



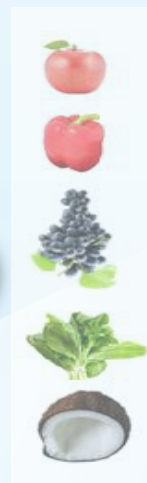
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Essential Nutrition Practices during Covid 19 Pandemic



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1.Introduction on Nutrition

COVID-19 world pandemic imposed a new set of challenges for the individual to maintain a healthy diet.

First, the state of lockdown announced in many led all public and private sector institutions, with the exception of health care facilities and a limited number of essential services, to close down and, if possible, carry its operations remotely (without face to face interactions). Individuals were asked to stay home and avoid contact with other people .

Such measures of self-isolation and social distancing are known to be crucial in limiting the spread of the virus, flattening the curve of incidence rate, and ultimately disease containment .These measures have severe repercussions on both food access and utilization.

Emerging evidence shows that COVID-19 is associated with negative outcomes in older, comorbid patients. COVID-19 indirectly highlights the relevance of nutrition in possibly determining the outcomes.

Older age and the presence of comorbid conditions are almost invariably associated with impaired nutritional status and sarcopenia, independently of body mass index.

Interestingly, a high body mass index score appears to be related to a poor prognosis in comorbid patients with COVID-19, which further points to a possible role of sarcopenic obesity in influencing outcome.

Underlying every other condition is malnutrition, due to both calorie and protein deficiency.



Finally, the timing of nutritional intervention appears to be critical because most patients rapidly progress from cough to dyspnea, and then to respiratory failure and admission to an intensive care unit (ICU) for mechanical ventilation

Prevention :

Proper nutrition and hydration are vital. People who eat a well-balanced diet tend to be healthier with stronger immune systems and lower risk of chronic illnesses and infectious diseases.

So a variety of fresh and unprocessed foods to be taken every day to get the vitamins, minerals, dietary fibre, protein and antioxidants body needs. Enough water to be taken .Sugar, fat and salt to be restricted which will significantly lower the risk of overweight, obesity, heart disease, stroke, diabetes and certain types of cancer.

There is currently no evidence to suggest that COVID-19 can be transmitted through food or food packaging, but sharing food and beverages is discouraged.

It is believed that the virus spreads from person-to-person through close contact or respiratory droplets, for instance when a person coughs or sneezes. However, it may be possible for viruses to survive on surfaces and objects, reinforcing the need to observe proper hygiene and food safety practices.

Though poverty is the main contributing cause, it is greatly aggravated by lack of proper dietary knowledge”



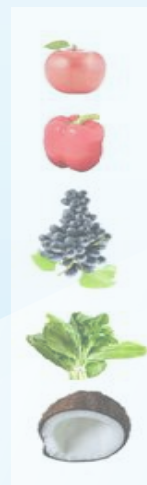
1.1 Recommendations as Messages

Message -1 Eat a nutritious diet and stay hydrated



- Consume 3 main meals and 2 nutritious snacks
- Each meal must comprise one item from energy giving, body building and protective foods
- Limit consumption of processed foods high in fat, salt and sugar
- Limit intake of iodised salt to <5 g (approx. 1 teaspoon)
- Stay hydrated (8-10 glasses of water and fluids daily)
- Continue daily dose of micronutrient supplements
- Intake of caffeine, alcohol, tobacco and other addictive substances should be restricted

Diet is among the many Life Style factors that influence the risk of developing Chronic Diseases

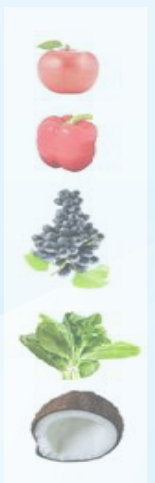


1.1.Swap in healthy dried/frozen alternatives when fresh fruits and vegetables are NOT available/accessible



- Dried food items like dried beans, various pulses, legumes and grains such as lentils split peas, rice, couscous or quinoa, dried vegetables are also nutritious, long-lasting options that are tasty, affordable and filling
- Rolled oats cooked with milk or water can serve as an excellent breakfast option, and can be spiced up with yoghurt, chopped fruits or raisins. Sprouting and fermenting foods (pulses, rice, milk etc) further enhances nutritive value of these products
- Fresh vegetables when available can be cut and frozen in packets at home.

Omega 3 Fatty Acid - Prevent depression, Improve infant cognitive and visual performance, Reduce incidence of preterm deliveries



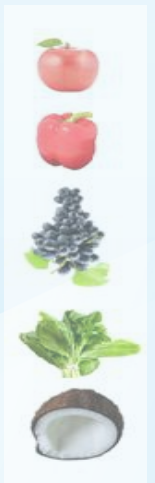
- Tomatoes can be pureed, ginger-garlic can be made into a paste, onion

Message -2 Low cost healthy recipes at Home



- Nutritious and well balanced low cost recipes can be achieved from very simple, cost-effective and easily available ingredients
- Recipes on cereal pulse vegetable etc. can be easily prepared at home using low cost ingredients in current situation also
- Recipes can be developed using 4-5 low cost, locally available ingredients at home
- Awareness, usage of variety of local foods and creative approach is the key

Healthy infant's birthweight doubles by 6mnths and triples by first year.
Requires 100 Kcal / day



Message 3: Immunity boosters

- No food can be designated as a super food to prevent or cure COVID-19
- Several foods rich in antioxidant nutrients (Vitamin C, Vitamin E and Vitamin A), Protein, Iron, Zinc and Selenium and omega 3 and omega 6 fatty acids boost immunity

Food Groups	Food items
Dark green leafy vegetables	Amaranth leaves, fenugreek leaves spinach etc.
Vitamin C rich foods	Lemon, amaranth leaves, orange, melon etc.
Yellow-orange fruits & vegetables	Carrot, papaya, mango, orange, lemon etc.
Nuts	Almonds, walnuts, coconut (dry), gingelly seeds, safflower seeds, sunflower seeds, pumpkin seeds, flaxseeds, chia seeds, poppy seeds, niger seeds, mustard seeds etc.)
Millets	<i>Bajra, ragi, jowar</i> etc.
Whole pulses and legumes	Bengal gram (whole), horse gram (whole), green gram (whole), rajma, soyabean etc.
Egg & Non-Veg	Meats, chicken, fish and egg
Milk and milk products	Curd, paneer
Omega 3 & Omega 6 fatty acids rich oil	Safflower oil, sunflower oil, corn oil, soybean oil etc.
Herbs, spices and condiments	Garlic, ginger, black pepper, turmeric, cloves, basil / tulsi

Young children below the age of 5 years should be given less bulky foods, rich in energy and protein such as legumes, pulses, nuts, edible oil/ghee, sugar, milk and eggs



Top 3 Diet Rich Sources

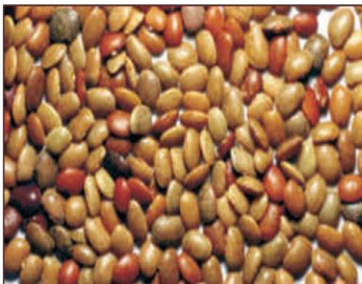
Iron



Poultry, chicken, liver
Iron- 9.9 mg



Bengal gram, whole
Iron- 9.5 mg



Horse gram, whole
Iron- 8.8 mg

Folate



Catla Fish
Total folate - 1926 µg



Moth beans
Total folate - 329 µg



Rajma
Total folate - 316 µg

Frequent changes in the menu are often liked by children.



Top 3 Diet Rich Sources

Vitamin B12



Salmon Fish
Vitamin B12- 6.9 µg



Milk
Vitamin B12- 1.0 µg



Egg
Vitamin B12- 0.5 µg

Zinc



Oyster mushroom, dried
Zinc - 8.67 mg



Poppy seeds
Zinc - 7.77 mg



Gingelly seeds
Zinc - 6.38 mg

Feeding Problems among Children are : Picky eating, Eating small meals, Unwillingness to try new foods, Limited intake of vegetables and other foods Exhibit strong food preferences



Top 3 Diet Rich Sources

Vitamin A



Goat liver
Vitamin A - 15655 µg



Drumstick leaves
Vitamin A - 2193 µg

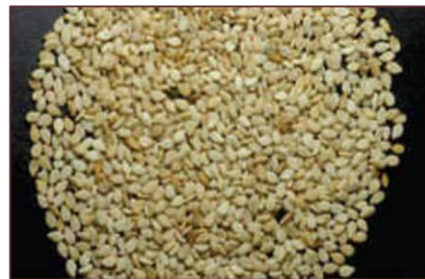


Fenugreek leaves
Vitamin A - 1156 µg

Vitamin D



Oyster mushroom, dried
Vitamin D - 109 µg

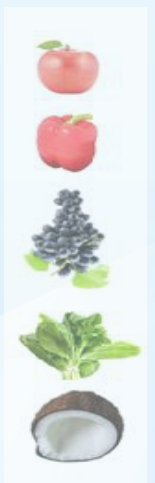


Gingelly seeds
Vitamin D - 76.51 µg



Soyabean, white
Vitamin D - 69.9 µg

Tackle Picky eater -Make it a rule that your child has to take at least one bit of whatever food you make. Research shows that it can take 10 exposures to help acquire a taste for the food.



Top 3 Diet Rich Sources

Protein



Soyabean, white
Protein- 37.8 g



Tuna Fish
Protein- 24.5 g



Lentil
Protein- 24.4 g

Vitamin C



Gooseberry
Vitamin C- 252 mg



Guava
Vitamin C- 222 mg



Agathi leaves
Vitamin C- 121 mg

Marasmus -It is starvation in infants occurring due to overall lack of calories.
KwashiorkarIt is a form of malnutrition caused by lack of protein in the diet



Top 3 Diet Rich Sources

Vitamin E



Safflower seeds
Vitamin E- 35.09 mg



Almonds
Vitamin E- 25.86 mg



Coconut, dry
Vitamin E- 6.06 mg

Message 4: Stay physically active

- Do at least 60 minutes of indoor physical activity daily
- ❖ Yoga
- ❖ Aerobics
- ❖ Dancing
- ❖ Stretching exercises etc.



Recommended criteria for identifying Severe Acute Malnutrition in children >6 months-Visible severe Wasting and /or Mid Arm circumference(MUAC) <11.5cm and /or Edema of both feet and/ or Weight for height < -3SD

- Between 11:00 am - 1:00 pm for 30-40 minutes expose yourself to sunlight in balcony/terrace/courtyard to maintain vitamin D levels
- Exercise together with family – more enjoyable and fosters healthy routine



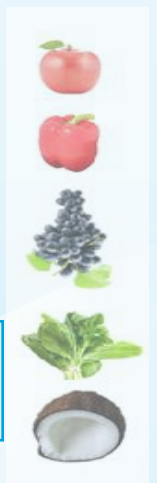
Message 5: Maintain food hygiene while purchasing, cooking and storing food

Food Hygiene Tips

- Wash unpackaged produce, such as fruit and vegetables, and packets of consumables like milk, curd etc. thoroughly under running water
- Wash your hands thoroughly with soap and water for at least 20 seconds before preparing any food



If SAM child has complication viz Respiratory infection, Diarrhea, Skin infection, Hypothermia, Hypoglycemia and Hypokalemia , then the child needs facility based care (NRC- Nutrition Rehabilitation Centre) otherwise to be managed at the Community



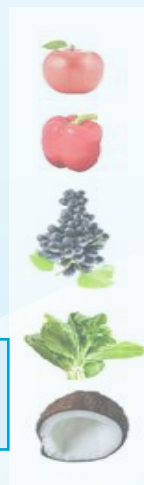
- Use separate chopping boards for uncooked meat and fish
- Always cook food to the recommended temperature
- Where possible, keep perishable items refrigerated or frozen, and pay attention to product expiry dates.
- Always take out only the required portions of food items especially vegetables/meat/fish etc. from the fridge
- Aim to recycle or dispose off food waste and packaging in an appropriate and sanitary manner, avoiding build-up of refuse which could attract pests. Try to dispose the waste in closed dustbins



- Wash your hands with soap and water for at least 20 seconds before eating, cooking and handling food. Make sure your food handlers do the same
- Always use clean utensils and plates
- Inspect the store bought ready-to-eat or canned foods for any visible spoilage after opening the can/ packet. Please do not use if there is any visible spoilage/ foul smell/ colour change/ swollen packets or cans

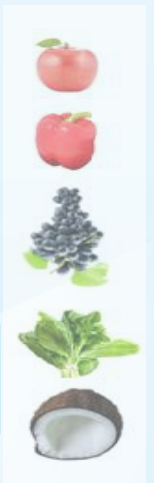
Do you Know?

Two weeks after delivery, lactating mothers should be given One dose of 2ml (2 Lakh IU) of Vit. A syrup under Vit A Supplementation Programme



- For buying groceries, it is better to have a designated person in the family.
Make the required list of groceries (after discussion with other family members) beforehand
- Buy groceries for at least one week to limit the number of visits to the store/ market
- Elderly and pregnant/lactating mothers and children should avoid going out
- Maintain a distance of at least 1 m (3 feet) from others while buying groceries in the market
- Buy foods that are non-perishable such as cereals, pulses, canned or frozen foods and dehydrated vegetables, and semi perishables such as onions, potatoes, yam, *arvi*, cabbage, carrots, small whole pumpkins, *parval* , etc
- Avoid buying tempting foods like chocolates, chips, ice cream and other foods high in fat, salt and sugar
- Keep a separate set of slippers/shoes to go out
- Wash your hands with soap for at least 20 seconds as soon as you return home from market
- Do not touch your face while you are in the market
- Wash the shopping bag thoroughly with disinfectant and clean water after shopping and dry in sun

Mothers :-IFA and Calcium to be provided Postnatally till 180 days after delivery with 4 hours apart

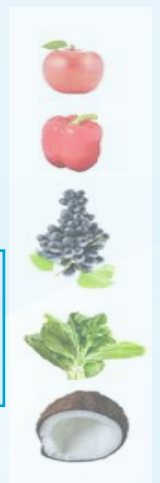


- Check the date of expiry of the product and visible damage (dent/ leak/ rust/ bulge/ flatten than usual size) of the pack before buying. Avoid buying items which have crossed the date of expiry or best before date or are damaged in any way.
- If food is spoiled or looks doubtful, it is best to throw away immediately and wash the container thoroughly

Message – 6 No COVID-19 transmission from food or food packaging

- There is no evidence of Transmission of COVID-19 from food or food packaging
- Infection is possible if touching surface/object contaminated with virus and then touching face
- Higher risk: close contact with other people while food shopping or receiving a food delivery
- There is no evidence of of Transmission of COVID-19 due to consumption of meat, chicken or eggs leads to higher risk of acquiring COVID-19
- Important to avoid touching your face after handling meat, chicken or eggs
- After handling, immediately wash hands with soap and water

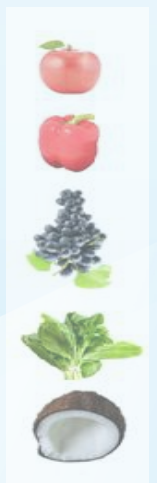
Considering the poor dietary calcium intake among pregnant and lactating women in India, high prevalence of hypertensive disorders in pregnancy ,calcium supplementation during pregnancy is essential as there is ample universal evidence that calcium supplementation in pregnancy reduces incidence of pre-eclampsia and other hypertensive disorders in pregnancy.



2. Recommendations of UNICEF

- Healthy diets: Food supply chains must be kept moving and the availability of nutritious foods ensured.
- Incomes and livelihoods of those dependent on agriculture must be protected.
- Social protection schemes and community programmes should help ensure that the most vulnerable groups are able to access nutritious foods.
- Clear messages should be communicated about the importance of a healthy and safe diet while limiting the consumption of foods that contribute to overweight and obesity.
- Maternal, infant and young child nutrition: Health services should continue to provide essential nutrition services for pregnant and breastfeeding mothers, newborns and sick children.
- They should also provide appropriate support for mothers to breastfeed, including those with COVID-19, and communicate accurate information on maternal, infant and young child nutrition.
- Management of underweight / SAM children: Life-saving services viz provision of Health Mix Powder through ICDS to the wasted children and undernourished mothers must be maintained and adapted to require less frequent treatment visits and more take home ration.

Plan for parenteral and enteral nutrition needs using corona virus model of 80% mild to moderate cases, 15% severe, 5% hospitalization, 2%ICU, 1% on ventilators of all infections in your area.



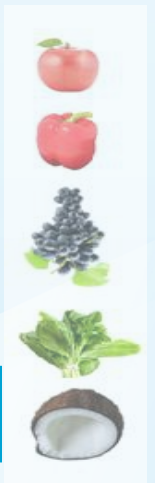
- Wasting prevention measures are needed for vulnerable children and other population groups at risk of thinness, including older persons and the sick.
- Micronutrient supplementation: Programmes to prevent and control micronutrient deficiencies viz IFA supplementation / Calcium supplementation to the Pregnant and Lactating mother , IFA to children in the age group of 0 to 19 years , should be continued as far as possible during routine services for pregnant Mother and young children.
- However, planned mass micronutrient campaigns (e.g. vitamin A supplementation and deworming) should be temporarily suspended/postponed and re-planned for the earliest opportunity once conditions allow.

3. Role of Zinc and Vitamin C

Dietary supplements containing micronutrients and vitamins C and D are a safe, low-cost, and effective way of helping the immune system fight off COVID-19 other acute respiratory tract diseases. Vitamin C, vitamin D, zinc, and an omega-3 fatty acid found in fish, docosahexaenoic acid, also known as DHA, are critical for immune function.

- Tab Zinc 150 mg once daily for 10 days
- Tab Vitamin C 500 mg or Multivitamin once daily for 10 days

Consider procurement of disposable utensils, which once used in the isolation covid wards are disposed. Otherwise, handle reusable utensils and equipment as provided for in the IPC protocol



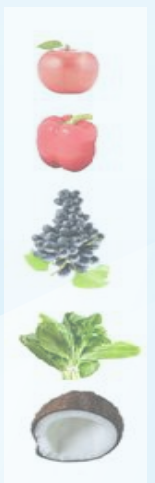
4. **Kaba sura kudineer and Nilavembu Kudineer** from the Herbal Powder

Dissolve 5gms of herbal powder in 240 ml of water and boil it well and reduce it to 60 ml, filter the same and drink this within 3 hours, daily in the morning for one month before food . Intake of this kashayam dosage advised is 60 ml for adult 30 ml for children .For additional particulars the District Siddha Medical Officer may be contacted

5. **Cooking and doing domestic duties** together can strengthen family bonds

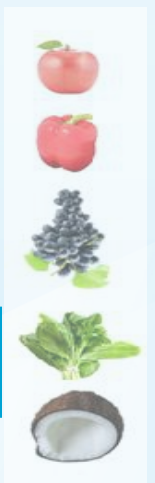
- Cooking and eating together is a great way to create healthy routines, strengthen family bonds and have fun
- Wherever involve the children and spouses in food preparation – small children can help with washing, preparing accompaniments or side dishes or sorting food items while older children can take on more complex tasks
- Pregnant and breastfeeding women in addition to taking care of their domestic and work related duties require extra time and family support to take care of themselves and the baby's breastfeeding and food schedules
- Creative ways may be sought to cook easy nutritious foods for young children and women in this phase
- When ordering takeout or having food delivered practice social distancing, maintaining a distance of six feet, whenever possible.

Obesity, a risk factor of mortality in COVID-19, suggests the importance of nutrition



- Proper food safety practices should always be implemented while preparing foods. This includes frequently washing hands with soap and water and washing surfaces and utensils with hot soapy water after each use.
- Regular handwashing, along with routine cleaning and disinfecting, especially all frequently touched surfaces, remain the most effective ways to reduce the spread of COVID-19.
- Eat at home to reduce the rate of contact with other people so as to lower the chance of being exposed to COVID-19.
 - It is recommended to maintain a distance of at least 1 metre between yourself and anyone who is coughing or sneezing. Droplets from infected people may land on surfaces and people's hands
 - While proper nutrition and hydration improve health and immunity, the People living with chronic illnesses who have suspected or confirmed COVID-19 may need support with their mental health and diet to ensure they keep in good health.
 - Counselling and psychosocial support from Psychiatrist / Social Worker is required.
 - There are some types of food, commonly referred to as "superfoods", that are known or believed to provide the body with the necessary vitamins, minerals and antioxidants.

Getting out into the fresh air can stimulate the immune system cells in lungs and help make our immune system more active. Deep breathing can help as this will also bring more oxygen to our blood.



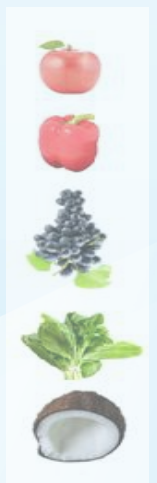
- These include:

- ✓ Citrus fruits and their freshly squeezed juice, which are rich in hesperidin, a bioflavonoid which appears to inhibit the activity of successive virus divisions
- ✓ Dark grapes, berries and cinnamon, as they are foods rich in procyanidins and lectins, which appear to block the attachment of the virus to the lungs through the enzyme ACE2
- ✓ Green leafy vegetables , broccoli, cauliflower, green peppers, parsley, , carrots, olive oil, mint with the same beneficial mechanism of action as above
- ✓ Dairy products, which are rich in vitamin D
- ✓ Legumes, seeds and nuts, a natural source of zinc, which is proven to support the immune system
- ✓ Green tea which contain the natural antioxidant catechin
- ✓ Fish rich in omega-3 fatty acids and vitamin D are abundant

6. Dos

1. Make sure to be sufficiently hydrated with 2-3 liters of water consumed throughout the day.
2. If water is drunk , that means the person is thirsty, this means that the person is already dehydrated.
3. Rest regularly and sleep at least 7-8 hours daily.

Daily/weekly intake should take into account the different food groups: cereals, pulse, tubers, fruit and vegetables, meat, fish and eggs, milk and dairy products



3. Exercise but non-exhaustively, e.g. a half-hour walk, 3 days a week.
4. Maintain a normal body weight through a balanced diet. Especially these days you should often consume small and light meals.
5. Manage stress effectively, as it weakens your immune system.
6. Manage chronic illnesses that are debilitating, such as blood disorders, cardiopulmonary disease and diabetes, as best as possible.
7. Stop smoking. The new coronavirus can cause severe respiratory infections to which smokers are more susceptible, due to their respiratory system having already been affected by smoking.
8. COVID-19 (coronavirus disease-2019) is an infectious disease, which can cause symptoms of fever, coughing, general weakness, pain, difficulty breathing as well as changes to taste and smell.
9. The diet, nutritional and fluid intake are very important when the patient have COVID-19, but the symptoms can affect the appetite and ability to eat, making it difficult to meet the nutritional needs.

7. Nutrition Support- During and After COVID-19 Illness

- COVID-19 (coronavirus disease-2019) causes changes to taste and smell and these symptoms can affect the appetite and ability to eat, making it difficult for the positive patient to meet the nutritional needs. Over time, this can lead to a condition called malnutrition (under nutrition), which can slow down the recovery

Diet is one of the easiest health habits to improve



A balanced diet includes:

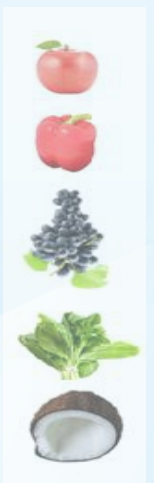
- Protein Foods (see page 2) - for healthy muscles, organs and the immune system Examples include meat, fish, eggs, beans, pulses and tofu
- Carbohydrate Foods - for energy and fibre Examples include potatoes, bread, pasta, rice, cereals and puddings
- Fruits and Vegetables - for fibre, vitamins and minerals to support the immune system. Fresh, frozen fruit and vegetables all count.
- Dairy foods - for calcium and other important minerals for healthy bones and teeth. Examples include milk, yogurt, cheese, cream etc
- Fluid – for good hydration. Check the urine colour. Dark urine is a sign of dehydration. Aim to drink enough fluid to keep urine a pale straw colour. All fluid counts (except alcohol). Include nourishing fluids such as milky drinks or juices

Tips for Managing a Dry Mouth:-

Dry mouth can be caused by the use of nebulisers, inhalers and oxygen therapy. It can make it difficult to chew and swallow foods, and sometimes can lead to taste changes.

The Patient to be advised to drink six to eight cups of fluid each day (including nourishing fluids such as milky drinks or juices) and to advise them to rinse and gargle with water after using an inhaler to keep mouth fresh.

In line with the WHO guidelines, children and adolescents aged between 5 and 17 years should exercise at least 60 minutes per day, moderate to vigorous intensity





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கொரோனா வைரஸ் (COVID-19)

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