

SPER NEWSLETTER



FOR JANUARY 2022



IN THIS EDITION-

We, at **SPER** bring forward a one-stop news for all.

Find out below what this specially curated edition has in store for you -

1. Coronavirus and its Variants
2. Booster Dose
3. Breakthrough Medicines in 2021
4. New approved drugs in 2021
5. Pharmaceutical 2021 Recap
6. Career Opportunities for budding Pharmacists



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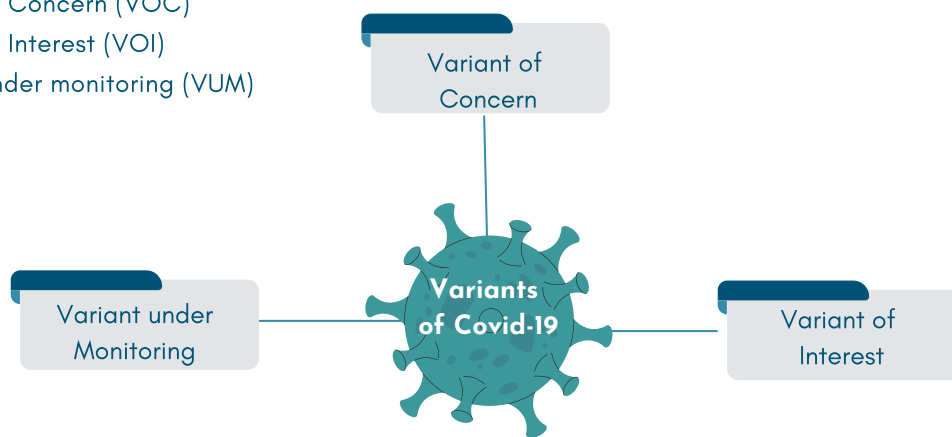
CORONAVIRUS AND ITS VARIANTS

A guide to understand the future better

All viruses, including the SARS-CoV-2, undergo changes or more specifically mutations (alteration in the virus RNA) over time. These changes horizon from having a little to detrimental impacts, and are responsible for the characteristic spreading rate, disease severity, performance of vaccines and other socio-economic measures. These changes are known as Variants and are named after Greek alphabets (for non-scientific community) and number systems (for scientific community) in accordance with the World Health Organization's nomenclature system. This was done to establish an easy-to-pronounce and a non-stigmatizing system throughout the globe.

Further, Variants have been categorized as

1. Variants of Concern (VOC)
2. Variants of Interest (VOI)
3. Variants under monitoring (VUM)



1. Variants of Concern

A variant for which there is evidence of an increase in transmissibility, disease severity (eg, increased hospitalizations or deaths), reduction in neutralization by previously generated covid antibodies, reduced effectiveness of treatments or vaccines, or diagnostic detection failures is categorized under Variants of Concern.

Below are the SARS-CoV-2 Variants classified under VOC-

Variant	Location	Observation Date	Statistics
Alpha (B.1.1.7)	United Kingdom	Sept 2020	Total confirmed cases in the UK were found to be 2,78,184 as of Jan 3, 2022
Beta (B.1.351)	South Africa and Nigeria	May 2020	Total confirmed cases worldwide were nearly 40,000 with highest (6,980) cases found in South Africa itself
Gamma (P.1)	Brazil	Nov 2020	Total confirmed cases worldwide were nearly 1.2 lakh with the highest cases (47,367) found in Brazil
Delta (B.1.617.2)	India	Oct 2020	This variant saw a record-breaking number of nearly 38.6 lakh cases worldwide, while USA recorded the highest cases of 13.3 lakh.
Omicron (B.1.1.529)	Multiple countries	Nov 2021	As of 10th Jan 2022, the total caseload worldwide has crossed 300 million and is continuing to exponential rise.




2. Variants of interest

Variants identified to cause community transmission or multiple COVID-19 clusters, in multiple countries with increasing relative prevalence alongside increasing number of cases over time, or other apparent epidemiological impacts to suggest an emerging risk to global public health. Various SARS-CoV-2 strains under VOI are–

Variant	Location	Observation Date	Characteristics	Statistics
Lamba (C.37)	Peru	Dec 2020	It has 7 amino acid mutations all of which are in virus's spike protein code It was predicted to have a high contagion rate	Total confirmed cases of Lambda variant world-wide were 4,763. By April 2021, 80% of cases in Peru were of Lambda variant
Mu (B.1.621)	Colombia	Jan 2021	It has 21 mutations including 9 amino acid mutations WHO's update stated that "Mu variant has a constellation of mutations that indicate potential properties of immune escape"	Total confirmed cases worldwide were 14,738 with highest cases in USA at 6,066



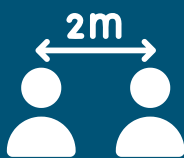

3. Variants Under Monitoring (VUM)

Variants associated with previously more severe disease or increased transmission but are no longer detected, or are circulating at very low levels, in the world. These variants do not pose a significant and imminent risk to public health. A VOI or a VOC may be downgraded to this list after a significant and sustained reduction in its national and regional proportions over time, or other evidence indicates that a variant does not pose significant risk to public health. Although, these variants continue to be closely monitored to identify changes in their proportions and new data are continually being analyzed.



How can we combat the virus and its variants?

New variants of the virus are expected to occur. Taking steps to reduce the spread of infection, including getting a COVID-19 vaccine, are the best way to slow the emergence of new variants.





BREAKTHROUGH MEDICINES

Breakthrough Medicines of 2021

EBOLA VIRUS

Atoltivimab/Maftivimab

ROA- Intravenous
Mechanism- Human mAbs that target glycoprotein surface of Virus
Company- Regeneron

BLOOD DISEASE

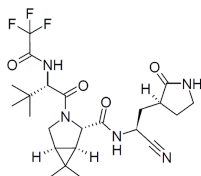
Pegcetacoplan (Empaveli)

Treatment of Paroxysmal nocturnal Hemoglobinuria
ROA- Subcutaneous
Mechanism- Complement protein C3 inhibitor
Company- Apellis

COVID-19 ORAL ANTIVIRAL

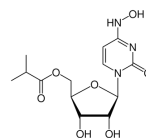
Paxlovid

ROA- Oral
Mechanism- 3C- like protease inhibitor
Company- Pfizer



Molnupiravir (Lagevrio)

ROA- Oral
Mechanism- RNA dependent RNA Polymerase induction of lethal mutagenesis
Company- Merck



MALARIA VACCINE

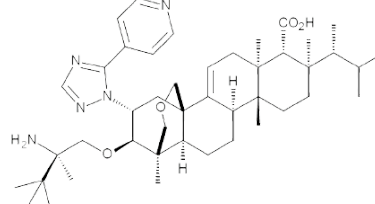
Mosquirix

Plasmodium falciparum and hepatitis B vaccine (recombinant, adjuvanted)
ROA- Intramuscular
Mechanism- Recombinant protein based malaria vaccine
Company- GlaxoSmithKline

ANTI-FUNGAL

Brexafemme (Ibrexafungrep)

Treatment of Yeast Infection
ROA- Oral
Mechanism- Triterpenoid antifungal
Company- Scynexis



ALZHEIMER'S DISEASE

Lonafarnib (Zokinvy)

To reduce death due to Hutchinson-Gilford progeria syndrome
ROA- Oral
Mechanism- Farnesyltransferase inhibitor
Company- EIGER

PREMATURE AGING

Aducanumab

ROA- Intravenous
Mechanism- Amyloid Beta directed mAb that targets amyloid beta
Company- Biogen

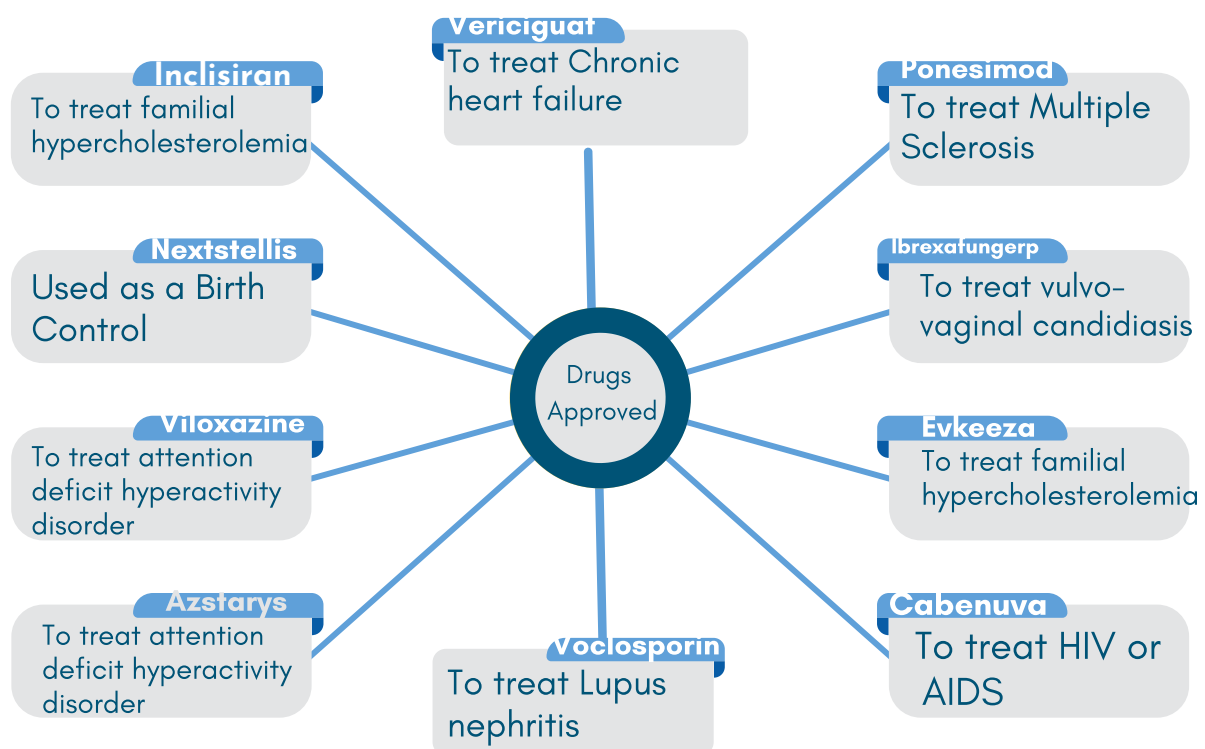


FDA DRUG APPROVAL

Drugs that received FDA's Drug Approval

Innovative drugs often mean new treatment options for patients and advances in health care for the public. When it comes to the development of new drugs and therapeutic biological products, FDA's Center for Drug Evaluation and Research (CDER) provides clarity to drug developers on the necessary study design elements and other data needed in the drug application to support a full and comprehensive assessment.

Below are the drugs that have received FDA's Drug Approval in 2021-

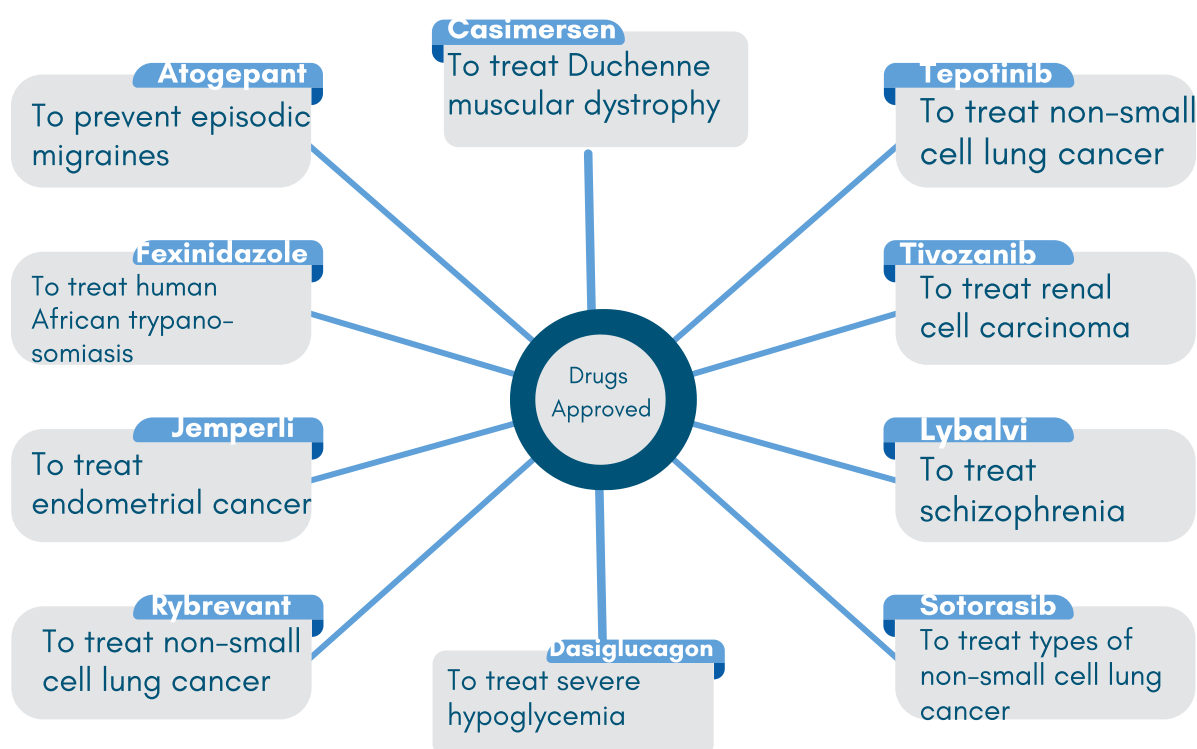


Apart from the novel drugs represented above, the drugs that have also received the FDA approval in 2021 are-

- **Adbry**- To treat **atopic dermatitis**
- **Bylvay**- To treat **pruritus**
- **Vyvgart**- To treat **myasthenia gravis**
- **Tezspire**- To treat severe cases of **asthma**
- **Cytalux**- To help identify **ovarian cancer lesions**
- **Livtencity**- To treat post-transplant **cytomegalovirus (CMV) infection**
- **Besremi**- To treat **polycythemia vera**
- **Skytrofa**- To treat short stature due to **Growth Hormone imbalance**
- **Welireg**- To treat von **Hippel-Lindau disease**



- **Kerendia**- To reduce **kidney disease in Type 2 diabetes**
- **Nulibry**- To treat patients with **molybdenum cofactor deficiency Type A**
- **Pepaxto**- To treat relapsed or **refractory multiple myeloma**
- **Rezurock**- To treat chronic **graft-versus-host disease**
- **Nexvazyme**- To treat late-onset **Pompe disease**
- **Saphnelo**- To treat **lupus erythematosus**
- **Korsuva**- To treat **pruritus** associated with CKD
- **Livmarli**- To treat cholestatic **pruritus** in Alagille syndrome



In the field of cancer, following drugs were approved-

- **Pylarify**- PET **imaging agent for prostate cancer**
- **Tivdak**- To treat **cervical cancer**
- **Exkivity**- To treat **metastatic NSCLC**
- **Rylaze**- To treat **lymphoblastic leukemia**
- **Truseltiq**- To treat **cholangiocarcinoma**
- **Zynlonta**- To treat relapsed **large B-cell lymphoma**
- **Ukoniq**- To treat **follicular lymphoma**
- **Cosela**- To mitigate chemotherapy-induced **myelosuppression** in small cell lung cancer

BOOSTER DOSE

Is Vaccination our only ray of hope?

Why do you need to get your Booster Dose?

The pivotal goal of vaccination is to provide immunization to prevent hospitalization and deaths. If the immunization from vaccine begins to decrease, booster dose emanates. Booster dose operates by extending the level of immunization. Clinical trial data suggests, this additional dose also helps to improve immunocompromised people's response to their initial vaccine.

Which countries world-wide are a part of Booster Dose programme?

Nearly 126 countries worldwide have already issued recommendations on booster or an additional vaccination while more than 120 countries have begun their programmatic implementation. Although, the majority of the listed countries are classified as high-income, or upper middle-income, no low-income country has yet introduced a booster vaccination programme.

If you have recently contracted COVID, should you get your Booster Dose?

For citizens, who have recently contracted covid, there is a likelihood that it may act as a natural booster owing to the increased antibodies level. Due to the uncertainty of its longevity, the person might still need booster dose.

If you're unsure about the booster dose, your antibody titer value is one piece of information your doctor will use while counselling you on your decision. If your titer value is very low, a booster shot may be recommended. However, routine use of titer measurements is not recommended.

Who all should get the vaccinated with the booster dose?

Targeted population for the booster dose is the elderly age group, immunocompromised individuals, and the health care workers. Although, if you are eligible you should get it as soon as possible. To find out your eligibility for the booster dose, read below-

- If you have had a **2nd dose of the COVID-19 vaccine at least 9 months ago**
- You are aged 18 or over
- You are aged 16 or over with a health condition that puts you at high risk of getting seriously ill from COVID-19
- You are a frontline health or social care worker
- You live or work in a care home
- You are aged 16 or over and are a main carer for someone at high risk from COVID-19
- You are aged 16 or over and live with someone who has a weakened immune system (such as someone who has HIV, has had a transplant or is having certain treatments for cancer, lupus or rheumatoid arthritis)



Are there any alternatives to COVID vaccine?

The COVID pandemic has scored more than 2 years, the scientists have come to understand a bit more about the virus. They have been successful in their attempts to find antiviral drugs, some of which have been listed below-

- **Pfizer's Paxlovid** has been authorized by FDA to treat mild to moderate COVID-19 infection and can be given to adults and children over 12 years. It is to be administered orally. It includes Nirmatrelvir which is a drug that blocks the enzyme that helps the virus to replicate. It also contains Ritonavir, an antiviral drug which helps in the slow breakdown of Nirmatrelvir
- **Molnupiravir**- The FDA has authorized this drug to treat mild to moderate COVID-19 in adults who are at higher risk of serious illness and who aren't able to comply with other treatment options. The medication is taken by mouth as a pill.
- Other options such as **anti-inflammatory therapy, immune based therapy and monoclonal antibodies treatment are also being researched upon.**

How can I register for the Booster Dose?

You can follow the below steps for a seamless Booster Dose registration-

- Open **cowin.gov.in** or in **Aarogya Setu app**, go to the **Cowin tab**, and tap on the **vaccination tab**.
- Log in with the **mobile number**, which you have used for previous registration. Upto 4 people can be registered using the same mobile number on the Cowin portal.
- After you have logged in, you will likely see your name and profile.
- For those who are fully vaccinated and eligible for precaution dose, the system will show the **slots for Precaution Dose in the Appointments Module**.
- Tap on the '**Precaution dose**' tab and then **choose appointments**.
- Choose the appointment based on your location, Pincode, etc and tap/click on Book appointment. The appointment should get confirmed and details can be downloaded from the app.
- Be ready to be vaccinated!



Should you get the Booster Dose?

Immunity due to the previous vaccination is seeming to diminish. Hence, a Booster Dose will help in providing you with an enhanced immunity for future protection. To save yourself and your loved ones make sure to get your booster dose in time!

2021 RECAP

Overview of Healthcare events of 2021

JANUARY

- India approves, **Covaxin** and **Covishield**
- Serum Institute applies for trials of another COVID-19 vaccine **Covavax**.
- The Indian Government begins a **mass vaccination campaign for COVID-19**
- More than 1.6 million healthcare workers have been vaccinated across the country
- Govt rules out the option to choose between vaccines
- Covishield priced at Rs. 200 for Indian Gvt

FEBRUARY

- Bharat Biotech: Ocugen sign pact for supply of Covaxin to US market
- India's Biological E looking to make 600mm J&J vaccine shots a year
- 187 cases of UK variant, 4 of South Africa variant and one Brazil variant of SARS-CoV-2 detected in the country

MARCH

- First COVAX COVID-19 vaccine doses administered in Africa
- India stands second in the vaccine administration globally with crossing the milestone of administering over 6 crore vaccine
- Eisai's anti cancer agent, Lenvima gets Japanese orphan drug designation for uterine body cancer.

APRIL

- All individuals above 45 years, employed at a workplace can be vaccinated at workplace vaccination centre
- India reported highest number of daily cases in the world, almost 50% of new cases reported in the world
- Hepatitis C drugs multiply effect of COVID-19 antiviral Remdesivir
- US resumes use of J&J COVID Vaccine : CDC says blood clot risk is low

MAY

- India had reported a decline in daily cases with cases being 16,411 per million
- FDA authorizes additional monoclonal antibody treatment for COVID-19
- IISc start-up PathShodh gets regulatory approvals for COVID-19 test

JUNE

- India reports 13% of new COVID cases reported globally and has recorded the second highest daily number of cases.
- Bharat Biotech signs pact with GCVC
- Indian Govt announced that the ZyCoV-D vaccine will be a three dose vaccine and will be included in the COVID vaccination programme



JULY

- WHO recommends life-saving interleukin- 6 receptor blockers for COVID-19
- COVAX urges all government authorities to recognize fully vaccinated people who have received COVID-19 vaccines that have been deemed safe by the World Health Organization
- WHO updated recommendations for use of recombinant) vaccine against COVID-19.

AUGUST

- Mixing Astrazeneca, Sputnik V covid vaccine shows positive results says, RDIF
- INST Mohali develops oral nanomedicine for Kala Azar.
- DCGI approved emergency use of J&J vaccine
- India crossed 500 million doses milestone within 6 months from the onset of the vaccination program

SEPTEMBER

- Second WHO consultative meeting on the development of the Global Guidance Framework to Harness the Responsible Use of Life Sciences
- International Organizations, Vaccine Manufacturers agree to Intensify Cooperation to deliver COVID-19 Vaccines.

OCTOBER

- India crossed 1 billion mark for administered doses
- NPPA caps ceiling prices of 12 anti diabetic generic medicines towards making diabetic treatment affordable

NOVEMBER

- Indian Covid vaccine Covaxin receives WHO approval
- Pfizer and BioNTech receive first US FDA emergency use authorization of a covid 19 vaccine in children ages 5 through 11 years.
- Britain approves Merck's COVID-19 pill in the world first

DECEMBER

- US FDA approved **Cabotegravir** extended-release - the first long-acting injectable option for HIV pre-exposure prophylaxis
- WHO welcomes historic decision to fund the first malaria vaccine
- Omicron cases on a rise worldwide



What a year 2021 has been!

Although it was by far, better than 2020, COVID-19 still remained the pivotal topic projecting that it is showing no signs of reducing. Hence, masking up, washing our hands and social distancing are our only cues!



WHAT NEXT?

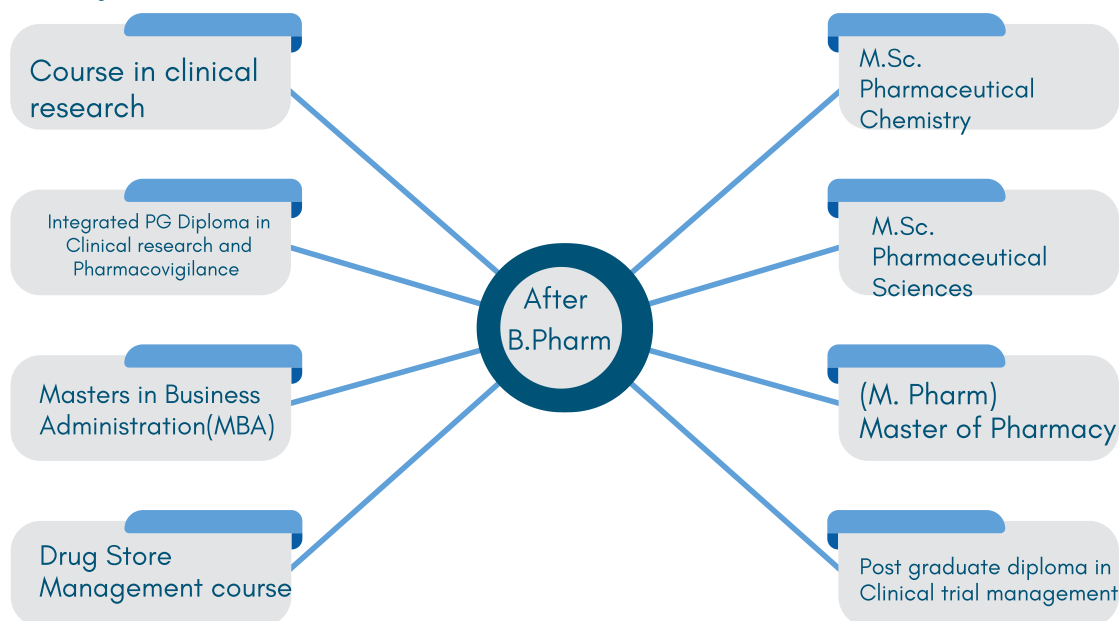
Career Opportunities for Budding Pharmacists

B. Pharmacy is a bachelor's degree in pharmacy awarded by many universities in the country to the candidates upon successfully completing their study in the field of Pharmacy and medicine. The study in pharmacy can be done at various levels like D.Pharm, B.Pharm, M.Pharm and at doctoral levels. After the completion of the pharmacy studies, one can find employment in various hospital pharmacies, pharmaceutical companies, etc. or they can run their own pharmacies too. Once you complete your B Pharm, you have a plethora of career opportunities waiting for you.

After B. Pharm fresh graduates, can either go for higher studies like M. Pharm, MBA. or PhD degrees for improving their skills and up gradation of their degree or they can opt for jobs in chemical companies, research institutes, pharma companies even universities, and colleges. Apart from the drug manufacturing industry, pharmacists are also employed in the chemical industry and food and drug control organization.

MBA (Master's in Business Administration) is opted by students who want to enhance their career in management field, which will propel them into management of Pharma Companies.

For those students uninterested in management can explore the research field to become a scientist or may also join in the field of clinical research and join drug manufacturing companies as a Pharmacovigilance Scientist or PV Scientist.



Following are the jobs that one can expect after completing B.Pharm:

- Drug Inspector: As per some drug inspector notifications about a couple of years, experience in manufacturing or testing of Schedule C drugs is also required.
- Pharmacists- Eligibility for Government Pharmacist Job is Diploma in Pharmacy or Bachelors in Pharmacy. The salary of a pharmacist ranges from Rs. 45000 per month for fresh graduates.
- Pharmaceutical Marketing- Graduates can be employed in the marketing of pharmaceutical products and medical devices as Medical Representatives (MR). The salary for this profile ranges from Rs.18000 to RS. 35000 per month.



Other sectors a Graduate of B. Pharm can also explore include-

- Production and manufacturing
- Quality Control & Quality Assurance
- Formulation & Process development
- Research Associate in Healthcare Domain
- Bio-Technology Industries
- Medical writer

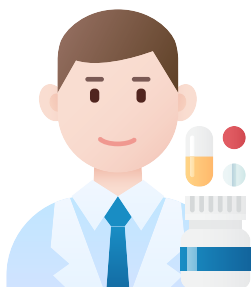


Graduates with entrepreneurial skills and interest in Self Employment/ Business Sector, can explore the following prospects-

- Drug Store owner: Graduates who have the perseverance and will to work round the clock can start their own drug store. Various aspects like the shop's location, opening and closing time, etc. determine the income of the owner.
- Wholesaler: Once you are able to establish good relations with the drug store owners, supplying medicines on wholesale is one of the most suitable option.
- Pharmaceutical Company: Those who wish to establish their own brand name can set up their manufacturing or marketing unit as well.

Average salary-

Pharmacy jobs have handsome salaries and a good increment equipped with abundant respect. The salary of B. Pharm. graduates may differ depending on various factors like the job profile, the place of employment, work experience, institute of education, etc. But on an average the salary of a Pharmacist in India is Rs. 2.5 Lakh. p.a.



Confused about Pharmacy as a Career?

Due to this field's versatile and dynamic character, it often makes the students hesitant towards Pharmacy as a career. But the wise option would be use this to one's advantage and create an effective and impactful career. Refer to our article- What Next? to gain insights into this respected field.



SPER HIGHLIGHTS



Events conducted by SPER

Below are the events for the months of October to December 2021-

1. Monthly newsletter by Bihar forum released on 4th Oct
2. SPER 10th Annual conference started on 6th Oct
3. SPER Annual election started on 15th Oct
4. Results Declared and formation of new team on 24th Nov
5. Orientation meet for new forum on 15th Dec.

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SPER Student Forum Elections-2021

Filing of nominations for
SPER Student Forum
commence on
October 15, 2021 at 10:00 AM

Last date for receiving nominations:
November 10, 2021 at 06:00 PM

Note: Only life members of society are eligible for submitting their nominations for various positions.

For more details you may visit
<https://www.sperpharma.org/Elections.aspx>

Society of Pharmaceutical Education & Research
wishes you

HAPPY
New Year
2022

With lights dazzling, with love flushing around
by your loved ones with loads of fun and joy,
and with our loving wishes.

HAPPY
Diwali

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Ganpat University
25 years of Cultivating Next-Gen Pharma Profession through Research & Innovations

Shree S.K. Patel College of Pharmaceutical Education and Research
25

Invitation

We cordially invite you to
Inaugural Function
SPER 10th
ANNUAL INTERNATIONAL CONFERENCE & EXHIBITION (SPER 2021)
Theme: Innovations in healthcare: Integrating academia and industry
Friday, October 8, 2021 (3.00 pm onwards)

Dr. Ganpat I. Patel (Dada) Patron-in-Chief & President Ganpat University	Dr. N. K. Ganguly Former Director General, Indian Council of Medical Research (ICMR)
Dr. Mahendra Sharma Pro-Chancellor & Director General Ganpat University	Dr. N. R. Sheth Vice-Chancellor Gujarat Technological University, Ahmedabad
Dr. Y. K. Gupta President All India Institute of Medical Sciences (AIIMS) Bhopal, India	Prof. (Dr.) B. Mishra National President Society of Pharmaceutical Education & Research India
Prof. (Dr.) Harvinder Popli President, SPER-Women Forum Director School of Pharmaceutical Sciences DPSRU, New Delhi	Dr. G. N. Singh Former Drugs Controller General (I) & Secretary-cum-Scientific Director Indian Pharmacopoeia Commission, Govt. of India
Dr. Bhaswat Chakraborty Chairman-Scientific Committee Professor Emeritus, Ganpat University	Dr. D. K. Jaiswal Pharmaceutical Consultant Jaiswal DMRK, New York, USA
Prof. (Dr.) S. S. Pancholi Chairman-LOC Executive Dean - FoP & FoS Ganpat University	Dr. Upendra Nagaich Convener & National Secretary Society of Pharmaceutical Education & Research [SPER] India



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SPER STUDENT FORUM



Central SF-2022

SPER Student Forum [SPER-SF] Council

Student Forum Mentors



Dr. Muhammad Usama Ashhar
Jamia Hamdard, Hamdard University,
New Delhi



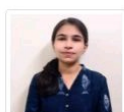
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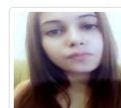
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**Mr. Siddhartha Das
Pramanik**
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Ms. Twinkle Tyagi
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Hamdard University,
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SPER welcomes your contribution and participation in sper events and activities, and encourages you to access all of our exclusive member benefits and services.



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- To get eligible for number of awards as given by SPER



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- Platform to get associated with a wide network of scholars and academicians interested in the growth of pharmacy profession.
- Travel grant for students and young scientists to attend the scientific international seminars and conferences*



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