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RHO PxCHI post

St. John's University College of Pharmacy & Health Sciences

THIS ISSUE'S FEATURED ARTICLE:

AN ORAL REVOLUTION IN TREATING ADULTS DIAGNOSED WITH TYPE II DIABETES MELLITUS

About the Rho Chi Post

The Rho Chi Post was developed by the St. John's University Rho Chi Beta Delta Chapter in October 2011 as an electronic, student-operated newsletter publication with a team of three student editors and one Editor-in-Chief. Today, our newsletter boasts 13 volumes, over 100 published issues, and more than 600 unique articles to date with an editorial team of first to sixth year student pharmacists, as well as returning PharmD graduates.

The newsletter is distributed by St. John's University College of Pharmacy and Health Sciences to more than 1,500 students and faculty members. Our monthly electronic mailing list continues to extend readership far beyond campus.

Mission

The Rho Chi Post is an award-winning, electronic, student-operated, faculty-approved publication that aims to promote the pharmacy profession through creativity and effective communication. Our publication is a profound platform for integrating ideas, opinions, and innovations from students and faculty.

Vision

The Rho Chi Post aims to become the most creative and informative student-operated newsletter within St. John's University College of Pharmacy and Health Sciences. Our newsletter continues to be known for its relatable and useful content. Our editorial team continues to be known for its excellence and professionalism. The Rho Chi Post sets the stage for the development of individual writing skills, collaborative team work, and leadership.

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TABLE OF CONTENTS

FROM THE EDITOR

A Message from the Editor-in-Chief, Isabelle Lim

As the 2024 Spring Semester progresses, I extend warm wishes to all students for success in their academic pursuits and personal endeavors. I especially want to share heartfelt thanks to our Editorial Team, Executive Board, advisors, and readers, as their contributions are integral to the success of our newsletter. Additionally, I am thrilled to announce that in the upcoming April Issue, we will be featuring our second publication dedicated to the Rho Chi Honor Society LEADS Initiative. Lastly, we are opening recruitment for the 2024-2025 Editorial Team positions, offering invaluable leadership experience and skill development opportunities in writing, editing, content creation, data analysis, and communication. Please find more information on the application process in this issue or on our social media pages. We are eager to continue our successful journey with the St. John's community.

Frequently Asked Questions

Who can write for the Rho Chi Post Newsletter?

Anyone can write for the Rho Chi Post! Our newsletter is not exclusive to St. John's University students. The Rho Chi Post accepts articles on a daily basis!

How do I submit an article?

You can submit an article by creating an account on our website! Go to www.rhochistj.org/RhoChiPost, click the login button from the upper menu bar, and click register. Upon making an account, you will be able to submit articles to our author inbox.

Who determines article topics?

You are free to choose an article topic of your choice. Take a look at our Author Guidelines for ideas.

What happens after I upload my draft article on the Rho Chi Post website?

Our Editor-In-Chief (EIC) will either edit the article directly or assign the article to a staff editor. If any revisions are needed, the editor will upload the article back to the portal, notifying the author via email. The author can then download the edited article, make the suggested revisions, and reupload the draft back to the portal. Additional drafts will be revaluated by our copy editors and then EIC, repeating this process. Once no further revisions are needed, the article is accepted for publication.

Is there a deadline for authors to send revisions?

There is no deadline to submit revisions for an article. However, the quicker revisions are made, the quicker the article can move through our editing process. Once an article is accepted for publication, it will be moved into a queue to be placed into an upcoming issue.

The First Lab-Grown Blood Transfusion

By: John Ortiz, PharmD Candidate c/o 2025

What is a Blood Transfusion?

A blood transfusion is a procedure where donated blood is intravenously administered to a patient. Generally, it is used to treat patients who are experiencing blood loss or a deficiency of integral blood components. In the United States, there are 21 million blood transfusions performed every year. Blood transfusions are often necessary due to, traumatic injuries, surgeries, or chronic illnesses such as anemia, sickle cell disease, hemophilia, and certain cancers.[1] Blood transfusions are an invaluable resource in treating these medical conditions as they supply the body with red blood cells, plasma, platelets, and cryoprecipitate. These blood components respectively provide oxygen, deliver nutrients, and help form clots.[2] When a patient requires a blood transfusion, health-care professionals must ensure that the donor blood type is compatible with the patient. This is particularly difficult for patients who have rare blood types, and with recent blood shortages, researching alter-natives could mitigate future crises.

RESTORE Clinical Trial

The Recovery and Survival of Stem Cell Originated Red Cells (RESTORE) trial is an ongoing randomized, controlled clinical trial facilitated by the National Health Service Blood and Transplant (NHSBT) in conjunction with the University of Bristol and National Institute for Health and Care Research Cambridge Clinical Facility. RESTORE aims to test the lifespan of lab-grown blood cells in comparison to donated blood cells which are both sourced from the same donor.[3] Using the pluripotent stem cells from the donated blood, researchers are able to cultivate them into red blood cells. For about 3 weeks, they are cultured in 24 liters of nutritional broth which will produce just enough for a 1-miniature transfusion. At a minimum, 10 study volunteers will be injected with a 10 mL blood transfusion of lab-grown red blood cells, which will then be compared to a regular blood transfusion of the same cell quantity. Volunteers will receive the 2 transfusions at least 4 months apart. After 6 months of the first transfusion, blood samples will be collected. The red blood cells have tracers attached which will allow the researchers to detect the longevity of the red blood cells.[3]

Importance and Utility

The RESTORE Clinical Trial is the first lab-grown blood transfusion in humans. Currently, those with chronic hematological conditions depend on maintenance blood transfusions which can come with complications such as iron overload, infections, or injection site reactions.[2 3] With donated blood, the transfusion would contain both old and new red blood cells. In contrast, lab-grown blood transfusions only carry new red blood cells due to being newly cultured from stem cells which hypothetically increases the cells' longevity in systemic circulation. The longer systemic circulation of red blood cells gives transfusions an extended duration of action,

resulting in less frequent administration and therefore, fewer complications.[4]

Additionally, hemolytic transfusion reactions can occur when immune cells attack donated red blood cells. The pathogenesis of this complication is due to the adaptive immune system. The adaptive immune system consists of immune cells that differentiate pathogens from human cells through the identification of endogenous and exogenous antigens.[5] In hemolytic transfusion reactions, donated red blood cells are subject to this mechanism due to the presence of foreign antigens. These antigens activate the adaptive immune system, leading to the production of antibodies and opsonization of red blood cells for phagocytosis, rendering the treatment ineffective.[6] With greater research, lab-grown red blood cells can be modified to be without antigens, potentially resolving hemolytic transfusion reactions. Those with rare blood types may also receive manufactured blood tailored to their blood type.[3] The Ro subtype is rare and often in demand for those with sickle cell disease.[7] Demand for the Ro subtype is increasing by 10% to 15% every year, outpacing the supply of the 2% of donors who have this subtype.[8] In line with hemolytic transfusion reactions, personalized rare blood transfusions can be produced with the appropriate expression of antigens to be compatible with patients and alleviate the lack of supply of rare blood types.

Unfortunately, in-demand blood types have essentially been extended from rare blood types to every blood type. The American Red Cross declared a blood shortage stating that supply was at a critically low level.[9] Low-income countries are especially susceptible, often only receiving a seventh of the amount of donations that high-income countries do.[10] The urgent need for blood cannot be understated. The RESTORE Clinical Trial is an innovative stepping stone for hematological and personalized therapy that, with further developments, holds promise as a viable alternative for patients.

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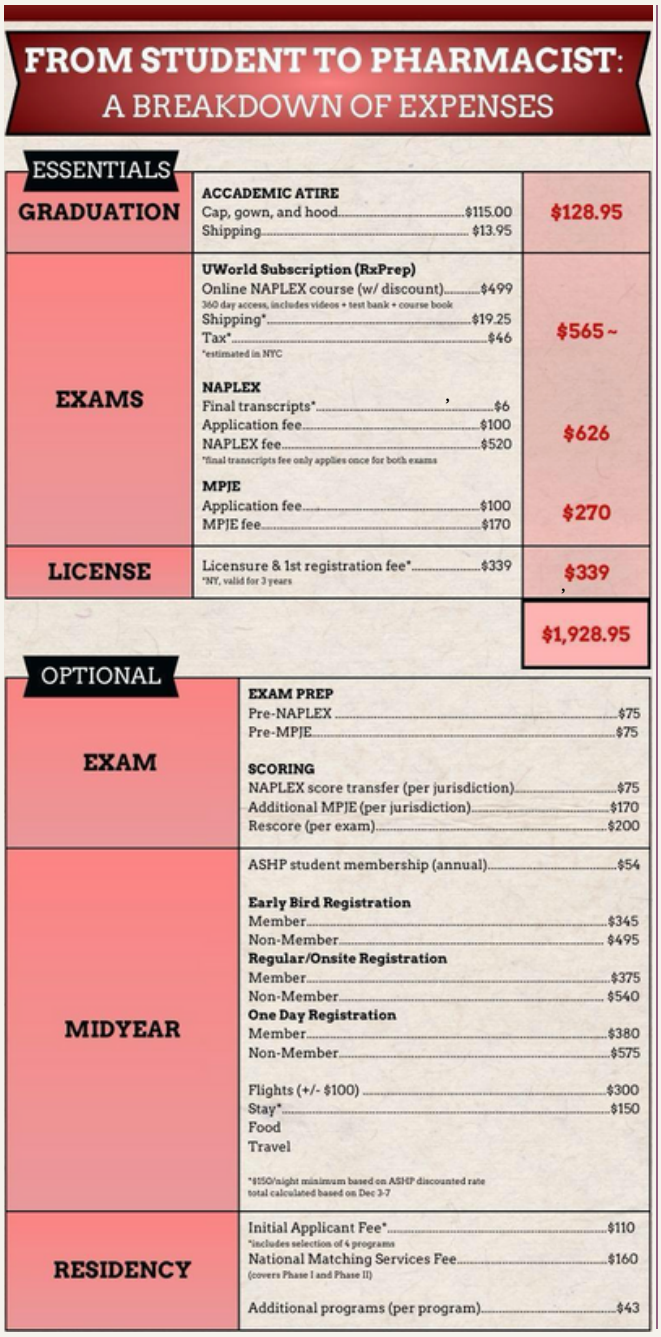
Click on the link or scan the QR code to fill out our application:
Rho Chi Post Editorial Team Application

Remember, you do NOT have to be a member of Rho Chi to hold a position on our Editorial Team.

If you have any questions, feel free to email us at rhochipost@gmail.com

From Pharmacy Student to Pharmacist: A Breakdown of Expenses

By: Carolina Vargas, PharmD Candidate c/o 2024, Zoha Khalid, PharmD Candidate c/o 2024, and Nashfa Zaman, PharmD Candidate c/o 2024



Graduating from pharmacy school is a monumental achievement, marking the culmination of years of hard work and dedication. However, this milestone comes with financial burdens that aspiring pharmacists must be prepared for. This article will explore the various expenses associated with graduating from pharmacy school, taking licensure exams, and obtaining pharmacist registration.

The path of the future pharmacist commences with the graduation ceremony, a momentous occasion celebrating the successful completion of pharmacy school. However, there is a cost for this celebratory event. For 2024 St. John's University, College of Pharmacy and Health Sciences graduates, participation requires the purchase of academic attire from Herff Jones for $128.95, which covers the cap, gown, hood, and shipping. This cost is unavoidable for students who wish to attend graduation after many years of hard work!

Following commencement, pharmacy graduates must tackle the next crucial step of passing the North American Pharmacist Licensure Examination (NAPLEX) and the Multistate Pharmacy Jurisprudence Examination (MPJE) to obtain pharmacist licensure. The NAPLEX application fee stands at $100, while the examination fee itself will increase from $475 to $520 as of March 1st, 2024, per the (National Association of Boards of Pharmacy (NABP).[1] St. John's students must also

send an electronic copy of their official transcript to NABP at a cost of $6. Similarly, the MPJE, which tests knowledge of pharmacy law and regulations, imposes its own fees. The MPJE costs $100 for the application fee, and as of March 1st, 2024, the separate examination fee will increase from $150 to $170.[2] This cost is required separately in each jurisdiction for those planning to practice in multiple states. Furthermore, for those seeking licensure in multiple jurisdictions, there is an optional score transfer fee of $75 per jurisdiction.[3]

To assist students in exam preparation, there are a variety of required and optional review materials available for both the NAPLEX and MPJE. In addition to their tuition, St. John's students must pay $499 for their UWorld Subscription, which offers NAPLEX review courses, mock exams, and the RxPrep book to help them prepare for the licensure exam. Shipping expenses and state taxes vary depending on delivery method and location. There is also the option to take a pre-NAPLEX exam for $75 and a pre-MPJE for the same cost to help candidates prepare.[4,5]

After taking these exams, most candidates receive their results approximately seven business days after taking each exam. In case there is suspicion of a scoring mistake, candidates may request an independent manual rescore of their responses to ensure the correctness of their scores. Rescores for both the NAPLEX and MPJE incur a $200 fee.[3] In the unfortunate event of failing a licensure examination, the full application and examination fee must be paid again – $620 for the NAPLEX and $270 for the MPJE.

After successfully passing the NAPLEX and MPJE, the final step is licensure. For students planning to practice in New York, the licensure and first registration fee amount to $339.[6] Accordingly, the entire expenditure is estimated to be $1,930 for a St. John's pharmacy graduate who wishes to practice in New York, attends graduation, purchases the pre-test materials for both examinations, and passes both on their first attempt.

However, there are exceptions for those who serve in the armed forces or those who experience emergencies on test day. Examination fee discounts can be as much as 100% for members of the armed forces, veterans, and officers currently deployed from the United States (U.S.) Public Health Service, as well as 50% for spouses of these individuals.[3] Additionally, students facing unforeseen circumstances such as a death in the immediate family, serious illness or hospitalization, serious injury or accident, or jury duty are eligible to reschedule for a fee of $170 for NAPLEX and $100 for MPJE. This fee only covers the cost of rescheduling the exam, and if emergency requests are denied, the full examination fee would be required again.[3]

On the other hand, graduates pursuing post-graduate training incur additional costs associated with residency applications and interviews. The American Society of Health-System Pharmacists (ASHP) Midyear Clinical Meeting is an annually held conference that offers a unique platform for knowledge exchange and networking in the field. Highlighting the various benefits of such an event, it is also crucial to consider applicable costs associated with attending ASHP Midyear. Early Bird Registration, available until October 20th, provides reduced rates of $345 for ASHP members and $495 for non-members. Regular/onsite registration remains an option from October 21st onward, with

ASHP members paying $375 and non-members paying $540.[7] Students aiming to benefit from ASHP member discounts can join for $54 in their first year, but it's worth noting that membership costs increase in subsequent years. Beyond registration, attendees must also consider expenses for travel, accommodation (upwards of $150 per night), food, and miscellaneous commute expenses.[8] Pharmacy graduates applying to postgraduate residency programs must consider additional expenses, including a $110 initial applicant fee for up to four programs, with each additional program incurring a $43 fee, as well as a $160 fee for participation in the National Matching Services for Phase I and Phase II of the match.[9]

The accessibility of expenses associated with graduating from pharmacy school, including postgraduate training such as fellowships and residencies, poses a significant hurdle for many aspiring pharmacists. Beyond tuition and material costs, pursuing advanced training through fellowships or residencies often entails additional expenses, including application fees, travel for interviews, and potential relocation to another city or state. These costs can accumulate quickly, and the stipends offered during postgraduate training are less than a pharmacist's first job earnings. As a result, the financial strain of pursuing further education and specialization in pharmacy can deter talented individuals from pursuing these valuable opportunities. This financial barrier not only limits the career options of aspiring pharmacists but can also impact the overall diversity and accessibility of the profession. Addressing these financial challenges is crucial to ensuring that the pharmacy workforce remains diverse, highly skilled, and well-prepared to meet the evolving needs of healthcare.

When considering post-graduate opportunities, recent graduates face a complex financial landscape marked by accumulating student loan debt and the potential for lucrative salaries upon graduation. According to the 2022 American Association of Colleges of Pharmacy (AACP) Graduating Student Survey, graduates reported owing an average of $170,444, with the average amount borrowed for private pharmacy school attendance being reported at $201,169.[10] While this is a large burden to bear, pharmacists also have the potential to earn relatively high, with an average salary of about $132,750.[11] Salary fluctuations occur depending on factors such as experience, location, and specialization, resulting in a range of $79,950 to $164,230. In New York State, entry-level pharmacists with less than one year of experience are paid on average $48.31 hourly with an annual income of $100,490.[12]

This income potential can help graduates in managing and eventually repaying their loans, but the debt burden can remain significant, especially when considering the rising cost of education. If students wish to pursue higher education through post-graduate year one (PGY1) residency, the salary is significantly lower, ranging from $48,145 to $67,215 with a median salary of $56,584 in the U.S.[13] Furthermore, choosing to defer loans during residency leads to accruing compound interest alone, increasing the original loan amount by $9,810 per year for someone owing $150,000 at an interest rate of 6.54% for direct unsubsidized loans and a higher rate of approximately $11,310 at a 7.54% interest for direct parent loan for undergraduate students (PLUS) loans for graduate students. Considering the reduced pay rates and the impending obligation to re-

pay loans, it is evident that such factors ultimately influence one's professional decisions.

In summary, the path to becoming a licensed pharmacist requires a substantial financial commitment. Aspiring pharmacists must be ready to meet the costs associated with graduation ceremonies, examination fees, and the licensure process. By comprehending and adequately planning for the expenses tied to completing pharmacy school and obtaining licensure, students can commence their pharmacy careers with security and confidence.

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Rho Chi Talks: Interview with the CEO of Cullinan Oncology

Featuring: Nadim Ahmed, President and CEO, Cullinan Oncology
By: Sairah Skeikh, PharmD Candidate c/o 2024

Nadim Ahmed is the President and Chief Executive Officer at Cullinan Oncology. He has always had an interest in oncology and the opportunity to help cancer patients and their families, which is demonstrated in his extensive prior experience working in oncology in the pharmaceutical industry.

What has your career journey been like?

I've always had an interest in science. So, I did pharmacology as my undergraduate degree at University College London. I've also always had an interest in computing, so then I went on to do a master's degree in information technology in the United Kingdom (UK). Then, I started out my career at GlaxoSmithKline (GSK), which, at the time, was known as Wellcome. I joined Wellcome in the UK on the research and development side and became quite interested in the business side of the industry. So, I then landed a role in medical affairs. I had experience there, and most of my experience, both in clinical and medical affairs, had been in oncology, and that's the area that I am in today. Then, I was asked if I wanted to come and work in the United States (US) for GSK. After a discussion with the family, we decided to make the move and take that leap of faith. So, I joined GSK in the US in oncology in global marketing. I did that for a while and worked across a range of different cancer medications that were approved. Then, the opportunity opened for me to take a role in US marketing, which was much closer to the physicians, customers, etc. I did that role for a while and really enjoyed it. Next, I joined Celgene Corporation in global marketing. I was involved in launching new medications for that disease, and it was a time when the company was growing very rapidly. We were building out the organization and building affiliates in countries across the world. We were researching new medicines and conducting new launches, and it was an exciting time to be there. That was in 2010. Then, I became the general manager of our US business. Next, I was president of worldwide markets, so I had all the general managers of the various affiliates around the globe reporting to me. And then, my last role at Celgene Corporation was head of the global hematology/oncology business, which was probably 90% to 95% of our revenue in the company at the time. Then Bristol Myers Squibb (BMS) acquired Celgene Corporation, so I decided to join BMS' executive team. as the president of hem-

atology, which included cell therapy and all the blood cancer-related medications across the globe. I did that for about a year and a half. Then, the opportunity came along at Cullinan Oncology, which is where I am now. And so, between Celgene and BMS, I'd worked or reported directly to the chief executive officer for about five years. So, I thought, maybe I want to try this myself. And that's what ultimately happened. I have been CEO since October of 2021, so it's just come up on my two-year anniversary here. And as the name suggests, we're in the oncology business. We have six products in the clinic that are currently undergoing clinical trials. Hopefully, we can get those in the future through regulatory approval and ultimately commercialize them and bring them to patients. So that's my career journey.

What does your day-to-day look like as the CEO of Cullinan Oncology?

I think one of the things that's important for a CEO is to make sure I continue to bring the external voices into the company because, often, within the company, you can become very internally focused. So, part of my role is to make sure that we're also thinking about the external environment. Therefore, I communicate with investors and make the case for why they should invest in Cullinan Oncology versus other companies. Another important role is making sure my leadership team gets the support that they need. So, making sure that all the programs that we've got in clinical trials are moving forward and are being executed quickly is important. And what I mean by that is, at the end of everything we do, there's a patient waiting, so we have got to have that sense of urgency to make sure that we're bringing meaningful medicines forward as quickly as possible. Another part of my role is making sure we're keeping things on track through research, development, and then, ultimately, commercialization when we do get these drugs approved. Building a strong company culture is something else that is important to me, like incorporating diversity and inclusion so that everybody has a voice at the table. It is important to look at the best ideas and bring those forward, which we can only do if we have a diverse organization. It's also important to make sure we have good development plans for all our employees so that they continue to stay at Cullinan Oncolothat we allow people to have rich and fulfilling careers at the company. So, it's a mixture of all those things.

What are your top three priorities as CEO?

The first one, I would say, is making sure that we continue to bring forward medicines that are really going to make a big difference. So, our mission is to develop new standards of care for patients with cancer, and that means that we're bringing forward those medicines that are going to have a huge impact on patient outcomes. We need to continue to take promising molecules and turn them into meaningful medicines for patients. Second is making sure that all our stakeholders, especially external stakeholders, understand the company's story, promise, and value proposition so that they can see what we're doing and that when they have a choice to invest in various companies, they choose us first. So, part of my role is to tell the story of why people should invest in companies from Cullinan Oncology over other companies. Third, I will make sure that I continue to provide inspiration and motivation for my leadership team so that we are attracting bright

talent to come into the company. When we bring in great talent, we make sure they stay with the company and understand there's an opportunity to have a very rich and rewarding career within the company.

What are some of the projects that Cullinan Oncology is working on?

The molecule that is the most advanced is zipalertinib, and it's a tyrosine kinase inhibitor that focuses on a specific form of lung cancer. It's for patients that have the exon 20 insertion mutation, which is anywhere from 3% to 5% of lung cancer patients, and patients who have this mutation often have a poor prognosis and have only months to live. So zipalertinib is a molecule that we're partnering with Taiho Pharmaceuticals for, and we did a deal with them last year. It's currently in pivotal trials, and we recently announced that we're going to complete patient recruitment into our pivotal study by the end of 2024. So, it's going to be exciting to see the kind of data the study shows, and our early results looked good. This is a study that we would take to the FDA for regulatory approval. So, this is an area where we can really make a direct impact. That's the lead compound, and we have a range of other molecules. I'll talk about one of them for which we recently presented data, which is called CLN 619. It doesn't have a generic name yet because it's still quite early. And that one, it focuses on a novel pathway called the MICA/MICB pathway. The MICA/MICB is a ligand for the NKG2D receptor that you find on immune cells, especially NK cells and subsets of T cells. Now, MICA/MICB isn't nor-mally expressed in normal cells. However, when cells undergo stress, whether it's a viral infection, malignant transformation, etc., hose cells then express MICA/MICB. Once they express MICA/MICB being a ligand for the NKG2D receptor, they send a "kill me" signal to the immune system. They essentially flagged those cells for destruction. That is a normal physiological process. Now, what happens with cancer is that it is clever and finds ways to inhibit the immune system. So, those tumor cells express MICA/MICB in the tumor microenvironment because they're undergoing stress. Proteases in that tumor microenvironment come along and cleave that MICA/MICB off the surface of those tumor cells, so then that makes them invisible again to the immune system. So that is the way they evade the immune system and continue to proliferate. What CLN 619 does is it's an antibody that binds to MICA/MICB on the cell surface and keeps it on the cell surface so that the immune system can re-recognize those tumor cells and flag them for destruction. So, it's a very novel scientific pathway. We shared the data earlier this year at the American Society of Clinical Oncology meeting, where we were able to demonstrate tumor shrinkage in certain types of tumors. That's going to be a cool program for us that we're continuing to advance in clinical development. Behind that, we have four other promising molecules, some of which will report data out next year. We have a range of molecules across solid tumors and hematologic cancers, and we're really excited about the opportunity to bring important medicines to patients with cancers.

What do you think about the broader business environment, and how do you see the next 12 months?

In the biotech space, it's been a tough couple of years. Capital has not been as readily available as it was when I first joined the company. Fortunately, we are in a position where we have a strong cash position. So fortun-

ately, I have the capital to kind of keep these programs moving forward. A lot of companies don't. Over the last couple of years, a lot of biotech companies have closed down, and people have lost their jobs, which is unfortunate. As I think about the macro environment over the next 12 months or so, I don't know that it's going to change overnight. Often, economists talk about whether there is going to be a recession or a soft landing in the US. We don't quite know yet. And so, the thing that I tell my team is, there are things we can control, and there are things we can't control. My team can't directly control the stock price of my company, so there's no point in worrying about that too much. But we should take charge of the things we can control. And that is why I talk about execution. So, we can continue to focus on flawless execution and bringing great medicines to patients. And if we do that, when these economic cycles correct themselves, and they will at some point, we're going to be in a very strong position because we've continued to execute. And we've continued to manage the things that we can really manage. Then, over the next year or so, we will have quite a few important clinical data readouts from some of our important programs. And so, hopefully, those data readouts are good so that will continue to strengthen the profile of the company, and people, including investors, can say, okay, these medicines look really promising, and so Cullinan Oncology is a place that I want to invest in. So, we've got an important and exciting 12 months or so coming up.

What do you envision the future looking like for cancer treatments and research?

We have seen tremendous advancements in recent years, especially in the field of immunotherapy, where you take a patient's immune cells, reprogram them, and then they're using their own bodies to destroy cancer. So, you can think about checkpoint inhibitors, you know, CAR T-cell therapy, the evolution of antibodies to antibody-drug conjugates (ADCs) T-cell engagers by specific antibodies. The pace of innovation has been rapid. And so, I expect that we'll continue to see advancements there so that we can continue to address a whole range of cancers and make sure we do even better in terms of patient outcomes. I think the therapies will continue to get better, and I think the science will continue to get stronger, and we'll continue to innovate. So, I think the pace of innovation has been amazing. Also, artificial intelligence (AI) is touching every part of our lives, so thinking about AI in terms of its applicability in medicine, such as drug discovery processes, imaging, and detecting the risk of patients developing cancer, is important. On the commercial side, we can think of how we engage with healthcare practitioners using AI to make sure that we meet those folks where they want to be met in terms of appropriate content that they want to discuss and engage in. So those are some of my ideas regarding the future of cancer treatments and research.

What do you see as the biggest challenges facing the industry?

Sometimes, well-intended legislation can have undesirable effects. So, one example I would say is in the Inflation Reduction Act; I'm sure there were well-intentioned plans to create a piece of legislation that would address the issue of patient affordability. Unfortunately, the actual practicality on the ground is that it probably is going to negatively impact innovation. And so, I think that's an ex-

ample of people starting out with good intentions but not really thinking through the consequences of those sorts of things. The other things that I think are challenges are how we think about making medicines accessible to the global patient population, especially in underdeveloped countries, where oftentimes, even if you gave the drugs free, they wouldn't get to patients because there isn't an infrastructure there to be able to deliver those medicines. So, I do think addressing health equity, internationally and in the US, is important. In the US, often communities of color are disproportionately affected by access to medicines. And I do think that, sometimes, clinical trials don't always represent the patient populations. And so, I do think we've got to find a better way to make sure that we're getting the diverse patient populations in all the communities that we serve into our clinical trials. We know drugs affect different people in different ways, so if you truly want to understand how a drug works, you've got to make sure that you test it in all the populations to whom it's going to be given, and so I think that's another area that's really important. It can be a challenge to get people enrolled in clinical trials, but it's even more difficult to get people of color to enroll in clinical trials. And, of course, there's a very sordid history of the African American community and how inappropriate and unethical trials were conducted in the past, such as the Tuskegee Study. And so, there's a trust issue there, too, and rightly so. We've got to make sure that we support investigators of color and physicians of color so that we can bridge those kinds of trust gaps. I think that's a challenge that, hopefully, as an industry kind of we rise to and turn into an opportunity. I would say, though, despite all those challenges, the promise of science has never been brighter, as we went over in the previous question, with developments like immunotherapy. We've made great advancements, but there's still room for improvement. Another challenge is with cancer screening techniques. Unfortunately, most patients who present with advanced cancer today are probably going to die from the cancer. So, we need better screening techniques so that we can detect cancer earlier and intervene. For example, moving from very invasive biopsies today to blood tests in the future, where, by taking a blood test, you can predict the risk of a patient getting cancer across a range of different cancers. That's a field that's really an exciting area of research. And so, of course, if we can pick these things up earlier, we can affect the survival outcomes of cancer patients. So, I think that's an exciting field.

What are some tips for success in your field?

One tip is to be open-minded. If you have a very clear idea of what you want to do, then go ahead and go for it. However, most people don't always have an idea of exactly where they want to go. So, for me, I didn't start out my career wanting to be a CEO. I've always just wanted to be in roles where I continue to grow and continue to learn. So, I think having that learning curiosity can be very important. Secondly, I would say to seek out mentors who can help you and give you objective advice about how to shape your career. When you have mentors who are senior folk who have a lot of career experience, they can really give you good advice about how to think about growing professionally. I got a good piece of advice early in my career that I've followed to this day. It was one of my previous managers who said to me, look, Nadim, as you think about developing your

career, don't think about your next role, but think about the one after it. So, thinking about the role of the next one really helps me think about my career, and it also helps me think about how I would get into the more commercial side of the business. I outlined my career so I knew that I couldn't go straight from clinical development to marketing or the commercial side. I knew I had to go through medical affairs, and the only reason I did that was because I was thinking about the role of the next one. Another tip would be that it's okay if you don't know exactly what you're going to do five years from now; there will be things that will happen, and there will be opportunities that open. Just make sure you're placing yourself well in order to seize those opportunities. Continue to show initiative and use the example of mentorship. You would be very surprised at how few people will approach somebody senior and say, look, I'd like you to mentor me. It doesn't happen as frequently as you might think. And when you do that, it really shows good initiative on your part. And it allows you to develop a relationship that can really help drive and build your career. And then the final thing I would say is to continue to make sure you develop a network. When promotions are being discussed, if you have a broader network, then you can have people to advocate for you. And so that's an important way to grow your career, to make sure you expand that network so that you can continue to grow as well. And you can ask people to advocate on your behalf when you're not there.

What is your vision for the company?

When I joined the company in 2021, we had 35 people in the company, which was very different from my last role at BMS where I was managing thousands of people. So, it was a much smaller scale, but I really liked it. Since then, we've more than doubled the size of the company in two years. When I joined the company, we had one program in the clinic. This year, we have six programs in the clinic. So, remarkable execution by the team. We've gone from a research-based company to, now, a development-based organization that has clinical development, and ultimately, the aspiration is to become a commercial-stage biotech company. So, that is part of bringing these new molecules, turning them into meaningful medicines, and getting them through regulatory approval with bodies like the FDA and around the world. And so that's what I would say my vision for the company is – for it to become a commercial-stage biotech company.

What have been some of the most fulfilling moments in your career so far?

I have been fortunate to have a range of exciting roles that I've worked in. I remember I was working on a molecule that was being developed for lymphoma. And I met one of the patients who was in one of the early clinical trials. He was somebody who had failed multiple treatments like chemotherapy, all the things that typically were used in lymphoma. He had basically been told by his doctor to get his affairs in order because he didn't have much time left. Then, he enrolled in one of our clinical studies and had an outstanding response to treatment. So, he had been given weeks, possibly months, to live. And here I was talking to him two years later, and he was able to have some amazing milestone events, including his family's graduations and birthdays. And I think, for me, that was a seminal moment. Since then, I've been very fortunate to have met many patients

who have been involved in clinical trials or commercial products for whom those medicines have really made a big difference. So, I would say those moments were absolutely gratifying and exemplifies the mission. Secondly, I really enjoy leadership. And so, I think the stories of impacting people's development are really fulfilling. I find it gratifying to know that people who have worked for me and with me have gone on to bigger and better things in the industry or in other areas. I still keep in touch with many folks who have worked with me and gone on to have really fantastic careers.

On behalf of the Rho Chi Post, we would like to thank Nadim Ahmed for sharing his experiences and advice with our community!

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FDA Approves Jardiance® for the Treatment of Adults with Chronic Kidney Disease

By: Urooj K. Malik, PharmD Candidate c/o 2024

Effective September 22, 2023, the United States (U.S.) Food and Drug Administration (FDA) granted approval for empagliflozin (Jardiance®) 10 mg tablets for the treatment of adults with chronic kidney disease (CKD) at risk of progression. This decision was based on the results of the EMPA-KIDNEY phase III trial that demonstrated that Jardiance significantly reduced the risk of kidney disease progression, cardiovascular death, and hospitalization in adults diagnosed with CKD.[1]

CKD is a condition where the kidneys become damaged over time and lose their ability to filter waste products from the blood. This condition typically develops slowly, with few symptoms experienced at first. CKD increases the likelihood of experiencing additional health complications, including heart disease and stroke.[2] Though CKD can develop at any age, some common risk factors include diabetes, hypertension, obesity, and smoking. This recent approval holds great significance as it adds to the treatment options for the over 35 million adults in the U.S. affected by CKD.[1]

EMPA-KIDNEY Trial Overview

EMPA-KIDNEY was a phase III, randomized, double-blind, placebo-controlled clinical trial conducted globally in Europe, North America, and East Asia.3 This study was sponsored by Boehringer Ingelheim and funded by Boehringer Ingelheim and Eli Lilly and Company. The primary outcome of this study was a composite of the progression of kidney disease (defined as end-stage kidney disease, a sustained decrease in estimated glomerular filtration rate (eGFR) to less than 10 mL/min/1.73 m^2, a sustained reduction in eGFR of at least 40% from baseline, or death from renal causes) or death from cardiovascular causes.[3] Secondary outcomes included a composite of hospitalization for heart failure or death from cardiovascular causes, hospitalization for any reason, and death from any cause.[3] Participants were included in this trial if they were 18 years of age or above and were diagnosed with CKD with a risk of kidney disease progression at least three months before and at the time of the screening visit.[4]

Participants were also included if they were taking clinically appropriate doses of a single agent renin-angiotensin-system (RAS)-inhibitor with either an angiotensin-converting enzyme (ACE) inhibitor or angiotensin 2 receptor blocker (ARB) unless these treatments were either not tolerated or indicated.[3] However, patients were excluded if they had both type 2 diabetes and prior atherosclerotic cardiovascular disease with eGFR above 60 mL/min/1.73 m^2, type 1 diabetes, functioning scheduled kidney transplant, dialysis, polycystic kidney disease, recent history of intravenous immunosuppressive therapy or greater than 45 mg of prednisone or equivalent for kidney disease.[4] Participants were randomized to receive either Jardiance 10 mg

orally once a day or a matching placebo. Follow-up was completed over a median span of 2 years.[3]

6,609 participants partook in the trial, with 3,304 in the Jardiance group and 3,305 in the placebo group. Jardiance demonstrated a 28% relative risk reduction, with an absolute risk reduction of 3.6% per patient-year at risk, compared to placebo, both given on top of standard care, for the composite primary endpoint of kidney disease progression or cardiovascular death.[3] The event rate in the Jardiance group was 13.1% (432 out of 3,304) and 16.9% (558 out of 3,305) in the placebo group.[3] The trial was stopped early due to evidence of efficacy, and results were reported in November 2022.[5] This study was the first sodium-glucose cotransporter-2 (SGLT2) inhibitor CKD trial that demonstrated a statistically significant reduction in the risk of first and recurrent hospitalization, with a 14% relative risk reduction with Jardiance versus placebo. 1,611 hospitalizations occurred among 960 patients in the Jardiance group, and 1,895 hospitalizations occurred among 1,035 patients in the placebo group.[1]

However, Jardiance is contraindicated in specific patient populations, including those with type 1 diabetes and individuals with severe kidney problems, because of Jardiance's potential to increase the risk of diabetic ketoacidosis. Jardiance is not recommended to improve glycemic control in type 2 diabetes patients with an eGFR less than 30 mL/min/1.73 m^2 or for treating CKD in patients with polycystic kidney disease.[3]

Implications on Pharmacy Practice

Overall, the approval of Jardiance for CKD reflects a positive development for the pharmaceutical industry, namely for Boehringer Ingelheim and Eli Lilly, the companies behind Jardiance. In a press release, Leonard Glass, senior vice president of Diabetes Global Medical Affairs at Eli Lilly, stated, "Following previous indications for [empagliflozin] in heart failure and [type 2 diabetes], this FDA approval now provides physicians, including nephrologists, with an important treatment option for adults living with CKD at risk for progression."[6] This approval allows for a new treatment option that has the potential to reduce the risk of kidney function decline, cardiovascular complications, and hospitalizations.

"The meaningful benefits that empagliflozin demonstrated in the EMPA-KIDNEY phase III trial are welcome news for adults living with CKD in this country," stated Katherine Tuttle, M.D., Executive Director for Research, Providence Inland Northwest Health, Regional Principal investigator for the Institute of Translational Health Sciences and Professor of Medicine at the University of Washington, and EMPA-KIDNEY steering committee member.[1] However, due to the contraindications, caution is warranted in identifying eligible patient populations who can be initiated on this medication. Healthcare providers are tasked with carefully reviewing patient profiles when prescribing Jardiance. The approval of Jardiance demonstrates the potential to improve the quality of life for CKD patients.

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An Oral Revolution in Treating Adults Diagnosed with Type II Diabetes Mellitus

By: Samia Rahman Adity, PharmD Candidate c/o 2025

Diabetes Facts and Statistics

Type II diabetes (T2D) has been a consequential public health concern in the United States (US). It is a condition where patients have elevated blood glucose levels. Escalation in plasma glucose can lead to detrimental health effects, which include cardiovascular complications like coronary heart disease or heart failure, any cerebrovascular accident, hypertension, microalbuminuria, or diabetic nephropathy.[1] According to the American Diabetes Association (ADA), 11.6% of the US population have diabetes.[2] Those who are aged 65 years or older have a higher prevalence of being diagnosed with the disease. Additionally, the incidence of having the health condition is more common in men [12.6%; 95% confidence interval (CI) 11.1 to 14.3] in comparison to women (10.2%; 95% CI 8.8 to 11.7).[3]

From an economic perspective, patients diagnosed with T2D have two times higher healthcare expenditure in comparison to healthy patients on average. According to the ADA, healthcare disbursement has increased to $327 billion in 2017 from $245 billion in 2012, with an approximate increment of 26% in a five-year period.[4]

There exists a number of significant factors leading to the disease. One of such representatives includes the increase in activity of the sodium-glucose cotransporter-2 (SGLT2).[1] The SGLT2 is present in the proximal convoluted tubule that is responsible for reabsorbing the filtered glucose back into the blood plasma and excreting sodium ions in urine during the process of glomerular filtration in the kidneys. The glucose level in the blood plasma further increases, leading to hyperglycemia.

Common Oral Hypoglycemic Agents for Diabetes Management

The consumption of sulfonylureas with metformin has been the “norm” for a long time. While this class of medications is widely known for their action of prolonged depolarization of the pancreatic beta cells and promotion of insulin release, they also re-

sult in weight gain and increased risk of hypoglycemia.[5] In order to mitigate the side effects of sulfonylureas, insulin-independent mechanisms are preferred, which can primarily be attained by the consumption of SGLT2 inhibitors.[6] One example of an SGLT2 inhibitor is bexagliflozin, which was newly approved by the Food and Drug Administration (FDA). This medication is an oral tablet with a strength of 20 mg. Bexagliflozin is also marketed with the brand name Brenzavvy. This drug is primarily classified as a benzyl benzene C-glycoside, which is known to be a potent inhibitor of the SGLT2.[7]

Analysis of Bexagliflozin vs. Glimepiride

In a double-blind, double-dummy, randomized controlled trial conducted by Dr. Yuan-Di Halvorsen et al., bexagliflozin 20 mg tablets were compared to a titrated dose of glimepiride.[8] Bexagliflozin was proven to be better in terms of side effects such as weight loss and reduction in systolic blood pressure. The study consisted of a diversified cohort and was selected randomly through an interactive web-response system. The inclusion criteria of the study included participants with a hemoglobin (Hb) A1c between 7.0% and 10.5%, aged 18 years or older, with a BMI of at most 45 kg/m^2, and prescribed a daily dose of metformin 1500 mg for at least 8 weeks prior to the screening.[8] The subjects were randomized to take the active dose and corresponding placebo once daily for 96 weeks. Dose titration for glimepiride was done by 2 mg at weeks 2, 4, and 6 if the fasting blood glucose measurement was reported to be greater than 110 mg/dL.[8]

The study consisted of 172 subjects on both treatment arms with 90% power and a p-value set to 0.025.[8] The null hypothesis for this study was that bexagliflozin is inferior to glimepiride in lowering HbA1c in patients with type 2 diabetes. The experiment was conducted with an intention-to-treat analysis. The delineated results had a change in HbA1c from baseline to week 60 of -0.70% (95% CI -0.82 to -0.59) at the bexagliflozin arm and -0.66% (95% CI -0.77 to -0.54) in the glimepiride arm. This showed that use of bexagliflozin resulted in a greater decrease in HbA1c in comparison to use of glimepiride. Additionally, the intergroup difference between bexagliflozin and glimepiride was found to be -0.05% (95% CI -0.21 to 0.11). The prespecified margin was set at 0.35, and the upper boundary of the CI was less than 0.35, which indicated that bexagliflozin is noninferior to glimepiride.[8]

Additionally, a systemic review and meta-analysis proved bexagliflozin to be efficacious in patients with T2D.[9] The results of multiple small randomized clinical controlled trials were totaled and ultimately showed that bexagliflozin is associated with a significant reduction in HbA1c. The experiment included six studies and 3111 patients where the SGLT2 inhibitor was compared with placebo in patients with type 2 diabetes mellitus. The overall result suggested a decrease in HbA1c in the bexagliflozin arm with a weighted mean difference of -0.53% (95% CI -0.75 to -0.31; p-value < 0.001; I^2 of 84%).[9] I^2 values greater than 25% proved heterogeneity in the study.

Patients diagnosed with T2D also have an increased risk of atherosclerotic cardiovascular disease and heart failure. In the trial conducted by Halvorsen et al., the SGLT2 inhibitor has proven to be efficacious in reducing any adverse cardiovascular outcomes in patients.[8] Conversely, in the review

conducted by Pasqualotto et al., there was no significant difference in major adverse cardiovascular events (MACE) when comparing bexagliflozin with placebo.[9] Thus, it is unclear bexagliflozin's role in preventing cardiovascular events as of yet.

Adverse Effects of Bexagliflozin

Some of the reported adverse effects of the SGLT2 inhibitor include hypoglycemia, genital and urinary tract infection, allergic skin reaction, genital myotic infection, and diabetic ketoacidosis.[5] The study also stated that the risk of hypoglycemia has been observed more often with Bexagliflozin in comparison to traditional SGLT2 inhibitors, like empagliflozin and dapagliflozin.[5]

Conclusion

It can be concluded that bexagliflozin is efficacious in terms of improved glycemic control, reduction in blood pressure, and weight loss in patients with type 2 diabetes. Still, the meta-analysis of different studies proved the efficacy of bexagliflozin; the data for concomitant use of insulin or glucagon-like peptide-1 (GLP-1) receptor agonists have not been recorded for the participants.[9] In addition to this, the inconclusive results of bexagliflozin on the effects on cardiovascular outcomes warrant additional testing of the medication. In recent years, SGLT2 inhibitors have played an increasingly prominent role in the management of heart failure.[10] It is worth exploring this indication for bexagliflozin now that it has proven its efficacy for T2D management.

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Pharmacy Benefit Managers 2023 Update

By: Giavanna Carr, PharmD Candidate c/o 2025

In March of 2023, Senators Maria Cantwell and Charles E. Grassley successfully passed the Pharmacy Benefit Managers (PBM) Transparency Act through the Senate Commerce Committee.[1] The PBM Transparency Act is projected to save taxpayers a total of $740 million dollars over a 10-year period, making this act a "win-win".[1]

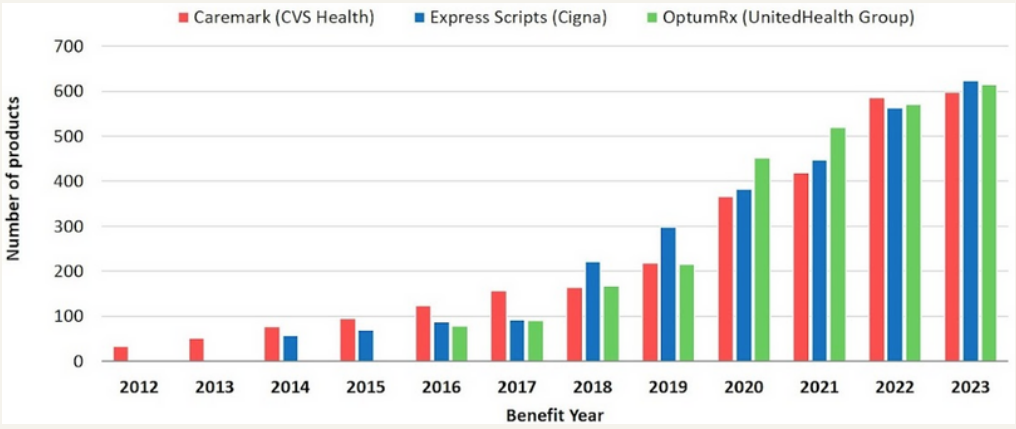
Overview of Pharmacy Benefit Managers

PBMs act as a conciliator between insurance companies and the pharmaceutical manufacturer, behaving as a third-party entity.[2] Originally, PBMs were developed in the 1960s to process claims for insurance companies, but more recently their roles and responsibilities have expanded. PBMs are now responsible for developing and managing pharmacy networks, establishing formularies, designating copays, determining necessities of a prior authorization, and deciding which pharmacy patients should be utilizing based on their plan.[3] The current leading PBMs are CVS Caremark, Express Scripts, and OptumRx, which make up 80% of the United States' prescription benefit market.[3] PBMs are allowed to be affiliated with large chain pharmacies such as CVS or Walgreens, or they may be their own separate pharmacy.

PBM Exclusion List

These organizations are able to establish their own formulary and more importantly, they have the say over which drugs get included or excluded from their formulary. When analyzing the PBMs exclusion list over the years, you can see a drastic change from when they first acquired the ability to exclude medications from the formulary in 2012 to the present. The number of products on the exclusion list reached an estimate of 598 products by CVS Caremark, 623 products by Express Scripts, and 615 products by OptumRx.[4] The PBMs follow particular exclusion criteria when they determine which medications will not be covered for the year.

Figure 1. Number of Products on PBM Formulary Exclusion Lists, by PBM, 2012 to 2023[4]



The categories commonly consist of brand-name products, which have generic equivalents; biosimilars with alternatives; non-preferred (tier 3) drugs, which are rarely utilized; heavily promoted drugs that contain generic alternatives; and medications for chronic conditions.[4]

PBMs as "Invisible Middlemen"

Activities of PBMs are not regulated by any particular entity, and thus, they operate completely outside of the view to consumers and regulators.[1] It was discovered that PBMs were engaging in "spread pricing", an activity where they charge the health plan or payer more for a prescription drug than the amount they reimburse to the pharmacy.5 In the midst, PBMs are likely pocketing this unknown amount of money rather than distributing it to consumers.[5] Due to the conspiracies of PBMs manipulating the drug market in their favor to increase their profit while negating consumers and pharmacies, increased transparency in the true role and actions of PBMs in the prescription drug market is needed.

PBM Transparency Act of 2023

The PBM Transparency Act was introduced by Senator Cantwell and Senator Grassley to prohibit unfair or deceptive pricing practices by PBMs, incentivize fair and transparent PBM practices, and mandate transparency.[5] To prohibit deceptive pricing practices, the PBM Transparency Act would make "spread pricing" illegal and prohibit PBMs from purposefully or deceptively withholding full payments from the pharmacy and lowering reimbursements to federally funded health plans. The legislation would incentivize fair practice by encouraging PBMs to distribute 100% of rebates to the health plan or payer and disclose costs and reimbursements of prescription drugs to health plans and pharmacies. PBMs should also include all fees, markups, and discounts imposed on health plans and pharmacies as well as any fees they receive from drug manufacturers. The legislation mandates transparency by requiring PBMs to file an annual report regarding how they decide prices of prescription drugs for health plans and pharmacies. Based on this bill, PBMs would be required to disclose how much they paid for the medication compared with how much they charged the pharmacy for that same drug. They would also be required to explain to consumers why the cost, copay, coinsurance, or deductible increased and explain to the pharmacy why the reimbursement rate decreased.[5] As previously mentioned, PBMs may work out of their own pharmacy, so they would be required to disclose the difference in charges and reimbursements between what they charge their affiliated and non-affiliated pharmacies. The Federal Trade Commission (FTC) and state attorney generals would be responsible for the enforcement of the act and PBMs would receive a penalty for each violation reported, as well as a penalty of up to 1 million dollars.[5]

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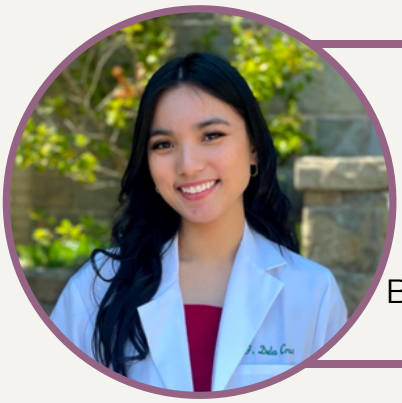

Rho Chi Talks: Pharmacy Student to Pfizer Fellow

Featuring: Frances Alexis Dela Cruz, PharmD Candidate c/o 2024
By: Celestine Van Sertima, PharmD Candidate c/o 2027

Frances Alexis Dela Cruz is a driven and dedicated PharmD candidate at St. John's University who is anticipated to graduate in 2024. During her time at St. John's, she held several leadership positions in pharmacy organizations, such as Rho Chi Vice President, ASCP President, SCCP Professional Development Chair, SSHP Social Media Chair, and IPhO Director of Social Media and Marketing. Recently, Frances received a Post-Doctoral Fellowship in Global Clinical Supply: Clinical Research Pharmacy at Pfizer in conjunction with the MCPHS Industry Fellowship Program!

What motivated you to choose a career path in the pharmaceutical industry?

Throughout pharmacy school, I had the invaluable experience of holding leadership positions in different pharmacy organizations. This was instrumental in helping me discern which path of pharmacy I wanted to pursue after graduation. With my involvement in the Industry Pharmacists Organization (IPhO), particularly from the VIP Case Competition and attending various speaker events, I was inspired by how pharmacists play a vital role in the drug development process. I ultimately chose to pursue a fellowship to contribute to the success of clinical trials and ultimately work on large-scale projects to benefit patients globally.

What is Clinical Research Pharmacy, and how do your experiences connect with this role?

Clinical Research Pharmacy is centered on creating investigational product (IP) manuals for investigational drugs and providing training for clinical sites. It involves using clinical pharmacy knowledge to optimize clinical trial conduct and the administration of IPs, working closely with sites and clinical teams, and ultimately ensuring that IPs reach patients in need. I currently work as a pharmacy intern in an inpatient hospital setting, and I hope to use this experience when assisting with IP documents, as many clinical sites are hospitals.

What skills or experiences do you believe made you a strong candidate for the fellowship?

One of the biggest pieces of advice I got during the fellowship process was how important it is to be able to speak about your unique experiences and highlight the skills you gained and the impact you were able to make. During interviews, I expanded on transferable skills gained through my

involvement in pharmacy organizations. I emphasized leadership and time management and elaborated on specific instances where I showcased these skills. I did not just discuss my experiences in industry-focused organizations like IPhO! I also used experiences from the Rho Chi Honor Society and the Student College of Clinical Pharmacy (SCCP) to answer interview questions. Lastly, I spoke about my research projects with faculty from my APPE rotations.

What research or projects led you to pursue a fellowship, and how do you envision applying your skills and knowledge gained in school for your fellowship and contribution to the industry?

My involvement in the Clinical Development team for IPhO's VIP Case Competition was the initial project that sparked my interest in the drug development process and helped me discern which functional area would best suit my skills and interests. I also had an APPE rotation at a Medical Communications agency, where I had the opportunity to work on slide deck creation, conduct literature searches, and interpret clinical data. These two experiences solidified my decision to pursue a fellowship where I could play a role in the execution of clinical trials. I also developed communication, critical thinking, and project management skills – attributes I hope to apply and further cultivate during my fellowship.

What role did networking play in your journey to securing the fellowship?

I did not have any industry internships or rotations, so networking was a great way for me to meet with fellows, learn about their roles and experiences, and determine which programs I wanted to apply to. I networked through the IPhO Annual Meeting, contacted fellows, and attended company/program-specific webinars. Be intentional, prepared, open-minded, and engaged when meeting with industry professionals.

What advice would you give to someone who is currently in college and aspiring to secure a fellowship in the industry after graduation?

Get involved and attend the various events hosted by IPhO and DIA! This is a great way to learn about the different functional areas, hear from industry professionals, and build your soft skills. Speaking of soft skills, leadership positions, work, and research are also ways to gain transferable skills for industry. As a P3, I also attended IPhO's free March Fellowship Madness series, which provided valuable insights into the fellowship recruitment process. Finally, if you plan to pursue a fellowship, have a good answer for "Why industry?" A PharmD is a versatile degree, so it is important that you explain why you are applying for fellowships rather than other career paths.

On behalf of the Rho Chi Post, we would like to thank Frances for sharing her journey through the fellowship application process with our newsletter!

The "Morning-After" Antibiotic

By: Anureet Kaur, PharmD Candidate c/o 2024

According to surveillance data from the United States Centers for Disease Control and Prevention (CDC), the sexually transmitted infection (STI) epidemic is escalating at an alarming rate. The health agency reports that in 2019, there were 1.8 million cases of chlamydia, more than 600,000 cases of gonorrhea, and nearly 130,000 cases of syphilis in the United States (U.S.) – reaching an all-time high for the sixth consecutive year.[1] Although reports from 2020 to 2023 are limited due to the COVID-19-related disruptions in STI testing and treatment, preliminary data does not look promising.[1]

In a bid against the STI epidemic, the CDC suggests an old antibiotic as a new way to prevent chlamydia, gonorrhea, and syphilis "the morning after" – doxycycline.[2]

Doxycycline belongs to the tetracycline drug class and is used to treat sexually transmitted diseases. It is a broad-spectrum antibacterial with excellent gram-negative activity and some protozoal activity. Growing research suggests its role as post-exposure prophylaxis (PEP) in men who have sex with men (MSM) and transgender women if taken as a 200 mg dose within 72 hours after condomless sex.[3]

In a randomized, open-label clinical trial conducted in San Francisco and Seattle, researchers evaluated the effectiveness of doxycycline PEP (doxy-PEP) versus standard care without doxy-PEP. Approximately 500 adult MSM and transgender women who were taking preexposure prophylaxis (PrEP) against human immunodeficiency virus (HIV) infection (PrEP cohort) or living with HIV infection (persons living with HIV infection [PLWH] cohort) and had a history of chlamydia, gonorrhea, and syphilis within the last year were enrolled from August 19, 2020, through May 13, 2022.[4]

The primary effectiveness endpoint of the study was incidence of at least one bacterial STI – chlamydia, gonorrhea, or syphilis. Assessments were performed quarterly or every three months by a blinded independent committee.[4]

In the PrEP cohort, at least one STI was diagnosed in 61 of 570 quarterly visits (10.7%) in the doxy-PEP group and 82 of 257 quarterly visits (31.9%) in the standard care group.[3] Relative risk was 0.34 (95% confidence interval [CI], 0.24 to 0.46; $P < 0.001$). In the PLWH cohort, at least one STI was diagnosed in 36 of 305 quarterly visits (11.8%) in the doxy-PEP group and 39 of 128 quarterly visits (30.5%) in the standard care group. Relative risk was 0.38 (95% CI, 0.24 to 0.60; $P < 0.001$).[3] Overall, the number needed to treat to prevent a quarter with an incident STI was 5 in the PrEP cohort and 6 in the PLWH cohort.[4]

The safety outcome of the study was incidence of adverse events. Results showed a low incidence of adverse events, with nausea and vomiting as most common. Bacterial resistance was a secondary outcome but limited findings due to a lack of follow-up on cul-

tures. These results suggesting doxy-PEP superiority over standard care without doxy-PEP in MSM and transgender women are supported by the results of preceding studies, including the IPERGAY trial and the DOXYVAC trial.[3]

PEP is not a new concept. The practice of prescribing antiretrovirals and antibiotics following possible exposure to a pathogen has been instituted for a long time. However, its use for STI prevention is new and necessary, as suggested by STI incidence trends in the last decade. The CDC plans to finalize draft guidelines regarding the use of the "morning-after" antibiotic, doxycycline, for PEP after a 45-day public comment period from its release on October 2, 2023.[2]

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Applications Open

Get involved in academic writing by joining our Editorial Team! Available positions include Staff Writer, Staff Editor, Content-Focsued Copy Editor, Managing Editor, and Engagement & Outreach Manager. More information on these positions can be found in the description of the Google form linked below.

Click on the link or scan the QR code to fill out our application:
Rho Chi Post Editorial Team Application

Remember, you do NOT have to be a member of Rho Chi to hold a position on our Editorial Team.

FDA Approves Bimzelx® for the Treatment of Moderate to Severe Plaque Psoriasis

By: Bhojranie Brahmanand, PharmD Candidate c/o 2025

On October 18, 2023, the United States (U.S.) Food and Drug Administration (FDA) approved Bimzelx (bimekizumab) for the treatment of adults with moderate to severe plaque psoriasis.[1] Psoriasis is an immune-mediated inflammatory disease that is associated with cutaneous and systemic manifestations. The pathophysiology can be characterized by abnormal keratinocyte proliferation and immune cell infiltration within the epidermis. Immune cells, specifically T-cells, mistakenly attack healthy skin cells causing inflammation. In turn, this triggers the body to create an accelerated buildup of skin cells known as plaques, which are commonly observed as elevated red patches on the elbows, knees, scalp, or lower back.[2]

Traditional treatments include topical agents, photo-based therapies, and biologic agents. Bimekizumab's recent approval marks a milestone in improving the standard of care for those who suffer from plaque psoriasis as it is the first and only approved psoriasis treatment designed to selectively inhibit 2 key cytokines that are responsible for causing the inflammation – interleukin (IL)-17A and IL- 17F.[3]

The efficacy and safety of bimekizumab was evaluated in three Phase 3 studies. For each study, the participants enrolled had chronic plaque psoriasis for at least six months prior to screening, an affected body surface area of at least 10%, a Psoriasis Area and Severity Index (PASI) of at least 12 (can range from 0-72) and an Investigator's Global Assessment (IGA) score of at least 3 on a 5-point scale. Furthermore, the primary endpoints were a 90% or greater reduction from baseline in the PASI score (PASI 90) and an IGA score of 0 or 1 (scores range from 0 to 4 with lower scores indicating clearer skin). All three studies showed that the most common adverse event was nasopharyngitis but all cases found were mild to moderate in intensity.[4,5,6]

The BE VIVID study consisted of patients treated with bimekizumab 320 mg every 4 weeks to active comparator ustekinumab 45 mg every 12 weeks or a placebo for a duration of 52 weeks. At week 16, 273 of 321 patients (85%) in the bimekizumab group had a PASI 90 versus 81 of 163 patients (50%) in the ustekinumab group and 4 of 83 patients (5%) in the placebo group. Additionally, at week 16, 84% of patients in the bimekizumab group had an IGA response score of 0 or 1 versus 53% in the ustekinumab group and 5% in the placebo group. The data showed that bimekizumab was more efficacious than a traditional drug in the treatment of moderate to severe plaque psoriasis.[4]

The BE READY study had a total of 435 participants who were randomized to either bimekizumab 320 mg or placebo every 4 weeks for a total of 56 weeks. Coprimary endpoints were met at week 16, where 317 of 349 patients (91%) receiving bimekizumab achieved a PASI 90 compared to 1 of 86 patients (1%) receiving placebo. It was also found that 323 of 349 pa-

tients (93%) receiving bimekizumab 320 mg every 4 weeks achieved an IGA score of either 0 or 1 versus only 1 of 86 patients (1%) receiving the placebo.[5] It is evident to say that bimekizumab presented high levels of response, which were substantial over the 56-week time period, supporting its therapeutic value.

The BE SURE study compared bimekizumab to adalimumab and lasted a total of 56 weeks. There were approximately 478 participants given either 320 mg of bimekizumab every 4 weeks or 40 mg of adalimumab every 2 weeks. At week 16, a total of 275 of 319 patients (86%) who received bimekizumab achieved a PASI 90 versus 75 of 159 patients (47%) who received adalimumab.[6]

Furthermore, out of 319 patients who received bimekizumab, 272 (85.3%) achieved an IGA score of 0 or 1, whereas only 91 out of 159 patients (57%) who received adalimumab attained the same score. The BE SURE study was able to demonstrate that bimekizumab was noninferior and superior to the drug adalimumab in reducing symptoms.[6]

Bimekizumab shows promising results in improving outcomes for many psoriasis patients that would help alleviate the physical and emotional burden of the condition. The three phase 3 studies assessing the effectiveness and safety of bimekizumab have shown that the drug has achieved higher levels of skin clearance compared to those who received a placebo or biologics targeting only the IL-17A cytokine. More than 8 out of 10 patients had achieved a 90% reduction from baseline and an IGA score of 0 or 1 at only 16 weeks. Today, the drug is currently being studied as a possible treatment option for other conditions such as axial spondylarthritis, rheumatoid arthritis, and ulcerative colitis.

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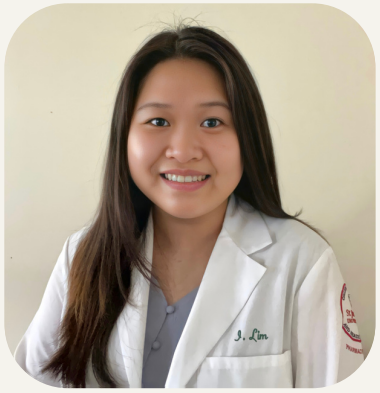
Meet the 2023-2024 Team Members

Editorial Team & Production

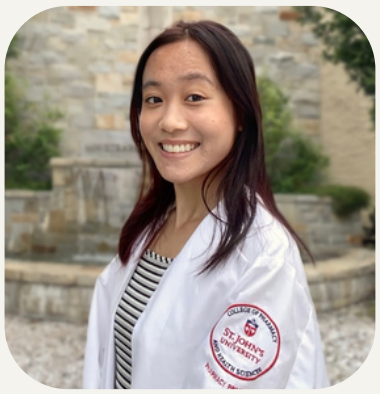


Isabelle Lim
Editor-in-Chief

The Rho Chi Post serves as a platform for students and faculty to collaborate in sharing their knowledge and ideas with the pharmacy community while offering a unique experience to develop writing skills outside of the classroom. As future pharmacists, it is important that we continuously keep ourselves updated as well as voice our opinions on healthcare matters. I am honored to be a part of the Editorial Team and look forward to serving as this year's Editor-in-Chief!

John Ortiz
Managing Editor

Rho Chi Post is an opportunity for students to foster their writing and investigative skills concerning the pharmacy practice. Through Rho Chi Post, students are also exposed to novel information and perspectives that are present in the pharmacy community and in our own student body. By honing our understanding of new innovations and developments in pharmacy, we will be better adept at providing accurate information to readers and maintaining the continuous education expected of pharmacists.



Joanne Fung
Senior Content-Focused Copy Editor

To me, Rho Chi is a great opportunity for all pharmacy students to advance themselves. This society offers something to everyone, whether you are a member of the society, a part of the newsletter staff, or a student taking advantage of the resources offered by Rho Chi. The effort put forth by every person affiliated with Rho Chi is amazing, and I will always appreciate this society's mission and values.

MEET THE TEAM

Maliha Akter
Content-Focused Copy Editor

In my pursuit of becoming a knowledgeable and skilled pharmacist, I remain committed to staying informed about disease treatment and public-health policy. Being a part of Rho Chi Post provides an excellent platform for continuous education and knowledge-sharing with peers. Engaging with individuals from diverse backgrounds fosters critical viewpoints and discussions, all focused on enhancing patient-centered care. Additionally, the newsletter enables me to nurture my lifelong passion for writing while staying updated on the latest healthcare developments. As I embrace this transformative journey, I am dedicated to adapting, learning, and making a positive impact on patient well-being as a compassionate and competent pharmacist.

Bao Qi Chen
Content-Focused Copy Editor

The Rho Chi Post is a bridge between students and the world we will soon enter once we graduate. My ambition is to promote intellect, values, and opportunities that not only allow students to be heard but also impact the pharmacy profession as a whole. I am honored to be a part of the Rho Chi Post's editorial team and work with colleagues who share this ambition. I am excited and grateful for this opportunity, and I look forward to working with everyone!

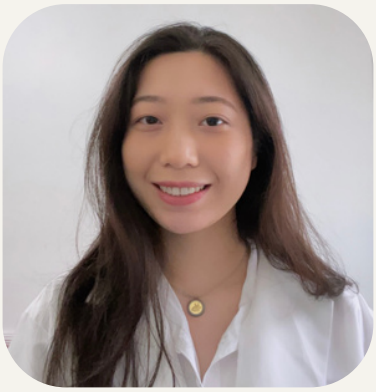
Warda Basher
Content-Focused Copy Editor

Joining this esteemed team excites me with the opportunity to gain invaluable experience and insights into the latest trends in pharmacy. I am eager to expand my professional network and make significant contributions to the field. As a member of the editorial team, I'll be at the forefront of disseminating the most current news and knowledge, effectively impacting pharmacy professionals worldwide with timely and relevant information.

Kristen Joy Mathew
Content-Focused Copy Editor

Being a part of the Rho Chi Post is a rewarding experience where I can work with other students and colleagues to bring forth educational and pertinent information in a renowned newsletter publication. This is a rewarding experience to express my passion for pharmacy and spread awareness of current issues. Collaborating with other students, faculty, alumni, and professionals, it is an incredible experience to continually learn from numerous perspectives and incorporate such experiences into a publication. Working as a Content-Focused Copy Editor, I am happy to be alongside this wonderful team in producing well-researched articles in a respected and widely read newsletter.

MEET THE TEAM



Mandy Zheng
Senior Graphics-Focused Copy Editor

The Rho Chi Post allows pharmacy students the opportunity to be well informed about the amazing contributions in the field of pharmacy. It is a great platform for students to report current advancements in healthcare. My passionate for writing began at a young age as I began to understand just how powerful words can be to communicate. I look forward to being a part of the editorial team and to share new information to my peers. I am so excited to be a part of the Rho Chi Post team.

Ruksabha Zaman
Senior Graphics-Focused Copy Editor

It is an honor to be able to contribute to the Rho Chi Post, a publication that promotes intellect, values, and inclusivity in order to allow student voices to make an impact not only in our school but in the pharmacy profession as a whole. The role of pharmacists is constantly evolving and it is more important than ever for us to not only be aware of the changes and new discoveries that are occurring in our field of practice but to be able to collaborate with other professionals on our team as well. The Rho Chi Post serves as a bridge between students, faculty, pharmacists, and other healthcare professionals outside of the classroom. I look forward to gaining new knowledge on current events from my peers and providing my own insight to further the excellence of this newsletter.

Celestine Van Sertima
Graphics-Focused Copy Editor

When applying to the Rho Chi Post, I was initially fascinated by their goals of providing the highest quality of information to the St. John's community through a student operated newsletter that cultivates both student spirit and expansion of knowledge. Through my passion for writing and health care, combined with my experience in graphic designing, I look forward to what I can contribute to the Rho Chi Post.

Nalisha Xu
Graphics-Focused Copy Editor

By becoming a part of the Rho Chi editorial team, I wish to learn more about the pharmacy field and community by gaining insight through our publications. This position will not only allow me to broaden my views on the profession of pharmacy, but also explore topics related to the medical field as a whole. Through Rho Chi's team, I will utilize this experience to grow professionally, develop leadership skills, and be more involved in our community to improve my confidence and professionalism on my journey to becoming a pharmacist.

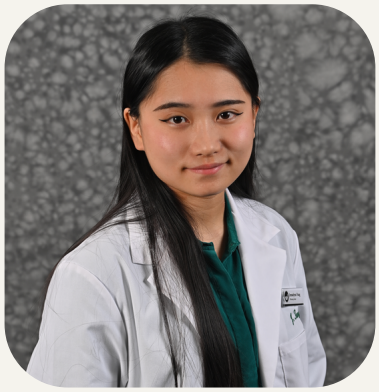
MEET THE TEAM

Zainab Masood
Graphics-Focused Copy Editor

Being part of Rho Chi Post, which provides information on discoveries and research to others, is an honor. Taking insight from professionals and peers to educate others is a rather significant effort in the expanding and evolving role of pharmacists. I look forward to collaborating with the team in pushing this effort further while also learning from them.

Sana Ahmed
Senior Staff Editor

I believe Rho Chi Post is a means to serve the university and impact its professional and health-oriented student community through its various stories. With exposure to a myriad of areas of the healthcare field throughout my work experience, I have secured much knowledge from assisting a diverse array of patients. I will prioritize staying up to date and aiding student writers in presenting the latest pharmaceutical and medical advancements. Through Rho Chi Post, I intend to promote the pharmacy profession through creativity and effective communication. I am honored to serve as a Staff Editor for this organization and hope it will facilitate meaningful connections with my peers.



Jennalynn Fung
Staff Editor

I am thrilled to have the opportunity to express my creativity, critical thinking, and research skills through contributing to the Rho Chi Post. The mission to promote intellectual discourse and showcase diverse perspectives aligns with my values; I look forward to putting my writing and editing experience to use in each issue, and hope that my involvement can ensure that future cohorts will also have this valuable platform available to them.

Paulina Maczko
Staff Editor

As pharmacy students, I believe we have an obligation of staying informed on current healthcare topics, topics that the Rho Chi Post sheds light on. To be part of such a team is an honor, as students are granted the opportunity of a creative outlet, whether that is by writing the articles or organizing the newsletter. As a copy editor, I look forward to seeing first-hand how students voice their opinions, thoughts, and academic learnings. I'm grateful to be part of a team that allows students to understand what they are capable of, and simultaneously advance their writing, comprehension, and communication skills.

MEET THE TEAM

Shakhzoda Rakhimova
Staff Editor

As a staff editor for the Rho Chi Post, I am thrilled to have the opportunity to be part of a team that is dedicated to providing high-quality and thought-provoking content that is relevant to pharmacists, healthcare professionals, and the broader public. I am excited to bring my skills and knowledge to the table as we work together to create meaningful and impactful content for our readers.

Natalia Turowska
Staff Editor

Joining the Rho Chi Post is an opportunity I am immensely grateful for! I am very excited to be a part of an award-winning publication that promotes the pharmacy profession through creativity and effective communication like the Rho Chi Post. In being a Staff Editor, I look forward to reading about ideas, opinions, and innovations, as well as seeing these topics blossom into articles for others to enjoy. I know that throughout holding this position, I will grow in terms of professionalism, teamwork, and creativity, which are all key attributes in the pharmacy world!

Sharupa Azmal
Staff Editor

The Rho Chi Post serves as a notable forum for pharmacy students who wish to expose themselves to medical journalism. Being a staff editor of the Rho Chi Post means amplifying the voices of our writers and educating our readers regarding current events in healthcare. This role provides me with the opportunity to present insightful stories that are relevant to the pharmacy community and contribute to the advancement of the profession through writing.

Nimra Gul
Staff Editor

My name is Nimra Gul and I am currently entering my 6th year of the pharmacy program at St. Johns. Being involved in a cause that serves to educate those pursuing a career in the healthcare field allows me to contribute to the knowledge that these very people will utilize in practice. I hope that my time with the Rho Chi Post Editorial Team will be memorable with much to contribute!

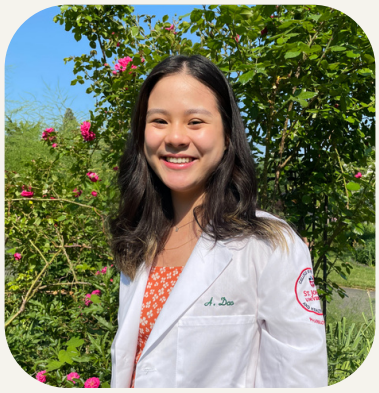
MEET THE TEAM

Nancy Yousry
Senior Staff Writer

It was such an amazing opportunity to become part of Rho Chi Post's Editorial Board last year, and I am really excited to continue being a part of Rho Chi Post this year! I believe one of our responsibilities as Student Pharmacists is to be aware of the current events impacting our profession as well as the critical and unique role Pharmacists play in a variety of healthcare settings. As a Staff Writer and Engagement & Outreach Manager, I look forward to bringing these current events to light and to serve as an educational resource for passionate readers and writers alike.

Ashley Dao
Senior Staff Writer

Rho Chi Post is an opportunity for students to be involved in publication regardless of their year or interest. I have always had an interest in writing and research, and I was afraid I would lose these skills in pharmacy school. Being part of Rho Chi Post has allowed me to continue writing and learning beyond the classroom!



Sairah Sheikh
Senior Staff Writer

Ever since I was little, writing has always been a passion of mine. As a senior staff writer for Rho Chi Post, I am excited to merge the knowledge I have gained in pharmacy school with my love for writing to create thought-provoking pieces for our community to read. Since pharmacy is an ever-evolving profession, it is important for our community to stay informed on the latest events in our field and I am looking forward to playing a part in that as a member of the incredible Rho Chi editorial team,

Urooj K. Malik
Staff Writer

The Rho Chi Post is a valuable platform that connects students and faculty with the most up-to-date information within the pharmacy profession. The field of pharmacy is constantly expanding with vital developments, so it is important for us to stay informed in the world of healthcare. The Rho Chi Post serves as a creative outlet for student pharmacists to voice their various perspectives and ideas for others to utilize as an educational resource. As a staff writer, I hope to channel my passions and interests through this newsletter in an effort to impact those around me.

MEET THE TEAM

John Ortiz
Staff Writer

Rho Chi Post is an opportunity for students to foster their writing and investigative skills concerning the pharmacy practice. Through Rho Chi Post, students are also exposed to novel information and perspectives that are present in the pharmacy community and in our own student body. By honing our understanding of new innovations and developments in pharmacy, we will be better adept at providing accurate information to readers and maintaining the continuous education expected of pharmacists.

Anureet Kaur
Staff Writer

Professional writing is a powerful tool. As pharmacists, amongst many other things, we can use our writing to advocate for our profession, to summarize new guidelines, and to spread the word about novel drugs. Thus, being a part of the Rho Chi Post 2023-2024 Editorial Team will help me strengthen the skills I need to be a capable pharmacist in the future. I am very excited to contribute to RCP!

Enjelique R. Adams
Staff Writer

Being a member of the Rho Chi Post will qualify and enable me to branch out to network and connect with others who are older than me and are a part of the Rho Chi Honor Society and others who are a U1, U2, or P1 who have an interest in writing. This opportunity that was blessed and given to me can expand my passion and love for writing to another level. Writing for this post can grant me the chance to learn more about my level of pharmacy through a different scope by reading about current events on insurance, Big Pharma, the FDA, and new medications coming out but also use the knowledge I have from my classes and working at an independent community pharmacy and apply it to my work. Rho Chi Post is an additional additive to the list of organizations and extracurriculars that I partake in; however, this is a new step to a new beginning for my P2 year that I cannot wait to take on.

Holly Nguyen
Staff Writer

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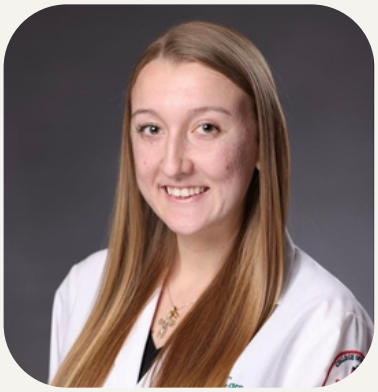
MEET THE TEAM

Bhojranie Brahmanand
Staff Writer

The Rho Chi Post uses its platform to spread knowledge of groundbreaking discoveries that are changing the standard of care for society. It delivers a creative and innovative scope of the pharmacy world. As a school of pharmacy, it is pivotal to become aware of healthcare matters. In turn, we can strengthen our understanding of the field and become more competent pharmacy practitioners. I am excited to be joining the team this year as a staff writer. I look forward to working alongside like-minded individuals in cultivating writing pieces that will share the importance of this profession.

Giavanna Carr
Staff Writer

Rho Chi is a society with members who all have the same goal, which is to excel in their academic careers. As a member of this society, we use our skills and knowledge in order to better our education as well as assist our peers in the process. Being part of this society has been so rewarding thus far, and I look forward to further developing Rho Chi in my time with the organization!



Ariella Zadrima
Staff Writer

As a pharmacy student and future pharmacist, I believe it is a quintessential duty to educate ourselves on current media regarding the medical field and continuously adapt to the new ideas we may face as we enter the pharmacy profession. With topics from emerging diseases to scientific advances made, it is important to be accustomed to new ideas that pertain to our potential responsibilities as a pharmacist. As a Rho Chi Staff Writer, I hope to discuss matters that will inform not only pharmacy students but the St. John's community as a whole on topics that have to do with general health and scientific developments. With my interest in writing and the pharmacy field, I hope to touch upon subjects passionate to me that can benefit our community and inspire our readers to integrate themselves into the ever-growing profession of pharmacy.

Ashley Medina
Staff Writer

It is an honor to be welcomed as a new member of a prestigious team of students contributing to the pharmacy profession through its publications that reach an audience beyond our campus. The Rho Chi Post has provided students with an opportunity to express themselves creatively and fosters professionalism through impactful communication. Joining the team will allow me to give back through writing that will embody the ideas and ambition that house my passion for the pharmaceutical profession. I am looking forward to providing relevant and up-to-date information to my audience and am eager to operate with fellow students to provide high-quality content that is devoted to the advancement and encouragement of our student body.

MEET THE TEAM

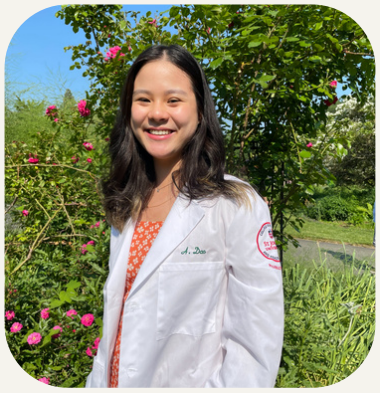
Social Media & Outreach

Anjali Thykattil
Engagement & Outreach Manager

I am beyond grateful for this opportunity, and I am excited to have the honor of serving on the Executive Board as the Engagement and Outreach Manager. The Rho Chi Post is not only a creative outlet for students, but also one that is invariably relevant to the ever-changing world of healthcare. In this position, I aim to further expand the growth of the Rho Chi Post among pharmacy students here at St. John's. Let's not forget, it is us students who will become the healthcare leaders of tomorrow.

Nancy Yousry
Engagement & Outreach Manager

It was such an amazing opportunity to become part of Rho Chi Post's Editorial Board last year, and I am really excited to continue being a part of Rho Chi Post this year! I believe one of our responsibilities as Student Pharmacists is to be aware of the current events impacting our profession as well as the critical and unique role Pharmacists play in a variety of healthcare settings. As a Staff Writer and Engagement & Outreach Manager, I look forward to bringing these current events to light and to serve as an educational resource for passionate readers and writers alike.



Ashley Dao
Engagement & Outreach Manager

Rho Chi Post is an opportunity for students to be involved in publication regardless of their year or interest. I have always had an interest in writing and research, and I was afraid I would lose these skills in pharmacy school. Being part of Rho Chi Post has allowed me to continue writing and learning beyond the classroom!

MEET THE TEAM

Advisors

Dr. Ketan Patel
MPharm, PhD

It is an honor to serve as a faculty advisor of Beta Delta Chapter of a 100-year-old prestigious society of pharmaceutical professionals – The Rho Chi Society. With great enthusiasm, I am committed to assist the Rho Chi member's endeavors in: (1) disseminating the latest information/technology in healthcare system; (2) promoting pharmaceutical field & career propulsive networking of current students, alumni, and faculties; and (3) facilitating the scholastic activities and recognizing the scholars.

Dr. Joseph Etzel
BS Pharm, PharmD

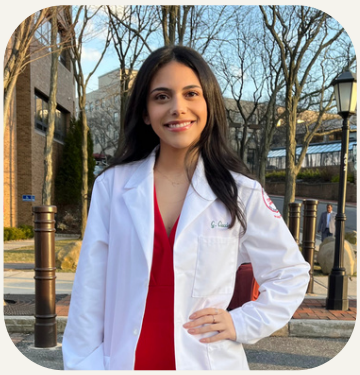
Dr. Etzel served as the Rho Chi Post's interim faculty advisor for the 2022-2023 academic school year and continues to aid the Rho Chi Honor Society as we welcome in our new advisor. Dr. Etzel is not new to our organization, as he has previously served as the faculty advisor for the Rho Chi Honor Society. He has been a huge influence to the success of Rho Chi in the past, and we look forward to continue working with him!

Dr. Mohammad Rattu
PharmD, BCOP, BCPS, BCGP

I am thankful to have been the 2012 editor-in-chief of the Rho ChiPost newsletter, as well as on the 2019 alumni honor roll of the national Rho Chi organization. This is one of the most successful longitudinal projects at my alma mater, as evidenced by its decade-long persistence and teams of highly-motivated students. I remain available for professional support and assistance with the new year's initiatives.

The Rho Chi Society

Executive Board



Geraldine Ciaccio
President

The Rho Chi Society prides itself on fostering intellectual achievement and cultivating professional development. It provides opportunities for students, faculty, alumni, and colleagues to expand their knowledge of pharmacy practice. Through events, seminars, and fundraisers, Rho Chi allows pharmacy students to develop leadership skills that are vital to the profession. I have learned valuable lessons about pharmacy and myself from Rho Chi thus far, and I am honored to be able to give back to the organization. I am humbled to hold such a position and work with a dedicated executive board.

Javeria Amir
Vice President

The Rho Chi Society is an organization that contributes to the development of intellectual leaders in pharmacy. Through this, Rho Chi Society fosters collaboration and initiatives to advance learning in the field of pharmacy. Being part of this organization has allowed me to reach out for help when needed, and continuously improve my skills as a future pharmacist. To be a part of the executive board that will continue to uphold these initiatives is an honor and responsibility I take on with pride. Wishing all a wonderful and successful academic year ahead of us!

Anjali Rana
Secretary

Being a part of Rho Chi has provided me with invaluable opportunities for professional development, connection, and mentorship. The society's commitment to academic excellence and ethical pharmacy practice has inspired me to strive for continuous improvement in my studies and future career. Serving on this year's executive board, provides a sense of belonging among a supportive and inclusive community.

Giavanna Carr
Treasurer

The Rho Chi Honor Society encourages and recognizes intellectual achievements, stimulates critical inquiry in order to advance the future of pharmacy, provides its members with the ability to develop into intellectual leaders, promotes high ethical standards for its members, and fosters collaboration. Through being a member of Rho Chi, we are able not only to grow ourselves, but to help uplift our colleagues and allow them the chance to excel academically through the events we provide. Rho Chi has been a great influence on my studies during my time in this program and being given the opportunity to serve on the executive board allows me to become the influence for the younger students in our program. I'm inspired by every member of this years executive board and can't wait to see all we're able to accomplish together this year!

The Rho Chi Society

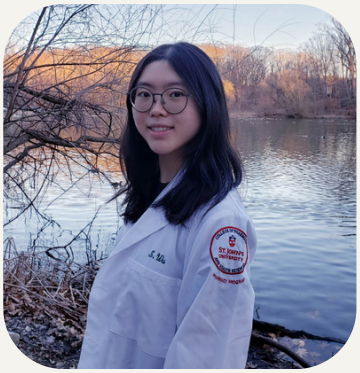
Executive Board

Christine Mauceri
Historian

Rho Chi is an amazing organization that encourages leadership and support among its members. Not only does it offer a space where all pharmacy students can help each other academically, but the opportunities for networking and professional growth are endless. I am proud to be a part of an organization that has helped me immensely throughout my studies, and I am excited to give back to my pharmacy community!

Sammi Wu
Development and Outreach Coordinator

The Rho Chi Society is committed to the development of future pharmacists that excel in both areas of professional expertise and acts of service. It forms a community for pharmacy students to motivate each other's academic growth and provide support within a challenging degree program. It also keeps students informed on news related to breakthroughs in drug therapy and patient care. I am honored to accept my position on the executive board for this upcoming academic year and I hope to fulfill my duties so Rho Chi can continue to have its positive impact on the pharmacy profession!



Daya Biju
Academic Committee Chair

The Rho Chi Honor Society is a distinguished academic organization that recognizes excellence in pharmaceutical studies. It promotes ethical conduct, leadership, and research in pharmacy education. With chapters across the United States, Rho Chi fosters a sense of community and offers valuable networking and mentorship opportunities. Members actively engage in service projects to improve public health awareness. I am truly honored to serve this esteemed organization and embrace the opportunities it offers for personal and professional growth.

Angel Gao
Academic Committee Chair

Rho Chi fosters a community where students can collaborate with each other, upholding the core principles of service and professional development. Being a part of this supportive community is an honor, and I take pride in contributing to the culture of excellence that Rho Chi cultivates.

RHO PX CHI post

St. John's University College of Pharmacy & Health Sciences

FEBRUARY

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	**19**	20	21	22	23	24
25	**26**	**27**	**28**	**29**		

MARCH

SUN	MON	TUE	WED	THU	FRI	SAT
					1	**2**
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	**28**	**29**	**30**
31						

Feb 19: President's Day - University closed/No classes
Feb 26 to Mar 2: Spring Break - No classes
Mar 28 to Apr 1: Easter Recess - University closed/No classes

The Rho Chi Post wants to wish everyone good luck on midterms as well as a happy Spring Break and Easter!

Interested in writing for the Rho Chi Post?

Go to http://rhochistj.org/RhoChiPost and click on the login option from the menu bar to make an account! With an account, you'll have access to the article submission portal where you can submit your writing for publication in an upcoming issue!

Remember, you do NOT have to be a member of Rho Chi, a member of the editorial team, or a student of St. John's to write for our newsletter!

If you have any questions, feel free to email us at rhochipost@gmail.com!