

PHARMAG

Volume 2(1); Apr 2021

Corona Virus

Spread and Epidemiology

COVID-19

All about Covid-19
Diagnosis, Treatment and prevention
of the disease along with the
precautions to stop its spread

Technology in Medicine

Medical Devices and equipment used to
enhance treatment and life style of the
patient in and out of hospital

Editor pick

Lock Down: Boon 4 whom

A short communication of the
student of the benefits of lockdown in
India and its significance

Prevention is better than Cure

As always said prevention is better
than cure, COVID-19 again reminded
us of the same and taught us
importance of social distancing and
sanitization



RAO'S COLLEGE OF PHARMACY
NELLORE

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EDITOR-IN-CHIEF



The current issue of the “PHARMAG” College Magazine focusses on the current trend in the spread of Covid-19 pandemic, its prevention, government measures to control the spread and lockdown protocols. It also adds a special emphasis on the previous issue’s theme ‘Application of Technology in Medicine’ It has been a delight of the success of the magazine and I thank everyone who contributed for this issue.

Readers from this issue hopefully get a complete understanding of the pandemic situation prevailed in the previous year and prepare themselves to survive in the subsequent waves of COVID-19

A handwritten signature in blue ink that reads "Avinash".

Dr. G. Avinash Reddy

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COVID-19 OVERVIEW

SK. Jafar, SK. Saad, SK. Ashraf

Corona virus is a kind of common virus that causes an infection in your nose, sinuses or upper throat. Covid-19 or SARS COV-2 refers to severe acute respiratory syndrome corona virus-2 which was announced by ICTV [International Committee on Taxonomy of Virus].

Signs and symptoms:

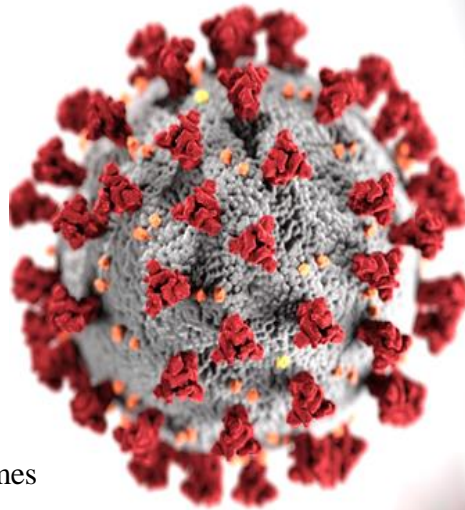
Signs include fever, cough, shortness of breathe. In more severe cases of infection can cause pneumonia, Severe acute respiratory syndrome and sometimes death. Less common symptoms such as aches, pain and sore throat, diarrhoea, conjunctivitis, head ache, loss of taste (or) smell, a rash on skin (or) discolouration of fingers and toes.

Most common symptoms such as fever, dry cough and tiredness.

People with mild symptoms who are otherwise healthy should manage their symptoms at home. On average it take 5-6 days from when someone is infected by the virus from symptoms to show however it can take up to 14 days.

Other Medications:

Bamlavinimab
Casirivimab and imdevimab which must be administered together as a combination



Diagnosis:

RT-PCR testing remains the primary method for diagnosing covid-19 in United States. However in some united states, CT scan is accurately identified infection in 98% cases whereas RT-PCR test detected correctly 71% cases.

Treatment:

There is no cure for the infection caused by the covid-19. On oct 22nd 2020 FDA approved the treatment of covid-19 with a medication is Remdesivir. It is available by prescription to treat covid-19. In people with age 12 years and above who are hospitalized it is administered as an intravenous infusion.

In November 2020, the FDA also granted EUAS to monoclonal antibody medication. Monoclonal antibodies are human made proteins that helps the body to develop an immune response against foreign bodies such as viruses.

CORONA STRUCTURE

CH. Vema Bhargavi, Md. Sumaya, Y. Yamini Ramya, S. Malathi

Chemical structure:

Corona viruses are large, enveloped, position standard RNA viruses. They have the large genome among all RNA viruses, typically ranging from 27 to 32kb. The genome is packed inside a helical capsid formed by the Nucleocapsid Protein (N) and further surrounded by an envelope. Associated with the viral envelope are at least '3' structural proteins.

The Membrane Protein [M]; Envelope Protein [E] involved in virus assembly Spike Protein [S] mediates virus entry into host.

Coronaviruses belong to the family coronaviridae in the order of Nidovirales.

They can be classified into four genera:

- Alpha Coronavirus
- Beta Coronavirus
- Gamma Coronavirus
- Delta Coronavirus

Among them, Alpha and Beta corona viruses infect mammals, Gamma Coronavirus infect avian species and delta coronaviruses can infect both mammalian and avian species

Some corona viruses also encode an envelope associated hemagglutinin-esterase protein [HE].

Coronaviruses demonstrate a complex pattern

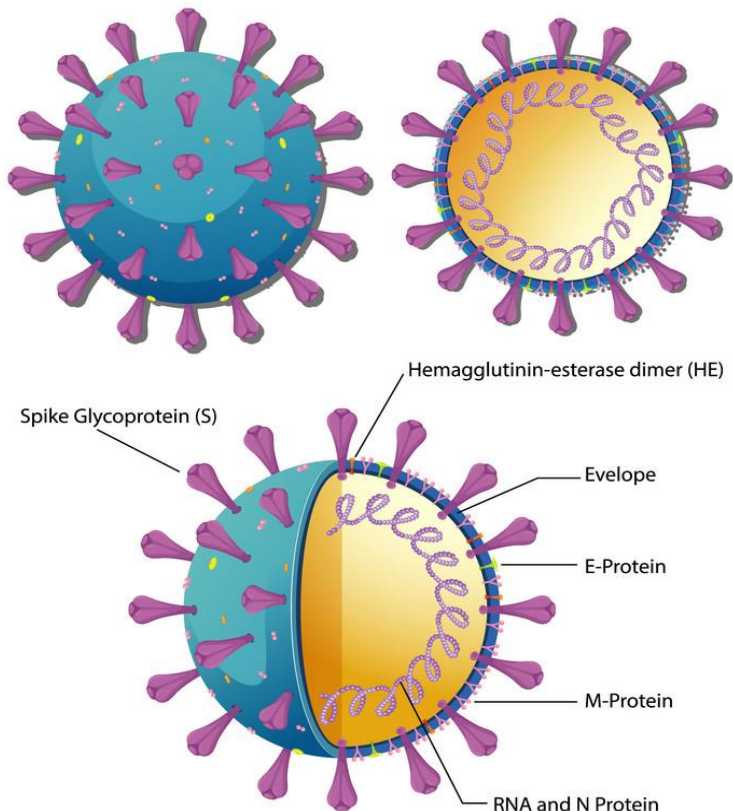
For receptor recognition. Eg: Alpha corona virus HCoV-NL63 and the Beta corona virus SARS-CoV both recognize a zinc

paptidase angiotensin converted enzyme(ACE2).

Moreover, HCoV-NL63 and other alpha coronaviruses recognize different receptors:

Other alpha coronaviruses such as THEV, PEDV and PRCV recognize other zinc peptidase, Aminopeptidase N (APN).

CORONAVIRUS COVID 19



Similarly, SARS-CoV and other beta corona viruses recognize different receptors: MERS-CoV and HKU4 recognize aserine peptidase, dipeptidyle peptidase 4 (DPP4); MHV recognize a cell adhesion molecule, Carcinoembryonic antigen-related cell adhesion molecule 1(CEACAM1); BCoV and oc43 recognize sugar. The Alpha coronaviruses TGEV and PEDV. The gamma coronaviruses also use sugar as receptors or coreceptors.

COVID-19 TRACKING APPS

G.V. Lokesh, Dr. G. Avinash Kumar, Dr. B.V. Krishna Reddy

Covid-19 tracking is defined as collection of all information and details related to corona infected patients, contact tracing, severity and alertness of the corona among the public. Covid-19 tracking apps are useful in providing awareness about the disease. The transmission of disease can be reduced by using these apps. They are also helpful in prevention of disease.

CovidSafe in Australia



CoronaTracer BD in Bangladesh



Coronalert in Belgium



Corona-Warn-App in Germany



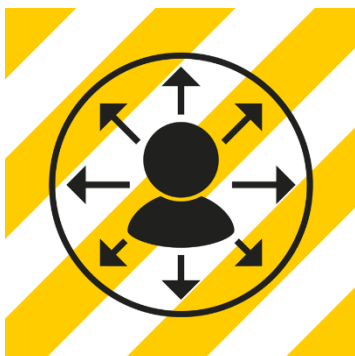
ArogyaSetu in India



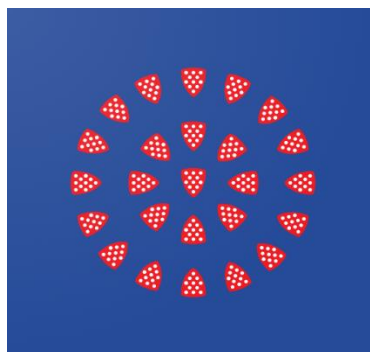
StopCovid in France



NZ COVID Tracer in Newzealand



STAYAWAY COVID in Portugal



SwissCovid in Switzerland



Indian Government Initiatives to Control Covid-19 pandemic

**L. Hanvitha, P. Arshiya, K. Suman,
G.Manasa**

The 1st response of the government of India to the covid-19 pandemic in the country involved thermal screening of passengers arriving from china, the country from which the corona virus disease 2019 originated as well as passengers arriving from other countries. As the pandemic spread worldwide, the Indian government recommended social distancing measures and also initiated travel and entry restrictions. On 12th January 2020, the WHO confirmed that a novel corona virus was the cause of respiratory illness in a cluster of people in Wuhan city, Hubei, China which was reported to the WHO on 31st December 2019.

Initial Measures

January-February 2020:

Protective measures were first applied in January. India began thermal screening of passengers arriving from china on 21st January. Initially carried out at 7 airports was expanded to 20 airports towards the end of January.

March 2020:

On 17th march, the government of India issued an advisory, urging to the Indian states to take social distancing measures as protective strategy for implementation till 31st march. A covid-19 economic response task force was also formed.

April 2020:

Major Indian cities and many states made wearing facial masks compulsory. States have also been asked to screen the people, quarantine them and to do periodic health check-ups

Travel and entry restrictions:

On 3rd march 2020, the Indian government stopped issuing of new visas. Previously issued visas for the nationals of Iran, South Korea, Japan and Italy were suspended. Indians returning from covid-19 affected countries were asked to be quarantined for 14 days.

Screening:

On 4th march 2020, the minister of health and family welfare, Harshvardhan announced compulsory screening of all international passengers arriving in India.

Close down and Curfews:

Over the month of March, multiple states across the country began shutting down schools, colleges, public facilities such as malls, gyms, cinema halls and other public places to contain the spread. On 15th march Ministry of culture closed all monuments and museums under Archaeological survey of India. On 23rd March, Chief Minister of Maharashtra ordered a state-wide curfew and closure of state borders.

Lockdown:

On 22nd March, the government of India announced complete lockdown in 82 districts in 22 states and union territories of country where confirmed cases are reported.

On 24th March, PM Narendra Modi announced a complete 21-day national lockdown to contain the pandemic help-line numbers are also implemented.

Zonal classification:

The government divided the entire nation into '3' zones.

Red Zone - Districts with high doubling rate and high number of active cases.

Orange Zone - Districts with fewer or less cases
Green Zone - Districts without confirmed cases or without new cases in last 21 days.

Legal Announcements:

On 11th march 2020, the cabinet secretary of India, Rajiv Gauba, announced that all states and

union territories should invoke provisions of section 2 of the epidemic diseases act 1897. On 14th march, the union government declared that pandemic as a "notified disaster" under disaster management Act, 2005 enabling states to spend a larger parts of funds from the state disaster response fund to fight the virus.

PREVENTION AND CONTROL OF SPREAD OF CORONA-LEGAL & ADMINISTRATIVE PERSPECTIVE

P. Kempu, K. Mrudula, K. Sri Pragathi Reddy

The corona virus (COVID-19) and its global spread have resulted in declaring a pandemic by the World Health Organization (WHO). India rapidly responded and clamped national wide lockdown in four phases.

To mobilize the national response and following extensive consultation with the ministers responsible for covid-19 intervention and the national coronavirus command council (NCCC) the minister Dr. N. Kosazana

Dlamini Zuma have gazetted more reinforcements towards the regulations on the covid-19 lockdown.



EXCEPTIONS

All basic necessities shops can stay open, informal food vendors can now also trade provided they have a permit.. All borders are still closed, expect for essential goods, like fuel, cargo and goods during the period of lockdown/ life threatening condition,



FUNDAMENTAL EXCEPTIONS FOR LOCKDOWN:

The Lockdown allow certain individuals to move between provinces and metropolitan and district areas for purpose of transporting a body for burial purposes. The amendments also limits the individuals who are permitted to travel to funerals. The regulation now outlines a process for persons who wish to travel between provinces and metropolitan and district areas to attend a burial or cremation to obtain permit.

Phase 1	25 March 2020 – 14 April 2020	21 days
Phase 2	15 April 2020 - 3 May 2020	19 days
Phase 3	4 May 2020 – 17 May 2020	14 days
Phase 4	18 May 2020 – 31 May 2020	14 days
Unlock 1	1 June 2020 – 30 June 2020	30 days
Unlock 2	1 July 2020 - 31 July 2020	31 days
Unlock 3	1 Aug 2020 -31 Aug 2020	31 days
Unlock 4	1 Sep 2020 – 30 Sep 2020	30 days
Unlock 5	1 Oct 2020 – 31 Oct 2020	31 days

It further determinates that only the following persons, who live outside a province or metropolitan and district areas may attend a funeral:

- 1) spouse or partner of the deceased
- 2) children of the deceased, whether biological, adopted or stepchildren .
- 3) children-in - law of the deceased.
- 4) siblings, whether biological , adopted or stepbrother or sister of the deceased.
- 5) parents of the deceased whether biological ,adopted or stepparents.

The current prohibition of 50 person attending a funeral is still in operation. The holding of night vigils is still prohibited.

TRANSPORT REGULATION EXCEPTIONS

All computer transport services are prohibited, except but services, taxi services, e- hailing services, seeking medical attention provided that

- a) Bus services and e-hailing services shall not carry more than 50% of the licensed capacity.
- b) Taxi services shall not carry more than 70% of the licensed capacity and
- c) Private vehicle shall not carry more than 60% of the licensed capacity, and that all directions in respect of hygienic conditions and the limitations of exposure of persons to COVID-19, are adhered to.

.TRACKING & TRADING CONTACTS

The National Department of Health shall develop and maintain a national database to enable the tracing of persons who are known or reasonably suspected to have come into contact with any person known or reasonably suspected to have contracted COVID-19.

- a) The first name and surname, identity or passport numbers, residential address and other address where such person could be located, and cellular phone numbers of all persons who have been tested for COVID-19:
- b) The COVID-19 test results of all such persons and
- c) The details of the known or suspected contacts of any person who tested positive for COVID-19.

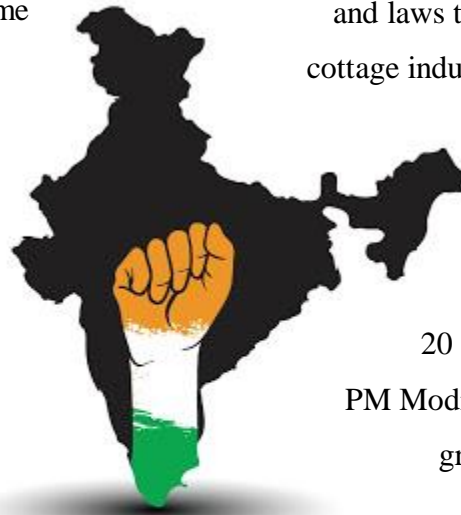
Economic Reforms, Post Lockdown to strengthen Indian

Economy D.E. Praisya Jessica

It is the free ration, education, skilling, manufacturing and everything else for Indian citizens. There are 5 pillars on which "this magnificent building of self-reliant India" would stand

1. Economy which brings in quantum jump and not incremental change.
2. Infrastructure which should become the identity of India.
3. System based on 21st century technology driven arrangements.
4. Vibrant Demography, which is our source of energy for as self-reliant India.

5. Demand, whereby the strength of our demand and supply chain should be utilized to full capacity
The entire official machinery got into work, quite apparently, there were no prior deliberations or consultations, policy papers or social economic logic to fall back on.



**AATMA-NIRBHAR
BHARAT**

Pandemic relief packages and reforms

After the laydown of 5 pillars of ATMANIRBAR BHARATH, Prime Minister announced a "special economic package", that provides much needed boost towards achieving this package and focus on land, labour, liquidity and laws to cater to various sections including cottage industry, MSMEs labours and industries among others. This package help our country out of covid-19 crisis, by making us self-reliant. Having announced 20 lakhs crore rupees special packages, PM Modi added other elements (i.e free food grain, cash support, emergency health allocation etc..) and promoting local products by joining global value chain. Slogan like "vocal for local" and "local for global" got new power.



COVID-19 (CORONA) DIAGNOSIS

V. Jennifer, B. Jeevana

The identification of the nature of an illness (or) other problems by the examination of symptoms.

There are two different types of tests:

1. Diagnostic test
2. Anti-body test

1. Diagnostic test:

Diagnostic test can show if you have the covid-19 infection and need to take steps to quarantine (or) isolate yourself from others.

These test is classified into two types:

- a. Molecular test
- b. Antigen test

These samples of diagnostic test are typically collected with a nasal, throat or saliva collected by spitting into tube.

a. Molecular test:

Molecular test are also known as diagnostic test, viral test, nucleic acid amplification test (NAAT), Rt-PCR test or LAMP test.

b. Antigen test:

Diagnostic test, Viral test, Rapid test.

2. Antibody test:

Antibody test look for antibodies in your immune system produced in response to SARS- Cov-2, the virus that causes covid-19. Antibody test should be used to diagnose an active covid-19 infection. Antibodies can take several days (or) weeks to develop after you have an infection and may stay in your blood for several weeks (or) more after recovery samples for antibody tests are typically blood from a finger stick (or) blood drawn by your doctor (or) other medical personnel. Antibody test also known as serological test, serology blood test, serology test. It shows if you have been infected by the virus treat causes covid-19 in the part.

How I can detect covid-19:

PCR based methods:

- RT-PCR
- 9RT-PCR

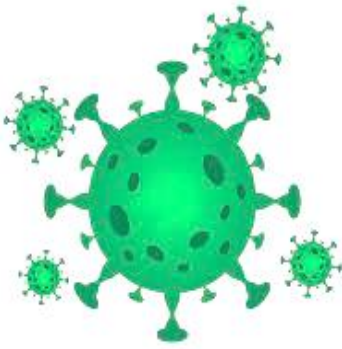
ELISA:

- GICA
- Antibody isotyping and subtyping
- Micro assay based methods
- Cell culture
- CRISPR



CORONA PRECAUTIONS

G. Nandini



Clean your Hands often: Wash your hands often with soap and water atleast 20 seconds especially after you have been in a public place,or after blowing your nose, coughing or sneezing. If soap and water are not readily available use a hand sanitizer that contains atleast 60 %alcohol. Cover all surfaces of your hands and rub them together until they feel dry. Avoid touching your eyes, nose and mouth with unwashed hands.

Cover with mask when around others:

You could spread covid-19 to others even if you don't feel sick

Everyone should wear a mask in public sittings and when around people not living in their households, especially when social distancing is difficult to maintain.

Masks should not be placed on young children under age 2, anyone who has trouble breathing, air is unconscious, incapacitated or otherwise unable to remove the Mask without assistance.

Avoid close contact:

Limit contact with people who don't live in your household as much as possible. Avoid close contact with people who are sick. Put distance between yourself and other people.

Cover coughs and sneezes:

- Always cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow.
- Throw used tissues in the trash.
- Immediately wash your hands with soap and water for atleast 20 seconds. If soap and water are not readily available, clean your hands with a hand sanitizer that contains atleast 60% alcohol.

Clean & Disinfect:

- Clean and disinfect frequently touched surfaces daily.This includes tables, doorknobs, light switches, counter tops,handels,desks, phones, keyboards, toilets, faucets and sinks.
- If surfaces dirty, clean them, use detergents or soaps and water prior to disinfection.
- Then use a household disinfectant for cleaning.



COVID-19 (Corona Virus) Vaccines

T. Selvi, Sk. Afreen

Covid-19 pandemic had a multi sectorial impact on India, including a significant socioeconomic impact and an impact on health care cost. There are currently over 240 covid-19 vaccines in the development worldwide; with over 42 in clinical trials and several that have emerged as being effective after phase 3 studies. A ministerial advisory committee on covid-19 vaccines has been appointed consisting of experts in the field. They have developed a strategy to ensure equitable access to vaccines.

INDIAN COMPANIES

Bharat Biotech, Serum Institute of India, Zydus Cadilla, Panacea Biotech
Indian Immunologicals, Mynvax, Biological E Pharma companies

INTERNATIONAL COMPANIES

Cansino biological-[Ad5-nCoV]

Moderna-[mRNA-1273]

Sinovac-[Picovacc-Purified inactivated SARS CoV-2 vaccine]

University of Oxford-[chAdox1]

BioNTech-[BNT162 vaccine]

Novavax-[NVX-CoV2373]

Wuhan Institute of Biological Products [Inactivated SARS-COV-2]

Inovio Pharmaceuticals [INO-4800]

Beijing institute of biological products [inactive SARS -CoV-2]

Monitoring of vaccination:

Vaccines are being developed rolled out at speed in response to covid-19 pandemic.

It is anticipated that most vaccines will require 2 doses at least 2 doses for optimal immunogenicity.

Provide a reliable and trusted personal vaccination record/ certification for any health, occupational, educational and travel purposes. Ensure that the necessary records and documentation are in place for use in surveys, safety monitoring, and disease surveillance and vaccine effectiveness. Ensure that individuals can be monitored for the full course, in the likely case that a multi dose schedule is required to track defaulters and reduce the incidence of dropouts. Hence vaccination uptake/vaccination rate and vaccination coverage indicators are to be measured for the progress with vaccination among a target population.

CORONA FIGHTING FOODS

S. Neeharika, P. Sucharitha, L. Charishma Rao

COVID-19: IMMUNE SYSTEM BOOSTERS



Zinc



Vitamin C

Lean meats, seafood, milk, whole grains, beans, seeds, and nuts • **Important for wound healing**

Broccoli, cantaloupe, kale, oranges, strawberries, tomatoes, guava, and lychee • **Protect cells from oxidative stress, a product of infection or chronic inflammation**



Iron



Vitamin E

Lentils, spinach, tofu, and white beans • **Aids in non-specific immunity, the body's first line of defense**

Nuts, seeds, wheat germ, green leafy vegetables, avocado, and shrimp • **Helps protect cells from oxidative stress**



Vitamin A



Vitamin B6

Sweet potatoes, carrots, red bell pepper, spinach, black-eye peas, and mango • **Helps regulate our immune response**

Green vegetables, chickpeas, cold-water fish such as tuna or salmon • **Supports more efficient reactions between different parts of our immune system**

Coronaviruses are a large family of viruses that cause illness ranging from the common cold to more severe diseases such SARS (severe acute respiratory syndrome) and MERS (middle-east respiratory syndrome).

“A Nutritious diet and an optimally functioning immune system can never go wrong”

A balanced diet, regular exercise and getting enough sleep are important ways to combat the novel corona virus.

If u have a healthy immune system, your body can safeguard you from any disease even the novel corona virus or covid-19.

Root Smoothie

Ingredients

- 1 Baby Beetroot (cooked)
- 1 Carrot
- 1 inch Ginger Root
- 1/4 tsp. Ground Turmeric
- 1 cup Water

Benefits

- One of the best recipes for cold
- Boost your immune system
- Decrease inflammatory symptoms
- High in fibre, low in sugar

AYURVEDA'S IMMUNITY BOOSTING MEASURES FOR SELF CARE DURING COVID 19 CRISIS

SIMPLE AYURVEDIC PROCEDURES



1 Nasal application - Apply sesame oil / coconut oil or Ghee in both the nostrils (Pratimarsh Nasya) in morning and evening



2 Oil pulling therapy - Take 1 tablespoon sesame or coconut oil in mouth. Do not drink, swish in the mouth for 2 to 3 minutes and spit it off followed by warm water rinse. This can be done once or twice a day

DURING SORE THROAT/ DRY COUGH



1 Steam inhalation with fresh Pudina (Mint) leaves or Ajwain (Caraway seeds) can be practiced once a day



2 Lavang (Clove) powder mixed with natural sugar / honey can be taken 2-3 times a day (It is best to consult a doctor if symptoms of dry cough and sore throat persist)

Note: Ayurveda is the science of life and it propagates the gifts of nature in maintaining healthy and happy living

Graphic: 4/4

MINISTRY OF AYUSH

LOCK DOWN-BOON FOR WHOM...?

T. Shamitha Goutham

Firstly, it is boon for NATURE....

I personally believe that apart from crippling the day to day life, it has also provided us with a boon. You might be thinking that how it has imparted us with boon.

It has given us a few priceless things:

- Fresh air to breathe
- Freedom from noise pollution
- Clean atmosphere

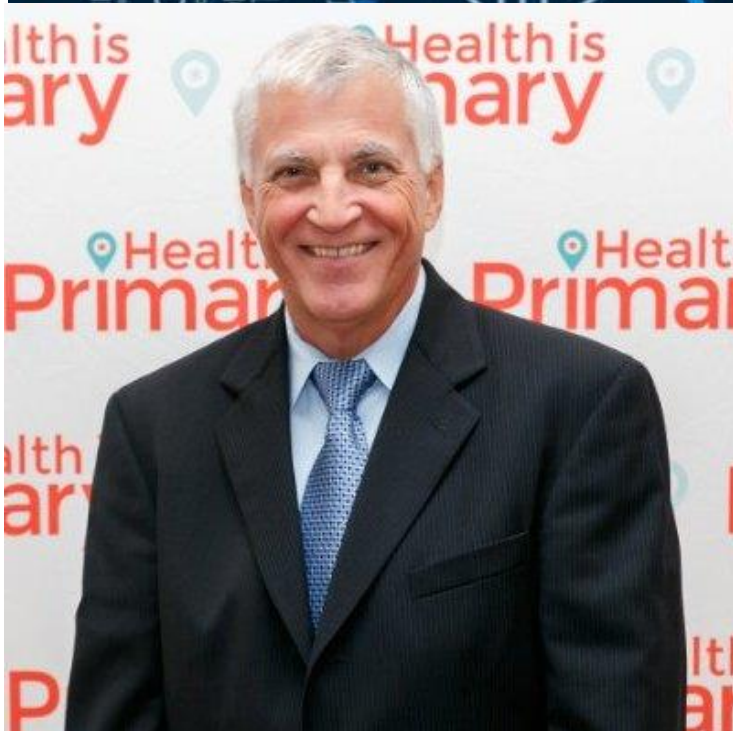


The atmosphere and environment are clean and the black smoke which has darkened our brain and skin is also gone. Pollution and greenhouse emissions have also fallen to their minimal levels on the continents. Due to less Industrial activities there is a drop of 0.3 % in carbon dioxide emissions due to Covid19 pandemic. It is seen that the global economy will also grow. One of the important lessons to be learnt from coronavirus that digitalization is extremely beneficial. As the pandemic advocated social distancing as the norm, it also is seen that it will inculcate some new habits like the reduction of food waste, stock pilings and maintaining social distancing. It shows that climatic change threats should be treated on an urgent basis or it can cause the wildfire on the Earth. Either we need to stop or the conditions will stop us. Even the top businesses are counting the cost and estimating the losses, still, it is time left to heal Earth. ” I feel Earth needs time to heal “as we have reaped so much out of it. Now the time has come that we need to sow the seeds as of healthier environments, which bring lastly effect. It is also boon for many retail vendors of groceries, vegetables and needs of daily life with most of them making a fast buck by jacking up prices. To conclude I see this outbreak as a boon to humanity wherein we all have learnt to be patient, aligned and conclusive.

•Respect our nature with all earnest desire, learn from it towards being better human being and care for all. •Our forest, our oceans, our animal kingdom and our environment all have a harmonious amalgamation which we should not disturb in the zeal for more.



APPLICATION OF TECHNOLOGY IN MEDICINE



“We believe consumer health technologies, apps, wearables, self-diagnosis tools have the potential to strengthen the patient-physician connection and improve health outcomes.”

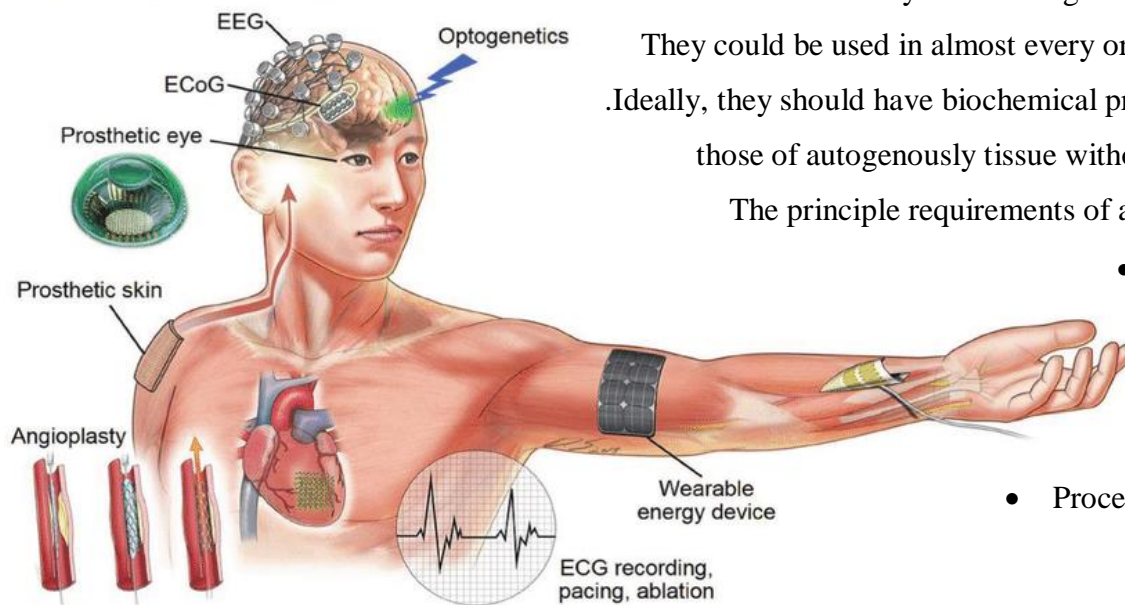
Dr. Glen Stream, MD, FFAFP, MBI

President and Board Chair of Family
Medicine for America's Health

IMPLANTABLE DEVICES



Minimally invasive / implantable device



Medical Implants are devices (or) tissues which are placed inside (or) on the surface of the body. These are having more computing, decision making and communication capabilities. They are manmade, partly or totally introduced into the lumen body and intended to remain after the procedure such as surgery.

Medical implants are products that have to satisfy functional demands defined by the working environment human body.

They could be used in almost every organ of the human body. Ideally, they should have biochemical properties comparable to those of autogenously tissue without any adverse effects.

The principle requirements of all medical implants are

- Corrosive resistance
- Biocompatibility
- Bio- adhesion
- Bio-functionality
- Process ability & availability

Sr.No	Type of Implant	Placed in	Uses
1	Visual prosthesis (or) Bionic Eye	Surgically place in (or) near one eye along with the optic nerve. Implanted into the Retina at the back of Eye.	Helpful to Restore Sight. Electrically stimulate Nerve tissues associated with vision to help transmit Electrical signals with Visual Information to brain.
2	Pace Maker	Tansvenous Implantation Epicardial Implantation This device usually placed in the chest (just below the collar bone)	Used in case of Arrhythmia to Generate Electrical Impulse that are naturally generated by SA node.
3	Implantable Cardiac Defibrillators [ICD]	placed under your skin, usually your left collar bone (sub cutaneously).	To monitor heart rhythm and detect irregular heartbeats by delivering an electrical shock.
4	Cochlear Implants (or) Sound Processor	Fitted behind the Ear under the skin	Generate & sending signals to the brain from the auditory nerve. used for better hearing in deaf adults (nerve deafness)
5	Deep Brain Stimulators	1) under the skin in your upper chest, a wire that travels under your skin connects this device to the electrodes in your brain.	Produce impulses in Dystonia, Epilepsy, Parkinson's disease, Obsessive-Compulsive disorder

ROBOTIC EXOSKELETON

K. Mahitha, L. Chandana

Robotic exoskeleton or powered exoskeleton are considered wearable robotic units controlled by computer boards to power a system of motors, pneumatic, levers or hydraulics to restore locomotion.

Lower Limb Robotic Rehabilitation systems:

Gait impairments following neurological disorders such as spinal cord injury (SCLs) and stroke are often disabling and have a negative impact on quality of life.

Therefore recovery of walking is a top priority of the rehabilitation process.

Robotic assisted gait training has been explored for patients with traumatic brain injury, stroke, cerebral palsy, multiple sclerosis and Parkinson's disease.



Current applications of exoskeleton:

It includes crucial application for spinal cord injury rehabilitation.

Increasing user independence such as improved bowel or bladder function, decreased chronic pain decreased specificity and increased bone marrow density.

Providing performance related indicators (Eg. Range of motion and velocity)

Providing long, repetitive and intense physiotherapy situations.

Exoskeleton may facilitate body weights or body composition where 2/3rd of persons with sci are obese.

Conclusion

The current review may raise the awareness of SCI Community about the use of exoskeleton in the rehabilitation of persons with SCI. We should strive for an interdisciplinary team approach for providing greater accessibility to this technology and further our knowledge on how to expand its use of general population of SCI by overcoming some of the exciting limitations that were highlighted exoskeleton may improve several psychological and psychomatic outcomes. Moreover it is the time to establish round table discussions including SCI (Costumer).

ECG (Electrocardiogram)

K. Mrudula, P. Kempu, K. Pragathi

ECG is defined as recording of electrical activity of heart on a graph paper. Graphical representation of electrical activity of heart.

Method:

The machine which is used to record the electrical activity of heart is called electrocardiograph.

ECG machine

Power lab

- The graph on which this electrical activity recorded is called Electrocardiogram.
- ECG paper is long role of paper composed of small squares.
- One square is 1mm wide and 1mm high.
- On ECG paper there are thick lines, between two thick lines there are 5 small squares.
- The speed pf ECG machine is 25mm per second.
- ECG leads are electrodes which recorded the electrical potential of heart at different sites.
- There are 12 ECG leads
 - 3 bipolar limbs
 - 3 augmented limbs
 - 6 chest leads
- ECG can identify-
 - Arrhythmias
 - Myocardial ischemia
 - Chamber hypertrophy
 - Electrolyte disturbances
 - Drug toxicity

- Clinical Significance (or) goals of ECG interpretation is the ability to determine whether the ECG waves and intervals are normal (or) Pathological.

- Wave forms in ECG-

P wave (Atrial Depolarisation)

QRS Complex Wave (Ventricular Depolarisation)

T wave (Ventricular Repolarisation)

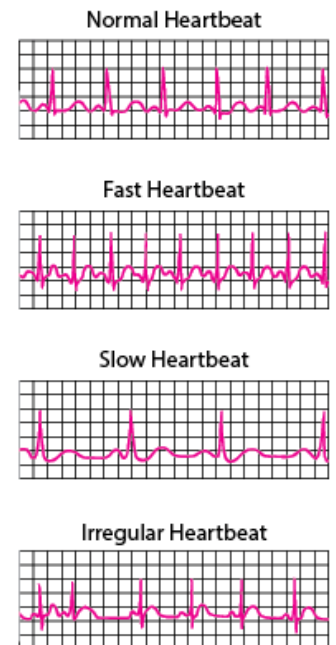
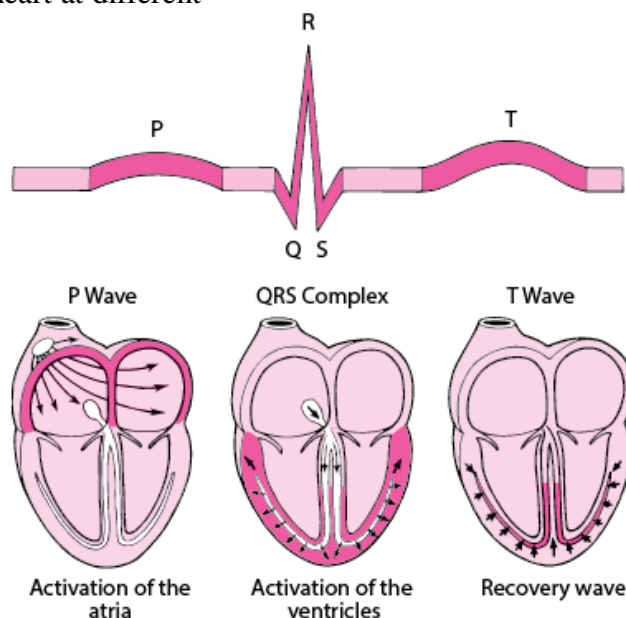
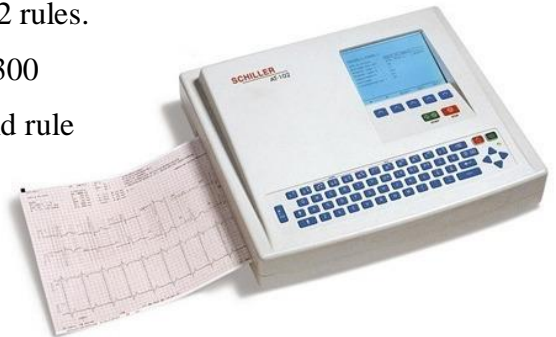
- Wave forms are movement away from baseline may be upward or downward.

- Calculation of Heart Rate-

Heart rate can be defined as number of heart beats per minute. It can be determined by ECG through 2 rules.

Rule of 300

10 second rule



Defibrillators

K. Mahitha, L. Chandana

Defibrillators are devices test to be a normal heart beat by sending an electrical impulse or shock to the heart. They are used to prevent or correct an arrhythmia, a heartbeat that is uneven or too slow or too fast. They can also restore the heart beats if heart beat stops.

It is a procedure used to treat condition that affect the rhythms of the heart such as cardiac arrhythmia, VF- Ventricular fibrillation and pulseless ventricular tachycardia. Involves the delivery of an electric shock to heart which causes depolarization of the heart muscles and re-establishes of normal conduction heart electrical impulses.

Types of defibrillators-

- (1) External Defibrillators
- (2) Trans venous Defibrillators
- (3) Implanted Defibrillators

It was first presented by Prevost and Battelle in 1899. In animal studies shocks delivers to the heart triggers VF, while delivery of large electric charges reverse fibrillation. In 1947, the procedure was used for the first time in human patient. In 14 years old boy undergoing a surgical procedure for a chest defect and managed to restore a normal sinus rhythm.



Indications:

Early electrical defibrillation is treatment of choice for VF and pulseless VT in the absence of a pulse.

Contraindications:

No contraindications

The presence of pacemaker and implanted cardiac defibrillation does not change the indication of the procedure when a shock able rhythm is present.

Equipment:

A cardiac monitor with defibrillation capability or an automated external defibrillator is required to perform defibrillation.

Steps of AED operations are as follows:

Step-1: Power on the AED

Step-2: Attach electrode pots

Step-3: Analyse the rhythm

Step-4: Clear the victim and press the shock button

Power of defibrillator-anywhere between 200-1000volts at 360joules and 45 amps

Shock lasts for approximately 8 milliseconds.





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**Know the
actual facts
and follow
precautions to
prevent the
spread of
COVID-19**

FROM THE MASTER

In this pandemic situation, we must know the facts about Covid-19 to protect and prevent ourselves as well as others. Due to the development of technologies like many social media's, imaginations & rumours about the virus, disease, its diagnosis, vaccine, mask, social distancing, usage of sanitizers etc., are spreading faster than the actual facts. It's must to know to the Do's and Don'ts to protect from Covid-19 and also to stop spreading to others. Government has initiated and taken various steps to create awareness among the public. As a part of this initiative, Rao's College of Pharmacy, Nellore taken a step forward to make the people aware about the Covid-19. I congratulate the editor and the team members for bringing this wonderful College Magazine 'PHARMAG' and I wish the team to succeed in their motive.

Reader's Takeaway

The COVID-19 pandemic has affected the world in various ways. The deficiency of information as this pandemic requires the cooperation of entire populations. In this sense, COVID-19 impact on the education sector has left them in a tight spot as economies continue to be under lockdown. Managing the learning curve, reaching out to every student, and creating a safe remote learning environment are some of the challenges at hand. However, digital transformation in education has been bridging the gap by providing remote learning, irrespective of the demographic boundaries. The educational institutes like schools, colleges, and universities need to take charge and offer assistance to parents, faculty, and students at all levels. The right strategy is to offer minimize the resources and tools to trim down confusion and ensure resistance against cyber security threats. Educational administrators and policy makers can use this crisis as an opportunity to introduce new learning modes that can reach everyone, to prepare for emergencies, and to make the system more resilient.

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OCCASIONS



HOLI
Painting competition
Natural colours



OCCASIONS



Quiz

Eve: Ambedkar Jayanthi
'Constitution of India & current affairs'



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