KCP-MAG

MAGAZINE 2021-2022

KHALSA COLLEGE OF PHARMACY, AMRITSAR

Approved by PCI, AICTE (New Delhi), Govt. of Punjab

Affiliated to IKG PTU and PSBTE & IT

Vision of the Institution

"To Excel in the Field of Pharmaceutical Education and Research by Constant Innovative Efforts in Order to Achieve the Quality Standards"

Mission of the Institution

"To empower the pharmaceutical industry and academics by producing skilled and innovative manpower that is competent for playing its role as an integral part of health services team. To instill the abilities of creativity, scientific temperament, dynamism, social awareness and inquisitiveness for knowledge, in order to ensure overall development in a highly competent environment.

We have directed our endeavors to the process of realizing our Vision and Mission to ensure that our students excel with competence. Our Vision and Mission are a result of extensive analysis of the knowledge and skills expected from pharmaceutical manpower in 21st century. We critically examined our strengths and weaknesses and the factors affecting them in order to achieve our aimed objectives by converting our threats into opportunities. The stakeholders of the institute are actively and progressively involved in creating, evolving and implementing the Vision and Mission of the institute so as to achieve our intended goals in a time bound way.

DIRECTOR'S MESSAGE

Dear Students,

As there are countless challenges emerging in the fast changing world and in a lot of pressure of globalization and modernization, there is a dire need to equip the students and the faculty with whatever is the latest and the best in the world of knowledge. We are living in the 21st century and learning should be viewed as the most important investment that anyone can undertake.

Keeping in view the trade of the time of the trans-continental exchange of concepts and methodologies in the recent years, we have been trying to accord importance to high-tech teaching methodologies and to orient our energies, resources and infrastructural facilities to introduce courses which are the need of the hour. The Field of Pharmaceutical has made revolutionary progress throughout the globe. To ensure the quality assurance of the drugs & continued research to promote the manufacture of new drugs we cultivate analytical mind and scientific temper along with the concomitant imparting of moral values that equip the students to combat whatever challenges they encounter. Even now, we can see the impact of future tests that may be developed for diagnosing such health problems as cancer or genetic disorders.

Taking into account, we succeeded in opening the pharmacy college in 2009 approved by PCI, AICTE, (New Delhi), affiliated to IKG PTU and PSBTE & IT, offering Diploma, Bachelor and Master Degree in Pharmacy. Considerable investment in the college has been made in order to meet the demands of a consistently growing student population. The college is committed to provide job oriented quality education through the use of innovative techniques and smart teaching practices with dedicated faculty. Strong links with Industry, Hospitals and Medical colleges of India help Khalsa College of Pharmacy to give you the best possible start to your career.

This prospectus will introduce you to our college & give details about courses offered, eligibility criteria, rules & regulations, facilities available, hostels & other services. I advise the students & parents to go through this prospectus carefully. It is only with the whole hearted support, cooperation and confidence of the parents and students in us that we will be able to fulfill our mission of providing new dimensions to education.

Come join Khalsa College of Pharmacy and make yourself germane to society and country.

With best wishes

Prof. (Dr.) R.K. Dhawan
Director-Principal

Committee Members For Magazine 2021

S. No	Name of the Faculty Member	Department
1	Dr. R K Dhawan	Editor In-charge
2	Dr. Varinder Soni	Sub- Editor
3	Mr. Nishant Kumar	Sub- Editor
4	Ms. Apporva Chawla	Publication In-charge
5	Mrs. Jasreen Kaur	Publication In-charge Ist year
6	Mr. Nishant Kumar	Publication In-charge 2nd year
7	Dr. Prince Ahad Mir	Publication In-charge 3rd year
8	Dr. Lakhvir Kaur	Publication In-charge Final year
9	Ms. Tanya Sehgal	Student Editor (Girls)
10	Mr. Parth	Student Editor (Boys)

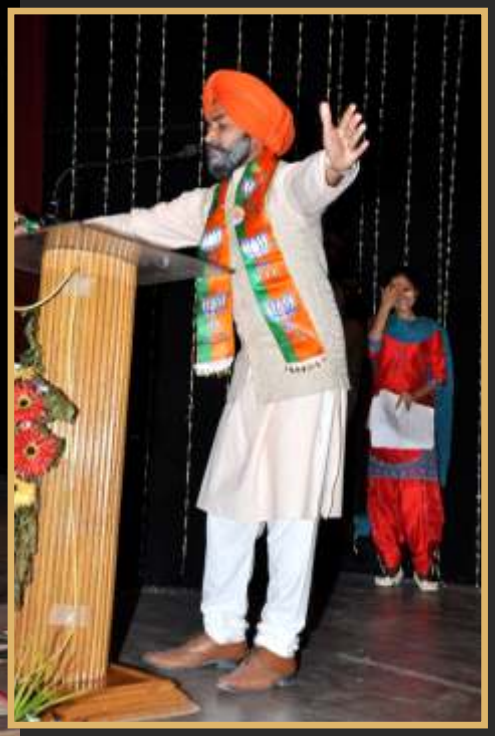
EVENTS

Sports Week

Conference/ Guest lecture

Nagar kirtan

Youth festival



Workshop


KHALSA COLLEGE OF PHARMACY, AMRITSAR
WELCOMES
For


WORLD WOMEN'S
DAY
8th March, 2020

Knowledge Of Adverse Drug Reaction

An adverse drug reaction (ADR) is defined as an unintended and noxious response to a drug that occurs at doses normally used for the prophylaxis, diagnosis, or therapy of diseases, or for the modification of physiological function. ADRs have medical as well as economic consequences, leading to increased patient morbidity and mortality. This has given rise to "pharmacovigilance", which is defined as the science and activities relating to the detection, assessment, understanding, and prevention of adverse effects of drugs, or any other drug-related problems.

Spontaneous monitoring is the foundation of successful pharmacovigilance. In developed countries, the contribution of residents and doctors is significant and has contributed to signal detection of ADRs that were previously undetected. However, in India, spontaneous monitoring has resulted in lower rates of reporting, and so the Indian contribution to the World Health Organization (WHO) Uppsala Monitoring Centre database is meagre.

One reason for this is lack of awareness about the detection, communication, and reporting of ADRs, and there is no intensive teaching about ADR reporting in the undergraduate curriculum and no periodic reinforcement of ADR monitoring in internship and postgraduate studies.

As well as this, doctors may underreport ADRs due to financial incentives, fear of litigation, and ambition to publish. Some doctors have inadequate ADR-related knowledge and may believe that all serious ADRs will have been documented before a drug is marketed, that an ADR should be reported only when there is no doubt about its cause, that an ADR must be serious to be reported.

Rates of reporting can be improved by promoting awareness of the importance of ADR reporting and the procedures for doing so, and this is best done during under-graduate teaching. Traditional forms of pharmacology teaching take place through didactic lectures and are more teacher-centred, with the main emphasis on learning facts about drugs.

In order to improve ADR monitoring, it is imperative to assess the current knowledge, attitude, and practices of doctors.

Ms. Apporva Chawla
Assistant Professor,
Khalsa College of pharmacy, Amritsar

Lead Optimization

Lead optimization is the process by which a drug candidate is designed after an initial lead compound is identified. Lead Identification means the activities conducted by pursuant to the Research Plan for identifying Research Compounds that meet the Lead Criteria and have potential utility in the Field.

Lead optimization aims at enhancing the most promising compounds to improve effectiveness, diminish toxicity, or increase absorption. Many of the technologies for lead discovery overlap with lead optimization as researchers attempt to incorporate the best drug characteristics early in the process. While the approaches taken may vary, the central theme is the same: make it better, faster, and more efficient. This optimization is accomplished through chemical modification of the hit structure, with modifications chosen by employing knowledge of the structure–activity relationship (SAR) as well as structure-based design if structural information about the target is available.

Identified lead molecules are used as the starting point for detailed chemical modifications in order to further improve their target specificity and selectivity and their pharmacokinetic and safety profiles, while maintaining the favourable properties of the lead compounds. Optimization of the compounds is done by medicinal chemists using advanced organic synthesis methods or by biotechnological methods for the production of biological products. If the structure of the drug target is known, computational in silico methods may be used for the rational design of the modifications. Once the properties of the optimized lead molecule, analyzed by all available in vitro assays and in vivo models, are acceptable, the lead optimization phase results in a candidate drug that may be either a small molecule or a biological product.

Mrs. Jasreen Uppal
Assistant Professor,
Khalsa College of pharmacy, Amritsar

Biomedical Waste Management: Assessment Needs To Prevent Mismanagement

Hospitals and healthcare centres are a complex institution which is frequented by people from every walk of life in the society without any difference between age, gender, race and religion. Growing medical advances and new hospital facilities for improved healthcare have increased the amount of waste generated by health care facilities. The waste from any medical practice in healthcare facilities, testing centers, and laboratories are referred to as "Health Care Waste" or "Bio-Medical Waste. Biomedical waste, also known as infectious waste is defined as waste generated during the diagnosis, testing, treatment, research or production of biological products for humans or animals. The act related with BWM (biomedical waste management) passed by the Ministry of Environment and Forests in 1986 & notified the bio medical waste Rules in July 1998. Agencies that regulate different aspects of biomedical waste include Occupational Safety and Health Administration (OSHA), Food and Drug Administration (FDA) and Nuclear Regulatory Commission. Almost, 75-85% of hospital waste is non-hazardous waste which is comparable to municipal waste or household refuse consisting of both wet and dry wastes and they do not entail any particular hazard. The remaining part of waste which comes out from the patient caring units, pharmaceuticals, labs etc., accounts to 15-25% biomedical waste. The biomedical waste segregated into different colour of containers depending upon categories as shown in figure.

Pharmaceutical contaminants consisting mainly of antibiotics and non-prescription drugs and are known to produce many adverse consequences like degradation of quality of water, antibiotic

resistance as well as endocrine disruption include problems in relation with physical, mental and sexual development. Moreover, improper management of pharmaceutical wastes ends up with having cases of infertility, genital defects, cancers due to many reasons like non-regulation of hormones, endocrine disrupters found in waterways that would interfere with normal functioning of the endocrine system, mimic hormones, affect reproduction, development and also affect the future generations. Pharmaceutical hazardous wastes divided into two categories one is listed wastes & second one is characteristic wastes. Listed wastes appear on one of four lists of hazardous waste (F, K, P and U). Out of these four categories the pharmaceutical wastes are found on two of these lists, the P and U that both contain commercialchemical products. Characteristic wastes are regulated because they exhibit certain hazardous properties that are ignitability, corrosivity, reactivity and toxicity. Moreover, P-list chemicals like arsenic and epinephrine are hazardous with an oral lethal dose of 50 mg/kg, U-listed wastes like chloral hydrate and D listed chemicals that are cadmium, chloroform, mercury similar to a P-listed waste, must be managed as hazardous waste if two conditions are satisfied first if discarded drug waste contains a sole active ingredient that appears on the U list, and second one if It has not been used for its intended purpose.

As per blueprint of management of pharmaceutical waste is concerned, it focuses on three aspects that are management of regulated hazardous pharmaceutical waste, management of non-regulated hazardous pharmaceutical waste applying best management practices and minimization of pharmaceutical waste. The various regulatory bodies that oversee the pharmaceutical waste management are environmental protection agency, department of transportation, state environmental agencies, state pharmacy boards, local publicly owned treatment works & OSHA. Pharmaceutical waste treatment is done by various techniques with steps starting with steam sterilization thenpicked up by an approved vendor and treated outside the campus and recognizable human anatomical remains must be disposed by incineration or interment unless otherwise hazardous. The labeling requirements for pharmaceutical waste containers contained in a red biohazard bag must be labeled with the words “Biohazardous Waste” or with the the word “BIOHAZARD. Planning and recycling for all of the waste generated in the health care facilities is a crucial task that plays an exceptionally important role in the worldwide cleanliness, public health, conservation of resources and sustainability of the ecosystem. Recycling medical waste minimizes utilization of raw material and reduces the amount of the waste materials that must be disposed in a landfill, occurrence of HIV/AIDS, sepsis, hepatitis, and other diseases transmitted by infectious medical equipments. The management of pharmaceutical wastes poses a great challenge to the policy planners, city administrators, medical personnel and workers in the recycling industry. There is a need for adopting a cost-effective system for providing better medical waste treatment facilities and reduce the amount of waste generation by awareness and education of all concerned.

Mrs. Parminderjit Kaur
Assistant professor,
Khalsa College of Pharmacy, Amritsar

A Powerful Pairing: Academia-industry Collaborations For Pharmaceutical Innovation

Innovation is unarguably the essence of pharmaceutical discovery and development. Industry and academia have been working together for decades, but historically relationships did not extend far beyond the traditional exchange of funding and research. There is a risk, however, that the challenges facing interdisciplinary collaboration between the worlds of industry and academia could bring this innovation to a standstill.

In the modern climate of global knowledge exchange, it is now vital that leading research universities pioneer relationships with companies that are conducive to long-lasting, discovery-driven innovation, which is applicable to the real world. Despite the clear need to bridge the divide, scepticism remains over whether the two sides can truly communicate efficiently to achieve their shared goals.

Benefits of bridging the divide

The main benefits to academic institutions for overcoming these challenges such as access to funding, to collaboration include, access to a reliable external stream of funding, improved opportunities for professors and students (undergraduate and postgraduate) to take part in cutting-edge research, and the ability to modernize teaching by fostering the exchange of ideas between universities and industry. Additional benefits may come in the form of rewards and prizes for successful collaborations. Aside from funding, collaborations with industry provide universities with a means to lift their status as research and teaching institutions. Many prospective students value a university's ties with industry, often with specific pharmaceutical companies.

Companies also stand to gain a lot from academic partnerships. Aside from access to the commercial value of innovations coming from research institutes, companies will also often have discrete access to high calibre academics finishing their studies or research posts, looking to start their career in industry. Access to these bright minds is highly valuable to companies, not simply for their contributing intellect, but for the personal ties with the university they bring with them.

Cultivating such ties with key individuals over time will enable companies to bridge the cultural divide between academia successfully. Businesses, through their partnerships, may also get access to cutting-edge research equipment. Universities can apply for grants to purchase the most sophisticated instrumentation, which is often integral to the success of their research. Pharmaceutical companies may not direct their funds to such equipment, or even have the capacity to house it, so connections with universities that dedicate their resources to this can be very beneficial.

Dr. Tajpreet Kaur
Assistant professor,
Khalsa College of Pharmacy, Amritsar

Pharmacovigilance In Clinical Research

Clinical trial safety is an important component of pharmacovigilance. Every medicinal product must have satisfactorily completed a clinical trial programme establishing acceptable evidence of safety and efficacy before being placed onto the market. Clinical trials have a regulatory definition: "Any investigation in human subjects intended to discover or verify the clinical, pharmacological and/or other pharmacodynamic effects of one or more investigational medicinal product(s), and/or to identify any adverse reactions to one or more investigational medicinal product(s) and/or to study absorption, distribution, metabolism and excretion of one or more investigational medicinal product(s) with the objective of ascertaining its (their) safety and/or efficacy".

Trials may be segmented into four distinct phases Phase I, II, III, and IV trials:

Phase I: Phase I represents the first use in humans, with studies involving healthy volunteer humans. The aim is to begin to establish the safety profile of the drug in question, determining the potential for both beneficial and adverse effects. The studies examine the pathways through which the drug is absorbed, distributed in the body, metabolized and eliminated, and the maximum tolerable dose.

Phase II: These trials aim to study the drug as administered to patients who already have the disease which the drug may have the potential to treat. The objective is to determine the optimal dose and dosing regimen, one which delivers maximal efficiency alongside acceptable adverse effects.

Phase III: This phase usually involves hundreds or even thousands of patients and may require several years for completion. The ultimate aim is to gain statistically significant scientific proof of a positive benefit-risk profile of the medicinal product which is required for regulatory approval. There is no guarantee that any trial in this phase will result in a Marketing Authorisation (MA) and the oversight of an effective pre- and post-marketing pharmacovigilance system is a critical component of any application for an MA.

Phase IV: Different types of studies can be included in phase IV, which is conducted following the granting of a Marketing Authorisation (MA). The drug has often been placed onto the market. Size and designs can vary, sometimes consisting of classical clinical trials, sometimes epidemiological studies studying large populations using databases or registries of treated patients.

Ms. Apporva Chawla
Assistant Professor,
Khalsa College of pharmacy, Amritsar

Pharmacy: From Need To Necessity

From the very beginning of its existence, mankind has faced the wrath of various kinds of disease and illness that have plagued it. It is therefore obvious that a quest to find a remedy for his sufferings was and still is a prime requirement of mankind to survive and progress as a civilization. Remedies have surfaced in the form of medicines which have changed their form from crude extracts in the past to novel delivery system nowadays.

In the earlier times, medicaments were administered in crude forms and surgical procedures were horrendously painful. Infections after any kind of surgery were the main cause of death and disability. Still medical treatment was out of the reach of many. Development of procedures which rendered the medicines safe and effective became the mainstay for the pharmaceutical scientist. It is to this purpose that the field of pharmacy developed in the earlier times.

From a compelling need, pharmaceutical sciences then advanced with time as was the case with other branches of medical sciences. After the "Dark Ages" rational thinking and scientific approach prevailed slowly but steadily in human minds and it is due to the scientific rationality that yielded the ideas which became the fundamental principles of pharmaceutical sciences.

One of many such examples was the development of belief that communicable diseases were caused by microbes and not by bad deed and therefore the treatment of these kinds of infections was possible. With time the understanding of human physiology, physical and chemical phenomenon and their role in drug behavior increased and this had changed the pharmaceutical research altogether by making it a necessity of modern times.

Current Openings and Challenges

Pharmaceutical science has been a pioneer in developing the medicine as a science and its disbursement as an art. It has been acknowledged worldwide to be one of the highly emerging as well as flourishing profession the proof of which can be easily seen in the fact that even in the most crunching financial crisis (2008) of our times, pharmaceutical industry still managed to maintain a growth rate of about 10% which was virtually unreachable for any other kind of business.

Pharmacy, as a science emphasizes on the development of medicines in the form, we see them in the market. Right from the time a drug moiety is discovered to the time it hits the shelves in a medical store to the dispensing of the same medicine to a patient, pharmacy has its influence everywhere.

As I have mentioned, a drug requires a pharmaceutical chemist for synthesis, Pharmacologist for determining whether it will be effective or not as a drug and about its toxicity, pharmaceutical

scientist to effectively develop it as a formulation we see it in the market. The medicinal substances we find in nature are isolated and developed into potent medicines by virtue of pharmacognosy. Apart from the key fields of pharmacy mentioned above, several novel subdivisions of pharmaceutical sciences have evolved over the time such as Pharmacogenetics, pharmacovigilance, pharmacoinformatic to state a few. Pharmaceutical science has also agglomerated with biotechnology in the recent years and has resulted in the development of highly effective and safe drugs being produced by recombinant DNA technology. Basic pharmacological research is being benefitted immensely by the new transgenic animal concept.

Recent Outcomes

In the 21st century, pharmaceutical sciences have truly emerged as a multidisciplinary profession with its applications in a score of allied fields of medical sciences with a vast potential to generate employment opportunities and this is the very reason the pharmacy education has seen an exponential boost in the recent times. A number of Indian pharmaceutical companies in the recent times have entered the "generic market" in a big way. Many innovative drugs have been out of patent in recent times and therefore the generic versions of these drugs which are highly cheap in cost are in large demands. The Indian pharmaceutical companies have become truly global in recent times and have started operations in production as well as research and development (R & D) at many places in India and abroad.

Development of a medication requires their testing on animals as well as man and drug testing on humans is done in a long procedure of clinical trials. With large number of patients and economic research option, India is becoming the "hot spot" for various clinical research organizations (CROs) which have become operational in our country in a large number. Huge employment opportunities have been generated for the pharmacy professionals as a part of these CROs.

Although, the pharmaceutical trade and commerce has developed greatly in our country, still, the clinical practice of pharmacy is an area where still much work requires to be done. Lack of resources and research facilities in Indian hospitals and health centres has been cited as a major reason.

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