. Ask if servers and staff wear face coverings while on duty, and if seating follows social distancing requirements. Restaurants and bars must follow state and local health orders, but the use of CDC safety measures may vary between establishments because owners are allowed to make adjustments based on community need.

Also, ask if it is possible to preorder your meal so it is ready for you when you arrive. Doing so helps limit your time spent inside the restaurant. When driving, self-park your car instead of using a valet. Some restaurants now ask that you wait in your vehicle until you receive a text alerting you that your reservation is ready.

**While You are There**

A quiet table for two might offer some post-pandemic peace after sheltering in place with the family. But sharing wings and a pitcher of beer with a bunch of gal pals or buddies? The mixing of hands and sharing of items create a hotbed for all germs, including the coronavirus. Two people reaching for the same nacho at the same time makes it too easy to touch hands, and communal bowls of salsa can wind up with surface contamination.

To protect yourself from catching COVID while dining out, the CDC recommends following these tips:

- Do not go out if you are sick.
- Wear a face covering at the restaurant at all times, except when eating. This includes indoor and outdoor dining areas.
- Stay 6 feet or more away from others who do not live with you. Remember to follow this social distancing rule when entering, exiting, using hallways, and hanging out in a waiting area.
- Do not use self-service food and drink options. Avoid drinking machines, water fountains, buffets, salad bars, salsa bars, and other common areas -- anywhere people are likely to gather close together, and anywhere another customer or employee is likely to have touched something.
- Limit the use of shared utensils, buttons, and touch screens.
- If paying by credit card, bring your own pen to sign the check.
- Before using toilet areas, make sure the restroom has soap and paper towels, or hand sanitizer made with at least 60% alcohol.
- Always wash your hands after using the restroom.

**Ready to order?** Here are some of the things you are likely to see at reopened restaurants and bars.

- Hand sanitizer stations at the entrance. Some restaurants, for instance -- may screen you for COVID symptoms upon arrival.
- A restaurant or bar owner may ask you to wear a mask while inside.
- Fewer customers, and tables spaced 6 feet apart. Although eateries are allowed to reopen, they still must follow state and local laws regarding reduced capacity and social distancing.
- An empty tabletop. Napkins, straws, silverware, and glassware should be given to you when you are seated. 
- Paper or digital menus that are provided to you upon arrival.
- No salt and pepper shakers or condiment bottles. Ask your server for items that you need.
- No more freshly made guacamole or other tableside food items.
- No after-meal mints, candies, snacks, or toothpicks. Your server may offer these, or you can ask if they are available.
- No-touch doors and trashcans.
- To-go boxes filled by customers, not waitstaff.

**When You Leave**

The best way to prevent the spread of the coronavirus or any germs is to properly and regularly wash your hands. When you are done with your meal, and when you get home, wash your hands with soap and water for 20 seconds, or use hand sanitizer that contains at least 60% alcohol.

Each of us is master of his destiny.
BE LAUNDRY WISE: DO’S AND DON’TS
TO PREVENT SPREAD OF COVID 19 THROUGH LAUNDRY
Dr. Nidhi Gupta*; Dr. Seema Sekhri, *Assistant Professor; Associate Professor,
Department of Fabric and Apparel Science Lady Irwin College, University of Delhi

Amidst the widespread knowledge on prevention of novel corona virus through personal hygiene and social distancing, one important issue that has been overlooked is the issue of laundry hygiene. Because, by its very nature, laundered garments and laundry settings are perceived as clean. In general, visual review of a garment is used to evaluate the quality of cleaning processes and any garment free from soil and stains are perceived as clean. However, it is important to realize that any garment which appears to be physically clean may not be hygienically clean. Research data indicates that garments and household linens are often contaminated with infectious micro-organisms which are not visible to naked eye and thus, may serve as a potential source of spread of infections in a household setting. Thus, ensuring hygiene during domestic laundry is very important as microbial, fungal, bacterial and viral transfer can occur between infected and non-infected clothing during washing. Under certain conditions like Covid-19, clothing contaminated with virus during laundry may present a health risk to the wearer and to the laundry handler.

In the past two decades, many scientific researches across globe have addressed the issue of sustainability related to laundry. The aforementioned studies are conclusive of the fact that 80% of environmental impact in a garment’s life cycle comes from laundry and therefore, sustainable laundry practices should be followed. However, at the same time, other school of thought advices that sustainable laundry practices may be beneficial from environmental point of view, however, such practices are not able to deliver garments that are hygienically clean.

Guidelines for prevention and solution

Whilst sustainability issues in laundering is important, equally it is important to consider hygiene issues especially for higher risk categories. The literature review indicates that not every household is susceptible to spread of infection. The spread of infection in a household setting is more in case if there is person with illness in the family or any member of the family is associated with healthcare facilities, or works in the farm, public services, restaurant etc. or if there are infants or pets in the home. Data on the hygiene effectiveness of laundering published by International Scientific Forum on Home Hygiene (2013) is based on the principle that, if we are to minimize energy consumption associated with household laundering whilst at the same time managing infection risks, the items that make up the weekly wash need to be segregated into high risk item (pandemic situation) and low risk items (normal situation) before actual washing. The following best practices should be followed while handling laundry at household level to minimize the spread of infection via laundry route.

<table>
<thead>
<tr>
<th>Category</th>
<th>Sub - category</th>
<th>Best practices for linen (and laundry) handling in a normal situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk items</td>
<td>Healthy family members who are staying at home and with no contact with infected peoples.</td>
<td>Avoid frequent washing. Mild detergent at low temperature is sufficient for daily wear outer clothing. Wash undergarments, socks, linen etc. at 30° - 40° C with an alkaline/bleach containing detergent. Line dry clothes in sunlight or under shade in air. Keep the washing machine clean &amp; dry. Once a month run an empty hot cycle with bleach containing detergent to clean the wash tub.</td>
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<table>
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<tr>
<th>Category</th>
<th>Sub - category</th>
<th>Best practices for linen (and laundry) handling in a pandemic situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High risk items</td>
<td>Infected or vulnerable family members like elderly &amp; new born, healthcare workers, police, cleaning staff, people moving out from home to purchase daily utilities etc.</td>
<td>Keep the laundry items separate and under quarantine for 24 hours. Do not shake off the garment after removing from body. Wash the garments, linens and other textile items used as early as possible. Do not share hand towels. Wash towels daily or once in two days. Hand towels and kerchief napkins should be boiled before washing in washing machine. Wash infant garments, linens and towels separately. Sanitize your laundry bag and area where garments were kept in isolation. Always wear disposable gloves while handling laundry items. Use high temperature like 40° - 60°C or maximum possible temperature as indicated on care label. It is advisable that this category of people wear garments which can be washed at high temperature. Use highly alkaline detergents. Add hypochlorite bleach (0.5%) in the last rinse. Check the care label before using bleach on the article. Add extra rinse cycle i.e. the wash load should be subjected to at least 2, preferably 3 rinse and spin cycles. Wash your hands after removing gloves and sanitize the wash area. Dry laundry completely preferably under sun. If required, iron the garments using steam. Keep the washing machine clean &amp; dry. Once a month run an empty hot cycle with bleach containing detergent to clean the tub. Detergent box should be rinsed and scrubbed weekly - if required, use boiling water. The door of the washing machine and the detergent box should be kept open when the washing machine is not in use to enable inner surfaces of the washing machine to dry.</td>
</tr>
</tbody>
</table>

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Why is milk, clouds and many powders white?
Milk, Clouds and Powders are white because the light that falls on them are scattered by the tiny particles or droplets present in them. When light hits a tiny particle or droplet of water or fat, it bounces all the colors off equally and when an object emits or reflects all colors at the same time, it appears white. The fat droplets that make milk white are present in different sizes with diameters of 120, 400 and 1,500 nanometers, just about the size of a wavelength of visible light viz., 400 to 800 nanometers. Water droplets in clouds range from 6,000 to 14,000 nanometers, a size much too small for human eyes to see, especially when the clouds are almost a mile above us that it looks like a solid object. If particle size is too small, then a powder does not look white, especially when it is present in a liquid. The chemical, titanium dioxide, is bright white in paint but invisible in sunscreens as in this case the particles are smaller than a wavelength of visible light.

Why is the sky blue?
The sky is violet in color, but looks blue because our eyes are much more sensitive to blue light than to violet light. White light from the sun travels through clear air, hitting nitrogen and oxygen molecules, gets scattered a little travelling in a slightly different direction and since there are miles of air between us and the sun, the light scatter many times. How much light is scattered depends on the color with blue light is scattered about 10 times more than red light. We called this as Rayleigh scattering. Violet light scatters the most out of all the light our eyes can see. White light from the sun looks yellow as the violet light is scattered away as our eyes are not very sensitive to violet light. Human eyes are very sensitive to blue, green, and red light. A little bit of the violet light excites the red-light sensing cones in our eyes, making violet light look like blue with a little red in it. This is the reason the sky looks light blue instead of deep blue. When the sun is near the horizon, there is more air between it and our eyes. The light near the sun has more red and yellow because light that is scattered only one or two times without much change of direction moreover, the dust and smog, scatter more red and yellow light making sunsets predominant in red, yellow, orange, and pink color.

Why is water clear?
Water is clear because nothing in it reflects light. We see things because light from the object gets into your eyes. If something has nothing in it to bend or bounce light, we do not see it. Therefore, air and glass are both clear. There are times when we can see these things. If the air has dust in it, we see the dust. If the air in one place is hotter or colder than in another place, we can see the effect of the difference because it bends the light and things on the other side look distorted or appear to move. If glass is perfectly clean, we might not notice it but if the glass is not smooth and flat, it distorts things and we can see through it. If the water or glass has a dye then it absorbs some color of light, and we see all the colors expect that one and we come to know the presence of glass. If the glass absorbs yellow light, it will look blue. Water and most glasses absorb red and yellow light more than blue light, therefore if there is enough water or glass, it looks blue.

Why is grass green?
Grass is green only if we regularly water the lawn. Grasses that have evolved to tolerate drought have less chlorophyll than grasses growing in wetter environments. Chlorophyll pigment present in green plants absorbs red and blue light (to make sugar from water and carbon dioxide) reflects green light, but in absorbing the other colors, it gets warm. If there is not enough water, the blades of grass close the little holes, called stomata, wherein the water evaporates cooling the leaves. If there is not enough water, the plant produces less of the chlorophyll molecule to survive the heat better. In the summer, many grasses (especially in arid or semi-arid areas) lose their chlorophyll altogether turning into straw color. Some plants lose chlorophyll due to its breakdown in sunlight and the plant does not replace it. In some others, the plant actively removes the chlorophyll and stores the valuable materials in another part of the plant, namely seeds as seen in some annual grasses.
Consumer’s Crossword!  (Answers to the clues are present interspersed in the current Keemat itself)

ACROSS
1. Higher. (8)  20. Fatty. (?)
2. Tube (8)  21. Affecting. (9)
4. Cloth. (6)  23. Rapidly increasing in humans, now (6)
6. Medical issue. (10)  25. Adverse benefit. (5)
7. Study (4)  26. It avoids fear. (5)
8. 16. 27. Event. (7)
10. 12. 29. High ph. (8)
11. 9. 30. Wrong. (6)
12. 6. 31. vandalism. (8)
13. 4. 32. A slowly forming ailment. (8)
14. 3. 33. Muffled laugh. (7)
15. 2. 34. Volcanic features. (7)
16. 1. 35. Spreading. (10)
17. 0. 36. It provides oxygen to sick persons. (10)
18. 9. 37. Proud? (8)
19. 8. 38. N. (8)
20. 7. 39. Masked. (7)
21. 6. 40. Cut. (8)
22. 5. 41. Constituents (11)
23. 4. 42. Necessary to face adverse times. (10)
24. 3. 43. Get. (7)
25. 5. 44. A sin. (4)
26. 4. 45. Bins (9)
27. 3. 46. Bar. (3)
28. 1. 47. Fate. (7)
29. 0. 48. Foolish. (6)

DOWN
1. It provides oxygen to sick persons. (10)  18. Colleagues. (4)
4. Aquatic animals popular in tests. (9)  21. vandalism. (8)
6. Quick (5)  23. Rapidly increasing in humans, now (6)
7. Forecast (7)  24. Unreasonable. (10)
8. Growing years. (10)  25. Adverse benefit. (5)
15. Worried? (8)  32. Spreading. (10)
17. Worried? (8)  34. Volcanic features. (7)

Keemat: July – August 2020  Designed by Dr. Sitaram Dixit, Chairman CGSI
LAUGHTER THE BEST MEDICINE

An aged man goes to a confession. He tells the priest that on Friday night, he had been in the bar when he met a young woman. ‘Maybe 22 - 23’ he says. ‘A gorgeous blonde. I started lusting, Father’. ‘Yes’ says the priest, ‘Lust is a dangerous sin, my son’. There’s more says the man. ‘We went back to her place and made passionate love for hours’. Priest pauses, ‘How long, it has been since your last confession?’ ‘I have never come. This is my first’. ‘How come this your first confession?’ ‘I am Buddhist’. ‘Then…………………… why are you telling me all this?’ ‘Telling you? I’m telling everyone in this town!’

Of Fred was in the hospital, badly ill. The family called his personal physician and best friend to stand with them. As his best friend stood next to the bed, Of Fred’s condition appeared to deteriorate and he motioned frantically for something to write on. His friend lovingly handed him a pen and a piece of paper, and Of Fred used his last bit of energy to scribble a note, then immediately after, died. The friend, in his grief, put the note in his wallet and forgot about it. 2 days later, at the funeral, as he was finishing a speech about the life of his best friend Fred, he realized that he still had the note. He said, ‘You know, Of Fred handed me a note just before he died. I haven’t looked at it, but knowing Fred, I’m sure there’s a word of inspiration there for us all’. He opened the note and read, ‘You are standing on my oxygen tube’.

Proud American, walks into a pub, and says, ‘I’ll bet $500 that none of you can drink 10 pints of Guinness in 10 minutes. People raise their heads, but ignore the absurd bet and go back to drinking and merrymaking, except an Irishman who leaves the bar. Some time passes and the Irishman comes back to the pub and approaches the American. ‘Is yer bet still on the table?’ The American replies, ‘Sure it is! Bartender, get this man his drinks’. The bartender lines up 10 pints of Guinness on the bar. Irishman starts drinking up all the Guinness in less than 5 minutes. American hands over the money and asks, ‘Well, may I ask where you went earlier? Did you go to prepare in some ancient Irish way?’ ‘Nah! I went to the pub next door to try and check if I could do it’.

A defendant was on trial for murder. There was strong evidence indicating guilt, but no body had been found. When giving the closing statement, his high-flying lawyer knew there was a good chance of him being convicted. ‘Ladies and gentlemen of the jury, I have a surprise for you all’, said the lawyer. ‘Within one minute, the person presumed dead in this case will walk into this courtroom’. And she turned and pointed at the courtroom door. The jurors, somewhat stunned, all looked on eagerly. A minute passed. Nothing happened. Finally, the lawyer said, ‘I made up the previous statement. But you all looked on with anticipation. I therefore put to you that you have a reasonable doubt in this case as to whether anyone was killed and insist that you return a verdict of not guilty’. The jury, clearly confused, retired to deliberate. A few minutes later, the jury returned and pronounced a verdict of guilty. ‘But how?’ inquired the lawyer. ‘You must have had some doubt – I saw all of you stare at the door!’ Jury foreman replied: ‘Oh, we did, but your client didn’t’.

A blonde, wanting to earn some money, decided to hire herself out, handyman-types and started canvassing a wealthy neighborhood. She went to the front door of the first house and asked the owner if he had any jobs for her to do. ‘Well, you can paint my porch. How much will you charge?’ The blonde said, ‘How about 50 dollars?’ The man agreed and told her that the paint and ladders that she might need were in the garage. The man’s wife, inside the house, heard the conversation and said to her husband, ‘Does she realize that the porch goes all the way around the house?’ The man replied, ‘She should. She was standing on the porch’. A short time later, the blonde came to the door to collect her money. ‘You’re finished already?’ he asked. ‘Yes’, the blonde answered, ‘and I had paint left over, so I gave it two coats. ’Impressed, the man reached in his pocket for the $50. ‘And by the way’, the blonde added, ‘that’s not a Porch, it’s a Ferrari’.

At a World Brewing Convention in the US, the CEOs of various brewing organizations go to the bar at end of day’s conferencing. Bruce, the boss of Fosters, shouts to the bartender, ‘in ‘Straliya, we make the world’s best bloody, so pour me a Fosters, cobber’. Rob, chief of Budweiser, calls out, ‘in States, we brew the world’s finest beers and I make the king of them all. Give me a pint of Bud’. Hans steps up next, “In Germany we invented beer. Give me a Beck’s, the real king of beers’. Joe, the CEO of Guinness, steps forward saying, “Barman, please give me a coke with ice”. The other four stare at him in stunned silence with amazement written all over their faces. Eventually, Bruce asks, “You not going to have a Guinness, Pat?” Patrick replies, ‘Well, if you lot aren’t drinking, then neither am I’.

Two Roofers, Bob and Dan, were putting a new roof on a barn when a bundle of shingles slid down the slope knocking the ladder over. Bob and Dan decided since it was early, they would continue working, as someone would surely come around by quitting time. It was nearing 5 PM and they had not seen hide nor hair of anyone. So, they walk around the roof and finally decide there was only one way down. On the West side of the barn was a big manure pile. Bob says, ‘It’s the only way down. I will go first’, Bob jumped. Dan heard the squishy landing, ‘Hey Bob! How deep did you go?’ Bob yells back, ‘I went up to my ankles Dan, come on JUMP!’ Dan jumps………………….. and sinks clear up to his nose in manure! ‘Bob, I thought when you jumped you went up to your ankles’ ‘I did…………………..’. Explains Bob, ‘but I landed head first’.

An old man and his wife married for more than 60 years had shared everything, talked about everything, had kept no secrets from each other, except that the little old woman had a locked chest on top of her closet that she had cautioned her husband never to open or ask her about. All these years, he had never thought about the chest, but one day the woman got very sick and the doctor said she would not recover. In trying to sort out their affairs, the old man took the chest to his wife’s bedside. She agreed that it was time he should know what was in the chest. Opening he found two crocheted dolls and a stack of money about $95,000. He asked her about it. She said, ‘When we were to be married, my grandmother told me the secret of a happy marriage was to never argue and that if I ever got angry with you, I should just keep quiet and crochet a doll!’. The old man moved; fought back his tears as only two precious dolls were in the chest. She had only been angry with him two times in all those years of living and loving. Bursting with happiness, he said, ‘That explains the doll, but what about all of this money?’ She says, ‘Oh!’, ‘That’s the money I made by selling other dolls’.

Believing everybody is dangerous; believing nobody is very dangerous. – Abraham Lincoln
The mankind is passing through difficult times. The rising stress levels, terror attacks, environmental pollution... there are dangers lurking in every corner. When the times get difficult, we need to renew our faith. It’s faith that pulls one through difficult times. It brings out the hidden courage and potential in more ways than one.

Another thing you need to have in order to sail through difficult times is a calm mind. When the mind is calm and you are centred, it’s much easier to face any situation. For this, you need to train the mind a little to live in the present moment and drop the stress. This can be done by attending to your breath.

Combine the inner calm with your faith, and then you have the formula to face any situation. Having faith is to realise that God’s protection is there for you. This much faith is enough to move ahead in life.

If you do not have faith, you will go into fear and depression. You will not have anything to hold onto. If you have faith, you will be able to find a ground. And when you have faith that everything will be alright, everything will settle down.

The role of faith in the materialistic world is even more apparent as it saves one from suicidal tendencies and helps him or her see the cause of something beyond the apparent. When the life is based on faith, one follows the wisdom rather than getting caught up in revenge and hatred.

To face adverse situations in life, commitment is essential. Every small thing or big thing in life runs on commitment. Usually we think we should first have the resources and then commit. Greater the commitment you take, greater the resources you get. This is a law of nature. When you have the intention to do something good, the needed resources simply flow when it is needed and how much it is needed.

Another way is to expand your vision to include the entire humanity. More will be given to you only if you utilise properly what you already have! This is another law of nature. Be committed to serve the world, and then you will be able to face any difficult time.

Mother, I bow to thee!
Rich with thy hurrying streams,
Bright with orchard gleams,
Cool with thy winds of delight,
Dark fields waving Mother of might, Mother free.

Glory of moonlight dreams,
Over thy branches and lordly streams,
Clad in thy blossoming trees,
Mother, giver of ease!
Laughing low and sweet!
Mother I kiss thy feet,
Speaker sweet and low!
Mother, to thee I bow. [Verse 1]

Who hath said thou art weak in thy lands
When the swords flash out in seventy million hands
And seventy million voices roar
Thy dreadful name from shore to shore?
With many strengths who art mighty and stored,
To thee I call Mother and Lord!
Thou who savest, arise and save!
To her I cry who ever her foeman drove
Back from plain and sea
And shook herself free. [Verse 2]

Thou art wisdom, thou art law,
Thou art heart, our soul, our breath
Thou art love divine, the awe
In our hearts that cannot death
Thine the strength that nerves the arm,
Thine the beauty, thine the charm.
Every image made divine
In our temples is but thine. [Verse 3]

Thou art Durga, Lady and Queen,
With her hands that strike and her swords of sheen,
Thou art Lakshmi lotus-throned,
And the Muse a hundred-toned,
Perfect with that peer,
Mother lend thine ear,
Rich with thy hurrying streams,
Bright with thy orchard gleams,
Dark of hue O candi-fair [Verse 4]

In thy soul, with bejeweled hair
And thy glorious smile divine,
Loveliest of all earthly lands,
Showering wealth from well-stored hands!
Mother, mother mine
Mother sweet, I bow to thee,
Mother great and free! [Verse 5]
15 Powerful Ways for Packing and Traveling Like a Minimalist

- Be Realistic in Clothing Choices. Pack Must Haves, Not the Nice to Haves
- Doing Your Own Laundry Will Help You to Carry Minimum Number of Clothes
- Invest in Well Organized Bag That can Accommodate all Necessary Things
- Unless Required, Keep all Your Gadgets at Home Except Your Smartphone to Remain in Touch With Everyone
- Evaluate Your Toiletries and Makeup Bag and Carry Only Those Items That you Actually Need
- Buy a Comfortable Shoe and Avoid Carry Pair of Trendy Shoes
- Carry a Small Bag. It Will Reduce the Temptation to Keep Adding Unnecessary Things
- Carry a eReader or Tablet if You to Read Your Favorite Reading Material
- Embrace Simple and Natural Living. Give Yourself a Break From Products That You Don’t Need at all
- Stick to a Budget. It Will Refrain Yourself From Impulse Buying
- Lose the Bulky Wallet. Remove all Old Cards and Receipts, Business Cards, Grocery Visiting Cards
- Ditch Bulky Travel Books. Load Your eBook With Popular Travel Guides
- Pack Your Itinerary, Not Your Destination. Think About Your Travel Plans and Travel Accordingly
- Carry Less Eatables. Shop for Food as You Travel. Look Out For Hotels With Kitchens so That You can Prepare at least One Meal per Day
- Being Minimalist Starts With a Right Mindset. You Need to Separate the “Need” From the “Need” in Your Life and Travels

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