



## Vision :

- To be amongst the top ten Pharmacy Colleges in India by Imparting excellence in Pharmacy education.
- Instilling research temperament in Pharmacy student.
- Continuous up gradation of infrastructure to maintain high standards of education.

## Mission :

- Inculcating timeless values of caliber, confidence and conscience in budding pharmacists.
- Indoctrinate quality in all aspects of Pharmacy education thereby enabling provision of better healthcare services.

## Quality Policy :

- The AISSMS College of Pharmacy is committed to empower our students to meet global challenges in Pharmacy profession through excellence in education.
- Our highly qualified and committed faculty is constantly exploring newer frontiers of knowledge with the intention to build quality pharmacist.
- We believe in honing the overall persona of our students through excellence in academics, co curricular and extracurricular activities.
- We strive to develop a sense of social obligation and discipline among our students not only to make better technocrat but also a better human being.

## Objectives :

- To provide sufficient understanding of scientific principles and techniques of pharmaceutical sciences.
- To develop comprehensive knowledge and experience.
- To provide exposure to latest techniques and technologies.
- To teach pharmacy ethics to students.
- To cater to manpower for globally growing pharmaceutical industry and for implementation of drug laws for compliance to regulatory norms.

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**Web :** www.aiissmscop.com

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# Editorial:

*"A journey of a thousand miles must begin with a single step." - Lao-Tsu*

It seems everyone has had enough of 2020 and is ready for something new! Yet, before we jump into 2021 and look at the new greener pastures and blue skies, let's take a pause?!

Reflect?

Remember?

Learn?

Understand?

2020 has given us the so-called PAUSE from the fast life and has taught us a lot. As a fresh journey begins this new year, humbly and gratefully let's take THIS FIRST STEP TOGETHER in 2021.

One thing we have going for us this new year is that we know what we are up against, at least where the challenges of a still-present global pandemic are concerned. Recognize it as a part of our everyday life. It's more comfortable, natural, and enjoyable that way. Let's start 2021 with a bang!

Nevertheless, conquering all challenges ahead and moving forward with hope and positivity, we bring you Volume 6 Issue 3 of The PharmaVoice.

Keep scrolling for insights of happenings and also to update your knowledge.

Humbly Yours,  
Team PharmaVoice.



# News and Events *(Jan-Mar 2021):*

1. M. Pharm Miss Mrunal More was awarded the 2nd Runner Up at AISSMS DIVA 2021 Competition

## 1. Youth Day

Date : 12th - 16th January 2021

Time : 7 p.m. to 8p.m.

Audience / Attended by: NSS Students

Organized by : Seva Sahayog Foundation, Pune.

Description:

Total Number of Registered Students: 36

## Detailed Description of Activity Attended:

Seva Sahyog Foundation, Pune, is a Government recognized Non Profit organization working for the underprivileged section of the urban society for the past 12 years. Considering the current pandemic situation, they had organized Yuva talks from 12th to 17th

January 2021 on various topics for today's youth. The students of the working Team of NSS had registered for the event. The details of registered students for various sessions are:

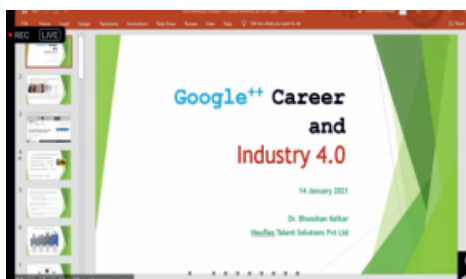
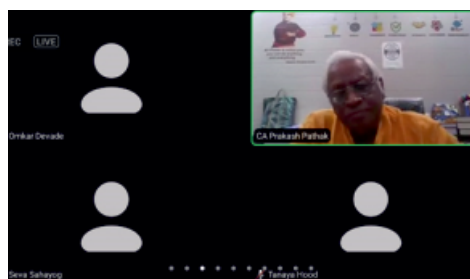
Sr. No.	Name	Sessions
1	Name- Abhishek Joshi	1. Indian Yuva Dreamed by Swami Vivekananda 2. Emotional Intelligence
2	Name - Pooja Sonawane	1. Emotional intelligence 2. Industry 4.0 and career guidance
3	Samruddhi Pande	1. Industry 4.0 and Career Guidance 2. Emotional Intelligence
4	Nirmala Rajpurohit	1. Emotional intelligence
5	Chougule Snehal Ankush	1. Emotional intelligence
6	Riya Deogaonkar	2. Emotional Intelligence
7	Isha Ghadge	1. Industry 4.0 and Career Guidance 2. Emotional Intelligence
8	Harshwardhan Patil	1. Indian Yuva Dreamed by Swami Vivekananda 2. Emotional Intelligence
9	Purva Kalel	1. Emotional intelligence
10	Vinay Londhe	1. Industry 4.0 and Career Guidance, 2. Emotional Intelligence



Sr. No.	Name	Sessions
11	Saloni Kirad	1. Industry 4.0 and career Guidance
12	Shruti Vaidya	1. Indian Yuva Dreamed by Swami Vivekananda
13	Ravina Khandelwal	1. Industry 4.0 and Career Guidance, 2. Emotional Intelligence
14	Name -Hitisha Kadu	1. Emotional intelligence
15	Aditi Vaidya	1. Indian Yuva Dreamed by Swami Vivekanand 2. Glorious History of India 3. Emotional Intelligence
16	Kirtiraj Pawar	1. Glorious history of india 2. Emotional Intelligence
17	Komal Lahoti	1. Industry 4.0 and career Guidance 2. Emotional Intelligence
18	Divyesh Jain	1. Industry 4.0 and career guidance 2. Emotional Intelligence
19	Amit Pore	1. Emotional intelligence 2. Industry 4.0 and career Guidance
20	Sachin Mehta	1. Industry 4.0 and career Guidance 2. Emotional Intelligence
21	Deepti Shinde	1. Indian Yuva Dreamed by Swami Vivekanand 2. Glorious History of India 3. Industry 4.0 and career Guidance 4. Emotional Intelligence
22	Druvi Rathod	1. Indian Yuva Dreamed by Swami Vivekanand 2. Glorious History of India 3. Industry 4.0 and career Guidance 4. Emotional Intelligence
23	Vishal Honrao	1. Emotional Intelligence
24	Rushabh Kothari	1. Industry 4.0 & career guidance 2. Waste management for best outcome
25	Aishwarya Pawar	1. Industry 4.0 & career guidance
26	Rupesh Ghorpade	1. Indian Yuva Dreamed by Swami Vivekanand 2. Industry 4.0 and Career guidance
27	Shubham Naikwadi	1. Industry 4.0 & career guidance 2. Emotional intelligence



Sr. No.	Name	Sessions
28	Riddhesh Kharche	1. Industry 4.0 and career Guidance 2. Emotional Intelligence
29	Siddhi Sefalika	1. Indian Yuva dreamed by Swami Vivekananda.
30	Name- Ayush Khater	1. Emotional intelligence
31	Name-Prajwal Hogade	1. Emotional intelligence 2. Glorious history of India
32	Ayush Thole	1. Emotional intelligence 2. Industry 4.0 & career guidance
33	Dhiraj Dhande	1. Industry 4.0 and Career guidance 2. Emotional Intelligence
34	Manali Bihade	1. History of India 2. Emotional intelligence 3. Waste management
35	Ruchita Takawale	1. Indian Yuva dreamed by Swami Vivekananda 2. Glorious history of India. 3. Industry 4.0 and career guidance
36	Vidhi Dagade	Topic Name: Glorious History of India



**“Believe you can and you're halfway there.”**  
*Theodore Roosevelt*

## 2. World Cancer day 2021 - Savior and Survivor's Meet with Datri Foundation

**Date :** 23rd January 2021 | **Time :** 3 p.m. to 4p.m.

**Audience /Attended by:** Staff and NSS students

**Organized by :** Datri Foundation, Pune division and AISSMS COP

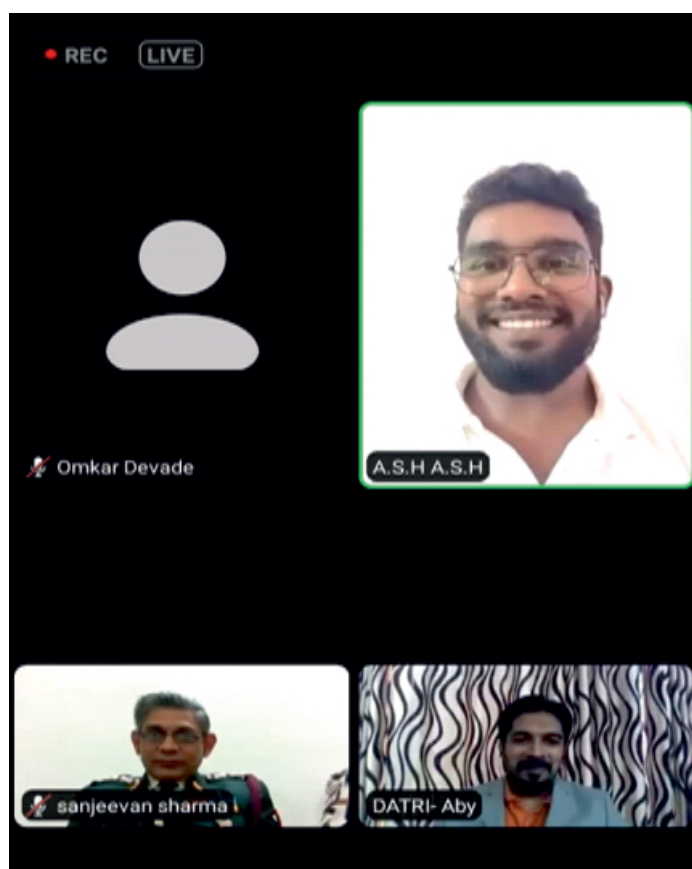
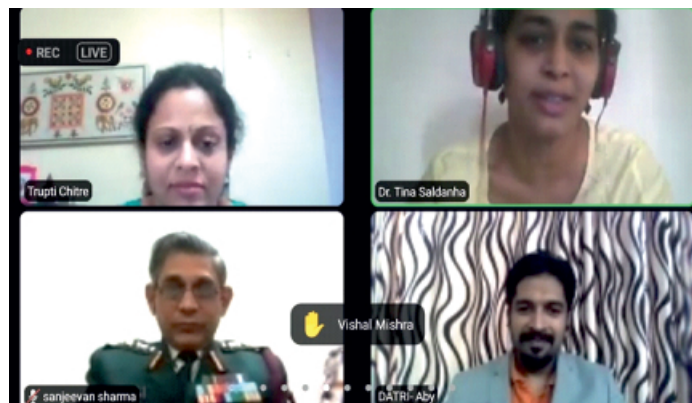
**Anchor:** Dr. Trupti Chitre and Dr. Tina Saldanha

**Total Number of Registered Students:**

### Description

AISSMS College of Pharmacy, Pune has signed an MOU along with Datri, Stem cell Registry, India. The Registry had organized Savior and Survivor's Meet and as their partners, AISSMS College of Pharmacy, was part of 'World Cancer day 2021 related -Savior and Survivor's Meet with Datri Foundation on 23rd January 2021. The day itself was marked with speeches, Sharing Donor and Recipient family experience, emotional memories etc. The Chief guest for the Session was Dr. Sanjeevan Sharma HOD of Onco Hematology Command Hospital Lucknow, UP.

Dr. Trupti Chitre gave a welcome speech. Introduction of guests was given by Mrs. Sonali Bhandarkar from Datri Foundation and further the session was conducted by Sumati madam also from Datri along with other members of their team. Dr. Sanjeevan Sharma shared his views through inspirational speech regarding stem cell donation for life threatening situations as a way of donating life. Principal Dr. Ashwini R. Madgulkar, other staff attended the session. A total of 30 NSS Students participated in the program and they identified the program as effective and motivating. Vote of thanks was given by Dr. Tina Saldanha. The Session was successfully organized and conducted by the Extension Activity committee.



**“Weaknesses are just strengths in the wrong environment.”**

*Marianne Cantwell*

### 3. Orientation Programme 2020-21

**Date :** 10th February 2021

**Time :** 10:30 a.m.

**Audience/Attended by:** by F.Y. B. Pharm students and parents

**Organized by :** AISSMS College of pharmacy

**Anchors:** Mrs. Shital Patil, Mrs. Vidya Wable, Mr. Rahul Padalkar

**Total Number of Registered Students:**



### Description

Online Orientation programme was started at 10.30 am on 10/2/2021. Total 91 Parents of F.Y. B. Pharm. attended this orientation program. Session started with a welcome speech where the objective of the orientation programme was discussed. After the welcome speech, the scope of pharmacy was explained in detail where job opportunities after B. pharm. & scope of higher education were discussed. Parents and students were also introduced to college infrastructure, rules, and regulations, information regarding different co-curricular, extracurricular and social activities. The Induction programme was conducted from 15th Feb. to 23rd Feb. to introduce activities, Examination pattern and various committees.



**College Publications**

News Letter- Pharmavoice  
APGA Bulletin  
College Magazine- Dnyanark

College Website- <https://aiissmscop.com/>

**College Social media Sites**

1. Facebook- <https://www.facebook.com/aiissmscoppune/>
2. Instagram- [http://Instagram.com/aiissms\\_cop](http://Instagram.com/aiissms_cop)
3. Twitter- [https://twitter.com/AISSMS\\_COP](https://twitter.com/AISSMS_COP)
4. LinkedIn- <https://www.linkedin.com/company/aiissms-college-of-pharmacy-india/>

“Silence is the last thing the world will ever hear from me.”

Marlee Matlin

## 4.Fresher's Party

*for F. Y. B. Pharm. and Directly  
admitted S.Y. B. Pharm Students*

**Date :** 12th February 2021

**Time :** 10:00 a.m. to 12:30 p.m.

**Audience/Attended by:** F. Y. B. Pharm, S.Y. B. Pharm  
Students, FY and SY B.Pharm Class teachers

**Organized by :** S.Y B.Pharm students of AISSMSCOP

**Anchors:** S.Y B. Pharm students

**Total Number of Registered Students:**

## Description

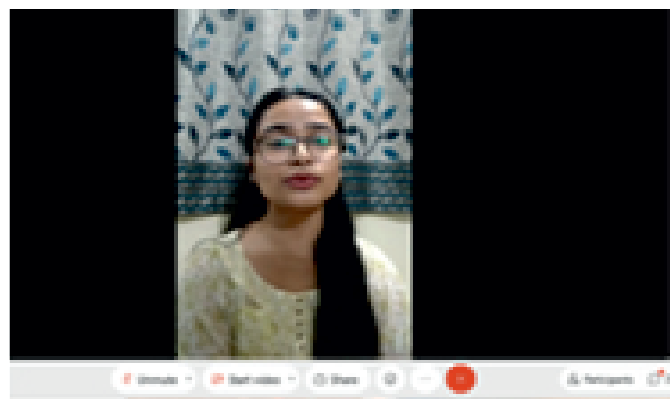
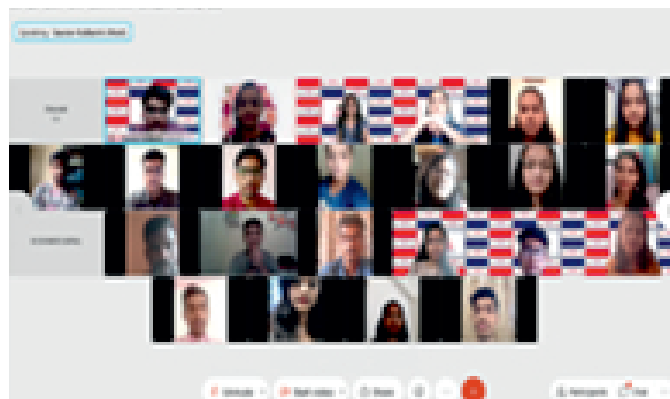
Theme for the fresher's day was "Flower blooming". The programme started with a welcome speech by Ms.Sejal Takawale and Mr. Amey Gavaskar. Ms.Vaibhavi Muley and Mr. Pranshul Soni presented a video on extra and co-curricular events of the college. Various online games like Go Fetch, Tongue twisters, Guess it were conducted. Ms. Jyoti Kupate and Ms. Purva Kalel were the comperes for the overall program, while anchors for the different games was as follows:Guess it-Ms. Darshani Gholap and Mr. Faizan Mohd Mujawar, Go fetch- Mr. Harshwardhan Patil and Ms. Tanya Asthana, Tongue twisters-Ms. Isha Ghadge and Ms. Namrata Rathod. Students also presented entertainment programmes like solo singing, instrumental etc. APGA gave away the following awards.

Mr. and Ms.Fresher's: Mr. Kunal Hundare, Ms. Ishwari Sapkal

Mr. Confident and Ms. Confident – Mr. Ritesh Bulani, Ms. Ayashree Sahoo.

Special awards for Mr. Enthusiastic and Ms. Enthusiastic: Mr. Jay Avhad, Ms. Asha Mourya

The program concluded with Vote of thanks by Class representatives Ms Jidnaysa Jain and Mr. Saurav Kulkarni. The program was coordinated by Class teachers of S.Y. B. Pharm. Mrs. K.D Asgaonkar, Mrs K S Sonawane along with the Class representatives.



**"Just don't give up trying to do what you really want to do.  
Where there is love and inspiration, I don't think you can go wrong."**

*Ella Fitzgerald*



## 5. AISSMS I-CONNECT

**Date :** 5th March 2021

**Time :** 2:00 p.m. to 3:30 p.m.

**Audience/Attended by:** TY and final year B Pharm and M Pharm sem 2 and 4 students and faculty members

**Organized by :** Industry Institute partnership cell

**Total number of Registered Students:** 106

**Anchors:** Dr Mangesh Bhalekar and Mr Rahul Padalkar

### Description

The program was compered by Dr Mangesh Bhalekar. Speaker Mr Vivekanand Sawarkar, Head Quality Assurance, Stride Pharmaceutical, Bangalore, guided students about opportunities in the field of computer system validation and planning the career. Lot of students like Ms. Bhairavi Bakhle, Ankita Lokhande, Mrunal More asked a lot of questions to understand this new domain. Program ended with a vote of thanks by Mr Rahul Padalkar



### Upcoming News (April-June 2021)

IPR Day 2021 will be celebrated in the last week of April using an online platform.

“Everyone has inside of him a piece of good news. The good news is that you don't know how great you can be! How much you can love! What you can accomplish! And what your potential is!”

**Anne Frank**



## 6. International Women's Day 2021

**Date : 8th March 2021**

**Time : 10:00 a.m. to 1:30 p.m.**

**Audience/Attended by: All the staff members from AISSMS R.T.O. campus.**

**Organized by : AISSMS COP along with Seva Sahayog Foundation, Pune.**

**Anchor: Dr. Trupti Chitre and Mr. Rahul Padalkar**

**Total Number of Registered Students:**

### Description

On 8th March 2021, AISSMS COLLEGE OF PHARMACY, in association with Seva Sahayog, a Government recognized Non profit organization, Pune had organized:

1) Mega Seva Fair-Expo of products made by the women empowerment programme of Seva Sahyog Foundation, on the Ground floor of the college. Principal Dr.Ashwini R.Madgulkar inaugurated the Expo and it was attended by all the staff members from college as well as staff members from the RTO campus purchasing a variety of things from Jute bags to some food items. Around Rs 16,000/- of total purchase was possible due to cooperation of all.

2) Red Dot Campaign Activity: Around 5000 paper bags made by Teaching, Non-Teaching staff members, NSS students, PG students and APGA students were handed over to the foundation. This bag preparation was as a part of participation in "Urmi" project related to Menstrual hygiene initiated by Seva Sahayog.



Dr. Trupti Chitre, Extension cell Hand over the Red dot Paper bags to Mr. Kiran from Seva Sahyog under Red dot campaign activity



NSS students during Mega Seva Fair



Dr.Ashwini Madgulkar and NSS Programme officer Mr. Rahul Padalkar during Mega Seva Fair-Expo of products made by women empowerment programme of Seva Sahyog Foundation



## 7. DIVA COMPETITION

Date : 9th March 2021

Time : 10:00 noon

Audience/Attended by All B. Pharm, M.Pharm students and staff members

Organized by: AISSMS Media team

### Description

Women's Day was celebrated with the conduct of AISSMS DIVA Competition in which female students and staff were the participants. An online elimination round was held amongst the students and staff respectively at each college under the aegis of AISSMS. The final round for students was held online, while the final round for staff was held offline, following all rules of social distancing and COVID norms laid down by the government. The winners of staff and students were felicitated. Amongst the staff Mrs. Vidya Wable was crowned Ms DIVA 2021 and amongst students Miss Mrunal More was awarded 2nd Runner Up.



“Learning how to be still, to really be still and let life happen—that stillness becomes a radiance.”

*Morgan Freeman*

## 8. Online Guest lecture on Women's Safety

**Date :** 23rd March 2021

**Time :** 12:00 noon

**Audience/Attended by:** All B.Pharm, M.Pharm students and staff members

**Organized by :** Internal Complaints Committee, AISSMS College of Pharmacy.

**Speakers:** Ms. Shilpa Chavan, Police Inspector

**Anchor:** Mrs. Reshma Mirajkar

### Description

Guest lecture on Women's Safety by Ms. Shilpa Chavan, Police Inspector was organized by the Internal Complaints Committee on 23rd March 2021. All B.Pharm, M. Pharm students and staff members participated in this event. Mrs. Reshma Mirajkar welcomed the guests. Ms. Shilpa Chavan focused on various Women's Safety issues such as offences related to marriage, sexual harassment of women at

workplace, Dos and don'ts for college students and working women etc. This was followed by an Interaction Session and vote of thanks by Mrs. Reshma Mirajkar. Feedback of the guest lecture was taken from participants and is documented with us. Most of the students and faculty found the session very useful.



**“In a gentle way, you can shake the world.”**

*Mahatma Gandhi*



## Did You Know:

### MUCORMYCOSIS AND ITS PREVENTION

In today's era of disease spread and pandemic, it has become very hard to prevent ourselves from these small Microscopic organisms, they have a huge impact on our health. As we have seen the example of corona. There is one more disease which is on the rise and has proved to be quite dangerous for human kind called MUCORMYCOSIS.

### WHAT IS MUCORMYCOSIS?

Mucormycosis is a very rare infection. It is caused by exposure to mucor mould which is commonly found in soil, plants, manure, and decaying fruits and vegetables. It affects the sinuses, the brain and the lungs and can be life-threatening in diabetic or severely immunocompromised individuals, such as cancer patients or people with HIV/AIDS. Formally known as zygomycosis, this infection tends to occur most often if you have weakened immunity from an illness or health condition.

### SYMPTOMS

*The symptoms of mucormycosis depend on where in the body the fungus is growing.*

- cough, fever, headache, nasal congestion, sinus pain
- Skin related symptoms- blackened skin tissue, blisters, redness, ulcers

### HOW TO PREVENT MUCORMYCOSIS

1. Wear a mask if you are visiting dusty, crowded places
2. Wear shoes, long trousers, long sleeve shirts and gloves while handling soil (gardening), moss or manure
3. Maintain personal hygiene, including thorough scrub bath

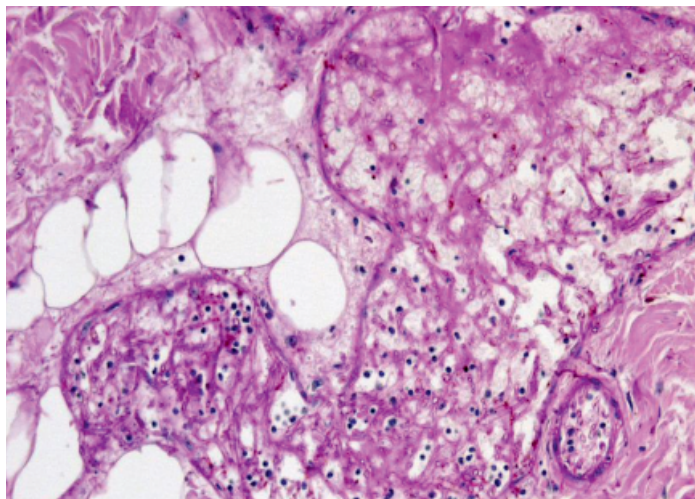
The disease can be managed by controlling diabetes, discontinuing immunomodulating drugs, reducing steroids and extensive surgical debridement- to remove all necrotic materials, according to the advisory.

### DO'S

1. Control hyperglycemia
2. Monitor blood glucose level post-COVID-19 discharge and also in diabetics
3. Use steroid judiciously – correct timing, correct dose and duration
4. Use clean, sterile water for humidifiers during oxygen therapy
5. Use antibiotics/antifungals judiciously

### DON'TS

1. Do not miss warning signs and symptoms
2. Do not consider all the cases with blocked nose as cases of bacterial sinusitis, particularly in the context of immunosuppression and/or COVID-19 patients on immunomodulators
3. Do not hesitate to seek aggressive investigations, as appropriate (KOH staining & microscopy, culture, MALDITOF), for detecting fungal etiology
4. Do not lose crucial time to initiate treatment for mucormycosis.



## Scope of Pharmacy :

### NUCLEAR PHARMACISTS

What do Nuclear Pharmacists do?

Nuclear pharmacists are a special type of pharmacist who work with radioactive materials for nuclear medicine. Radioactive materials can be used to treat illnesses, but also to diagnose them, such as with the use of X-rays. The nuclear pharmacist is responsible for preparing, packaging and labelling radiopharmaceuticals, carrying out regular checks of materials, storage facilities and equipment, and making sure that patients are correctly prepared before they undergo any procedure involving radiopharmaceuticals. Nuclear pharmacists typically work in the nuclear pharmacy department of a hospital or for a commercial pharmaceutical company. In both cases, professionals usually spend most of their days in a laboratory environment.

In addition to obtaining specialized certification, a nuclear pharmacist needs to complete the necessary steps to become a regular pharmacist, which include obtaining an undergraduate education, earning a Pharm.D. degree, passing licensure exams and completing a residency or fellowship. Additional training in a nuclear pharmacy certificate program can help prepare candidates for certification.

**Required Education :** *Pharm.D.*

**Other Requirements :** *1-2 year fellowship or residency program; nuclear pharmacy certificate program*

**Salary Range :** *Nuclear Pharmacist salaries in India range from 20,300 INR per month (minimum salary) to 66,400 INR per month (maximum salary).*

### REFERENCES

- [1] **How to Become a Nuclear Pharmacist: Training Programs & Requirements, (n.d.).**  
[https://study.com/articles/Nuclear\\_Pharmacist\\_Salary\\_Info\\_and\\_Education\\_Requirements.html](https://study.com/articles/Nuclear_Pharmacist_Salary_Info_and_Education_Requirements.html) (accessed July 20th, 2021).
- [2] **Starting a Career in Nuclear Pharmacy | Pharmacy for me, (n.d.).**  
<https://pharmacyforme.org/2018/10/09/career-in-nuclear-pharmacy/> (accessed July 20th, 2021).
- [3] **Nuclear Pharmacist Average Salary in India 2021 - The Complete Guide, (n.d.).**  
<http://www.salaryexplorer.com/salary-survey.php?loc=100&loctype=1&job=592&jobtype=3> (accessed July 20, 2021).

## Scientific Content : AstraZeneca

<b>Founded on</b>	6th April 1999
<b>Headquarters</b>	Cambridge Biomedical Campus, Cambridge, England, UK
<b>Key people</b>	Leif Johansson (Chairman) Pascal Soriot (CEO)
<b>Industry</b>	Pharmaceutical Biotechnology

Astra AB was founded in 1913 in Södertälje, Sweden, by 400 doctors and apothecaries. In 1993 the British chemicals company ICI (established from four British chemical companies) demerged its pharmaceuticals businesses and its agrochemicals and specialties businesses, to form Zeneca Group PLC. Finally, in 1999 Astra and Zeneca Group merged to form AstraZeneca plc. Since the merger it has been among the world's largest pharmaceutical companies and has made numerous corporate acquisitions, including Cambridge Antibody Technology (in 2006), MedImmune (in 2007), Spirogen (in 2013) and Definiens (by MedImmune in 2014). It has its research and development concentrated in three strategic centers: Cambridge, England; Gothenburg, Sweden and Gaithersburg in Maryland, U.S.

It is currently best known for its involvement in developing the Oxford-AstraZeneca COVID-19 vaccine.

## AstraZeneca India :

**Gagan Singh Bedi**  
Country President, AstraZeneca Pharma India Ltd

AstraZeneca India was established in 1979 and is headquartered at Bengaluru, Karnataka. AstraZeneca Pharma India Limited (AZPIL) is the operating company and covers manufacturing, sales and marketing activities of the company in India. It is a listed company and is a subsidiary of AstraZeneca Plc, UK.

**“All you need is the plan, the road map, and the courage to press on to your destination.”**

*Earl Nightingale*



### AstraZeneca

- AstraZeneca (Merged 1999)
  - Astra AB (Founded 1913)
    - Tika (Acq 1939)
  - Zeneca (Spun off from Imperial Chemical Industries, 1993)
    - Salick Health Care (Acq 1996)
    - Ishihara Sangyo Kaisha (US fungicide operations, Acq 1997)
- KuDOS Pharmaceuticals (Acq 2005)
- MedImmune Biologics
  - Cambridge Antibody Technology (Acq 2006)
    - Aptein Inc (Acq 1998)
  - MedImmune (Acq 2007)
    - Definens<sup>[98]</sup> (Acq 2014)
- Arrow Therapeutics (Acq 2007)
- Novoxel Corp (Acq 2010)
- Guangdong BeiKang Pharmaceutical Company (Acq 2011)
- Ardea Biosciences (Acq 2012)
- Amylin Pharmaceuticals (Acq 2012 jointly with Bristol-Myers Squibb)
- Spirogen (Acq 2013)
- Pearl Therapeutics<sup>[99]</sup> (Acq 2013)
- Omthera Pharmaceuticals<sup>[100]</sup> (Acq 2013)
- ZS Pharma (Acq 2015)
- Alexion Pharmaceuticals (Acq TBD)
  - Proliferon Inc (Acq 2000, restructured into Alexion Antibody Technologies Inc)
  - Enobia Pharma Corp (Acq 2011)
  - Synageva BioPharma (Acq 2015)
  - Wilson Therapeutics (Acq 2018)
  - Syntimmune (Acq 2018)
  - Achillion Pharmaceuticals (Acq 2019)
  - Portola Pharmaceuticals (Acq 2020)



### Website and Contact Details:

#### Corporate & Registered Office,

Block N1, 12th Floor, Manyata Embassy Business Park,  
Rachenahalli, Outer Ring Road, Bangalore India 560045

**Phone :** +91-80-6774 8000

**Website link:** <https://www.astrazeneca.com/>

**“I care about decency and humanity and kindness. Kindness today is an act of rebellion.”**

*Pink*

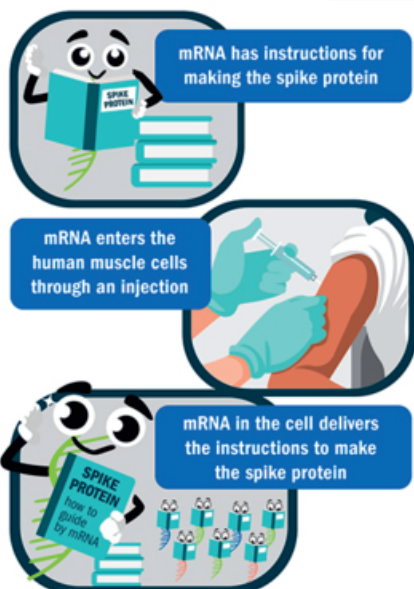
## Theme: Vaccines and their safety monitoring

AstraZeneca India was established in 1979 and is headquartered at Bengaluru, Karnataka. AstraZeneca Pharma India Limited (AZPIL) is the operating company and covers manufacturing, sales and marketing activities of the company in India. It is a listed company and is a subsidiary of AstraZeneca Plc, UK.

## How do the Vaccines Work?

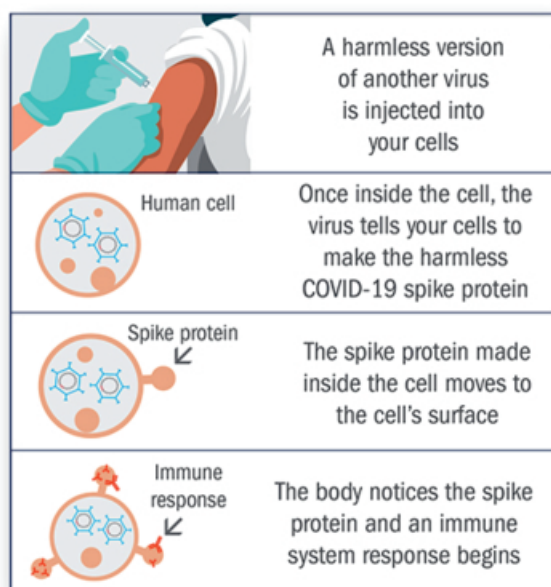
### mRNA

- mRNA research began in the 1990s - that's why Pfizer-BioNTech and Moderna were able to develop an mRNA vaccine so quickly.
- Experts have been developing this technology for nearly two decades
  - mRNA vaccines do not affect or interact with your DNA (genetic material) in any way.
- Unlike many vaccines that put a weakened or inactivated germ into your body, mRNA vaccines teach cells how to make a harmless "spike" protein, which is also found on the surface of the virus that causes COVID-19, that triggers an immune response inside bodies.



## Viral Vector Vaccines

- The Janssen COVID-19 (Johnson & Johnson) vaccine uses viral vector technology which has been studied since the 1970s.
- Viral vector vaccines use a harmless version of a different virus (the vector) to enter cells in your body and cause them to produce a harmless spike protein like the one found on the surface of the virus that causes COVID-19.
- This triggers your immune system to respond and start making antibodies and activating other immune cells to fight off what it thinks is an infection.
- If you are exposed to the real coronavirus later, your body will recognize it and know how to fight it off.



**"If you have good thoughts they will shine out of your face like sunbeams and you will always look lovely."**

*Roald Dahl*





## COVID-19 Vaccine Safety Monitoring

The FDA and CDC continue to monitor the safety of COVID-19 vaccines. CDC has an independent group of experts that reviews all the safety data as it comes in and provides regular safety updates. The Janssen (Johnson & Johnson) COVID-19 vaccine pause demonstrates that the safety monitoring system is active.



## How the COVID-19 Vaccine Safety Monitoring Continues

**Vaccine Adverse Event Reporting System, or VAERS** – This system collects and analyzes reports of adverse events that happen after vaccination.

**Vaccine Safety Datalink (VSD) and Post-Licensure Rapid Immunization Safety Monitoring (PRISM)** – Two networks of health care organizations across America analyze health care information from over 24 million people. Scientists use these systems to actively monitor vaccine safety.

**Clinical Immunization Safety Assessment Project (CISA)** – Vaccine safety experts assist American health care providers with complex vaccine safety questions about their patients.



“Try to be a rainbow in someone's cloud.”

*Maya Angelou*