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# COVID Facts and Myth Busters

## COVID-19 PATIENTS CANNOT SHED VIRUS AFTER SYMPTOMS DISAPPEAR

No. A new study suggests that half of the patients treated for mild coronavirus disease (COVID-19) infection still had coronavirus for up to 8 days after symptoms disappeared (*published online March 23, 2020, American Journal of Respiratory and Critical Care Medicine).* It is possible that more severe infections may have even longer shedding times. The time from infection to onset of symptoms, i.e., the incubation period, was noted to be 5 days among all patients expect one. The average symptom duration was 8 days, while the length of time patients remained contagious after the symptoms disappeared ranged from 1 to 8 days. Two patients had diabetes and one had tuberculosis. Neither condition affected the timing of course of COVID-19 infection.

## COVID-19 CANNOT BE AIRBORNE

Airborne transmission may be possible in specific circumstances wherein procedures that generate aerosols are performed, such as endotracheal intubation, bronchoscopy, open suctioning, administration of nebulized treatment, manual ventilation before intubation, turning the patient to the prone position, disconnecting the patient from the ventilator, non-invasive positive-pressure ventilation, tracheostomy and cardiopulmonary resuscitation (WHO). An analysis of 75,465 COVID-19 cases in China did not report airborne transmission (*JAMA. Published online March 4, 2020*).

## LIKE SARS, COVID-19 CAN TRAVEL THROUGH FECO-ORAL ROOT

No. Some evidence suggests that COVID-19 infection may cause intestinal infection and be present in feces. Until today, only one study has cultured the COVID-19 virus from a single stool specimen (*China CDC Weekly. 2020;2(8):123-4*). There have been no reports of fecal-oral transmission of the COVID-19 virus till today (*WHO*).

## MOSQUITOES CAN ALSO TRANSMIT CORONAVIRUS

No. To date there has been neither information nor evidence to suggest that the new coronavirus could be transmitted by mosquitoes. It is a respiratory virus, which spreads primarily through droplets generated when an infected person coughs or sneezes, or through droplets of saliva or discharge from the nose.

## FACE-TO-FACE EATING IS SAFE

No. To gain access to your cells, the viral droplets need to enter through the eyes, nose or mouth. Sneezing and coughing are most likely the primary forms of transmission. Talking loudly face-to-face or sharing a meal with someone could also pose a risk. If you are able to smell what someone had for lunch, you are inhaling what they are breathing out, including any virus in their breath. The virus is smart; it makes the nose loose the smell, so to experience the smell you inhale deeply.

## THERE ARE NO PREDICTORS OF TRANSMISSION

No. There are four factors that likely play a role in transmission: how close you get, how long you are near the person, whether that person projects viral droplets on you and how much you touch your face.

## LOSS OF SMELL AND TASTE IS NOT A SCREENING TEST

No. The American Academy of Otolaryngology-Head & Neck Surgery (AAO-HNS) has proposed to **add anosmia and dysgeusia to the list of screening items for potential COVID-19**. Informally, these symptoms have been noted among some patients who have tested positive for COVID-19, and in some cases, anosmia was the only symptom. Therefore, in the absence of other respiratory disease (e.g., rhinosinusitis, allergic rhinitis), anosmia, hyposmia and dysgeusia should "warrant serious consideration for self-isolation and testing of these individuals" (AAO-HNS).

## COVID VIRUS BEHAVES LIKE ANY OTHER VIRUS

No. Dengue taught us the value of platelet count to be interpreted along with hematocrit and COVID-19 is now teaching us the value of lymphocytes in blood test. It has been a standard teaching that all viral fevers will have high lymphocyte counts. Lymphopenia will only occur with human immunodeficiency virus (HIV), severe acute respiratory syndrome (SARS)-like illness, measles and hepatitis. **COVID-19 leads to low lymphocyte count**. Now all studies have shown it to be an important marker of COVID-19. Clues for COVID-19 include leukopenia, evident in 30-45% of patients, and lymphocytopenia, in 85% of the patients in the case series from China.

In the latest study published on March 9, 2020, in *The Lancet*, the authors showed that baseline lymphocyte count was significantly higher in survivors than nonsurvivors; in survivors, lymphocyte count was lowest on Day 7 after illness onset and improved during hospitalization, whereas severe lymphopenia was observed until death in nonsurvivors.

## LUNG INVOLVEMENT IS UNILATERAL

No. In a report from a hospital in Shanghai, investigators reviewed the key initial CT findings in 51 consecutive patients hospitalized due to COVID-19 disease. All patients had thin-section noncontrast scans. Mean age was 49 (range, 16-79), and median time from symptom onset to CT was 4 days (*Radiology 2020 Apr*). Almost all patients had extensive multifocal involvement; **bilateral abnormalities were seen in 86% of cases**. Lesions were seen in the lower lobes, posterior lung fields, and peripheral lung zones. Three quarters of patients had ≥3 involved lobes. Various combinations of pure ground-glass opacities (GGOs), GGOs plus reticular or interlobular septal thickening, and GGOs plus consolidation were commonly noted. GGOs were predominant in patients whose symptoms started ≤4 days prior to CT, and areas of consolidation became increasingly evident in those with >4 days of symptoms.

## Most Fevers cannot be Differentiated Clinically

No, here are some tips:

- Fever with cough and cold - Think of flu
- Fever with retro-orbital eye pain - Think of dengue
- Fever with joint pain which improves on bending - Think of Chikungunya
- Fever with lymphocytosis - Think of viral fever
- Fever with lymphopenia - Think of COVID-19, acute hepatitis, HIV
- Fever with jaundice - Rules out viral hepatitis
- Fever subsides capillary leakage appears - Think of dengue
- Low grade evening rise fever - Think of TB
- Fever with chills and rigors - Think of malaria, filaria, urinary tract infection, sepsis
- Fever with cough and breathlessness - Think of COVID-like illness
- Fever with ESR >100 - Think of painful thyroiditis, sepsis
- Fever with SGOT > SGPT - Think of dengue
- Fever with angry looking throat with no cough - Think of streptococcal sore throat
- Fever with red eyes - Think of Zika illness
- Fever with eschar - Think of scrub typhus
- Fever with single chills - Think of pneumonia
- Fever with jaundice - Rule out leptospirosis
- Fever with involvement of skin, joint and/or kidney - Rule out autoimmune disease
- Fever with TLC >15,000 - Think of sepsis
- Fever with positive thump sign - Rule out liver abscess



*IJCP SUTRA: "Walking is the best exercise. Walk at least 80 minutes in a day with a speed of 80 steps (at least) per minute; brisk walk at least 80 minutes a week."*

## CAN RT-PCR BE FALSE-NEGATIVE?

Yes. Negative reverse-transcription polymerase chain reaction (RT-PCR) tests on oropharyngeal swabs despite CT findings suggestive of viral pneumonia have been reported in some patients who ultimately tested positive for SARS-coronavirus 2 (SARS-CoV-2) (*Radiology. 2020*). A false-negative test may be due to poor quality of specimen, or specimen collected late or very early, the specimen was not handled and shipped appropriately or technical reasons (*WHO*).

## CAN A PERSON BE RT-PCR NEGATIVE AND IGM POSITIVE?

Yes. Serologic tests, as soon as generally available and adequately evaluated, should be able to identify patients who have either current or previous infection but a negative RT-PCR.

In a study of 58 patients with clinical, radiographic and epidemiologic features suspicious for COVID-19 but with negative RT-PCR testing, an immunoglobulin M (IgM) enzyme-linked immunosorbent assay (ELISA) was positive in 93% (and was negative when tested separately on plasma specimens that predated the COVID-19 outbreak) (*Clin Infect Dis. 2020*).

## CAN A VIRAL CULTURE BE DONE?

No. For safety reasons, specimens from a patient with suspected or documented COVID-19 should not be submitted for viral culture.

## D-DIMER IS THE ONLY LAB CRITERIA FOR SEVERITY

No. Absolute lymphocytic count <800, D-dimer >100, creatine phosphokinase (CPK) >2 x ULN (upper limit of normal), C-reactive protein (CRP) >100, lactate dehydrogenase (LDH) >245, Trop I rising, ferritin >300 are also indicators of severity of infection.

## THERE ARE NO STANDARD LAB GUIDELINES

- Daily tests: Complete blood count (CBC) with differential lymphocytes, comprehensive metabolic panel (CMP), CPK
- Risk stratification Q2-3 Day PRN (as needed): D-dimer, ferritin, ESR, CRP
- Once: HBV, HCV, HIV, Influenza A/B, RSV, Respiratory Panel (respiratory viral and bacterial pathogens), tracheal aspirate (if intubated).

## ONLY TESTING CAN PICK UP HOTSPOTS

No, clusters can be identified by:

- Smart thermometers
- Social site postings pattern
- Spurt in low lymphocytes count noted by labs in an area
- Spurt in bilateral pneumonias noted by Radiologists in an area
- Spurt in ground glass appearances on chest CT noted by Radiologists in an area
- Spurt of cases with fever and cough noted by general practitioners (GPs)
- Spurt of cases with loss of taste or smell in an area
- Spurt of cases of interstitial pneumonia noted by Radiologists on ultrasound in an area.

## ALL VIRAL INFECTIONS RAISE CRP LEVELS

No. CRP levels are increased (150-350 mg/L) in acute bacterial infections, while acute viral infections are associated with lower levels. But uncomplicated infections caused by COVID-19, adenovirus, influenza and cytomegalovirus can be associated with CRP levels of up to 100 mg/L (*Pediatr Infect Dis J. 1997;16(8):735-46; quiz 746-7*). Increased CRP in COVID patients indicates disease severity and poor prognosis.

## ONLY TESTING CAN DECIDE THAT I HAVE RECOVERED

Myth: No. While the CDC has advised that all confirmed and suspected patients should be symptom-free and test negative twice within at least 24 hours to be considered as having recovered (Re-testing method), the **updated CDC guidance suggests a second method to determine recovery from COVID-19 without a test** (Non-testing method). If a confirmed or suspected COVID-19 patient is free of fever without the use of fever-reducing medication for at least 3 days, if it has been at least 7 days since the symptoms first appeared, the person can be considered recovered. Respiratory symptoms must also be improving during that time, but do not necessarily have to disappear completely by 7 days for the patient to be considered recovered.

## NON-TESTING METHOD IS OK FOR HOSPITALIZED PATIENTS

Myth: No. Some patients infected with COVID-19 may be contagious for a longer period than others.

Testing method is the preferred option for those who are hospitalized, or severely immunocompromised, or being transferred to long-term care of assisted living facility, suggests CDC. Non-test-based strategy would prevent most, but may not be able to prevent all instances of secondary spread of contagion.

## ALL PNEUMONIA PATIENTS NEED ADMISSION

No. Admission is needed when:

- Temperature >38°C
- Respiratory rate >20
- Heart rate >100 with new confusion
- Oxygen saturation <94%.

## THERE ARE NO CLEAR CUT RED FLAGS FOR COVID-19

No. The red flags include:

- Severe shortness of breath at rest
- Difficulty in breathing
- Pain or pressure in the chest
- Cold, clammy, pale and mottled skin
- New confusion
- Becoming difficult to rouse
- Blue lips or face
- Little or no urine output
- Coughing up blood
- Neck stiffness
- Nonblanching rash.

## THERE IS NO DEFINITION OF "HOW CLOSE IS TOO CLOSE"

The US CDC recommends keeping a distance of 6 feet from others to minimize the chances of infection. (6 feet is roughly twice the length of the average person's extended arm.) The WHO emphasizes 3 feet as the distance that is particularly risky when standing near a person who is coughing or sneezing. Other public health experts state that at this crucial moment, when the world still has an opportunity to slow the transmission of the coronavirus, **any number of feet is too close**. By cutting out all except essential in-person interactions, the curve can be flattened, keeping the number of sick people to levels that medical providers can manage. (*NY Times*)

## THERE IS NO LINK WITH DURATION OF EXPOSURE

No. A person who has had face-to-face contact with a COVID-19 patient within 2 m and >15 minutes or a person who has been in a closed environment, such as classroom, meeting room, hospital waiting room, etc., with a COVID-19 patient for >15 minutes and at a distance of <2 m is at risk of infection (*Public health management of persons, including healthcare workers, having had contact with COVID-19 cases in the European Union, 25th February 2020*).

## DOCTORS CAN RESUME WORK ONCE RECOVERED AFTER 1 WEEK

Myth - not without precautions: The CDC has provided new guidance for healthcare workers, who have tested positive for coronavirus, or who think they had it, and are now considered recovered without a test. They are required to wear a facemask at all times when in the healthcare facility until all symptoms are completely resolved or until 14 days after illness onset, whichever is longer. Restrict from contact with severely immunocompromised patients until 14 days of illness onset.

## CAN COVID-19 RECUR?

The WHO is investigating reports of some recovered coronavirus patients testing positive for the illness after initially testing negative.

## WHY IS THE WHO INVESTIGATING REINFECTIONS?

The move is in response to a report from South Korea on April 11 that 91 patients who had been cleared of COVID-19 and were being prepared for discharge tested positive again. Officials say that, rather than being re-infected, patients may be suffering from a "re-activated" coronavirus.

## WHAT ARE THE 4 BENCHMARKS FOR A RETURN TO NORMALCY?

- Hospitals must be able to safely treat all patients requiring hospitalization, without the need for crisis standards of care. This translates to having adequate beds, ventilators and staff.
- Authorities must be able to test at least everyone who has symptoms, and to get reliable results in a timely manner.
- Health agencies must be able to monitor confirmed cases, trace contacts of the infected patients, and have at-risk people go into isolation or quarantine.
- There must be a sustained reduction in cases for at least 14 days. Because it can take up to 2 weeks for symptoms to emerge, any infections that have already happened can take that long to appear.

### Hydroxychloroquine Myth Busters

**Hydroxychloroquine causes retinal toxicity**

No. Retinal toxicity, which can result in irreversible retinopathy, is mainly associated with high daily doses and more than 5 years of use of chloroquine or hydroxychloroquine in the treatment of rheumatic diseases. This side effect is seen with long-term use of chloroquine. With hydroxychloroquine, it is only a caution only after years of use. The risk of toxicity depends on daily dose and duration of use. At recommended doses, the risk of toxicity up to 5 years is <1% and up to 10 years is <2%. However, it increases to nearly 20% after 20 years. Even after 20 years, a patient without toxicity has only a 4% risk of converting in the subsequent year (*Ophthalmology. 2016;123(6):1386-94).*

**Hydroxychloroquine causes QT prolongation**

It can cause QT prolongation, only if used with azithromycin.

**It cannot be given to persons aged ≥60 years.**

No, there is no such evidence. All international travelers have been taking it once a week as malarial prophylaxis

**It can cause hemolysis in G6PD deficiency**

There is no evidence. While manufacturer's labeling recommends that caution should be exercised while using chloroquine in patients with glucose-6-phosphate dehydrogenase (G6PD) deficiency due to a potential for hemolytic anemia, there is limited data to support this risk. Many experts consider chloroquine, given in usual therapeutic doses to WHO Class II and III G6PD deficient patients, as probably safe (*Cappellini 2008; Glader 2017; Luzzatto 2016; Youngster 2010*). Safety is; however, unknown in Class I G6PD deficiency (severe form of the deficiency associated with chronic hemolytic anemia) (*Glader 2017*). A study in West Africa including 74 G6PD deficient patients (predominantly Class III deficiency) reported that there were no cases of hemolysis following exposure to usual doses of chloroquine (*Mandi 2005*). The ACR Rheumatology guidelines do not specify the need to evaluate G6PD levels before initiating therapy (*Singh 2015*).

**It has many contraindications**

No. Only contraindication is hypersensitivity to chloroquine, 4-aminoquinoline compounds, or any component of the formulation.

**Hydroxychloroquine is contraindicated in children**

No, it is not given for COVID-19 in children as they have high chances of natural recovery.

**It is an OTC drug**

No, it is a Schedule H1 drug and given only on the prescription of a registered medical practitioner.

**It can damage the kidneys**

There is no evidence.

## CAN TWO PERSONS WITH SAME COVID-19 DISEASE STAY IN ONE PLACE?

There is no evidence to suggest that if everyone in a family is already sick, they can reinfect each other with more and more virus. For other viruses, once you are infected, it's quite hard to get infected with the same virus on top.

## AVOID BLOOD DONATION IN COVID-19 SITUATION

No. Most blood banks have introduced a postponement period of 28 days for donation for donors returning from overseas following updated public health advice that anyone coming from overseas is considered to have returned from a high- or moderate-risk country and should practice social distancing outside of work. A 28-day postponement has been introduced for any donors who have been in contact with a confirmed case of coronavirus. This means that if someone has been in contact with a person who has had coronavirus and was infectious at the time then he/she will not be able to donate for 28 days.

If someone has had coronavirus himself, he will not be able to donate for 3 months following recovery. Earlier, people with a mild runny nose with no fever were allowed to donate plasma. Blood banks follow that anyone with minor cold-like symptoms will be deferred until they are recovered.

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