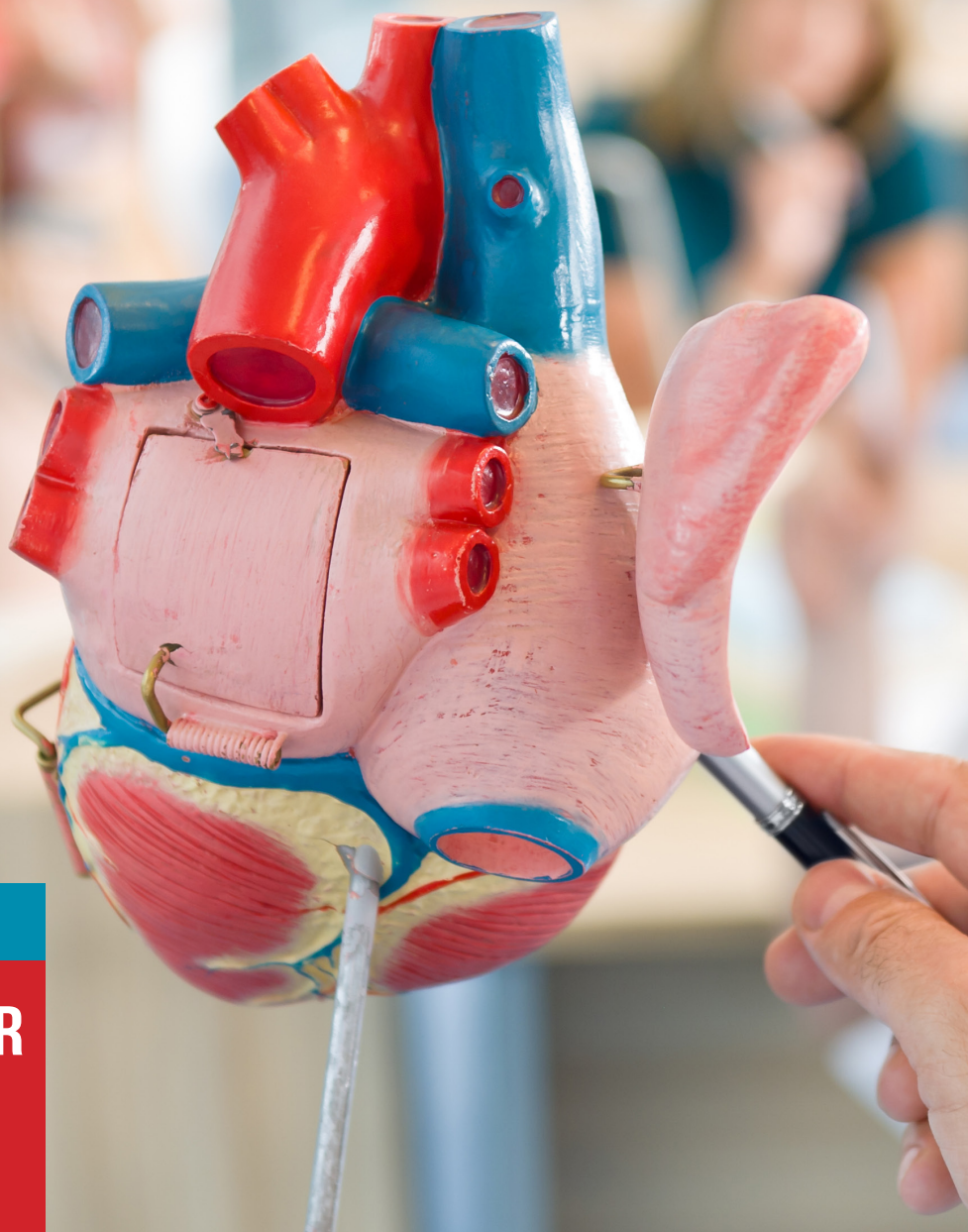




LINCOLN
AMERICAN UNIVERSITY
SCHOOL OF MEDICINE



**GATEWAY TO YOUR
DREAM MEDICAL
CAREER**

HEALTHCARE TODAY

BUILDING THE FUTURE OF HEALTHCARE

TABLE OF CONTENTS

ANNUAL MAGAZINE	3
VISION, MISSION, GOAL AND CORE VALUES	4
MESSAGE FROM VICE CHANCELLOR	5
MESSAGE FROM DEAN	6
MESSAGE FROM ACTING ASSOCIATE DEAN	7
TRIBUTE TO OUR LATE ASSOCIATE DEAN	8
LINCOLN AMERICAN UNIVERSITY	10
PROGRAM OVERVIEW	12
RECOGNITIONS	13
WHAT WE KNOW OF COVID 19 SO FAR?!	14
THE SHIFT IN GLOBAL HEALTH	20
FIGHTING THE DEADLY CORONAVIRUS	22
HEALTHCARE AROUND THE WORLD IN THESE UNPRECEDENTED TIMES	24
COVID-19 PANDEMIC AND THE ROLE OF MEDICAL STUDENTS	26
RESEARCH EXHIBITION AT LAU	28
COVID VACCINE FOR INDIA AND WHAT IT MEANS	29
MEDICINE AMIDST GLOBAL HEALTH CRISIS	30
WATERY EYES	31
STUDYING MEDICINE	32
CELEBRATIONS: REPUBLIC DAY OF INDIA	33
ANATOMY OF THE PANDEMIC	34
OUTBREAK OF HAVOC	36
HUMANS IN A NUTSHELL	37
ONLINE CLASSES FOR STUDENTS	38
CLINICAL ROTATION IN INDIA	43
CLINICAL ROTATION IN NEPAL	44
GANESH CHATURTHI CELEBRATION	45
EID CELEBRATION	46
QUIZ	47

ANNUAL MAGAZINE

At the close of the year that has seen unprecedented commotion and chaos, it is uplifting to see how much doctors and healthcare workers have contributed to alleviating the situation.

As everyone debated threadbare in locked-down drawing rooms and overheated social media platforms, about handling foreign travellers in their country, protocols to be followed, plunging economy and whatnot, the health care workers of our time went out fearlessly to fight a deadly invisible enemy. From poverty-stricken citizens to the top cream of the population, confined to their home bunkers, all pleaded, prayed and lauded healthcare works as grim news continued to flood from all over the world.

While the overwhelming situation may have hogged the limelight for our healthcare workers, this is not the only situation when doctors have been our saviours. Whether it was Nipha or polio, our doctors have always been at the forefront of our battles trying to dwarf the hardships and devastation that could possibly wreak havoc and devastation for humanity.

In honour of this tireless pursuit of service, we have decided to come up with an annual magazine for the university, with the 2020 theme as 'medicine amidst global health crises.' This is the starting theme for what we hope will continue every year in the university.

The first edition of our magazine reflects the overwhelming response that was received to the call for contributions! It includes a wide range of articles, poems and artwork by the students and faculty of the department, expressing myriad thoughts, ideas, responses and reactions to the reality around us.

HEALTHCARE



VISION

We have a vision for where we want to be, we have a mission for what we want to do, we set goals to keep us moving forward, and we follow a set of values to walk on the right path and do the right thing, always. Our vision, mission, goals, and values fit together to build momentum for us to make us all keep going and contribute our best to the world.

VISION

Lincoln American University, School of Medicine (“LAU” or “University”) aims at becoming one of the leading internationally acclaimed & respected medical institutions that provides premier medical education blended with a touch of humanity, basic sciences and clinical research programs and continuous professional development which is commensurate to the changing world of health care and growing needs of the community and which is in sync with the pace of changes in medical sciences and technology.

MISSION

LAU is dedicated to being a transformational institution for premier medical education, wherein the medical aspirants are made capable of delivering comprehensive health care to the population in all settings with competence, compassion, care, and confidence; where they are taught to become lifelong learners; where knowledge provided helps in relieving the pain and discomfort of the health care recipients and where providing collaborative yet personalized care irrespective of caste, creed, religion and economic status is the foremost strength.

GOAL

Goal of LAU reclines in making quality medical education affordable for masses, bridging the gap between means and ability for medical education, provide premier medical education in Guyana to medical aspirants from all around the world and produce socially responsible & skillfully great doctors who care about humanity and who have exceptional abilities to provide health care to all sections of the society.

CORE VALUES

Compassion:

LAU provides knowledge to help to relieve the pain & discomfort of those in need.

Inclusion:

LAU promotes health care irrespective of the caste, creed, religion, and economic status.

Integrity:

LAU believe in the evidence-based practice of medicine.

Innovation:

LAU invests in the process, technology for meeting ever-changing health care needs.

Excellence:

LAU provides quality medical education & clinical experience for the practice of medicine.

Ethics:

LAU imbibes ethical professional behavior to promote beneficence, justice & care.



AIR MARSHAL

DR PAWAN KAPOOR

AVSM, VSM BAR (RETD) FORMER DIRECTOR
GENERAL OF MEDICAL SERVICE (IAF)

VICE CHANCELLOR

Air Marshal (Dr) Pawan Kapoor, AVSM, VSM, and BAR (Retd), Former Director-General of Medical Services (IAF) assumed the designation of Vice-Chancellor after retiring from the Indian Armed Forces Medical Services as Director General of Medical Services (Indian Air Force) on December 31, 2017.

“Our only mission is to create a platform to produce qualified, innovative and progressive doctors who will aim hard for the cause of betterment of the health care delivery to those who need it the most.”

As part of Lincoln American University, I feel an immense sense of pride to have completed this magazine in such a short period of time. I congratulate all students and faculty members who came forward to contribute to the content with their skills and creativity.

LAU’s commitment begins from day one - to work with you and walk with you through each day all through the years you will spend here in the university. The learned staff members and the ever-accessible management always guide you through your path and help you nurture your dreams and fulfil them — by empowering you to realise your true potential.

We have a perfect blend of academics and dynamic environment to motivate everyone — the management, faculty and students to deliver their best. We hope that this magazine will provide the necessary impetus to your hunger for knowledge and your own potential for creativity and continual learning.



DR DINESH SINGLA

MBBS, MD, PH.D

DEAN

Dr Dinesh Singla is heading the Dean position at Lincoln American University. Proven track record to decide numerous complex and uncertain conditions, Dr Singla has always been efficient in bringing robust transformation in the management.

“Seeing young and beautiful minds of India heading towards the noblest profession in the world makes me proud and gives me immense happiness. I just want to say that you people are the future of India and you are only one who can change the Indian healthcare system.”

LAU aspires to change healthcare around the world through medical education. This is what motivates the work of each and every individual at Lincoln American University. We believe, that every child deserves a high-quality education and providing it is an obligation for every generation towards the ones to follow.

LAU aims to pursue academic excellence as well as motivate and empower the students to be lifelong learners, critical thinkers, and productive members of an ever-changing global society. Converting every individual into a self-reliant and independent citizen, LAU provides an amalgam of scholastic and co-scholastic activities. The first edition of the magazine is welcome as a contribution to the latter.

It gives me immense pleasure to welcome it and express my gratitude to everyone who contributed to its making! I hope that this magazine is the first in many more that are to follow in the coming years.

Enjoy reading!



DR YUSUF ABDULLAH

ACTING ASSOCIATE DEAN

A strong headed individual with prodigious interpersonal skills, Dr. Abdullah Yusuf is the master of Human Anatomy. Dr. Abdullah strongly believes in the importance of companionship, teamwork and support in the domain of patient care.

“We strive to create future healthcare workers who will become contributing members of the society. We have come this far and we hope that we continue to climb the upward spiral towards success and prosperity!”

It gives me immense pleasure to welcome the first edition of LAU’s annual magazine. I hope that the commencement of this magazine will give students a platform to ‘think out loud’, unfettered by doubts and fears about matters of mundane life and medicine.

The ability of LAU to make world-class doctors is contingent on their determination and perseverance to succeed. We continue to strive for giving top-quality education and training to all our students. However, we know that the path of moving from novice to expert is far from linear. It is a complex journey that is domain-specific with multiple variations reflecting the individuality of our learners.

Within this complex journey, there is a need to train the doctors of tomorrow to be humanistic, competent, patient-centred, resilient beings who will thrive in a challenging environment, striving to advance medicine. Our magazine is one step in putting forth student views and insights into the medicinal world to a larger audience. We hope that this endeavour, what at first appears to be trivial, will be enlightening and tremendously significant.

I once again congratulate all students and faculties on this edition and look forward to many more in the coming years.

TRIBUTE TO OUR LATE ASSOCIATE DEAN DR TORRINGTON



Dr Wesley Torrington had acquired a range of professional skills which he never forgot to incorporate in his professional workings. A highly motivated person and self-starter, he was highly imaginative, creative and a champion in building team cohesion.

Born on 16th July 1964, Dr Torrington had professional experience of over 15 years, with graduation as a Medical Doctor [MBBS UG Med. School] in 2002 and engaged in professional doings after that.

His experience took up various designations and job roles which included a consultant: curriculum and resource, developer of course curriculum and resource materials technical specialist, tutor at the IDCE - University of Guyana, National Trainer and Facilitator with Ministry of Health, National AIDS Program Secretariat, Training and Health Consultant and as a Charge Nurse and Lecturer with many top medical universities and hospitals.

He also acted as a Facilitator at General Nursing Council and DMH Continuing Education Program in 2004 where he was responsible for preparing and conducting seminars and workshop training.


Dr Torrington has spent a considerable amount of time in research activities on HIV/STI Risk Behavior of patients seeking services at the GUM clinic in 2002 and Cholesterol as a Risk Factor in Guyana in 2000 Adequacy of Nursing Care at Georgetown Public Hospital in 1995.

We deeply value his contributions to Lincoln American University and bow our heads to this scholar, spiritual leader, professor, confidant, walking medical encyclopedia, and so much more. We pray that your soul finds eternal peace.

LAU Shall Always be immensely grateful for your contributions towards its growth.

You shall be sorely missed.

To the living,
I am gone,
To the sorrowful,
I will never return,
To the angry,
I was cheated,
But to the happy,
I am at peace,
And to the faithful,
I have never left.



LAU Campus is located in Georgetown and is equipped with all the facilities for quality medical education in South America. LAU campus houses LAU classrooms, library, and laboratories and provides a comfortable and calm atmosphere to students which is unfolded by the rainy climate of Guyana! In the campus, Students and faculty stay in-house in a friendly atmosphere thereby ensuring consistent interaction, supervision & guidance. The campus is centrally air-conditioned and is secured under complete surveillance to ensure the safety of the students and staff alike. At Campus, LAU Family believes in maintaining a healthy and friendly environment, holistic culture and inclusive approach that promotes students' well-being and lifelong learning!

LAU offers MD program of international standards. The curriculum of the MD program is based on US medical curriculum, focuses on USMLE (United States Medical Licensing Examination & takes 5 years to complete. US-based curriculum of LAU's MD Program ensures that students' MD in Guyana is as fruitful as studying medicine in USA. Both Basic Sciences and Clinical Rotations Program are designed to specifically meet the licensing requirements in the US and other nations including India, UK, Canada & many others so that after MD graduation from LAU, students can practice in the country of their choice.

LINCOLN AMERICAN UNIVERSITY OPENED
DOORS IN 2017 ATTRACTING STUDENTS
FROM INDIA, AFRICA, AND GUYANA.

Lincoln American University, School of Medicine (LAU) is a well-recognized and one of the fastest-growing medical universities offering international standard medical education to students from all around the world. LAU is situated in Georgetown, the capital city of Guyana, a beautiful island country in the Caribbean region. Since its inception in 2016, the University is dedicated to bridging the gap between means and the ability of quality medical education.





LINCOLN AMERICAN UNIVERSITY

In a short period, this young University has made impressive progress. It has established itself as a reputed medical institution in South America.

Currently, 250+ students from Guyana, India, Nepal, Africa, Nigeria and many more countries worldwide are enrolled in our 5-Year MD Program and are pursuing their dream journey of becoming a good professional doctor.

Our medical program is designed according to the benchmark US curriculum, and English is used as a medium of instruction. We involve our students in laboratory experiments, seminars and research programs ensuring that they get as much hands-on experience as theoretical knowledge to become exceptional doctors of the world!

5-YEAR MD PROGRAM

LAU offers a 5-Year MD Program including 1-Year Pre-Medical Program. The entire course curriculum is prepared by a team of doctors, healthcare professionals and medical researchers following the best practices of medical education in USA and Caribbean region and is well designed to meet the licensing requirements in the United States, Canada, India and many other countries. It is a blend of the best of Asia, Europe and America.

While our international-standard curriculum ensures advanced academic excellence, the practical training imparted during the program in our medical laboratories and affiliated hospitals helps you prepare for the medical challenges you'll face as a doctor.

PRE-MEDICAL OR BASIC FOUNDATION FOR MEDICAL SCIENCES

- ⇒ Pre-Medical is the foundation of the MD Program which prepares you to handle the thorough course of study that you'll experience in the next four years.

PRE-CLINICAL OR BASIC SCIENCES

- ⇒ LAU provides a problem-based learning environment wherein a range of problems encountered by doctors and the range of solutions that have been developed for their recognition, investigation, prevention, and treatment are discussed.
- ⇒ Thorough knowledge of basic medical sciences is provided.
- ⇒ Principles of disease, therapy, ethical and legal issues relevant to the practice of medicine are discussed.
- ⇒ LAU follows a system-based curriculum which means anatomy, embryology, histology, and physiology of a system is completed first, followed by pathology, pharmacology and clinical aspects of that system before the second system is targeted.
- ⇒ Biochemistry, General pharmacology, general pathology and microbiology continue side-by-side to ensure a better understanding of systems.

PROGRAM OVERVIEW

CLINICAL ROTATIONS OR CLINICAL SCIENCES

These are carried out in our affiliated hospitals of excellence

Here is what you will do and learn during clinical rotations:

- ⇒ Visit hospitals, observe fellow doctors, take clinical rounds, interact with hospital staff and treat patients under expert guidance.
- ⇒ Get hands-on experience in clinical services.
- ⇒ Learn to record patient history, perform a physical examination and interpret the findings.
- ⇒ Correlate the clinical aspects of medicine to basic sciences and acquire an in-depth understanding of clinical practice.
- ⇒ Analyze lab data, obtain blood samples, carry out vaccinations, diagnose patient cases, and understand life as a doctor.
- ⇒ Analyze various radiological reports and correlate with clinical findings.

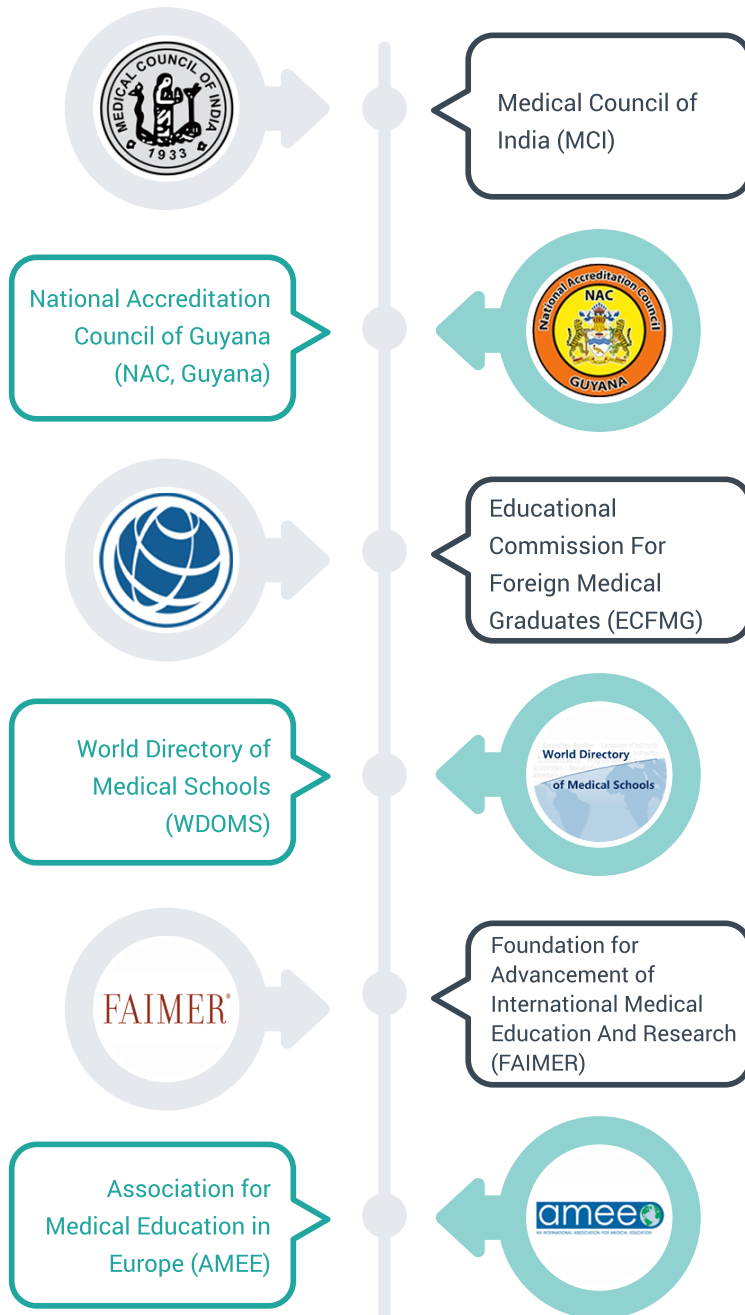
After completion of the clinical rotations, you will come out as a professional doctor. Our MD Program is a perfect combination of academics and pragmatic experience which makes you an exceptional doctor who is ready to face the medical challenges with courage, confidence, intellect, and experience.

“Healthy food is really and truly the most effective medicine.”



RECOGNITIONS

LAU is recognized by major medical institutions and organizations in the world including:



- 1 WDOMS, the most-well known name of accreditation in the world
- 2 NAC, the principal body for accreditation and recognition of educational and training institutions in Guyana
- 3 FAIMER, a non-profit foundation committed to improving world health through education
- 4 ECFMG, the agency of international medical graduates to enter residency or fellowship programs in the United States;
- 5 MCI, the only regulatory body which grants registration and license for medical practice in India;
- 6 Global Alliance Medical Education and Association for medical education in Europe.

“Medicine is only for those who cannot imagine doing anything else.”

WHAT WE KNOW OF COVID 19 SO FAR?!



AIR MARSHAL, DR PAWAN KAPOOR

AVSM, VSM BAR (Retd) former Director General of Medical Service (IAF)

VICE CHANCELLOR

THE CAUSE_____

COVID 19 is caused by Beta Corona virus now known as Severe Acute Respiratory Syndrome Corona virus 2 (SARS-2). The disease originally started in Wuhan, Hubei province of China in Dec 2019 as isolated cases of pneumonia of unknown aetiology. It subsequently spread across the globe and became a pandemic of unprecedented proportions. As on 18th Feb 2021, there are over 110 million cases across the globe with about 2.44 million deaths.

THE STRUCTURE OF THE SARS CORONAVIRUS 2VIRUS_____

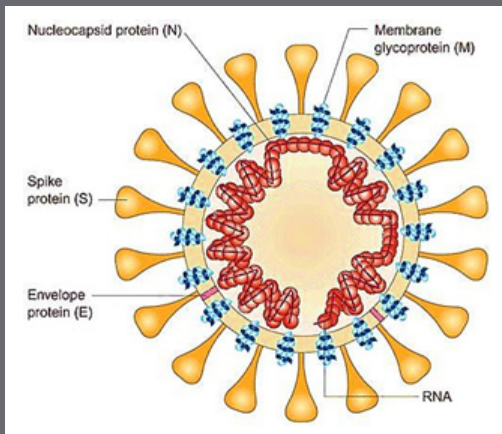


Fig 1: The SARS Coronavirus Structure (Source : assaygenie.com)

THE INCUBATION PERIOD_____

The incubation period of the disease varies from 2 to 14 days with a median incubation period of 5 days and it primarily affects the respiratory system.

THE COMMON SYMPTOMS_____

The following are the **commonly reported presentation features**

- > Fever
- > Cough
- > Breathing difficulty

- > Headache
- > Muscular aches
- > Sore throat or Irritation in throat
- > Diarrhoea
- > Nausea
- > Anosmia (Loss of smell)
- > Ageusia (Loss of Taste)

THE COMPLICATIONS_____

The **common complications** of the disease known so far are as under:-

- > Pneumonia
- > Acute Respiratory Distress Syndrome
- > Septicemia due to superadded infections
- > Multi organ failure
- > Thromboembolic episodes
- > Acute Kidney Injury
- > Disseminated Vascular coagulation

THE DIAGNOSIS_____

Confirmed **diagnosis** is made through RTPCR (Reverse transcriptase Polymerase Chain reaction)

Rapid antigen test is another mode for diagnosing the disease.

Antibody testing is best used as a tool for surveillance and prevalence of infection in the community as also to measure the effectiveness of the vaccines

X ray chest PA view

High resolution CT scan of the chest can reveal early signs of onset of viral pneumonia

The other Laboratory parameters that can be affected are as under:-

- Lymphopenia
- Raised inflammatory markers like Procalcitonin, CPR, Ferritin
- Raised D Dimer

THE DISEASE PROGRESSION____

In so far as disease progression is concerned, almost 85 % of infected individuals either show no symptoms or have only mild symptoms with low grade fever, myalgia, rhinorrhoea or symptoms suggestive of Upper respiratory Infection like sore throat or irritation in throat and mild cough. The remaining may need hospitalisation as they may show more severe symptoms with need for oxygenation. Some develop complications and secondary infections that may require ventilator support. Post COVID thromboembolic phenomenon affecting the cardiac and pulmonary status and mucormycosis in immune-compromised individuals are also being reported.

THE MANAGEMENT_____

The management is primarily supportive, looking after the oxygenation needs through High Flow Nasal cannula. Non Invasive ventilation followed by mechanical ventilation , providing appropriate antibiotic coverage and giving immune modulators and drugs like Zinc, Vitamin C and Vitamin D3. There are experimental therapies with various antiviral agents, plasma therapy, monoclonal antibodies with mixed results. Timely administration of steroids and use of anticoagulants like low molecular weight heparin are known to reduce morbidity and prevent complications.

THE HIGH RISK CATEGORY_____

The following have been identified **as high risk category**

Elderly males

Pregnancy,

Immune-compromised individuals and those on immune suppressants Those having co morbidities like Diabetes Mellitus, Hypertension, cardiac ailments, obesity, chronic kidney disease, chronic obstructive pulmonary disorders, cancer and chronic smoking.

THE CASE FATALITY RATIO_____

This varies from 1.5 % to 3 % on an average but is different with age profile .

The CFR is around 1% in the age group of <50 years but it rapidly increases to around 17% in the

age group of ≥ 60 years, and 24.4% in the age group beyond 70 years. The CFR is also dependent upon the presence / absence of comorbidities and the lifestyle

THE MODE OF SPREAD_____

The mode of spread of the virus is through direct contact with the respiratory droplets generated through coughing and sneezing by an infected person.). Individuals can also be infected from and touching surfaces contaminated with the virus and touching their face (e.g., eyes, nose, mouth).

THE PREVENTIVE MEASURES____

The preventive measures to be taken to slow down the spread and to contain the spread of the disease are frequent hand

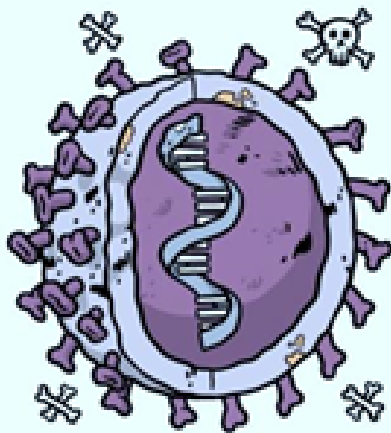
washing, maintaining a physical distance of 2 metres or 6 feet, wearing of masks, appropriate cleaning and disinfection practices and maintaining respiratory hygiene

THE VACCINES_____

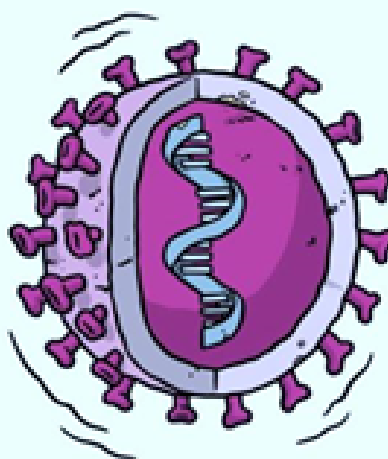
Most of the vaccines that are developed need to be tested for their safety, immunogenicity and efficacy in various animal and human based trials before they get approval for use.

There are three approaches for developing vaccines (Source: WHO)

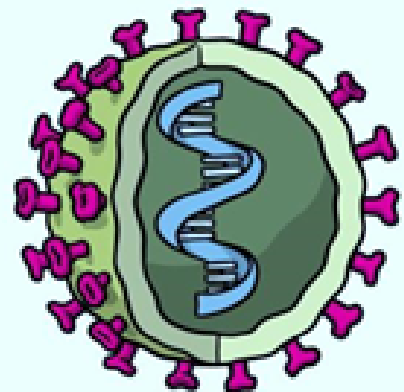
1. The Whole Microbe approach which comprises of either live attenuated virus, inactivated virus or a viral vector in which the genetic material of the harmful virus is inserted into a harmless virus



Inactivated Vaccine



Live Attenuated Vaccine



Viral Vector Vaccine

Fig 2 : The whole Microbe Approach

2. The subunit approach

where a fragment of the virus is introduced that can cause immunogenicity

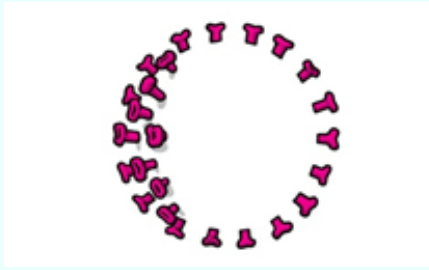


Fig 3: The Subunit Approach

3. The **Genetic or the Nucleic Acid approach** that are DNA or RNA based



Fig 4 : The genetic Approach

Based upon the aforementioned three approaches, the various technology platforms being used for the development of Coronavirus vaccines are briefly described below

1. DNA-based vaccines that are expected to work by inserting synthetic DNA of viral gene(s) into small DNA molecules (called plasmids). Cells take in the DNA plasmids and follow their instructions to build viral proteins, which are recognized by the immune system, and prepare it to respond to disease exposure Eg Sanofi (France, Phase 1 Trial), InVivo (USA, Phase 1 Trial)

2. RNA vaccines which are developed by introducing an mRNA sequence coded for a disease-specific antigen. Once

this antigen is reproduced within the body, it is recognized and triggers an immune response Eg Pfizer and Moderna (USA, Emergency Use Authorisation granted)

3. Subunit vaccines are developed by introducing a fragment of the virus into the body. This fragment is enough to be recognized by the immune response and stimulate immunity. Eg Novavax (USA, Phase 3 Trial)

4. Viral vector vaccines that are developed by inserting a gene for a viral protein into another, harmless virus (replicating or nonreplicating), which delivers the viral protein to the vaccine recipient, triggering an immune response. Eg AstraZeneca Oxford (UK), Covishield (India), Sputnik V (Russia), J&J (USA). Emergency Use Authorisation granted to AZ Oxford, Covishield and Sputnik V. Johnson and Johnson (J&J) is under Phase 3 Trial

5. Inactivated vaccines that consist of the whole virus, which has been killed with heat or chemicals so that it can't cause illness. Eg Sinovac (China), Emergency Use Authorisation granted and Covaxin (India, Phase 3 Trials)

6. Live attenuated vaccines are made up of whole viruses that have weakened in a lab. They tend to elicit a stronger immune response than inactivated vaccines. (University of North Carolina, USA-Two vaccines in Preclinical Trial)

All the vaccines being developed and authorised under emergency use are for adults of 18 years and above and are not indicated

for pregnant ladies and children since no trials have been carried out for these group of individuals.

COMMON VACCINES AVAILABLE AS ON DATE _____

Normally it takes years of research and testing for a vaccine to finally be launched for mass immunization but in the light of the havoc created by the coronavirus, the scientific community raced in a fast forward mode to produce a safe and effective vaccine as early as possible. This, however, does not mean that the scientific practices are being short circuited. In view of the technology advancements and ongoing research, the vaccines that have been developed have undergone the necessary safety, immunogenicity and efficacy trials. It is a tribute to the scientific committee that years of efforts have managed to curtail the time of development of a viable vaccine against the corona virus SARS 2.

There are more than 50 vaccines that are currently undergoing clinical trials in humans and there are another more than 80 preclinical vaccines that are under trials in animals to see whether there is any immunogenic response or not. A brief description of some of the vaccines about which information is available and that have raced ahead of others is tabulated below

Sr No	Vaccine Name	Type	Doses	Efficacy	Emergency Use Authorisation	Storage	Cost in US Dollars
1.	Pfizer BioNtech	mRNA	2 (28 days apart)	95%	WProvided	Minus 70 degrees Celsius	19.5\$ for the first 100 million doses
2.	Moderna	mRNA	2(28 days apart)	95%	Provided	Minus 20degrees Celsius	25 to 35 \$ per dose
3.	Astrazeneca Oxford	Adenovirus based vector	2(28 days apart)	70 to 90 %	Provided	2 to 8 degrees Celsius	3 \$ per dose
4.	Russias Gamaleya Sputnik V	Adenovirus based vector	2 (28 days apart)	92%	Available for use in Russia. Undergoing Phase 3 Trials in India in collaboration with Dr Reddy	2 to 8 degrees Celsius	10 \$ per dose
5.	Johnson and Johnson	Adenovirus based vector	Single dose	Yet to be disclosed. Still in Trial phase	Likely Mid 2021	2 to 8 degrees Celsius	10 \$ single dose
6.	COVISHIELD (India)	Adenovirus based vector	Two doses 28 days apart (May be increased to 8 to 12 weeks based on new evidence)	70 to 90 %	Provided	2 to 8 degrees Celsius	Currently it is free of cost in India
7.	COVAXIN (India)	Inactivated Virus	Two doses 28 days apart	70 to 90% as claimed so far	Phase 3 Trials	2 to 8 degrees Celsius	-

The priorities for initial vaccination are as under

- > Health Care Workers
- > Other Frontline operators
- > Elderly and Senior Citizens
- > Those with Comorbidities

THE SIDE EFFECTS _____

The common side effects so far reported are briefly enumerated below
-> Pain or Soreness at the site of the injection
-> Painful, swollen lymph nodes in the arm where the vaccine was injected
-> Tiredness
-> Headache
-> Muscle or joint aches
-> Nausea and vomiting
-> Fever or chills.

Most of the side effects are self-limiting and usually occur after the second dose. They may last for two to three days.

Some serious side effects relate to allergic reactions like anaphylaxis which are rare. Those with allergy should intimate their allergic conditions to the healthcare providers before the vaccination. Everyone is usually observed for such allergic manifestations for 30 mins after the vaccination in the health care centres.

We must understand that COVID-19 is an unpredictable and potentially fatal disease. The current information on the safety and efficacy of the vaccines being used is very encouraging. Like any other vaccination the minor side effects are expected and should be understood. Like intimated earlier the serious allergic reactions occur but rarely. Side effects should not be the reason for avoiding the vaccination. The benefits far outweigh the risks. As the number of vaccine recipients and the number of different vaccines grow, vigilance is warranted. What we know today about side effects and safety won't be the last word

MYTHS AND FACTS _____

Myth 1: Vaccine can cause COVID 19.

Truth 1: COVID 19 vaccines DO NOT cause COVID 19.

Myth 2: I have got infected earlier with COVID 19 so I do not need the vaccine

Truth 2: The immunity obtained from earlier infection may be low or short-lived. The immunity obtained from the vaccine will be more calibrated and will last for a longer duration

Myth 3: I need not put on mask once I have been vaccinated

Truth 3: COVID 19 vaccines protect the individual from getting the disease once exposed but does not prevent him from becoming an asymptomatic spreader of the disease. Hence post vaccination, the preventive measures should be continued.

Myth 4: COVID 19 vaccines may alter my DNA and result in some genetic defects.

Truth 4: COVID 19 vaccines do not alter in any way the genetic material. The mRNA vaccine in particular instructs the cells to make spike proteins which once recognised by the body generates an immune response in the form of antibodies to these spike proteins of COVID 19 virus. The genetic material is in the nucleus of the cell and the mRNA does not enter into the nucleus. The body gets rid of the mRNA after it has finished using its instructions.

Myth 5: Once you receive the COVID 19 vaccine, you're immune for life.

Truth 5: It is not known as yet as to how long immunity from a COVID 19 vaccine will last and whether it will need to be administered more than once, or even on a regular basis, like the flu shot.

THE VARIANTS _____

Like most of the viruses that undergo mutations, the same is true for coronavirus SARS 2. There are a number of variants of the virus circulating globally. Three of the prominent ones are as under

1. Variant B.1.1.7 with a large number of mutations has been reported from UK. This spreads more easily and quickly than the original corona virus SARS 2 and some other known variants
2. Another variant called B.1.351 emerged independently of B.1.1.7 in South Africa. It shares some of its mutations with B.1.1.7
3. A third variant called P.1 was first identified in travellers from Brazil. This variant contains a set of additional mutations that may affect its ability to be recognized by antibodies.

It is felt that these variants spread more easily and quickly than other variants. This is a cause of worry as it would mean more COVID 19 cases that will put greater strain on the health care delivery systems of the nation states leading to more hospitalisations and consequently more deaths. The studies done so far reveal that the currently authorised vaccines do generate antibodies that are able to recognise these variants. More and larger sample size studies are, however, needed to confirm these observations.

The scientist community is currently working rigorously to acquire more knowledge about these variants and more studies are needed to understand their current spread in different regions of the globe, whether the disease caused is similar to the original COVID 19, whether they can be detected by the existing diagnostic tests, and as to how these variants may affect exiting therapies, vaccines and test.

CONCLUSION _____

Corona virus SARS 2, the causative agent of COVID 19 is here to stay for some-time. How long?! Time will tell. We have to understand the disease, the virus, its current and emerging behaviour, the presentation, complications and the management. We have to take steps to prevent and contain the disease till herd immunity on account of both the vaccination and infection sets in and some definite treatment modality is available. Rigorous and increased compliance with public health mitigation strategies, such as vaccination, physical distancing, use of masks, hand hygiene, and isolation and quarantine, is essential to limit the spread of the virus that causes COVID-19 and protect public health. With time it will be like any other viral disease in the community. Till then we have to exercise caution, take our vaccines and allow the scientific community to do the rest.

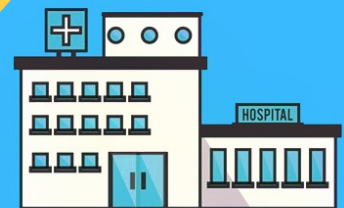
Air Marshal, Dr Pawan Kapoor
AVSM, VSM BAR (Retd) former Director
General of Medical Service (IAF)
Vice Chancellor



SHIVANI MANDAL

The World Health Organization (WHO) has warned that the vaccines starting to get approval for public use are no magic bullet for the coronavirus crisis and do not mean that the pandemic will end soon.

“Vaccines do not equal zero Covid,” said WHO emergencies director Michael Ryan. “Vaccination will add a major, major, powerful tool to the tool kit that we have. But by themselves, they will not do the job.”



WHAT'S IT CALLED WHEN A HOSPITAL
RUNS OUT OF MATERNITY NURSES?
A MID-WIFE CRISIS!

THE SHIFT IN GLOBAL HEALTH

“Global health” refers to issues related to population health that, due to the common multi-national nature of the issue or its scientific implications, have relevance beyond a single country’s borders. Given the broad determinants of human health, “global health” topics span a vast spectrum of disciplines compared to with traditional Western medicine. By its very nature, global health must grapple with problems that transcend care provision at the individual patient level. Global health includes ill-defined intersections among human and veterinary medicine (the basic and the clinical), sociology, anthropology, bioethics, environmental health, health services research, economics and the political sciences. Even this list is not exhaustive. Global health is difficult to define—and yet we know it when we see it.

Much that is published in the global health literature addresses the challenges of public health improvements and healthcare delivery in resource-limited settings. Of course, resources for optimizing health and providing healthcare are

virtually always limited in some fashion. But the term “resource-limited setting” is usually used to refer to situations in which the lack of resources is so extreme that the effect of the resource limitation itself becomes one of the central challenges to be assessed. Like the term “global health”, the term “resource-limited setting” is also amorphous. It can describe a community with food insecurity so severe as to result in increased child mortality or it can be a label used to bemoan the lack of neuroimaging capacity to study cerebral malaria in endemic regions. Dissecting the layers of deprivation and deprivation’s impact on human health in resource-limited settings is one of the many challenges of providing healthcare services and conducting research in such circumstances.

In recent years, the interest in global health from the general public as well as the academic community has skyrocketed. In the first decade of 2000, the number of US medical schools offering international electives more than doubled. Many domestic philanthropic organizations from wealthy nations have expanded

into low income, tropical settings. International aid for development assistance was \$5.2 billion in 1990, had increased to \$21.8 billion by 2007, and even in the face of a global recession, this investment continues to rise. Philanthropists like Bill and Melinda Gates certainly deserve credit for directing their substantial wealth and personal energies towards highlighting opportunities for improving global health. But perhaps our interest in people and problems beyond our own immediate communities has been most affected by the interconnectedness that characterizes this electronic age.

Improvements to medical practice and delivery of treatment have been the focus of many international collaborations aiming to address the global burden of disease. Delivering appropriate health care, as well as the implementation of research in low-and-middle-income countries, is compounded by resource allocation issues. Vulnerable populations continue to be seriously affected by non-communicable and infectious diseases including neglected tropical diseases, while complications during pregnancy and childbirth in these regions leave mothers and infants at risk of severe disability or death. These are ethical as well as medical problems, as many of these outcomes are preventable.

FIGHTING THE DEADLY CORONAVIRUS

The outbreak of coronavirus disease (COVID-19) has caused a global health crisis infecting people all over the globe. The number of people getting infected by COVID-19 is increasing every day. To control this pandemic, scientists are working round the clock to find a vaccine. For now, there is no such proven medicine to treat this virus.

As antibiotics are not known to work against the viruses, the immune system of a person's body must typically fight them off. This is even more challenging when the symptoms of the disease become acute, which is seen in most of the cases of the COVID-19.

The COVID-19 disease is an immensely complex disease that is caused by the SARS-CoV-2 virus. It is a novel or new virus which originated almost a year ago in Wuhan, China but is now spread to every country infecting millions of people. While there is research going on to find new medicines and vaccines fighting this global pandemic, there are certain

existing medicines that health care experts are currently relying upon for treating infected people.

Food and Drug Administration giving the nod in favour of making the use of an antiviral drug Remdesivir in October 2020 for treating people who are age 12 and older than that and has been hospitalised for getting treated for the coronavirus disease.

Doctors had already started using Remdesivir in May 2020 as soon as FDA granted authorisation for its emergency use. The emergency use authorisation (EUA) is a mechanism that the FDA uses for allowing medications in case of emergencies as these medications have previously shown good safety data and benefits.

The approval of the FDA for the use of Remdesivir for treating COVID-19 infected patients is considered a great accomplishment. This has helped as doctors had something in their tool kit while treating patients infected with COVID-19. Many other medicines are

currently being used that are solely based on the clinical experience of health care experts while treating infected patients with this disease and with many other diseases.

There are corticosteroids, immune modulators as well as anticoagulants being used along with Remdesivir. This combination of drugs has given positive results as they have assisted infected people in their recovery. FDA has overruled the emergency use approval for hydroxychloroquine in June this year as it was seen to lack efficacy against the Sars-CoV-2 virus. It also had some safety concerns and most importantly, in terms of cardiovascular safety.

In August 2020, FDA gave EUA for COVID-19 convalescent plasma. As FDA did not provide the approval to convalescent plasma for treating COVID-19, it is then regulated as an investigational product. Previously infected COVID-19 patients that recovered from the disease may have antibodies in them, and those antibodies could be later transferred to the bodies of recently infected patients through plasma transfusion.

In simple language, if you were previously infected by coronavirus disease and have now recovered, you can donate your plasma so that other infected patients could use it to have a potentially more positive outcome. You might have heard about the

treating COVID-19 patients. This is exactly what it means.

However, the current methodology used for treating coronavirus infected patients makes use of antiviral medicines, anti-inflammatory medications, and immune system boosters. These are included along with Remdesivir, tocilizumab, and glucocorticoids. There are so many vaccine candidates undergoing clinical trials all across the world.

As far as the current treatment of COVID-19 with symptoms that are mild to moderate in nature are concerned, the treatment involves supportive care like hydration (IV fluids), fever control, and a breathing treatment. In the case of concurrent bacterial infections, antibiotics are used sometimes. Some information is there that cautions patients regarding the use of non-steroidal anti-inflammatory medicines like Ibuprofen.

However, there is no confirmation or study regarding this, and hence, they cannot be recommended. There has been proof that techniques involving patients to lay on their stomach and the addition of Dexamethasone (a kind of glucocorticoids) and Heparin (or any blood thinner) have helped the infected people in speedy recovery.

With the research for proven and effective vaccine advances, there are a few potential medications that healthcare experts are eyeing. When the world awaits a vaccine to control this potentially deadly virus, we need to have some patience as creating an efficient, safe, and proven vaccine needs years of research. However, the way different pharmaceutical companies are raging and trying their best to bring a vaccine as soon as possible has given us a ray of hope.

There are several vaccines produced by pharmaceutical companies that are currently undergoing different phases of trials. The FDA has ensured to have collected and tabulated all the customary safety data before issuing any approval for the use of any of the vaccines. It has publicly stated that every necessary data will be provided before reviewing any potential COVID-19 vaccine to assure that it is safe as well as practical.



SAYALI PATIL

HEALTHCARE AROUND THE WORLD IN THESE UNPRECEDENTED TIMES

BY MEGHA KUMARI

In recent decades, public health policy and practice have been increasingly challenged by globalisation even as global financing for health has increased dramatically.

Global Health Crisis refers to a situation in which a catastrophic number of people are dying of neglected diseases. A health crisis or a public health crisis is a difficult situation or a complex health system that affects humans in one or more geographical areas.

Health crises generally have significant impacts on loss of life, community health, and on the economy.

A critical characteristic of global health is its inter and transdisciplinary focus. Global health issues are complex and intricate, thus requiring more than a single-discipline-approach. Hence, GH gathers information from multiple perspectives and disciplines to address

“it is a health that is a real wealth and not pieces of gold and silver.”

Health and medicine are paradoxes. However, they are complementary too. Let's know how they are so. Health and medicine are paradoxes in the sense that being healthy means being away from medications. Put simply, a healthy person is he who does not depend upon any medicine in any way; he enjoys his health by maintaining it naturally, i.e. consuming nutritious food, wholesome drinks, by being fit with only routine bodily activities such as, walking, playing, climbing up and down stairs, etc. thus the cycle goes on.

Medicine, at times, becomes essential for regaining the lost health. Owing to faulty lifestyles or one's dissipation, one falls ill. So one has to take the medicinal aid to be healthy again. In this sense, medicine helps one to be healthy. The best option out of two arguments is to stay fit without medication!



“The essence of global health equity is the idea that something so precious as health might be viewed as a right.”

Although the resources and knowledge for achieving improved global health exist, a new, critical paradigm on health as an aspect of human development, human security, and human rights is needed. Such a shift is required to sufficiently modify and credibly reduce the present dominance of perverse market forces on global health.

We describe aspects of an increasingly unstable world and why the market-driven growth paradigm is insufficient to achieve improved global health. We then suggest several new ways of thinking that we believe should be adopted to improve global health.

CoronaVirus is a pandemic situation nowadays in the world level. Its origins are from Wuhan city china, where people buy nonvegetarian foods

from the seafood market. It's a virus whose structure is like a crown as they original generate from Bats. Nowadays corona spreading through the surface as they live on surfaces for many days.

If a person touches the surface, they become infected. As there is no possible vaccine or medicine available to the government so that they can control the no of deaths in a day.

No of deaths increasing day by day as there is no treatment only hydroxychloroquine is giving to symptomatic patients. Many no of people are treated in the hospital also they recovered self because of their strong immunity in 14 days quarantine period. The coronavirus pandemic is also worsening the ongoing problem of substandard and falsified medicine. On March 31, the World Health Organization published a Medical Product Alert to **“warn consumers, health care professionals, and health authorities against a growing number of falsified medical products that claim to prevent, detect, treat or cure COVID-19.”**

Panic buying is one of the top headlines of the COVID-19, pandemic. This international phenomenon threatens the health system' ability to prevent and treat the coronavirus with shortages of hand sanitiser, masks, and pain relievers. While the pandemic has drastically altered our routines, it has also created a renewed sense of community. Governments all over the globe are trying to secure masks, protective equipment, and ventilators while stocking up and rationing other medicines to respond to supply chain disruptions.

Time of crisis underscores the disparities between the haves and the have -nots, the physically able and the disabled, the young and the elderly. To protect citizen with reduced mobility, a household that regularly runs out food before the end of the month, or those who can only afford to stockpile when prices are lower than usual, policy interventions may be necessary. To address the detrimental impact of panic buying, some stores are rationing essential items and modifying their opening hours to prioritise vulnerable customers such as health care workers and the elderly.

More than wealth and happiness, health matters the most for all of us. If we are not healthy, there is nothing that can make us happy. Being healthy is an essential thing in one's life. And for one's healthy living, we must care about our lifestyle and diet. And once we get sick, there are medicines that are made to help fight the diseases that cause us to be sick. These manufactured 'fighters' helps us in getting our health back, without which we would be unable to regain our health back. Timely and obediently taking these medicines prescribed for us will ensure we get back to our lives and regain what was lost.

The global vision that has brought improved travel and trade and increased interdependence among countries also call for a shared vision of health around the world. All countries are vulnerable to the ever-present threats of infectious disease, outbreaks, and epidemics. At the same time, there are opportunities for shared innovation and universal

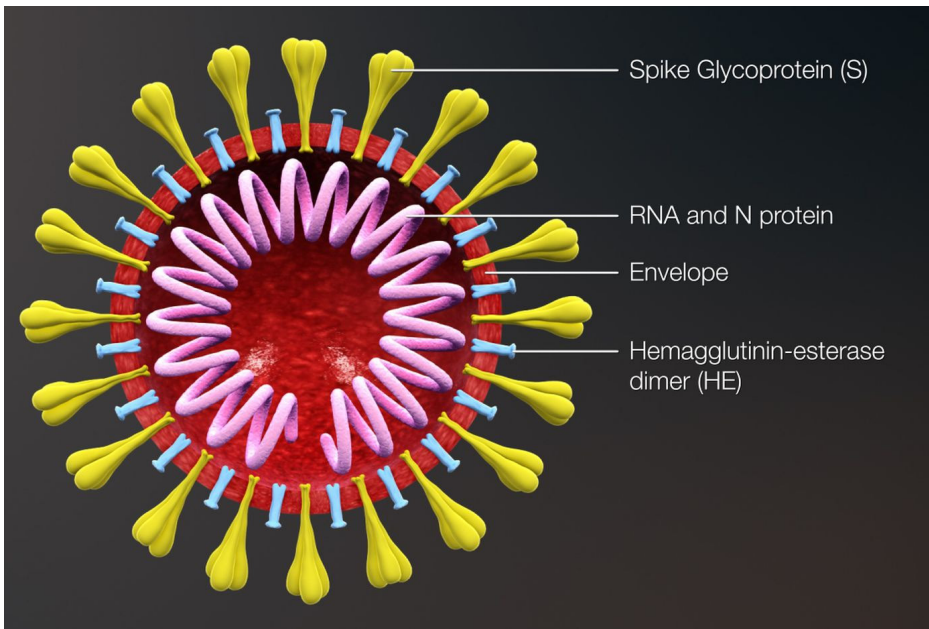
purpose, as many countries that suffer from similar disease burdens strive to develop best practices and robust health systems for their citizens.

No single country – however capable, wealthy or technologically advanced – can alone prevent, detect and respond to all public health threats. Global cooperation, collaboration and investment are necessary to ensure a safer future. This involves not only collaboration between different countries but also between other sectors of society such as governments,

industry, public and private financiers, academia, international organisations and civil society. All of them have responsibilities for building global public health security.

Open sharing of knowledge, technologies and materials, including viruses and other laboratory samples, necessary to optimise secure global public health. The struggle for global public health security will be lost if vaccines, treatment regimens, and facilities and diagnostics are available only to the wealthy.

The World Health Organization declared the novel coronavirus outbreak “a public health emergency of international concern” on January 30. On March 11, 2020, after the sustained spread of the disease outside of China, the World Health Organization declared the COVID-19 epidemic a pandemic. Public health measures like ones implemented in China and now around the world will hopefully blunt the spread of the virus while treatments and a vaccine are developed to stop it.



COVID-19 PANDEMIC AND THE ROLE OF MEDICAL STUDENTS

**Harsha Vardhan
Chowdary Oruganti
MD3-C**

The Roles they can accomplish other than just being “LEARNERS”

History of Students' services
Medical Students participated in clinical care in the times of Spanish Flu (1918) and Polio Outbreak, Denmark (1952)

The Global Pandemic upended the Medical Education around the world. Owing to widespread dubiety and disagreement about the appropriate roles for medical students during a pandemic, student participation in clinical care has varied across institutions and various Medical Boards around the world. Some medical schools prohibit any interaction with patients, while others already have

recruited students for hospital-based roles or even graduated the medical students early so that they can serve as frontline medics.

Some renown associations like AAMC (American Association of Medical Colleges) have instructed medical schools to suspend student clerkship and has recommended that “unless there is a critical healthcare workforce need locally, we

strongly suggest that medical students not be involved in any direct patient care activities”.

But many disagree with this statement that limits student involvement to critical health care personnel shortages. Rather, medical schools should offer students clinical opportunities when it is time. That would benefit patient care and potentially help to prevent workforce shortages.

TRADITIONAL ROLES OF MEDICAL STUDENTS

The AAMC supports its guidance by highlighting that “medical students are students, not employees... they are not MD’s yet”. Although true, this framing fails to avow that medical students have roles not only as learner’s, but also as clinicians-intraining. The primary role of medical students is to learn medicine. However, students should also be clinicians who care for patients. They interview patients, call consults, respond to pages, communicate with families, write notes, assist with procedures and help with care coordination and discharge planning. During this Pandemic, medical students acting solely as learners

introduce unnecessary risks for patients and other clinicians. Medical Students can act as additional vectors for viral transmission placing additional burden on teaching physicians. Medical education alone doesn’t justify these risks. However, allowing medical students to serve in clinical roles may benefit patients overall. There is precedent for this kind of involvement. During the Spanish Flu outbreak of 1918, medical students of Pennsylvania cared for patients in the capacity of physicians. In a 1952 Polio Epidemic in Denmark, groups of medical students were tasked with manually ventilating patients. In the

current Pandemic, medical schools in the United States, Italy and the United Kingdom are graduating medical students early on the condition that they serve as frontline physicians. The Health care system shouldn’t wait until it reaches a breaking point to invite medical students to serve. Medical Students on their rotations are adept to many clinical roles. Allowing them to serve may improve patient care long before the health care system reaches a personnel crisis, and in some cases may even help prevent such crises from occurring. Whereas there are several roles for Student in this Pandemic to play in offsetting the burdens caused by COVID-19

CLINICAL ROLES FOR MEDICAL STUDENTS DURING THIS GLOBAL PANDEMIC

It is presumable that the AAMC’s guidelines come from the concerns about the risks of infection to patients and students, PPE shortages, and liability issues around them. These risks, undoubtedly, should be taken into consideration. But they can be alleviated. The benefits to patients could outweigh the risks associated with students’ involvement.

Firstly, Medical students can assist with routine outpatient clinical care. Medical students can boost the efficiency of lightly staffed clinics by taking histories, calling patients with laboratory test results, providing patient education, documenting visits and answering the questions about the COVID-19. Even in a pandemic patients with chronic conditions need ongoing care. Students can help with that. Second, Students can provide care on inpatient services that do not have patients with COVID-19. This can compensate the Shortage of clinicians and staff in the COVID-19 related inpatient services.

But, in conclusion, Medical associations are aware of the situation in their respective regions. And the services offered sby medical students are voluntary and also it is not risk-free.

RESEARCH

EXHIBITION AT LAU



AU always nurtures bright ideas & encourage its students to do research and innovate in the field of medicine. Gladly, efforts are working. Recently, LAU arranged Research Exhibition in which students showcased their new researches & science projects that they were working on to make the world a better place. Students were honored by the vice chancellor, Dr. Pawan Kapoor with a view to encouraging them to excel further and keep doing the good stuff!



COVID VACCINE FOR INDIA AND WHAT IT MEANS

AKANSHA SAHU



All eyes cling on to the hope of a vaccine in some months that will put an end to this global pandemic that has drastically changed our lives. Around the world, about 170 vaccines are in progress, and India is among them with the Covaxin. The Bharat Biotech develops Covaxin with the Indian Council of Medical Research (ICMR), and at present, it is in the second phase of trials and will soon start with the third phase.

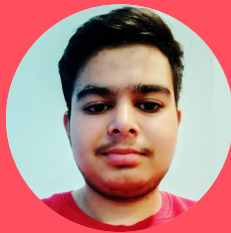
Let us first ponder upon how pocket friendly and bulk production of hydroxychloroquine in India helped the world. With a big pharmaceutical market, India already could produce large quantities of the drug, and it had the infrastructure to ramp up its production. Paying 70% of hydroxychloroquine required, India provided it to its friendly nations to contribute to the fight against Covid. The drug was supplied to Guyana along with 29 ventilators, to Zambia, Dominican Republic, Madagascar, Uganda, Burkina Faso, Niger, Mali Congo, Egypt, Armenia, Kazakhstan, Ecuador, Jamaica, Syria, Ukraine, Chad, Zimbabwe, France, Jordan, Kenya, Netherlands, Nigeria, Oman, Peru and many other countries.

When a developing country like India, whose majority of the population is of lower and middle class and with about half of the people living in the rural areas, develops a vaccine, then it needs to be pocket friendly so that even the poorest of the poor can afford it. People must be able to access it quickly, and the production needs to be in a considerable quantity.

The neighbouring countries of India are also developing nations that have shown interest in the vaccine. The vaccine will be affordable for many other developing and underdeveloped countries of the world. On 17th December 2020, 100 experts from different countries visited India for training for trials. Participants from countries like Bhutan, Nepal, Sri Lanka, Mauritius, Maldives and Afghanistan were part of the training programme. With its infrastructure paired with the availability of cheap labours, after its final trial, India can start the mass production of the vaccine and create its distribution. This emerges as a ray of hope for India as well as for all its friendly nations.

MEDICINE AMIDST GLOBAL HEALTH CRISIS

By: Xitiz Sharma



“
The doctor of the future
will give no medicine
but will interest his
patients in the care of
the human frame, in diet
and in the cause and
prevention of disease.



Health is one of the essential aspect of life and life is threatened when health crises develop. In all health issues the medicine is most important part to play its role in controlling, treating and addressing the health issues by and large.

Medicine plays a great role as for as preventive medicine, curative medicine, social medicine, etc. Hence medicine is directly concerned to all health issues occurring globally whether global tuberculosis threatening and recent COVID-19 pandemic are concerned. Without medicine the world population is pushed to millions of deaths due to COVID-19. So the world is looking eagerly towards medical science to develop medicine for the pandemic earliest possible. All the medical fraternity is also trying hard to take up the challenge. Soon we will take a breath of relief in the environment of fear and uncertainty developed due to COVID-19 pandemic.

THEREFORE WITHOUT MEDICINE HEALTHY LIFE IS NOT POSSIBLE...



WATERY EYES

(IN TRIBUTE OF LATE DR TORRINGTON)

It started drizzling from above and above,
And watery eyes made me sit contemplating;
Those dark nights, hands shaking,
Screams and shouts, and tears and fears;
For a loved one lost,
Oh, watery eyes that make her blind,
Watery eyes, for a girl so tender and mild!

In memories came those days dark enough;
For lost had I, the one who gave me birth;
Little by little, I ate myself!
As I yield my pen, water comes about,
Watery eyes for a girl so tender and mild!

Everyday did she wait, for a loved one,
Who would bring her love and gay!
Lights and nights awake passed by,
Like thunder and storm that keeps me awake,
Oh, for those watery eyes that one should wipe,
Watery eyes, for a girl so tender and mild!

But one day, she realized,
That doom and gay are his ways,
Why not choose the sunny way?
To mend things that were,
Yeah she knew not their ways!
And day by day she met hands,
That held her tight, like the light of gay,
Down and down drizzling high,
The rain came...
From above and from those eyes,
Watery eyes, for a girl so tender and mild!

Now the lessons of right and wrong,
He taught, that I might be strong;
Slow and steady she rose,
Little by little everyday...
And life and light found its way,



BY MRIGNAYANI PANDEY

For now she realized,
The one who comes, has one day to go;
These are rules of life you need to know,
Like little light she spread hope,
Oh, my rain you make me sleep!
But, I am still awake,
For my watery eyes!
Watery eyes, for a girl so tender and mild!

The lord has his ways,
Sometimes he does as he may
We have lost a loved one today,
And that makes me yield my pen this day,
This time it was not me but
my professor who has chilled me up,
Lost, have we, a gem and his immense love!
And this empathy stirs me astound!
Oh, rain from eyes come down!
Watery eyes, watery eyes!
But no more from that girl, tender and mild!

“Unable are the loved to die,
For love is immortality!”
-Emily Dickinson

STUDY MEDICINE IN GUYANA



Only a doctor is blessed with the magical powers to treat a life, to bring health into our lives and to be there with us when we have lost all the hopes.



STUDYING MEDICINE

BY DR RUTH BENJAMIN HUNTLEY (FACULTY OF PHYSIOLOGY LAU)

Studying Medicine was always a dream of mine since in my early teen, as I am sure is yours also. It requires determination, patience and a willingness to go the extra mile when needed. The volume of work can be overwhelming, so it is important not to let the work pile up on you. Be disciplined in your management of time, especially allotting periods of study for each subject. Do not be shy or afraid to ask for help from your lectures and always be willing to be supportive of each other. It may bring tears, but there is laughter also; it may cause you to give up at times, but there will be there.

The memory of your dreams to succeed, and you will plod on. The time goes by quickly, and when graduation arrives you will wonder and say to yourself "Did I really do all that?". Yes, by the grace of God, you did. It is a great pleasure for me to be one of the lectures at Lincoln American University. Although a young institution has a cohort of dedicated staff in all departments who work together for the best interests of the student. The University's President, ViceChancellor and Board have shown inspirational vision as they seek to establish a world-class institution that can provide academic and practical training for their students.

CELEBRATIONS:

71ST REPUBLIC DAY OF INDIA

On January 26, on the occasion of the 71st Republic Day of India, students and members of the University participated in India's Republic Day Flag Hoisting Ceremony organized by His Excellency Dr. K. J. Srinivasa, High Commissioner of India to Guyana. Our students performed dance, music, gave speeches, and got to hear the wisdom of H.E. Dr. K. J. Srinivasa on the history of India and ties between two great nations: India and Guyana.



ANATOMY OF THE PANDEMIC

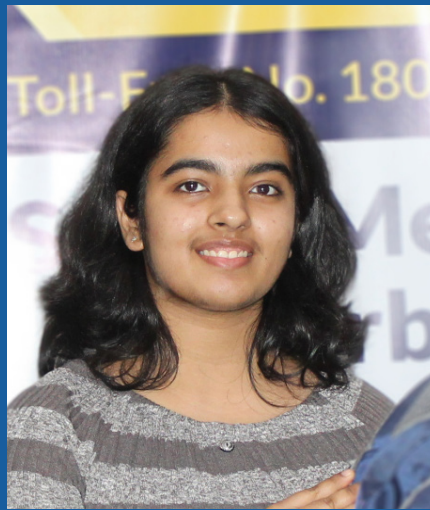
BY SHRUTI SHARMA

SARRNAMAYANKH LAGHU MUMSADHNUM!

This phrase from “Kalidasa’s Kumarasambhavam” means ‘body is the instrument for doing good deeds.’ In other words, we can say ‘a healthy body is necessary to undertake daily activities.’

The pandemic has accelerated the future of medicine. As of March 2020, the world is currently dealing with a great outbreak of COVID-19. Beginning in China, it has within a few months devastated many countries around the globe, requiring an unprecedented mobilisation of health systems. The point made is that medical education should be recognized as an important tool in the governance of health systems. The coronavirus disease 2019 (COVID-19) pandemic brought both clarity and urgency to this purpose and many academic health systems in the US and the other world have responded.

While many will remember the COVID-19 pandemic as a source of disruption, it is likely that it will also be viewed as a catalyst for the transformation of medical education that had been brewing for the past decade. Educators across the country recognized that the physician workforce needed for the 21st century not only must embrace the enduring competencies



of professionalism, service to patients, and personal accountability but also must embrace new competencies that are better suited to addressing today’s health challenges. These emerging competencies include the ability to address population and public health issues; design and continuously improve health care systems; incorporate data and technology in service to patient care, research, and education; and eliminate health care disparities and discrimination in medicine. Across the country, medical schools have embarked on the curricular redesign to an organ-system based approach to ensure an integrated study base and that the physician workforce being trained is the workforce needed.

The pandemic provided an opportunity for learners to realize the dynamic nature of medical knowledge and appreciate how mastery of key concepts in human biology, sociology, psychology, and systems science is essential for physicians to respond to a novel threat to human health. The pace of change has been steady but slow, constrained by concerns about balancing curricular time among the many important subject areas and legacy support for traditional courses and content.

The onset of the COVID-19 pandemic and the public health response required to minimize the catastrophic spread of the disease required an immediate change in the traditional approach to medical education and clearly amplified the need for expanding the competencies of the world’s physician workforce. Medical educators responded at the local and national levels to outline concerns and offer guiding principles so that academic health systems could support a robust public health response while ensuring that physician graduates are prepared to contribute to addressing current and future threats to the health of communities. While each school approached their response somewhat differently, several common themes have emerged. Recently, telemedicine has become remarkably important, due to increased deployment and development of digital technologies. During the COVID-19 pandemic, mandatory social distancing and the lack of effective treatments has made telemedicine the safest

interactive system between patients, both infected and uninfected, and clinicians. A few potential evidence-based scenarios for the application of telemedicine have been hypothesized.

Telemedicine is usually defined as a combination of both technologies and devices able to remotely gain information about a patients' health status, so to aid in deciding if there is a need or urgency to intervene. As aforementioned, it has initially arisen to provide medical assistance either in rural areas or where access to care is hard, mainly aimed at improving chronic disease management, mostly in urgencies. Over the years, the onset of either epidemics or pandemics has led to the employment of increasingly novel digital technology strategies, which have also triggered the use of telemedicine during the diverse stages of the infection much more frequently, such as in the cases of the SARS epidemic in 2003 and, later, MERS-CoV in 2013.

Due to its novelty, as well as the large spectrum of potential applications, clear differentiation of settings in which to use telemedicine during emergency periods has also been challenging. A few potential evidence-based scenarios have been hypothesized, such as Diabetic Retinopathy Management during COVID-19. Up to now, several studies worldwide have evaluated the efficacy of telemedicine in different clinical settings, especially focusing on a very specific medical branch, ophthalmology. In fact,

teleophthalmology has been assessed in numerous clinical sub-settings. As an example, several studies have considered telemedicine usefulness in glaucoma diagnosis, evidence on e-health technologies on cataract and age-related macular degeneration etc. In India, a recent screening investigation by Fundus on Phone (Remidio FOP), a smartphone-based imaging device, allowed for DR diagnosis in over 3,500 patients.

At the same time, however, the World is facing the vexing challenge of a seemingly uncontrolled rise in the cost of health care. Total medical expenditures are rapidly approaching 20 percent of the gross domestic product and are crowding out other priorities of national importance. The use of increasingly expensive prescription drugs is a significant part of this problem, making the cost of biopharmaceuticals a serious national concern with broad political implications. Especially with the highly visible and very large price increases for prescription drugs that have occurred in recent years, finding a way to make prescription medicines—and health care at large—more affordable for everyone has become a socioeconomic imperative.

Affordability is a complex function of factors, including not just the prices of the drugs themselves, but also the details of an individual's insurance coverage and the number of medical conditions that an individual or family confronts. Therefore, any solution to the affordability issue will require considering all of these factors

together. The current high and increasing costs of prescription drugs—coupled with the broader trends in overall health care costs—is unsustainable to society as a whole. Making Medicines Affordable examines patient access to affordable and effective therapies, with emphasis on drug pricing, inflation in the cost of drugs, and insurance design.

This report explores structural and policy factors influencing drug pricing, drug access programs, the emerging role of comparative effectiveness assessments in payment policies, changing finances of medical practice with regard to drug costs and reimbursement, and measures to prevent drug shortages and foster continued innovation in drug development. It makes recommendations for policy actions that could address drug price trends, improve patient access to affordable and effective treatments, and encourage innovations that address significant needs in health care.

Thanks to remarkable advances in modern health care attributable to science, engineering, and medicine, it is now possible to cure or manage illnesses that were long deemed untreatable. As doctors, we ensure that our treatment plans for our patients are adjusted according to the latest evidence. Though we don't have all the answers, we do know that the COVID-19 virus will be with us for the foreseeable future. We are still far from understanding every aspect of this disease.

COVID or no COVID, medicine is there to take good care of you.



OUTBREAK OF HAVOC

BY SAHIL HARSHRAJ

On 31 December 2019 1st case of an unknown disease was reported to the WHO China office which was caused by an unknown virus in East China, Wuhan. It showed pneumonia-like symptoms – fever and few patients had difficulty in breathing. Chest radiography showed invasive lesions of both lungs. The actual source of the virus is still unknown. From China, corona spread throughout the world and soon became a pandemic.

Every country had its way of fighting corona. Many countries were under lockdown, and due to there was a dip in the world's economy, many became jobless only hospitals were open. Doctors and many social helpers were working. In India hydroxychloroquine was approved as a treatment in mild and moderate cases, Remdesivir was approved under emergency use for patients with moderate COVID-19 (those on oxygen) and in some cases, plasma transfusion is used.

At the beginning of the outbreak, China used anti-HIV drugs such as Lopinavir or Arbidor to treat patients with SARS

CoV2. Favilavir has been used to treat severe cases of COVID-19 because the use of Favilavir demonstrated encouraging profile with mild adverse reactions in coronavirus patients in trials in Shenzhen, Guangdong province. China also used plasma transfusion therapy. Medical authorities in China have said that a drug called favipiravir which is used in Japan to treat new strains of influenza have been effective in treating coronavirus patients too. In the US, where corona cases are highest, the U.S. Food and Drug Administration (FDA) has approved one antiviral drug remdesivir to treat hospitalised COVID-19 patients who are age 12 and older. The U.S. National Institutes of Health has recommended the corticosteroid drug, dexamethasone for people with severe COVID-19 symptoms who require supplemental oxygen or mechanical ventilation. The FDA has also granted emergency use authorisation for convalescent plasma therapy to treat COVID-19 patients.

Russia has approved R-Pharm's Coronavir to treat patients with mild to moderate COVID-19 infections. Coronavir's approval as a prescription drug is followed by the acceptance of another Russian COVID-19 drug, Avifavir, in May. Both are based on favipiravir, which was developed in Japan and is being widely used for viral treatments. Russia has

also cleared Remdesivir, the antiviral drug to treat COVID patients after doctors used the drug to treat the former U.S. President Donald Trump.

Few hospitals of the UK is going to test five new drugs named as Heparin, Bemcentini, Medi3506, Calquence, Zilucoplan in the coming days in search to combat the coronavirus. These drugs were chosen from a list of 200 potential candidates, and if they do not work for COVID-19, another batch will then be considered for trials.

Spain decided to continue giving hydroxychloroquine to the coronavirus patients unlike several other European countries including Italy, Belgium, France that followed the World Health Organization's decision to pause a large trial of hydroxychloroquine due to safety concerns.

In all the countries social distancing, proper sanitisation, wearing mask and gloves was practised after WHO tweet on only prevention step at the beginning. Now vaccines are developed by various nations and being tested on human volunteers.



HUMANS IN A NUTSHELL

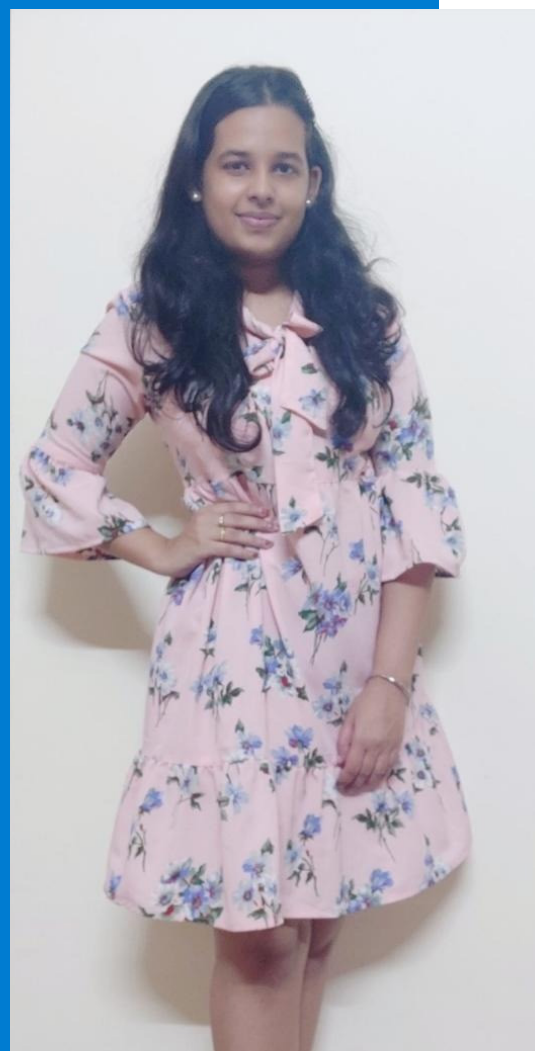
It feels like our souls are trapped in this inhuman world full of creatures who claim they are humans. A world where everyone is slow to understand and fast to judge; where all are running on their toes with really nowhere to go. A world where everyone acts, but the efforts are visible in the mega wrong directions, somewhere where people write about quitting social media on social media. A world full of irony and hypocrisy in every walk of life.

Our souls are the ones that yearn and appreciate commitments. But that doesn't mean we oppose these trends or lifestyles. But somewhere it feels we have landed in a universe that unfits us. That doesn't synchronize with our ideologies. That we are scouting

in the wrong place for the right thing- that we would be perfect for us. That would complete a paradox jigsaw - us. Also it doesn't mean the place is wrong; it just means that we don't fit in here.

We - a handful of humans or whatever they like calling us here- maybe birdbrains, are trying to struggle, hold, live, settle, chase and pursue things that are taking away the little of the best that's left of us. Worst will be the day when all of it will vanish into thin air and we will transform into species that govern this world. Veiled, fake, distorted inhuman that lacks emotions, empathy, elegance, and essence of the species that were primarily known as humans.

We- a handful of humans are the next endangered species that are on the verge of extinction after tigers. And the dark humor here is unless the latter will always remain in danger!



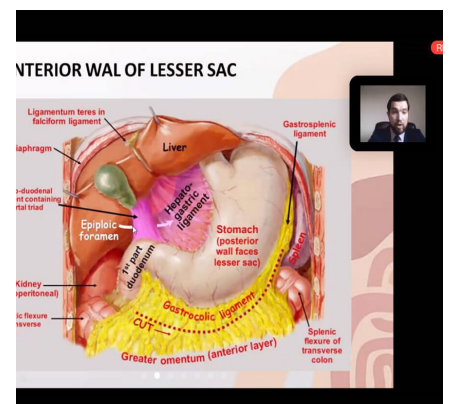
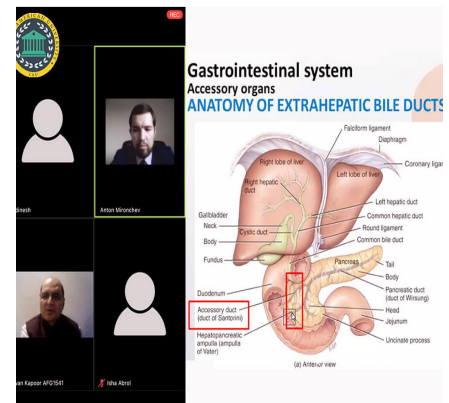
MANSI RATH

ONLINE CLASSES FOR STUDENTS FROM RENOWNED INTERNATIONAL FACULTY

Lincoln American University conducted online classes for its students and ensured that no student missed class during the pandemic.

Students also got the opportunity to learn more about their subjects via LAU's collaboration with Orenburg State Medical University conducted an exchange program for its students through online classes.

They received a lecture from Dr Anton Mironchev who shared about a portion of human Anatomy.

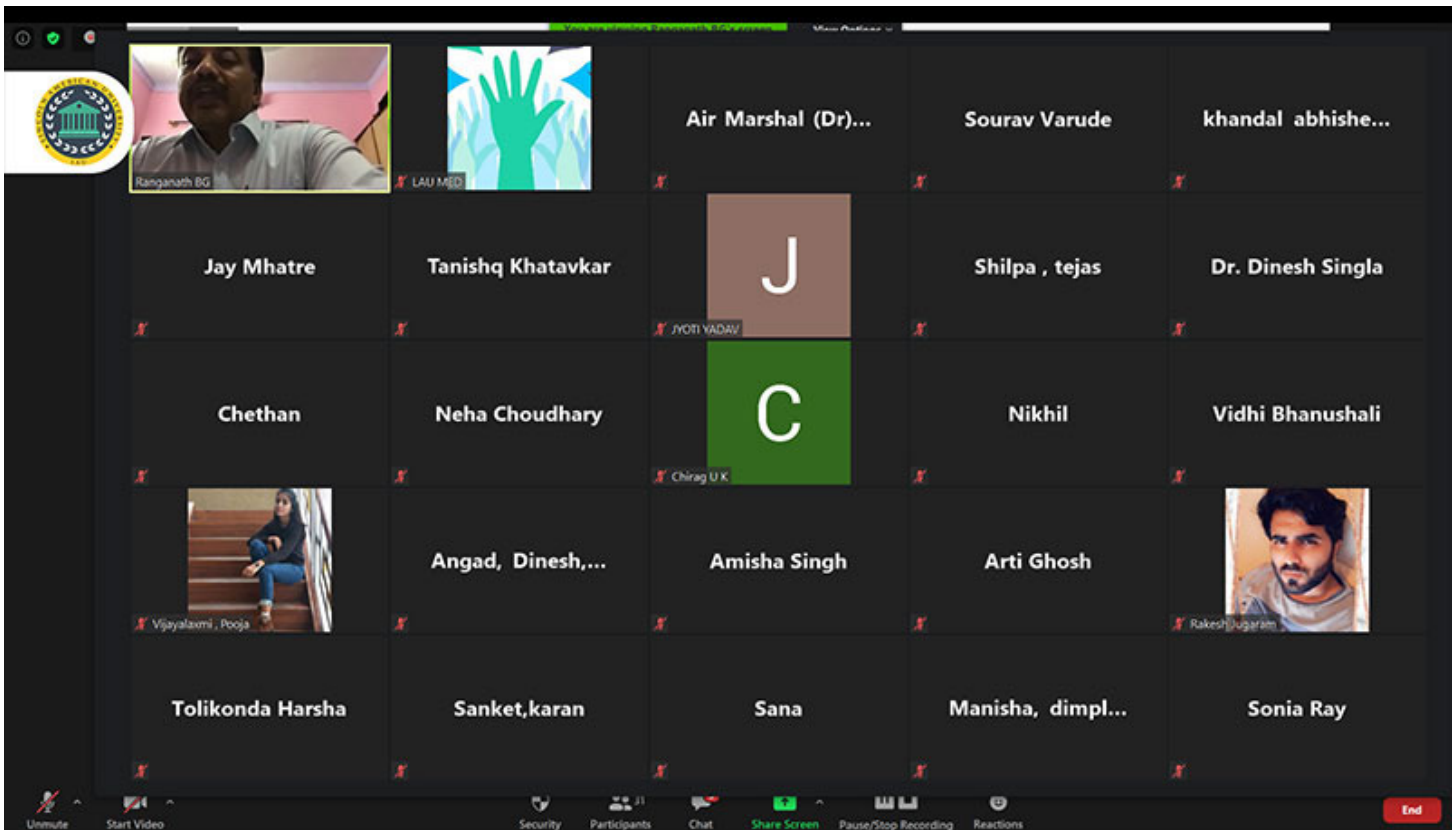


DR. B.G. RANGANATH

Professor & Head Department of Community
Medicine- SDU Medical College - Kolar



AT THE LAU ONLINE CLASS



The global pandemic hasn't stop LAU from achieving its aim of delivering quality education to the students. Up to date, there have been many online classes conducted for the students. Recently, Dr. Ranganath. B. G, Professor & Head Department of Community Medicine, Malabar Medical College Hospital & Research Centre KUHS, Calicut, Kerala, India took his time to deliver his lectures to the students on various topics such as Measures of dispersion, Variance, and Coefficient of Variation.

We are hoping for more lecture classes from Dr. Ranganath. B. G in the days to come.

DR. RANA MANINDRA

MBBS, MD, MS.(Surgery)

AT THE LAU ONLINE CLASS



The pandemic disrupted the education system around the world. However, we, at LAU ensured that students did not face any problem and continued their studies uninterrupted.

Moreover, we went the extra mile to work to provide students the opportunity to interact with the imminent scholar

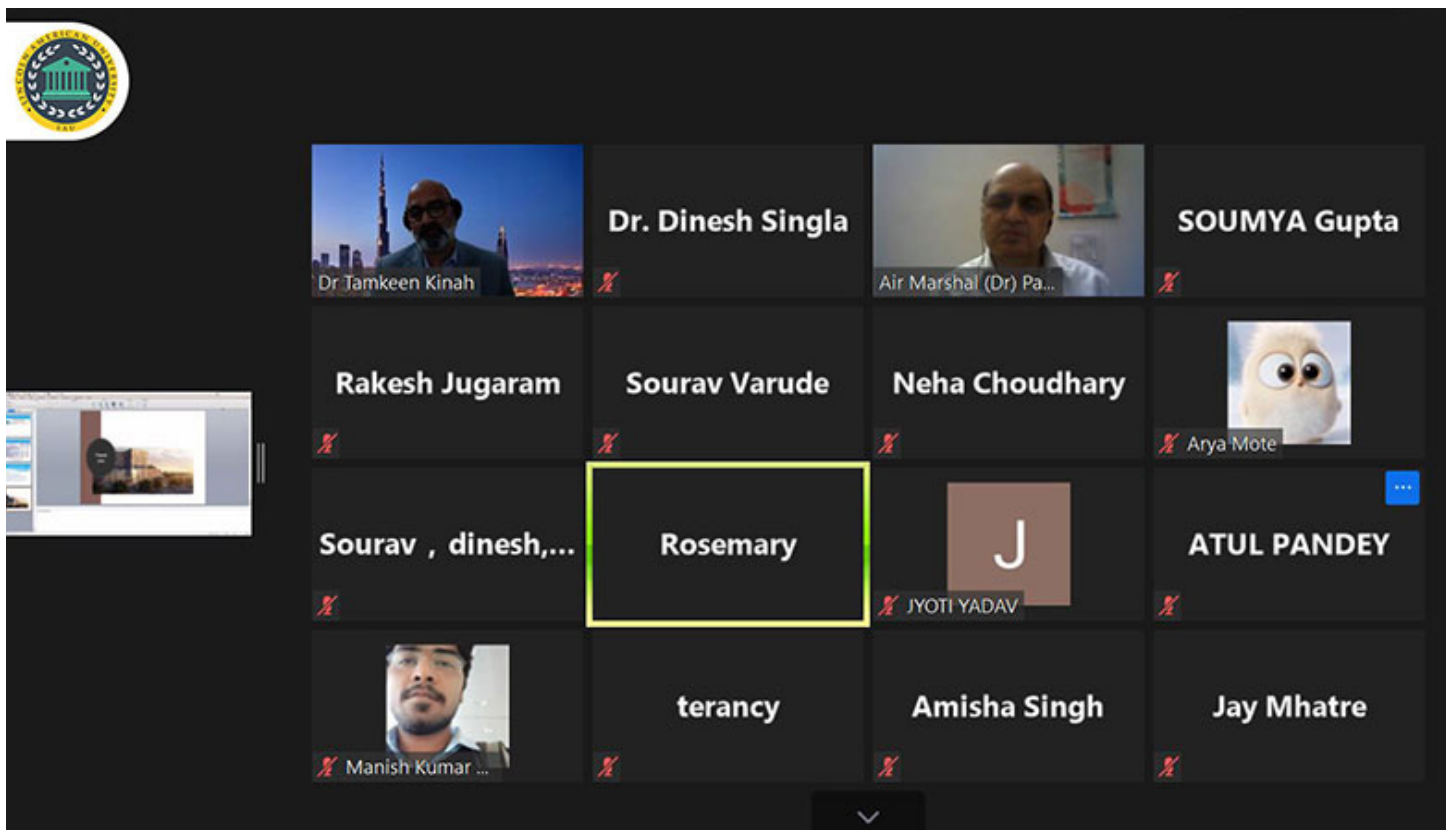
DR. RANA MANINDRA

DR. TAMKEEN KINAH

MD, PGDip(PCVM), Ph.D. (Cardiology), FAPVS, FGHA, FACC, Cardiologist



AT THE LAU ONLINE CLASS



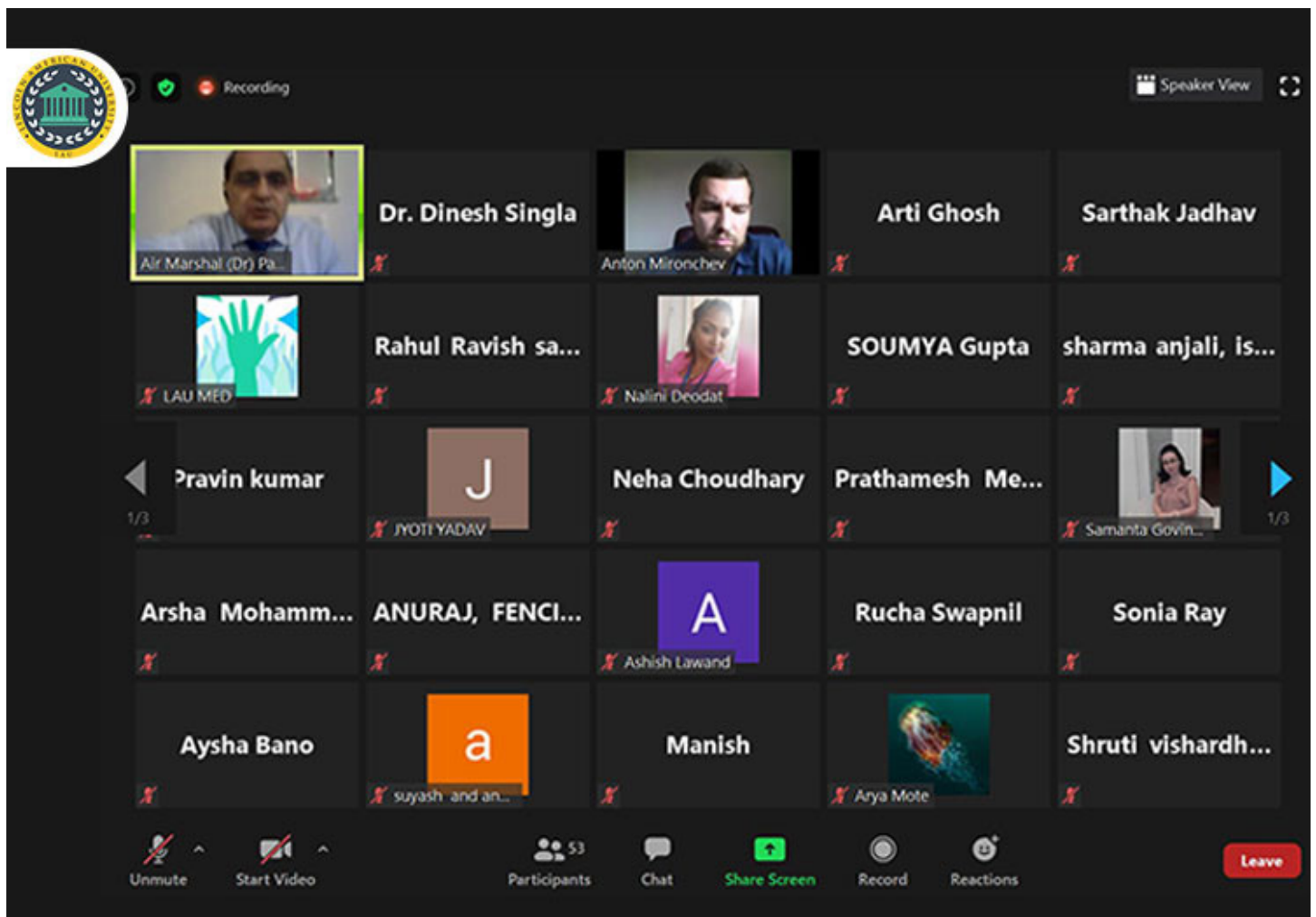
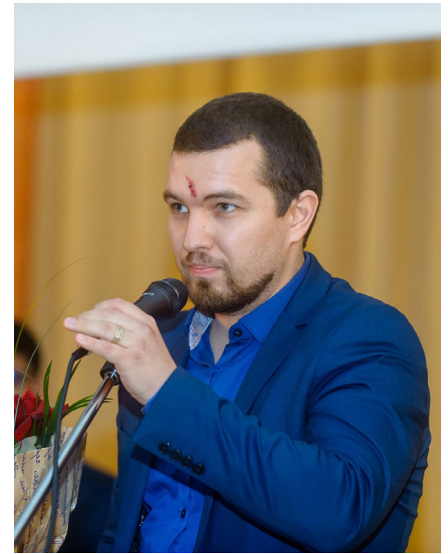
To ensure continuity of classes for the medical students, LAU continues with its online classes where lecturers of different subjects shared their knowledge with the students. One of the lecturers who provided a lecture to the students during the online classes was Dr. Tamheen A Kinah, MD, PGDip(PCVM), Ph.D. (Cardiology), FAPVS, FGHA, FACC, Cardiologist, Preventive Cardiovascular Medicine, Kings College Hospital London, Dubai

Adjunct Professor of Cardiology Lincoln American University, Adjunct Professor of Medical Humanities Baylor University Texas, USA.

DR. ANTON MIRONCHEV

Dean of OrSMU

AT THE LAU ONLINE CLASS



Online classes continue for the students of LAU. These online classes have helped the students in getting lectures from different professors on different subjects of their medical course. Once again as part of the MoU between LAU and OrSMU, Dr. Anton Mironchev, Dean of Orenburg State Medical University, provided lectures during the online classes and shared his knowledge with the students at LAU.

CLINICAL ROTATIONS

IN INDIA - MAX HOSPITAL

The first batch of students of Lincoln American University has successfully commenced their Clinical Rotation at Max Super Speciality Hospital, Delhi.

The following officials from Max Healthcare attended the Orientation Programme: Dr. Sandeep Budhiraja's, Group Medical Director - Max Healthcare & Senior Director - Institute of Internal Medicine, Dr. Vinita Jha, Senior Vice President

at Clinical Directorate Max Healthcare, Dr. Vanita Mittal, General Manager Academics, Max Institute of Medical Excellence, Max Health care. Air Marshal Dr. Pawan Kapoor, Vice Chancellor of Lincoln American university and Mr. Arun Katyal, Representative Lincoln American University accompanied Students: Mr. Dinesh Devda, Mr. Sourav Mohanty, Mr. Nishanka Kandukuri, Mr. Angad Sekhon, Mr. Nikhil Chowdary, and Mr. Pushpendra Singh Rajput. Lincoln American University

wishes them the Best of Luck in their most challenging step towards becoming doctors.

Lincoln American University wishes all the students the Best of Luck in their most challenging step towards becoming doctors and we are confident that our students will understand the healthcare requirements at an international level, and come out as well-qualified doctors with international experience and global reputation.



CLINICAL ROTATIONS IN NEPAL

MANMOHAN MEMORIAL MEDICAL COLLEGE AND TEACHING HOSPITAL



The first batch of students of Lincoln American University has successfully commenced their Clinical Rotation at Manmohan Memorial Medical College and Teaching Hospital, Nepal on 1st February 2021. The orientation was a grand success and Clinical Rotations have started as planned. The following attended the Orientation Programme:- Prof. Dr.Guna Kumar

Shrestha (Principal, PG HOD) Department (Urology) Academic Program, Dr. Muza Shrestha (HOD, Assistant Prof.) Department (Surgery) Clinical Program Coordinator, Dr. Syamendra BD. Singh (HOD, Assistant Prof.) Department (Anesthesia), Admin /HR: Ms. Sumitra, Global Intern: Ms. Laxmi Clinical rotations coordinator and LAU Clinical Rotation, and Ms. Purna Lama,

Representative Lincoln American University.

Students: Ms. Terrancy A, Ms. Juwel Fernandes, Mr. Mayank Tiwari, Mr. Anand Swami. We wish them the Best of Luck in their most challenging step towards becoming doctors Lincoln American University offers an extensive Clinical Science Program to its medical students.

GANESH CHATURTHI CELEBRATION



EID CELEBRATION AT LINCOLN AMERICAN UNIVERSITY

Like any other festival, the holy month of Ramadan was celebrated with great pomp and show. Students at LAU celebrated this holy day by gathering together, praying and feasting in communion.





Source: KAPLAN

QUESTION 1

Several family and friends reported to the emergency department with abrupt onset chills, nausea and vomiting, and abdominal pain. A few hours earlier, they attended a wedding reception dinner that served pork, chicken, and fish entrees with asparagus and potatoes, and various cream-filled pastries and custards. These individuals had no similar episodes prior to this event and no significant medical illnesses. A few individuals had to be admitted for rehydration. Leftover food was collected from all prepared dishes and sent for analysis. Which of the following is the most likely causal organism?

A Bacillus cereus

B Clostridium Perfringens

C Escherichia Coli

D Shigella Sonnei

E Staphylococcus Aureus

QUESTION 2

A researcher is studying the developmental origins of the arteries that supply blood to the brain. The investigation involves injecting contrast media into the hearts of foetal pigs and studying the arteries that develop in the pharyngeal arches. Which of the following pairs of pharyngeal arches gives rise to arteries that contribute to the blood vessels that supply the brain?

A Pharyngeal arches 1 and 2

B Pharyngeal arches 2 and 3

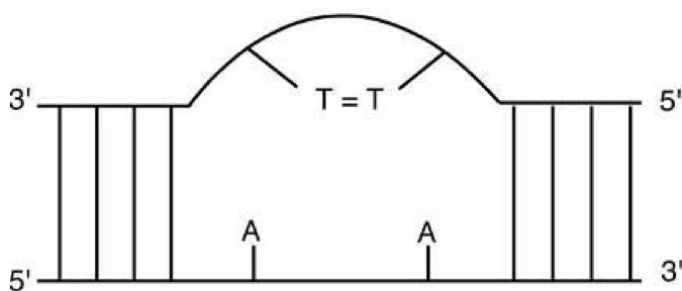
C Pharyngeal arches 3 and 4

D Pharyngeal arches 4 and 5

E Pharyngeal arches 4 and 6

Write Your Answer Here

QUESTION 3



A study is conducted to characterize a familial condition in which affected individuals develop severe sunburn upon exposure to small amounts of sunlight. Examination of DNA from these individuals reveals a large number of mutations randomly occurring in chromosomes, such as the one shown. Which of the following is most likely to develop in individuals with this genetic disease?

A Basal cell Carcinoma

B Colorectal Adenocarcinoma

C Ductal Carcinoma in Situ

D Hepatocellular Carcinoma

E Small Cell Carcinoma

Write Your Answer Here

QUESTION 4

A 5-year-old girl is brought to the physician by her parents because of short stature. The girl has complained to her parents of almost daily headaches. Fundoscopic examination shows papilledema. Visual field testing shows bitemporal hemianopia. CT scan shows a 3-cm intracranial mass with foci of calcification. Surgical resection is performed. Gross examination shows a multiloculated cystic and solid tumour containing dark brown, oily fluid. From which of the following structures does the resected tumour most likely originate?

A Hypothalamus

B Pineal Gland

C Posterior Pituitary Gland

D Rathke's Pouch

E Superior Colliculus

Write Your Answer Here

QUESTION 5

The frequency of males born with Duchenne muscular dystrophy in North America is about $1/3000$. Based on this frequency, what is the gene frequency of this X-linked recessive mutation in males?

A $1/3000$

B $2/3000$

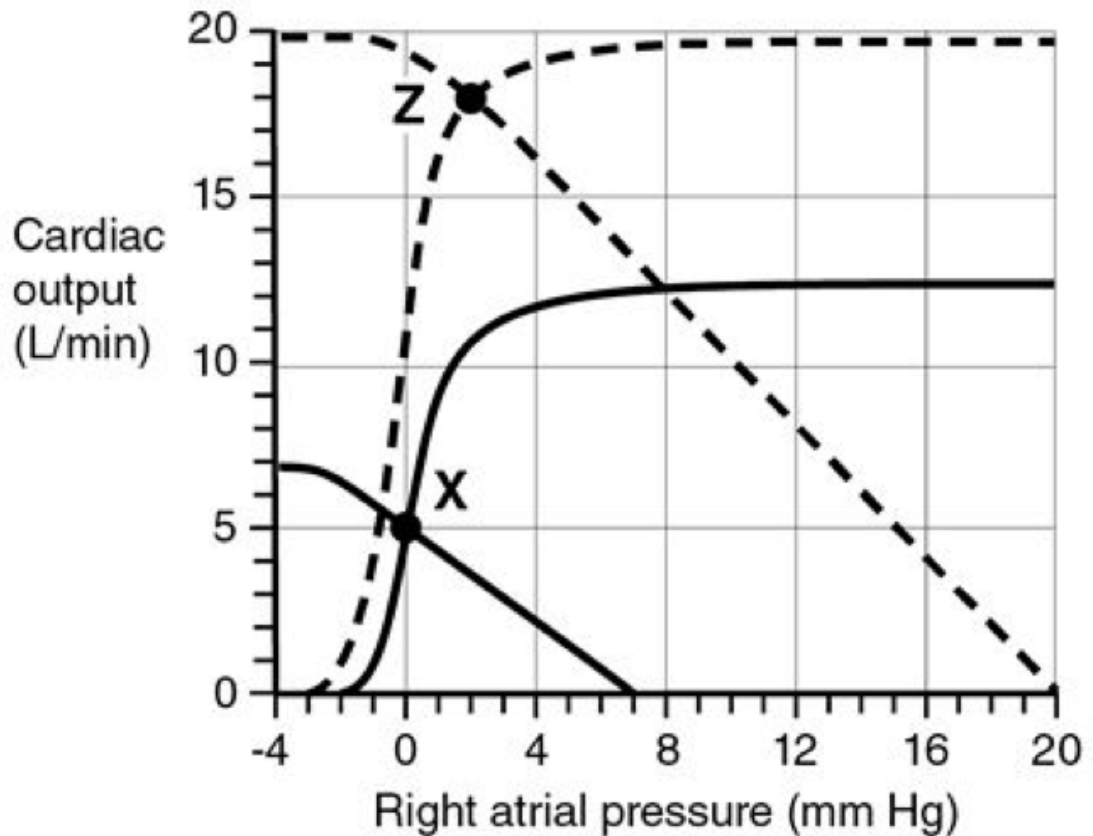
C $(1/3000)^2$

D $(1/3000)^{1/2}$

E $2 \times (1/3000)^{1/2}$

Write Your Answer Here

QUESTION 6



The graph shows the relationship between cardiac output and right atrial pressure. Point X depicts cardiac output and right atrial pressure at rest. Which of the following most likely accounts for the increase in cardiac output and right atrial pressure depicted by point Z?

A Blood Transfusion

B Exercise

C Heart Failure

D Haemorrhage

E Spinal Anaesthesia

Write Your Answer Here

KNOW THE ANSWERS TO THE QUIZ

Answer 1

The correct answer is E. *Staphylococcus aureus* produces enterotoxin A, which is the likely contaminant that was present in the pastries, poultry meat, ham, eggs, and salads. When ingested, the emetic toxin causes severe nausea, vomiting, and abdominal pain within a few hours (average incubation time: 3–6 hours).

Bacillus cereus (choice A) is a gram-positive, spore-forming rod that is associated with food-poisoning outbreaks following the ingestion of rice served in buffet-style restaurants. The time of onset and the symptoms would mimic staphylococcal disease. A major differentiating feature is the food involved. Also, *B. cereus* produces additional toxins that cause a later onset food poisoning resulting in diarrhea. This organism survives the boiling of the rice because it is a spore-former. The spore germinates as the rice cools, then it grows and elaborates an emetic enterotoxin that is responsible for nausea and vomiting characteristic of the early-onset disease.

Clostridium perfringens (choice B) is a gram-positive, spore-forming anaerobe that can cause a longer incubation (8- to 24-hr) food poisoning, typically with marked diarrhea. Once again, the spores allow the organism to survive the heating process used in the preparation of the food. *C. perfringens* is associated with re-heated meat dishes.

The symptoms of *Escherichia coli* (choice C) food poisoning are usually watery diarrhea (traveler's diarrhea) with minimal nausea and vomiting. Other serotypes of *E. coli* (STEC, for example) can cause bloody diarrhea or hemolytic uremic syndrome due to the production of Shiga-like toxin.

Shigella sonnei (choice D) causes enterocolitis characterized by fever, cramps, and diarrhea after an incubation period of 1 to 4 days. Transmission is fecal-oral, associated with poor hygiene. *Shigella* species are obligate human pathogens and thus are passed from infected humans to new victims via fecal-oral transmission exclusively.

This is a multi-step question.

What is the question asking?

The question is asking us to determine the most likely cause of the patients' symptoms.

What is the first step?

The first step is to establish the diagnosis. These patients are most likely affected by a food-borne illness, based on the following information:

1. Several individuals who had been in a single location reported to the ED with acute onset of similar symptoms
2. Symptoms were mainly gastrointestinal
3. The question stem highlights foods consumed
4. There is no prior history of episodes of these symptoms

What is the next step?

The next step is to consider the etiology of the food-borne illness. For these patients, it is likely a toxin-mediated food-borne illness given the short incubation period.

What is the next step?

The last step is to determine the causal organism. The patients present with non-diarrheal food poisoning with a short time frame for incubation (less than 6 hr). They consumed foods such as poultry, pork, and cream-filled pastries. Taking the symptoms experienced and foods consumed in conjunction, it is likely that *Staphylococcus aureus* (choice E) is the likely culprit.

Can other answers be eliminated?

1. Food-borne illnesses caused by *Clostridium perfringens* (choice B), *Escherichia coli* (choice C), and *Shigella sonnei* (choice D) mainly present with diarrhea. Given that the present patients do not present with diarrhea, these answer choices can be eliminated.
2. Whereas *Bacillus cereus* (choice A) may produce an emetic toxin that causes vomiting within 6 hours of ingestion, this choice can be eliminated because *B. cereus* is normally found on rice, which these patients did not consume.

What is the single best answer and why?

Staphylococcus aureus (Choice E) is the single best answer because the patients present with non-diarrheal food poisoning within a short time frame for incubation (less than 6 hours), and because they consumed food likely to be contaminated with *S. aureus*, such as poultry, pork, and cream-filled pastries.

MedEssentials (4th Ed.): pp. 367, 534

First Aid (2019): pp. 135.3

First Aid (2018): pp. 135.3

First Aid (2017): pp. 131.3

Answer 2

The correct answer is C. Each pharyngeal arch contains mesoderm. Some of this mesoderm gives rise to blood vessels that are within the pharyngeal arch. These blood vessels are called aortic arches.

1. Arch 3 gives rise to an aortic arch that contributes to the common carotid artery and the internal carotid artery bilaterally.
2. Arch 4 gives rise to an aortic arch that contributes to the arch of the aorta on the left side and the right subclavian artery on the right side.

The internal carotid arteries branch into the middle and anterior cerebral arteries that form the anterior circulation of the brain. These supply the frontal, parietal and temporal lobes of the brain. The subclavian arteries give rise to the vertebral arteries that join to form the vertebrobasilar or posterior circulation of the brain. These supply the brain stem, cerebellum, and occipital lobe. The anterior and posterior circulations are linked by the posterior communicating arteries to form the circle of Willis.

Pharyngeal arches 1 (choice A) and 2 (choices A and B) give rise to aortic arches that contribute to the maxillary artery and the stapedia artery, respectively.

Arch 5 (choice D) degenerates early in fetal development and therefore has no corresponding aortic arch. Arch 6 (choice E) gives rise to an aortic arch that contributes to the pulmonary artery and the ductus arteriosus on the left and the pulmonary artery on the right.

*Nerves are not derived from pharyngeal arch; they grow into the arch.

This is a multi-step question.

What is the question asking?

Which pharyngeal arches contain blood vessels that develop into the arteries that supply blood to the brain?

What is the first step?

The first step is to determine which adult blood vessels supply blood to the brain. The brain receives its blood supply from the internal carotid arteries (anterior circulation) and vertebral arteries (posterior circulation). The vertebral arteries are branches of the subclavian arteries.

What is the next step?

The next step is to determine which embryonic pharyngeal arches contain arteries that become these arteries that supply the brain. The internal carotid artery arises from the third aortic arch. The subclavian artery, which gives rise to the vertebral artery, arises from the fourth aortic arch.

Can other answers be eliminated?

Any choice that includes a pharyngeal arch other than the third and fourth arches can be eliminated.

1. The first arch (choice A) degenerates.
2. The second arch (choices A and B) degenerates.
3. The fifth arch (choice D) does not exist.
4. The sixth arch (choice E) contains an artery that becomes the pulmonary artery.

What is the single best answer and why?

The third and fourth arches (choice C) contain arteries (aortic arches) that develop into the carotid (common and Internal) artery and the aortic arch and subclavian arteries, respectively. The brain receives its blood supply from the internal carotid artery (third arch) and the vertebral arteries, which are branches of the subclavian arteries (fourth arch).

MedEssentials (4th Ed.): pp. 428

First Aid (2019): pp. 605.1

First Aid (2018): pp. 601.1

First Aid (2017): pp. 587.1

Answer 3

The correct answer is A. The diagram demonstrates the structure of a thymine dimer, which results when UV radiation causes a covalent linkage between two adjacent thymine nucleotides on the same strand. An inability to repair this defect results in xeroderma pigmentosum, a rare inherited disorder characterized by extreme UV sensitivity, excessive freckling, early-onset skin cancer (basal cell carcinoma, squamous cell carcinoma, and malignant melanoma), and corneal ulceration with or without neurologic abnormalities. It is transmitted with an autosomal recessive pattern of inheritance and is due to mutations in XPA, XPB, XPC, XPD, XPE, XPF, XPG, and/or XPV genes.

None of the other answer choices are associated with mutations in nucleotide excision repair genes and UV-induced thymine dimers.

Colorectal adenocarcinoma (choice B) is a cancer of the intestinal epithelium lining the colon and rectum. This type of cancer accounts for more than 95% of colorectal cancers, and is commonly associated with mutations in the tumor suppressor genes APC and TP53, as well as activation of the oncogene KRAS. Ductal carcinoma in situ (choice C) is the most common form of breast cancer, arising from epithelial cells of the mammary ductal system. These cancers commonly result from mutations in the BRCA1 or BRCA2 genes.

Hepatocellular carcinoma (choice D) is the most common malignancy of the liver, frequently associated with chronic viral hepatitis, dietary aflatoxin B1 exposure, and alcoholism. Mutations in TP53 are common. Small cell carcinoma (choice E) is a type of highly malignant lung cancer. Approximately 15% of all lung cancers are small cell carcinomas, and occur almost exclusively in smokers. Mutations in several genes have been linked to this cancer, including TP53 and RB1.

This is a multi-step question.

What is the question asking?

You are asked to determine which of the following is most likely to develop in individuals with this disease. What is the first step?

The first step is to determine what type of DNA damage is occurring. Looking at the figure, you can see two thymine bases linked to each other, representing the formation of thymine dimers within the DNA. What is the next step?

The next step is to recall that thymine dimers are formed upon exposure of the DNA to ultraviolet light, which occurs during sun exposure.

What is the next step?

Next, recall that thymine dimers are repaired through a complex process known as nucleotide excision repair. You should then recall that mutations in any of the many proteins required for nucleotide excision repair will lead to xeroderma pigmentosum and an increased risk for the development of skin cancer including basal cell carcinoma (choice A).

Can other answers be eliminated?

Eliminate conditions that result from other mutations in DNA repair mechanisms:

1. Colorectal adenocarcinoma (choice B) can result from mutations in APC or mismatch repair genes.
2. Ductal carcinoma in situ (choice C), or breast cancer, can evolve due to mutations in genes involved in repairing double-strand breaks in DNA such as BRCA1 and BRCA2.
3. Hepatocellular carcinoma (choice D) can result from mutations in the TP53 tumor suppressor gene.
4. Small cell carcinoma (choice E) in the lung occurs most frequently in smokers and is due to mutations in TP53 and RB1.

What is the single best answer and why?

Basal cell carcinoma (choice A) is the best answer, as it results in patients with xeroderma pigmentosum from an inability to repair thymine dimers.

MedEssentials (4th Ed.): pp. 64, 451

First Aid (2019): pp. 40.1, 473.1

First Aid (2018): pp. 40.1, 469.1

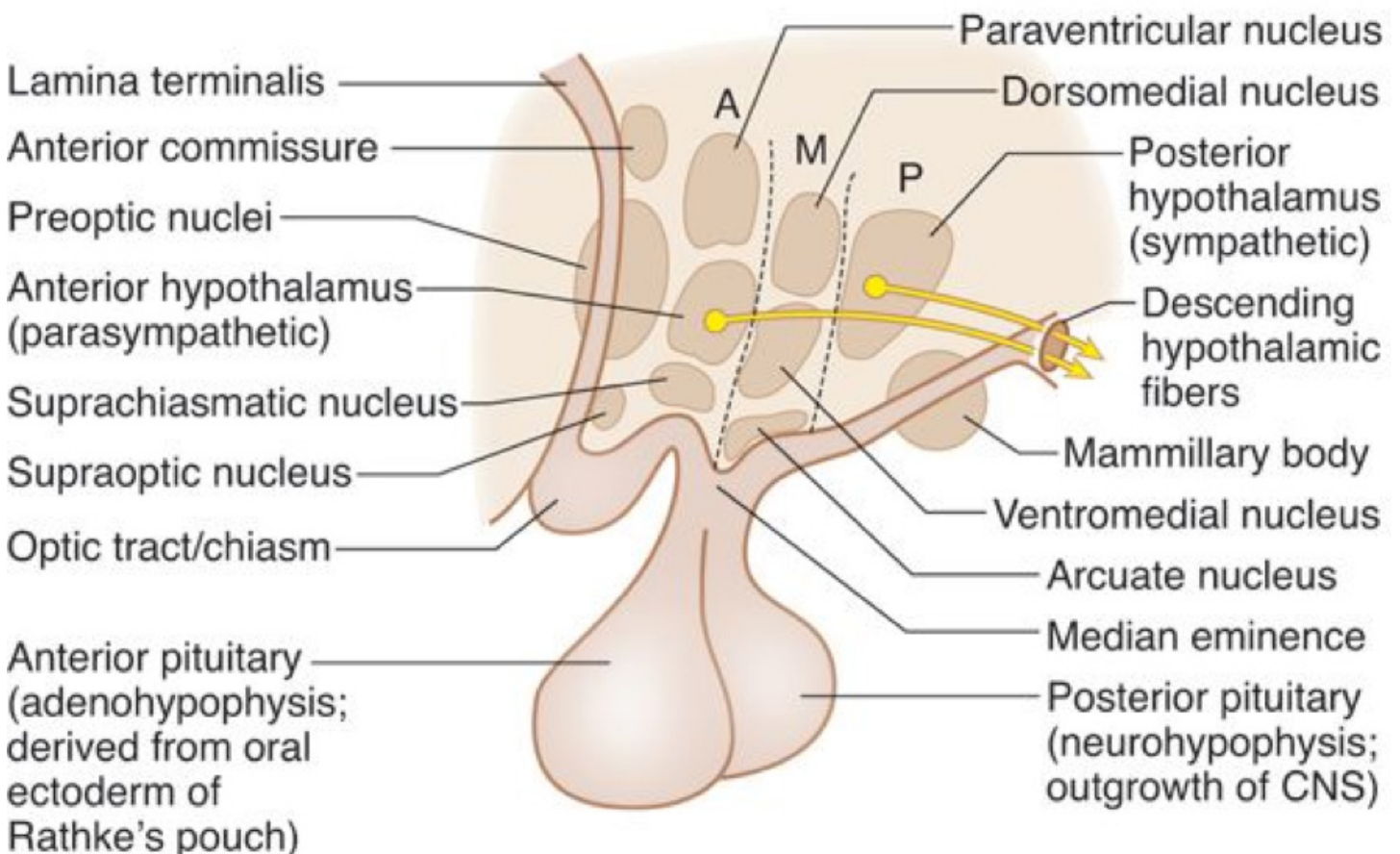
First Aid (2017): pp. 37.1, 454.1

Answer 4

The correct answer is D. The tumor described is most likely a craniopharyngioma that arose from Rathke's pouch:

1. Most common non-glial brain tumor of children.
2. Bimodal age distribution and presents in children and middle-aged adults.
3. Arise from epithelial nests derived from Rathke's pouch, which is an oral invagination that gives rise to the cells that form the anterior pituitary gland.
4. Gross examination reveals a partly cystic mass filled with dark brown oily fluid resembling machinery oil.
5. Histologically, craniopharyngiomas can resemble ameloblastomas, which are tumors derived from dental epithelium.
6. Symptoms: Headaches, visual loss, and vomiting due to location.
7. May cause bitemporal hemianopia by compressing the optic chiasm.
8. May compress the hypothalamus and pituitary gland, causing short short stature (growth hormone deficiency), hypothyroidism (thyroid-releasing hormone deficiency), and diabetes insipidus (anti-diuretic hormone deficiency).
9. CT scan demonstrates characteristic calcifications.

The figure below shows the pituitary and surrounding structures, including the optic chiasm and hypothalamus.



While craniopharyngiomas often occur in close proximity to the hypothalamus (choice A) and posterior portion of the pituitary gland (choice C), they do not arise from neural tissue.

The pineal gland (choice B) and superior colliculus (choice E) are found on the posterior, rather than anterior, aspect of the brain stem as shown in the figure below. Germ cell tumors can arise from the pineal gland and classically present with vertical gaze palsy.

This is a multi-step question.

What is the question asking?

The resected tumor most likely originates from what structure?

What is the first step?

The first step is to recognize the craniopharyngioma. The description of bitemporal hemianopsia places the location of the tumor by the optic chiasm. The calcifications seen on CT and the gross description of the tumor as being filled with ?machine oil? are all consistent with a craniopharyngioma.

What is the next step?

The next step is to recall the origin of craniopharyngiomas: Rathke's pouch (choice D).

Can other answers be eliminated?

- Tumors that are not located near the optic chiasm (the localization of bitemporal hemianopsia) can be eliminated first.
- 1. The pineal gland (choice B) is too posterior, and is the origin of pineolomas, not craniopharyngiomas.
- 2. The superior colliculus (choice E) is at the back of the midbrain, too far posterior to impact the optic chiasm.
- The hypothalamus (choice A) is inferior to the optic chiasm. In rare cases, hypothalamic tumors (usually gliomas) can mimic craniopharyngiomas, but they do not have the classic ?machine-like oil? on gross pathology.
- The posterior pituitary (choice C) is rarely a site for tumors, but astrocytomas can arise from it. They are not the cells of origin of craniopharyngiomas.

What is the single best answer and why?

Craniopharyngiomas are tumors that arise from the remnants of Rathke's pouch (choice D). They are the most common non-glioma brain tumors in children. They can clinically present with bitemporal hemianopsia, have scattered calcifications on head CT, and are filled with a machine-oil like fluid on gross pathology.

MedEssentials (4th Ed.): pp. 199

First Aid (2019): pp. 516.1

First Aid (2018): pp. 512.1

First Aid (2017): pp. 498.1

Pathoma (2018-2019): pp. 193.3

Pathoma (2014-2017): pp. 191.3

Answer 5

The correct answer is A. Males have only one copy of the X chromosome. If a gene is located on the X chromosome, the calculation of mutant allele (q) frequency is different for males and females.

1. In males, $p + q = 1$ is the equation that expresses allele frequencies and genotype frequencies.
2. In females, the allele frequencies equation is $p + q = 1$, while the genotypic frequencies equation is $p^2 + 2pq + q^2 = 1$.

Note that if the frequency of the phenotype in males for an X-linked recessive disease is given, this frequency is equal to q. In other words, because males have only a single X chromosome, each affected male has one copy of the disease-causing recessive mutation. Thus, the frequency of an X-linked recessive disease in the male portion of a population is a direct estimate of the gene frequency in the population.

This is a single-step non-diagnosis question.

What is the question asking?

The question is asking you to determine the allele frequency for the X-linked recessive gene mutation if you know the disease frequency in males is 1/3000.

What relevant information is provided in the vignette?

The key pieces of information that will help you solve the problem are that the disease is transmitted in an X-linked recessive manner and that the frequency of the disease in males is 1/3000.

What is the underlying concept that will help answer this question?

The major concept being reinforced in this question is that, for X-linked recessive disorders, the allele frequency in the population is the same as the disease frequency. This is because males only have one X chromosome. Thus, if the allele frequency for an X-linked recessive disorder is 1/3000, one in 3000 males, each of whom has a single X chromosome, will express the disease.

Can other answers be eliminated?

Answers other than 1/3000 (choices B, C, D, and E) can all be eliminated, but only after you figure out the correct answer.

What is the single best answer and why?

The single best answer is 1/3000 (choice A) since the allele frequency for an X-linked recessive disorder is the same as the disease frequency in males.

MedEssentials (4th Ed.): pp. 77

First Aid (2019): pp. 57.2

First Aid (2018): pp. 57.2

First Aid (2017): pp. 53.2

Pathoma (2018-2019): pp. 202.3

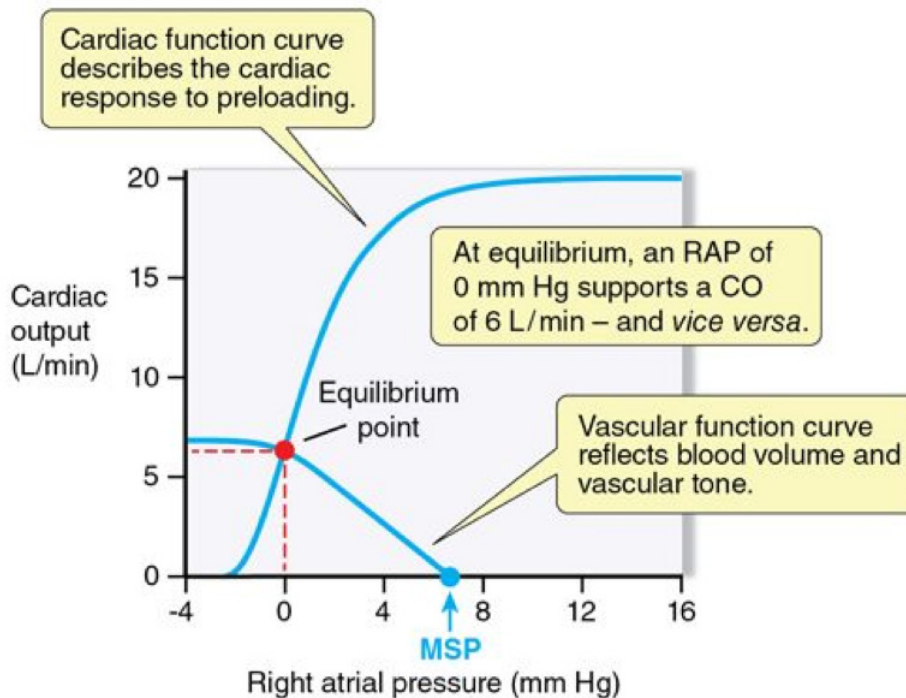
Pathoma (2014-2017): pp. 200.3

Answer 6

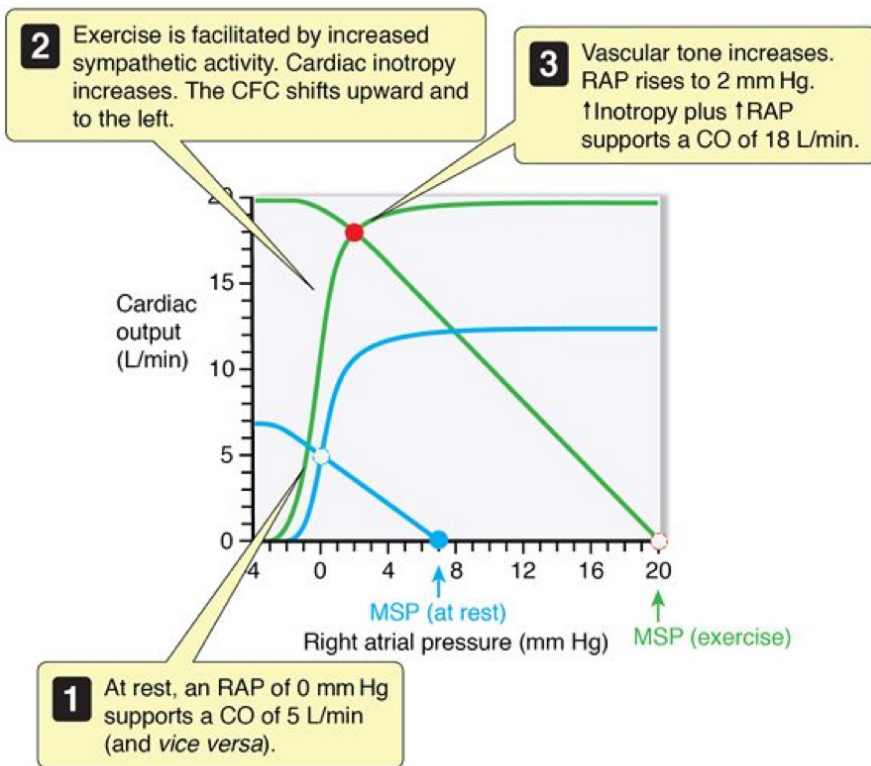
The correct answer is B. The increase in cardiac output (CO) and right atrial pressure (RAP) depicted by the intersection of the dashed lines in the figure (point Z) result from activation of the sympathetic nervous system (SNS) during exercise.

The plots defined by their points of intersection describe how CO is limited by venous return (VR) and how VR is limited by CO. The interdependence of CO and VR locks the cardiovascular system at the intersection (equilibrium) points.

1. The cardiac function curve (CFC) is better known as a Starling curve. It describes the preload-dependence of left ventricular (LV) output.
2. The vascular function curve (VFC) describes the effects of VR (which is dependent on CO and the ease with which blood travels through the vasculature) on RAP. RAP equates with LV preload.
3. The pressure at which the VFC intersects the x-axis = mean systemic pressure (MSP). MSP reflects the “tightness” or “fullness” of the vasculature. It is determined experimentally by arresting the heart (CO = 0 L/min) and letting pressure in all parts of the system equilibrate. MSP is normally around +7 mm Hg.
4. The point of intersection between a CFC and a VFC defines how much CO can be supported by any given preload (RAP), and vice versa.



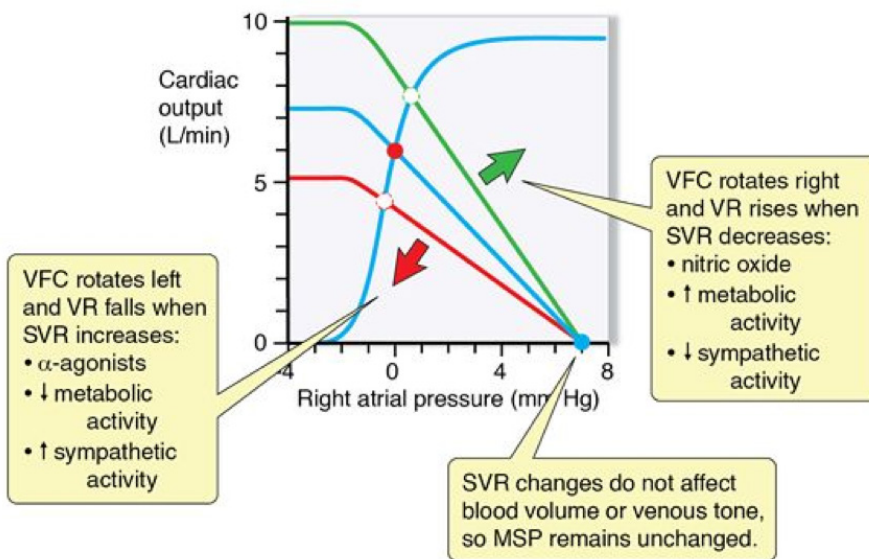
SNS activation during exercise modifies both curves. In the present example, a resting equilibrium point gives a CO of 5 L/min, supported by 0 mm Hg of RAP. Exercise shifts the equilibrium point (point Z) to give a CO of ~18 L/min at an RAP of 2 mm Hg.



1. Heart rate (HR): ? SNS activity and ? parasympathetic activity ? HR
2. LV contractility: ? SNS activity ? ? contractility ? ? stroke volume
3. Venoconstriction:
 - ? SNS activity ? venoconstriction ? ? venous capacity and ? venous pressure (note MSP shifts from 7 mm Hg to 20 mm Hg) ? ? LV preload
 - Tensing abdominal muscles and rhythmic contraction of active muscles compresses veins (extravascular compression) and forces blood back to the heart.

Note that the VFC also rotates upward (increased slope) during exercise because systemic vascular resistance (SVR) has decreased. SVR decreases due to the vasodilatory effects of metabolites being generated by exercising muscle.

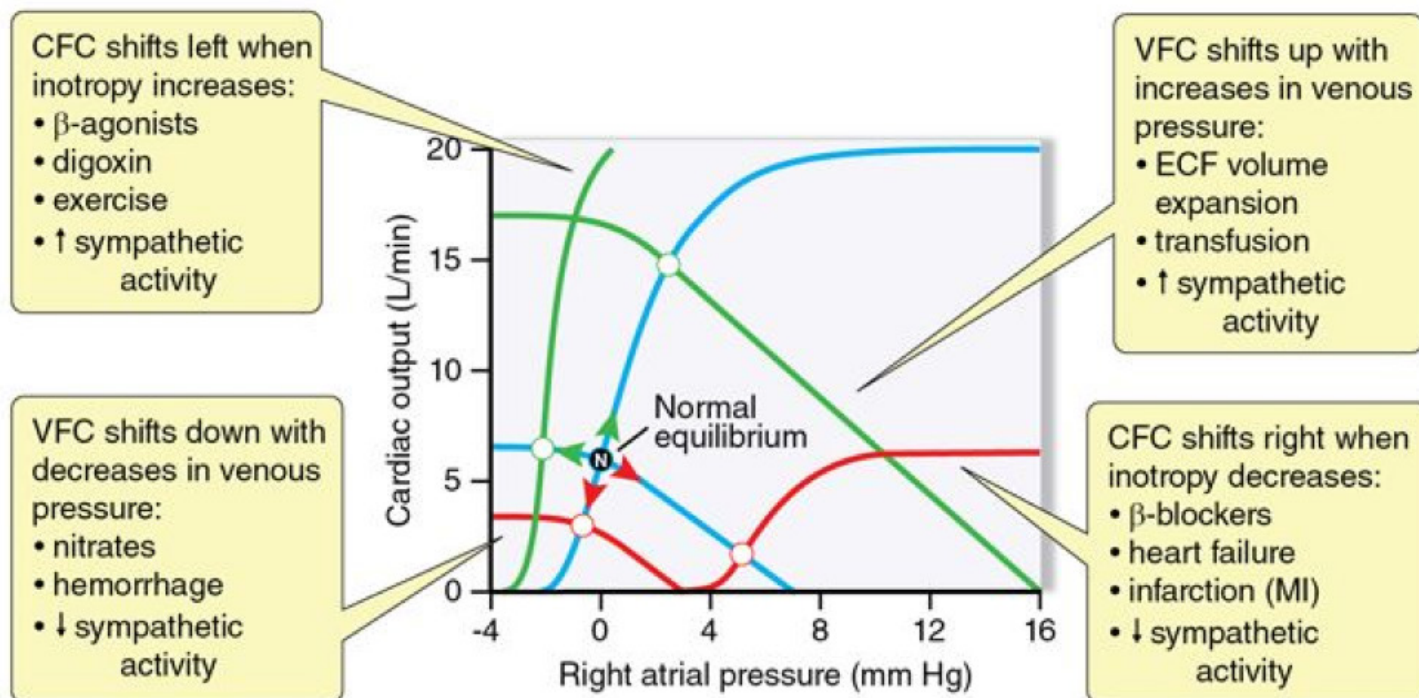
Several different physiologic mechanisms contribute to the increase in CO that is necessary to support exercise.



retention. The VFC shifts progressively rightward as a result, increasing MSP. Hemorrhage (choice D) reduces blood volume, which decreases MSP and shifts the VFC to the left. Severe hemorrhage can culminate in hypovolemic shock, which impairs myocardial contractility through hypotension and inadequacy of coronary perfusion. Spinal anesthesia (choice E) blocks SNS output and venodilates, which decreases MSP and shifts the VFC to the left. Myocardial contractility decreases also, which shifts the CFC downward.

A blood transfusion (choice A) increases central venous pressure and RAP, which shifts the VFC to the right. The CFC may reflexively drop downward and to the right to maintain a stable CO, but it would not shift leftward.

Heart failure (choice C) lowers the CFC (decreased contractility). The resulting decrease in blood pressure activates the renin-angiotensin-aldosterone system (RAAS), causing volume



This is a multi-step question.

What is the question asking?

We are being asked what most likely accounts for the increase in cardiac output and right atrial pressure depicted by point Z on the plot shown.

What is the first step?

You first have to consider what the two intersecting plots represent. Focus on the control data first (solid lines).

1. The graph plots right atrial pressure (RAP) against cardiac output (CO).
2. The first plot shows that CO increases with an increase in RAP. This is a cardiac function curve (CFC), more familiarly known as a Starling curve. It reflects the effects of preloading on myocardial performance.
3. The second plot is a vascular function curve (VFC). It shows that as CO falls, RAP rises. This is because the heart draws blood from the veins to produce CO. When CO rises, RAP falls because the veins are being emptied.
4. Because CO is dependent on RAP, and because RAP is dependent on CO, the intersection of these two plots (point X) defines what CO will be for any given RAP.

What is the next step?

You now have to consider how and why these two plots change under physiologic and pathophysiologic conditions.

1. The CFC changes with changes in cardiac contractility (inotropy). Increases in contractility make the myocardium more efficient, so it supports a higher CO for the same RAP. The CFC shifts up and to the left. Conversely, contractility decreases cause the CFC to shift downward and to the right.

2. The VFC curve changes with vascular compliance or the “tightness” of the venous compartment. Increases in vascular volume or venoconstriction raise RAP and shift the VFC up and to the right. Conversely, decreases in vascular “tightness” causes the VFC to shift down and to the left.

What is the next step?

The next step is to determine what the plots defined by their intersection point Z represent.

1. The CFC has shifted upward and to the left, indicating an increase in myocardial contractility.
2. The VFC has shifted up and to the right, indicating either an increase in intravascular volume or venoconstriction.

Together, these changes are characteristic of exercise (choice B).

1. An exercising muscle must be supported by increased blood flow to deliver necessary nutrients (oxygen and glucose and other metabolic substrates) and carry away waste products (carbon dioxide and heat).
2. Local vascular control mechanisms cause reflex vasodilation to increase blood supply to the muscle.
3. Increased flow to active muscle decreases systemic vascular resistance (SVR) and causes mean arterial pressure (MAP) to fall.
4. A drop in MAP triggers a baroreflex, which involves a decrease in parasympathetic nervous system tone and sympathetic nervous system activation.
5. These autonomic responses increase heart rate, increase myocardial inotropy, venoconstrict, and constrict resistance vessels in non-essential circulations (GI system, genitals, kidneys) to help compensate for the drop in SVR caused by skeletal muscle vasodilation.
6. An increase in myocardial inotropy causes the CFC to shift up and to the left. Venoconstriction causes the VFC to shift up and to the right. The intersection of these two points (point Z) shows how much CO increases as a result of these changes (choice B).

Can other answers be eliminated?

1. You can eliminate any choices that would decrease CO, including heart failure (choice C) and hemorrhage (choice D).
2. A blood transfusion (choice A) would increase RAP and shift the VFC to the right, but would not increase myocardial inotropy; indeed it would be more likely to shift the CFC downward to maintain CO at normal levels.
3. Spinal anesthesia (choice E) blocks sympathetic output and would cause venodilation, decreased heart rate, and decreased myocardial contractility, all of which would decrease CO. The CFC and VFC would both shift downward.
- 4.

What is the single best answer and why?

Exercise (choice B) is the best answer because it causes sympathetic activation and increased CO. Myocardial inotropy increases, shifting the CFC upward and to the left. Decreased vein capacitance shifts the VFC to the right; the new intersection (equilibrium) point Z defines the CO and RAP under these conditions.

MedEssentials (4th Ed.): pp. 243

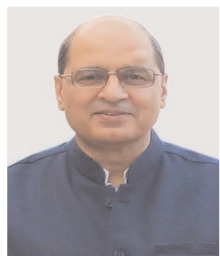
First Aid (2019): pp. 284.2

First Aid (2018): pp. 281.1

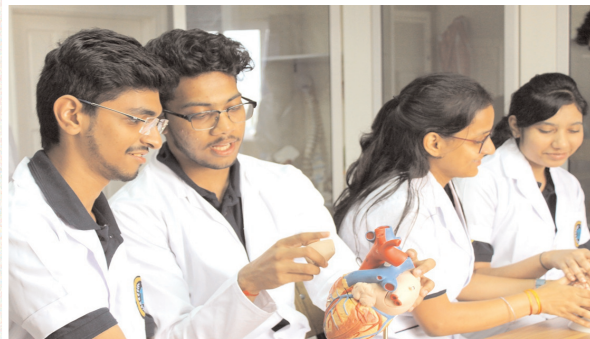
First Aid (2017): pp. 275.1



Lincoln American University (LAU), Guyana, believes that every dream stands a chance.



Dr. Pawan Kapoor
Vice Chancellor,
Lincoln American University



WITH NEET results announced, medical students countrywide are mulling over their medical future and career prospects. An unprecedented 720 on 720 score bar has made most students apprehensive about college cut-offs and merit lists this year.

While the stiff competition may be stalling your dreams, the international doors are still open for you. Studying abroad may be a lucrative deal for many students, but they have many apprehensions and unanswered questions in their minds.

In this exclusive interview with the Vice-Chancellor of Lincoln American University, we discuss everything about this top-rated University and studying abroad.

What is unique about Lincoln American University? How is it different from other medical universities abroad?

What makes LAU unique, in my opinion, is its academic environment, its dedicated faculty, its passion for grooming the young aspirants into becoming global quality doctors and its competitive fee structure. LAU aims to bridge the gap between the means and the ability to get high-quality education. Our fee structure is one of the lowest in the Caribbean, and we strive to have the right balance between the students' academic and practical experiences.

While the theoretical study is on a US-based medical program, we have clinical rotations arrangements with the best hospitals in Guyana, India, Nepal, and the US to get the best practical exposure.

We also patronize our students throughout their college journey with the hostel, mess, and transportation facilities. Very few private universities go the extra mile for their graduates, and I am proud to say that we are one of them. We have a Student Governing Council duly elected by the students themselves who actively participate in providing solutions to both the academic and administrative problems faced by the students in collaboration with the authorities of the medical school.

What quality of education we are talking about at a price that you say is affordable?

It's crazy and unbelievable (laughs), I know, but that's what makes us stand out from the crowd. We have pledged to bridge the gap between the means and the ability to provide high-quality education. We have

migrated to a systems based curriculum and also incorporated areas that have been recommended by the erstwhile Medical Council of India in the revised curriculum. We have developed a skill lab to support the translation of knowledge into skills.

That's amazing! I have also learnt that LAU has an option for students who haven't cleared NEET. That's unheard of before. Can you please tell us more about that?

Qualifying NEET is a prerequisite to get admissions to Lincoln American University. Still, we understand that not all students can brace themselves for the cut-throat competition in the first go itself. They are either forced to give up on their dreams or take a drop of one year and test their lucky stars again. But with LAU, they don't have to do that. We have a unique program for students who could not make it through NEET.

We have joined hands with Sharda University to carry out the Pre-medical programme with them. Along with the credit hours that they earn for the pre-medical programme, they are also provided coaching for NEET by experienced and committed Teachers. This way, the student saves one year and also gets a chance to start college immediately.

Adapting to a new cultural environment takes time and effort. Does LAU help students to orient themselves better?

It is not needed. LAU is located in Georgetown, Guyana. Now, Guyana is a country that has a 40% Indian demography. The spoken language in Guyana is English. So, students don't have to worry about studying in an alien culture and environment. In Guyana, Holi, Deepawali, Eid and Christmas are official holidays and the local population enjoys and participates in these festivals with the same enthusiasm as the Indian students. We also have a highly supportive High Commission of India in Guyana which ensures that the students remain involved in the celebrations on Independence and Republic Days and do not forget their roots. Our students give performances during these events organised by the High Commission. The students are also confident since the High Commission of India welcomes and takes actions on

students' needs and requirements. All in all it is a very homely and fully collaborative environment that prevails in the University. It is like a Home away from Home.

There is a lot of pressure to perform in a foreign university. Students invest their time and money in it, and many of them are unsure of their success in the end. Should students still chase the ball?

Many Indian students have it in them to give what it takes and chase their dream careers, but the stiff competition and limited seats just don't let that happen. We are appealing to them to open up their eyes and embrace other opportunities that are still there. They don't have to give up on their dreams. They still stand a chance. And to the question of whether they will succeed at it despite everything, I can assure you that, with Lincoln, they will.

We prepare our students for the United States Medical Licensing Exam from the first year itself. LAU has tied up with Kaplan Medical Institute to coach students for USMLE, and we have not seen any perceiving student lose with our guidance. We do everything to make sure our students come out as competent doctors who can serve society to the best of their potential.

You were the former Director-General of Medical Services, Indian Air Force and have had a lot of time to find your feet in the institution. I often think that these competitive institutes make students walking encyclopaedias who are living failures in life. They do academically very well but don't teach students the social skills required to live a decent life. Is there anything LAU does for that?

Yes, I understand the point you are making. We have considered that and tried to focus on the holistic development of a student. Though the curriculum is heavy, undoubtedly, we make sure that we regularly organize feasts and cultural events at the college to bring out the creative talents of our students. We organize picnics and Students Days' out.

Our sports team recently won an inter-university competition. Our students met the Health Minister of Guyana during their participation in the local health expo. We also celebrated the 71st Republic Day of India with the High Commissioner of India to Guyana.

Every month, our students participate in the medical outreach program and provide medical care to locals. We regularly send students on excursions to bond with other students, relax, and learn some co-curricular skills. We encourage students to get involved in community based research projects and a couple of students have found their papers approved for making presentations in International conferences.

We understand that college life is one that will never come back. Students should make memories and enjoy the journey. They will perform better when they do.

One last question - How are you managing the academics during Pandemic period.

As it is across the Globe, this has been a tough period for us too but our students and their parents fully supported our endeavours to keep them safe and to continue with the academic programme. We have a learning management system through which we conducted quizzes, internal assessments and the examinations. We conducted viva voce through zoom conferencing. We not only got the support of our own faculty located at LAU but also from faculty of India and friendly foreign countries. They took online classes and demonstrations for our students. Many parents who are themselves doctors and posted as faculty in various medical colleges in India also took online classes. What helped us was the time differences since faculty from India and Russia could

take classes late in the evening or at night for our students for whom it was morning hours at Guyana. Overall the students were exposed to global academics. We took COVID as an opportunity to introduce new technologies and the students fully cooperated and enjoyed the new experiences. To allay the anxiety of parents we had video conferencing and meetings with students and parents online which helped to build confidence and reassure the parents that their children were safe and academics were continuing undeterred by the crisis.

Now that your questions are over, one last point from my side- LAU is a young but dynamic university. It can only look forward and grow further. I urge more and more young students to make use of this unique opportunity and contribute to their growth while helping the university to grow at the same time. This university is meant for those who have a passion to achieve something of substance in their lives. You have the Vision and the Passion and we shall provide the Means to meet it at a price that is very much affordable. Jai Hind.

LINCOLN American University aims to provide high-quality medical education to aspiring students around the world. The globally recognized University offers a five year MD program, which is equivalent to MBBS in India. LAU is registered with the World Directory of Medical School, empanelled by Medical Council of India, certified by Educational Commission for Foreign Medical Graduates, USA, registered with National Accreditation Council of Guyana. It is a member of the Global Association for Medical Education (GAME) and Association for Medical Education in Europe (AMEE).

Located at the heart of Guyana's capital city, Georgetown, it gives you the opportunity for global exposure at extremely affordable costs. Students can leverage this golden chance to get an internationally valid medical degree and hands-on experience with clinical rotations in Guyana, Nepal, India, and

the United States. The best part of studying at LAU is you feel at home. Guyana is an English speaking country with a 40% Indian demography. You don't also have to go through the other travails of studying in a foreign environment. LAU provides hostel, Indian food, and travel facilities so that you have the best experience of studying abroad.

NEET or no NEET, they have got your back. If you are from the first category, then well done. You can start right away, but you have to be a little patient if you are from the second category. LAU provides NEET coaching by experts in the field and has also tied up with Sharda University for providing you pre-medical training and earning the requisite credit hours. And no, you don't have to take a year's drop. You can start college right off the bat too. You will train for NEET along with your first year. (What more could you ask for?)



STUDY MBBS

in Lincoln American University

LINCOLN AMERICAN UNIVERSITY
SCHOOL OF MEDICINE

FACILITY

- ✓ Hostel
- ✓ Indian Food
- ✓ Visa Processing
- ✓ NEET Coaching

- ✓ MCI Coaching
- ✓ USMLE Coaching
- ✓ English Medium
- ✓ Pickup & Drop

1800-843-9595

Association with Hospitals for Clinical Rotation

Georgetown Public Hospital, Guyana

Manmohan Memorial Teaching Hospital (MMTH), Nepal

American Clinical Experience - USA

Mae Healthcare Institute, India

ABOUT University

Lincoln American University, School of Medicine (LAU) is a private medical university located in Guyana, South America. It is listed in WDOMS, duly empanelled by MCI (now NMC), certified by ECFMG, and registered by NAC, Guyana.

5-Year MD Program

LAU offers MD program of international standard. The curriculum of the MD program is hybrid incorporating essential aspects of US and latest MCI curriculum. Focuses on USMLE (United States Medical Licensing Examination) and FMGE/NEXT (National Exit Test). It takes 5 years to complete.

8A & 8B, Water & Barrack Street, Kingston, Guyana | Email: info@laumed.org | Web: www.laumed.org



GATEWAY TO YOUR DREAM MEDICAL CAREER

Lincoln American University, School of Medicine

8A & 8B, Water & Barrack Street, Kingston, Guyana

Toll Free: 1800-843-9595 | Telephone: +592-225 2241

E-Mail: info@laumed.org