

ISO/9001/2008



كلية معتمدة من الهيئة القومية لضمان  
جودة التعليم والإعداد بالجلسة  
رقم (102) بتاريخ 127 / 9 / 2011

كلية الصيدلة



DRUG INFORMATION CENTER BULLETIN  
FACULTY OF PHARMACY  
ASSIUT UNIVERSITY

Ass. Uni. D.I. Bull., Vol.17, No.2, June. 2021

AU-PHA-PIC 30 -07



جامعة أسيوط

In This Issue ...

Post COVID-19  
syndrome

- ✓ COVID-19 patients  
prolonged symptoms
- ✓ Types of Post-COVID  
Conditions

COVID -19  
Vaccination  
**How to Protect  
Yourself & Others**



Editorial Board

Editor-In-Chief:

Prof. Ahmed Mohamed Abd-El Moula  
Dean of Faculty of Pharmacy

Associate Editor:

Prof. Mohamed Mahmoud Abdel-Latif  
Director of Drug Information Center

Editorial member :

Senior.ph. Marwa Mahmoud, BSc., MBA.

Tel. 088/2080388& 088/2411556

E-mail: [clinipharm\\_assiut@yahoo.com](mailto:clinipharm_assiut@yahoo.com)

Website: [www.aun.edu.eg/clinipharm](http://www.aun.edu.eg/clinipharm)

[www.aun.edu.eg/faculty\\_pharmacy/SpUn4.php](http://www.aun.edu.eg/faculty_pharmacy/SpUn4.php)

[www.aun.edu.eg/faculty\\_pharmacy/arabic/SpUn4.php](http://www.aun.edu.eg/faculty_pharmacy/arabic/SpUn4.php)

Page: [facebook.com/DIC.Pharmacy](https://www.facebook.com/DIC.Pharmacy)

رقم الإيداع: ١٢٦٣٢ لسنة ٢٠٠٥

This Bulletin is a free quarterly periodical issued by the Drug Information Center  
(DIC) located at Faculty of Pharmacy  
Assiut University

# Post-COVID syndrome

By March 2021, an estimated 28.6 million Americans in the United States have been infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), also known as COVID-19, with more than 500,000 deaths. Although efforts to vaccinate large



populations globally are ongoing and the numbers of new cases have declined in some regions of the world, a wide variation in the spectrum of clinical symptoms has been documented for those infected previously – from asymptomatic individuals testing positive for the virus to others with rapidly progressive symptoms requiring hospitalization and mechanical ventilation and who may later develop respiratory failure and/or death. Advanced age, ethnicity, gender, race, elevated body mass index, immunosuppression, and other medical co-morbidities have been described as risk factors for severe infections requiring hospitalization. Although considerable epidemiologic data have been published for individuals who experience severe symptoms requiring inpatient care, the natural history and symptom patterns for COVID-19 patients who do not require hospitalization is just beginning to be described. Although most people with COVID-19 get better within weeks of illness, some people experience post-COVID conditions.

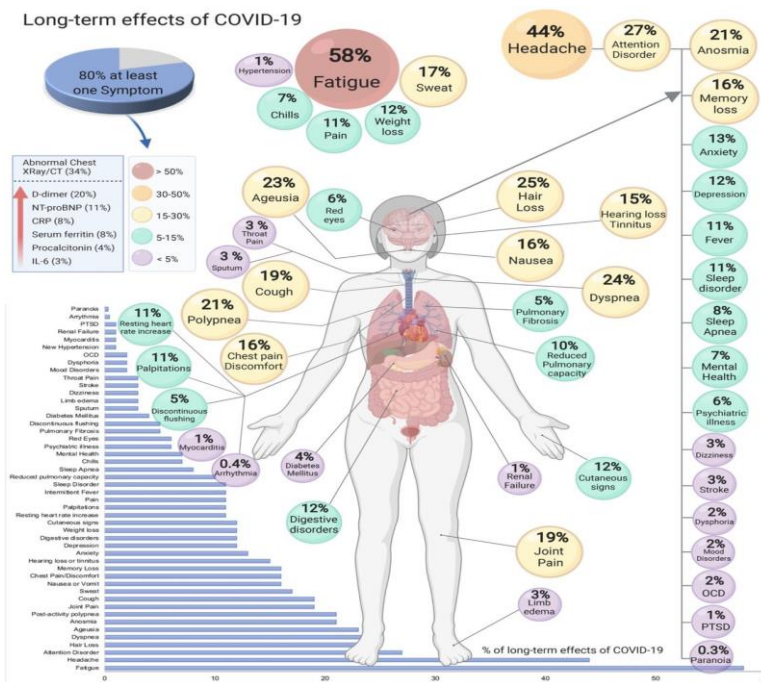
## COVID-19 patients prolonged symptoms

Several studies have described COVID-19 patients with prolonged symptoms, tracking individuals who remained hospital confined or who were dismissed to the outpatient setting after being hospitalized. In Italy, 143 hospitalized patients were surveyed approximately 60 days following symptom onset with 32% reporting persistence of at least one to two symptoms, and 55% having three or more. The most common symptoms were fatigue and dyspnea. Similarly, a Parisian study of 120 patients interviewed on average days after acute infection revealed most had some form of lingering symptoms including fatigue (55%), dyspnea (42%), perceived cognitive difficulties (34%), and sleep disorders (30.8%). Headache has been the most common neurological complaint (13.6%), along with other non-specific subjective symptoms of concentration difficulties, subjective memory loss, reduced attention span, and even delirium, the latter noted predominantly in hospitalized populations.

## Mayo Clinic's Rochester study

A multidisciplinary clinic at Mayo Clinic's Rochester, Minnesota campus was developed to provide comprehensive care to post-COVID-19 individuals experiencing persistent symptoms. In this report, we outline the components and approach of this clinic and describe the initial 100 patients participating in this

program. This report describes a self-referred population of patients with laboratory confirmed SARS-CoV-2 infections who developed COVID-19 and reported persistent symptoms spanning one to six months, often referred to as Post-COVID Syndrome (PCS) or “COVID long haul syndrome.” Currently, there is no universal definition or label for the prolonged symptoms that may occur after developing COVID-19. The term “Post-COVID Syndrome” (PCS) was first chosen by the CARP team in June 2020 since it best described the wide variety of chronic symptoms reported in literature describing these



groups. Since then, the National Institutes of Health (NIH) has developed the term Post-Acute Sequelae of SARS-CoV-2 (PASC). CARP refers to the constellation of usual symptoms as PCS, while PASC is used to refer to any symptoms after a SARS-CoV-2 infection, such as solitary cough patients presenting to a multidisciplinary academic medical center, PCS patients appear to be younger than individuals at high risk for hospitalization and mortality during acute SARS-CoV-2 infection. Most patients were not hospitalized and less than one-third of patients had pre-COVID-19 cardiovascular, respiratory, or mental health conditions. In addition to fatigue and shortness of breath, many patients reported subjective mood symptoms, sleep fragmentation, and perceived cognitive difficulties. Numerous patients have not been able to return to work in any capacity, and sometimes return to their prior occupation is delayed months after their initial SARS-CoV-2 infection. Many diagnostic tests were normal or non-diagnostic and should be used judiciously.

## Types of Post-COVID Conditions

Post-COVID conditions are a wide range of new, returning, or ongoing health problems people can experience more than four weeks after first being infected with the virus that causes COVID-19. Even people who did not have symptoms when they were infected can have post-COVID conditions. These conditions can have different types and combinations of health problems for different lengths of time.

## Long COVID symptoms

Long COVID is a range of symptoms that can last weeks or months after first being infected with the virus that causes COVID-19 or can appear weeks after infection. Long COVID can happen to

anyone who has had COVID-19, even if the illness was mild, or they had no symptoms. People with long COVID report experiencing different combinations of the following symptoms:

- Tiredness or fatigue
- Difficulty thinking or concentrating (sometimes referred to as “brain fog”)
- Headache
- Loss of smell or taste
- Dizziness on standing
- Fast-beating or pounding heart (also known as heart palpitations)
- Chest pain
- Difficulty breathing or shortness of breath
- Cough
- Joint or muscle pain
- Depression or anxiety
- Fever
- Symptoms that get worse after physical or mental activities

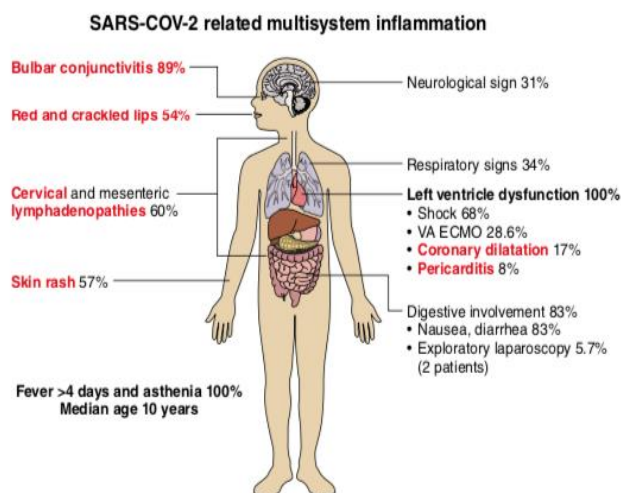
## Multiorgan Effects of COVID-19

Multiorgan effects can affect most, if not all, body systems including heart, lung, kidney, skin, and brain functions. Multiorgan effects can also include conditions that occur after COVID-19, like multisystem inflammatory syndrome (MIS) and autoimmune conditions. MIS is a condition where different body parts can become swollen. Autoimmune conditions happen when your immune system attacks healthy cells in your body by mistake, causing painful swelling in the affected parts of the body.

It is unknown how long multiorgan system effects might last and whether the effects could lead to chronic health conditions.

## Multisystem Inflammatory Syndrome in Adults (MIS-A)

Multisystem inflammatory syndrome in children (MIS-C) is a rare but severe complication in children and adolescents infected with SARS-CoV-2, the virus that causes COVID-19. Since June 2020, there have been several reports of a similar multisystem inflammatory syndrome in adults (MIS-A). CDC recently published a number of cases that fit the description of MIS-A. This report shows the way the syndrome appears in adults may be more complicated than in children. Like children, adults who have been infected with the virus that causes COVID-19 can develop symptoms of MIS-A days to weeks after getting sick. MIS-A is a condition where



problems can occur in different parts of the body like the heart, gastrointestinal tract, skin, or brain. Adults with MIS-A may have various signs and symptoms including:

- Fever
- Low blood pressure
- Abdominal (gut) pain
- Vomiting
- Diarrhea
- Neck pain
- Rash
- Chest tightness/pain
- Feeling very tired

## COVID -19 Vaccination

There are now several vaccines that are in use.

The first mass vaccination program me started in early December 2020 and the number of vaccination doses administered is updated on a daily basis

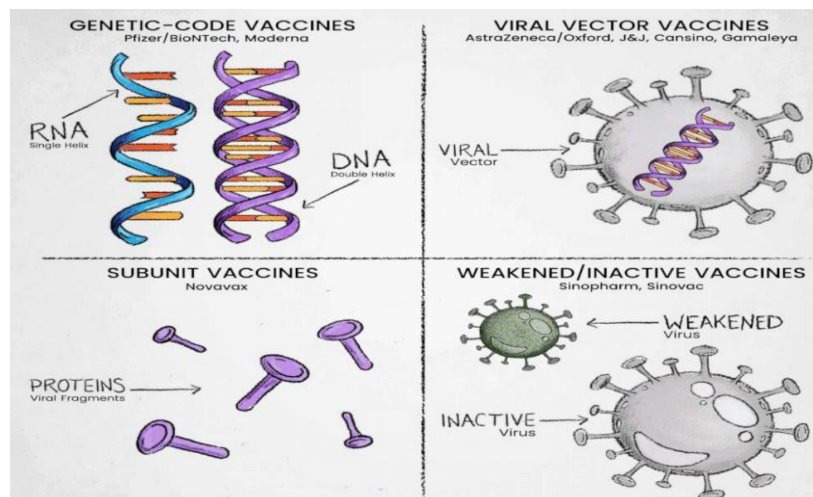
At least 13 different vaccines (across 4 platforms) have been administered ::

- ✓ The Pfizer/BioNtech Comirnaty vaccine was listed for WHO Emergency Use Listing (EUL) on 31 December 2020.
- ✓ The SII/Covishield and AstraZeneca/AZD1222 vaccines (developed by AstraZeneca/Oxford and manufactured by the State Institute of India and SK Bio respectively) were given EUL on 16 February.
- ✓ The Janssen/Ad26.COV 2.S developed by Johnson & Johnson, was listed for EUL on 12 March 2021.
- ✓ The Moderna COVID-19 vaccine (mRNA 1273) was listed for EUL on 30 April 2021 and the Sinopharm COVID-19 vaccine was listed for EUL on 7 May 2021. The Sinopharm vaccine is produced by Beijing Bio-Institute of Biological Products Co Ltd, subsidiary of China National Biotec Group (CNBG).

### Potential vaccines development

Several different types of potential vaccines for COVID-19 are in development, including:

- ✓ Inactivated or weakened virus vaccines, which use a form of the virus that has been inactivated or weakened so it doesn't cause disease, but still generates an immune response.



- ✓ Protein-based vaccines, which use harmless fragments of proteins or protein shells that mimic the COVID-19 virus to safely generate an immune response.
- ✓ Viral vector vaccines, which use a safe virus that cannot cause disease but serves as a platform to produce coronavirus proteins to generate an immune response.
- ✓ RNA and DNA vaccines, a cutting-edge approach that uses genetically engineered RNA or DNA to generate a protein that itself safely prompts an immune response.

## In Egypt

There are two types of vaccines:

- ✓ The SII/Covishield and AstraZeneca/AZD1222 vaccines (developed by AstraZeneca/Oxford and manufactured by the State Institute of India and SK Bio respectively) were given EUL on 16 February
- ✓ The Sinopharm COVID-19 vaccine was listed for EUL on 7 May 2021. The Sinopharm vaccine is produced by Beijing Bio-Institute of Biological Products Co Ltd, subsidiary of China National Biotec Group (CNBG)

Vaccine name	The AstraZeneca/AZD1222 vaccines	The Sinopharm COVID-19 vaccine
Vaccine mechanism	<p>1-AstraZeneca COVID-19 Vaccine is a monovalent vaccine composed of a single recombinant, replication-deficient chimpanzee adenovirus (ChAdOx1) vector encoding the S glycoprotein of SARS-CoV-2.</p> <p>2-The SARS-CoV-2 S immunogen in the vaccine is expressed in the trimetric pre-fusion conformation; the coding sequence has not been modified in order to stabilize the expressed S-protein in the pre-fusion conformation.</p> <p>3-Following administration, the S glycoprotein of SARS-CoV-2 is expressed locally stimulating neutralizing antibody and cellular immune responses, which may contribute to protection against COVID-19.</p>	<p>1-BBIBP-CorV works by teaching the immune system to make antibodies against the SARS-CoV-2 coronavirus. The antibodies attach to viral proteins, such as the so-called spike proteins that stud its surface</p> <p>The researchers then drew off the inactivated viruses and mixed them with a tiny amount of an aluminum-based compound called an adjuvant.</p> <p>2-Adjuvants stimulate the immune system to boost its response to a vaccine.</p> <p>Inactivated viruses have been used for over a century. Jonas Salk used them to create his polio vaccine in the 1950s, and they're the bases for vaccines against other diseases including rabies and hepatitis surface. the coronaviruses in BBIBP-CorV are dead, they can be injected into the arm without causing Covid-19. Once inside the body, some of the inactivated viruses are swallowed up by a type of immune cell called an antigen-presenting cell</p> <p>3-The antigen-presenting cell tears the coronavirus apart and displays some of its fragments on its surface. A so-called helper T cell may detect the fragment. If the fragment fits into one of its surface proteins, the T cell becomes activated and can help recruit other immune cells to respond to the vaccine..</p>

Vaccine dose	<p>The vaccination course consists of two separate doses of 0.5 ml each. The second dose should be administered between 4 and 12 weeks after the first dose. Individuals who have received the first dose of COVID-19 Vaccine AstraZeneca should receive the second dose of the same vaccine to complete the vaccination course. Each vaccine dose of 0.5 ml is withdrawn into a syringe for injection to be administered intramuscularly, preferably in the deltoid muscle of the upper arm</p> <p><b>Overdose:</b> In the event of suspected overdose with AstraZeneca COVID-19 Vaccine, contact your regional poison control centre.</p> <p><b>Missed Dose:</b> If you forget to go back to your healthcare professional at the scheduled time for your next dose, ask your healthcare professional for advice. <b>It is important that you return for your second injection of AstraZeneca COVID-19 Vaccine seek medical attention right away.</b></p>	<p>BIBP vaccine as 2 doses (0.5 ml) given intramuscularly. WHO recommends an interval of 3–4 weeks between the first and second dose. If the second dose is administered less than 3 weeks after the first, the dose does not need to be repeated. If administration of the second dose is delayed beyond 4 weeks, it should be given at the earliest possible opportunity. <b>It is recommended that all vaccinated individuals receive two doses.</b></p>
Vaccine administration precaution	<p>Following vaccination, recipients may experience multiple adverse reactions occurring at the same time (for example, myalgia/arthralgia, headache, chills, pyrexia)</p> <p>1-To help avoid side effects and ensure proper use, talk to your healthcare professional before you take AstraZeneca COVID-19 Vaccine. If you :-</p> <p>1-Have any allergies</p> <p>2- Have had a history of venous sinus thrombosis in the brain (CVST) with low platelets(thrombocytopenia) or a history of heparin-induced thrombocytopenia (HIT);</p> <p>1-Have had a severe allergic reaction after any other vaccine injection; Have a weakened immune system due to a medical condition (immunodeficiency) or are on a medicine that affects your immune system (such as high-dose corticosteroids, immunosuppressant's or cancer medicines);</p> <p>2- Currently have a severe infection with a high temperature (over 38°C);</p> <p>3-Have a problem with bleeding or bruising, or if you are taking a blood thinning medicine (anticoagulant);</p> <p>4- Are pregnant, think you may be pregnant or plan to become pregnant; Are breastfeeding or plan to breastfeed malaise</p>	<p>Egyptian Health and Population Ministry on Sunday announced several potential side-effects from the Sinopharm COVID-19 vaccine:</p> <ul style="list-style-type: none"> <li>✓ Pain, redness, stiffness and itching at the area of the vaccination.</li> <li>✓ Increase in body temperature, headache.</li> <li>✓ Fatigue, nausea, and vomiting.</li> <li>✓ Diarrhea, cough, and allergies.</li> <li>✓ Muscle pain.</li> <li>✓ Joint pain and lethargy.</li> <li>✓ Muscle cramps</li> </ul>

# How to Protect Yourself & Others

- ✓ Wear a mask. Everyone 2 years and older should wear masks in public. Masks should be worn in addition to staying at least 6 feet apart, especially around people who don't live with you.

- ✓ If someone in your household is infected, people in the household should take precautions including wearing masks to avoid spread to others.

- ✓ Wash your hands or use hand sanitizer before putting on your mask.

- ✓ Wear your mask over your nose and mouth and secure it under your chin.

- ✓ Fit the mask snugly against the sides of your face, slipping the loops over your ears or tying the strings behind your head.

- ✓ If you have to continually adjust your mask, it doesn't fit properly, and you might need to find a different mask type or brand.

- ✓ Make sure you can breathe easily.

- ✓ Masks are required on planes, buses, trains, and other forms of public transportation traveling. transportation hubs such as airports and stations. Travelers are not required to wear a mask in outdoor areas of a conveyance (like on a ferry or the top deck of a bus). Inside your home: Avoid close contact with people who are sick.

- ✓ If possible, maintain 6 feet between the person who is sick and other household members.

- ✓ Remember that some people without symptoms may be able to spread virus.

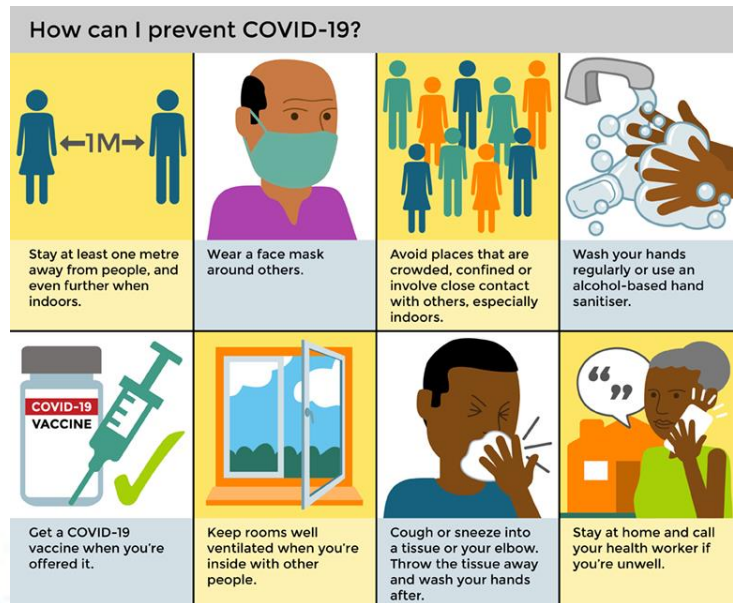
- ✓ Get Vaccinated

- ✓ Avoid crowds and poorly ventilated spaces

- ✓ Being in crowds like in restaurants, bars, fitness centers, or movie theaters puts you at higher risk for COVID-19.

- ✓ Monitor your health daily. Be alert for symptoms. Watch for fever, cough, shortness of breath, or other symptoms of COVID-19. Especially important if you are running essential errands, going into the office or workplace, and in settings where it may be difficult to keep a physical distance of 6 feet.

- ✓ Take your temperature if symptoms develop. Don't take your temperature within 30 minutes of exercising or after taking medications that could lower your temperature, like acetaminophen.





## References:

1. <https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects.html>
2. Augustin, M., Schommers, P., Stecher, M., Dewald, F., Gieselmann, L., Gruell, H., Horn, C., Vanshylla, K., Cristanziano, V., Osebold, L., Roventa, M., Riaz, T., Tschernoster, N., Altmueller, J., Rose, L., Salomon, S., Priesner, V., Luers, J., Albus, C., Rosenkranz, S., Gathof, B., Fätkenheuer, G., Hallek, M., Klein, F., Suárez, I. and Lehmann, C., 2021. Post-COVID syndrome in non-hospitalised patients with COVID-19: a longitudinal prospective cohort study. *The Lancet Regional Health - Europe*, 6, p.100122.
3. Vanichkachorn, G., Newcomb, R., Cowl, C., Murad, M., Breeher, L., Miller, S., Trenary, M., Neveau, D. and Higgins, S., 2021. Post COVID-19 Syndrome (Long Haul Syndrome): Description of a Multidisciplinary Clinic at the Mayo Clinic and Characteristics of the Initial Patient Cohort. *Mayo Clinic Proceedings*,
4. Al-Jahdhami, I., Al-Naamani, K. and Al-Mawali, A., 2021. The Post-acute COVID-19 Syndrome (Long COVID). *Oman Medical Journal*, 36(1), pp.e220-e220.
5. [https://www.who.int/health-topics/coronavirus#tab=tab\\_1](https://www.who.int/health-topics/coronavirus#tab=tab_1)
6. [https://www.who.int/news-room/q-a-detail/coronavirus-disease-\(covid-19\)-vaccines](https://www.who.int/news-room/q-a-detail/coronavirus-disease-(covid-19)-vaccines)
7. <https://www.astrazeneca.ca/content/dam/az-ca/downloads/productinformation/az-covid-19-vaccine-product-monograph-en.pdf>
8. <https://www.nytimes.com/interactive/2020/health/sinopharm-covid-19-vaccine.html>
9. <https://www.who.int/emergencies/diseases/novel-coronavirus->