

RHOP_{Rx}CHI *post*

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New FDA Approval of Bydureon for Treating Type 2 Diabetes in Pediatric Patients

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From The Editor



Justin Budz

A Message from the Editor-in-Chief

Since taking on the role of Editor-in-Chief for the Rho Chi Post in the summer, I am proud to announce that our newsletter has seen tremendous growth! Every position on our editorial team has gained new talent, and the Rho Chi Post is now made up of students from all pre-professional and professional years of the pharmacy program. It is inspiring to see the multitude of young professionals on our team that are dedicated to advancing pharmacy practice, and I am excited to be a part of the continued impact that the Rho Chi Post has on our community. Additionally, I am proud to announce that the Rho Chi Post has partnered with the Rho Chi Beta Delta Chapter in creation of a novel mentorship program known as the LEADS Initiative. The goal of this initiative is to provide an academic mentorship program, connecting pre-

professional and professional year students, to promote scholastic excellence, ethics, service, leadership, and an increased sense of community. In the spring semester, these mentor and mentee pairs will have the opportunity to get national publications with the Rho Chi Post. As a co-founder of this pilot initiative, I am excited to witness the professional development of our pharmacy students, as well as future growth of the program itself.

Frequently Asked Questions

Who can write for the Rho Chi Post?

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 section and suggestions books for writing 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 reevaluated by our copy editor and then EIC, repeating this process. Once no further revisions are needed, the article is accepted for publication and reviewed by our faculty advisors.

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.

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 a electronic, student-operated newsletter publication with a team of three student editors and one Editor-in-Chief. Today, our newsletter boasts 12 volumes, over 87 published issues, and more than 600 unique articles to date with a staff 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 lists 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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Mounjaro (Tirzepatide): Dual-Targeted Treatment for Type 2 Diabetes

By: Zarin Chowdhury, PharmD Candidate c/o 2023 and Lauren Merkovich, PharmD Candidate c/o 2023

Type 2 diabetes (T2D) is a long-term medical condition in which the body is unable to use insulin properly, resulting in abnormal blood glucose levels.¹ More than 37 million Americans have diabetes (about 1 in 10); approximately 90 to 95% of these patients have T2D. T2D will most often develop in people over the age of 45, however, more children, teenagers, and young adults are also developing T2D.² Despite the variety of medications to treat diabetes, many patients have difficulty achieving their recommended blood glucose goals.

Blood glucose levels are monitored via glucose monitors and by following a patient's Hemoglobin A1c (HbA1c) level. Glucose adheres to hemoglobin, a protein in red blood cells. As blood glucose levels increase, the hemoglobin becomes more saturated with glucose. An HbA1c test measures the percentage of red blood cells that have glucose-coated hemoglobin, indicating the average blood glucose level over the past two to three months. An HbA1c below 5.7% is normal, between 5.7 to 6.4% indicates prediabetes, and 6.5% or higher indicates diabetes. Target HbA1c varies by patient, but averages at 6.5 or below. First line treatment of T2D is metformin combined with lifestyle modifications, including meal planning and exercise. If targeted HbA1c is not reached with first-line treatment, additional medications may be added based on the patients' compelling indication, including sulfonylureas, sodium-glucose transporter 2 (SGLT2) inhibitors, glucagon-like peptide-1 (GLP-1) agonists, dipep-

tidyl peptidase 4 (DPP-4) inhibitors, thiazolidinediones, or insulin. Factors to consider when prescribing medication regimens for patients include health goals, insurance, medical history, and ease of usage.³

On May 13, 2022, the Food and Drug Administration (FDA) approved Mounjaro (tirzepatide) injection to improve glycemic control in patients with T2D, along with diet and exercise.⁴ GLP-1 and glucose-dependent insulinotropic polypeptide (GIP) are two incretin hormones released by the gut to aid in blood glucose control. Increases in these hormones lead to insulin release, increased satiety, and decreased glucose production.⁵ These mechanisms happen in a glucose-dependent manner, meaning GLP-1 and GIP receptor agonists are unlikely to cause severe hypoglycemia. Tirzepatide is a first-in-class medication that activates both the GLP-1 and GIP receptors.⁴

The FDA's approval of tirzepatide was based on positive outcomes from the Phase III SURPASS program that included five clinical trials.⁶ The findings from each trial are summarized in the table below. In SURPASS-1, tirzepatide was studied as monotherapy. In SURPASS-2, SURPASS-3, and SURPASS-4, tirzepatide was studied as an add-on to other diabetes medications. For SURPASS-5, tirzepatide was evaluated in combination with basal insulin, with or without metformin. Three doses of tirzepatide (5 mg, 10 mg, and 15 mg) administered subcutaneously once weekly were evaluated. Patients with T2D who partici-

Trial	Comparator Treatment	HbA1c Reduction	Weight loss	Hypoglycemia
SURPASS-1 (40 weeks)	Placebo	Up to 92% patients on Mounjaro achieved an A1C < 7%—ADA's recommended target for most people with diabetes. Up to 52% achieved an A1C < 5.7%—the level for people without diabetes.		
SURPASS-2 (40 weeks)	Semaglutide	<u>Mounjaro</u> : up to 2.30% point reduction <u>Semaglutide</u> : up to 1.86% point reduction	Up to 5.5 kg more than with <u>semaglutide</u>	<u>Mounjaro group</u> : 0.6% with 5 mg, 0.2% with 10 mg and 1.7% with 15 mg; <u>Semaglutide group</u> : 0.4%.
SURPASS-3 (52 Weeks)	Insulin Degludec	<u>Mounjaro</u> 15mg: average of 2.37% point reduction <u>Degludec</u> : 1.34% point reduction	<u>Mounjaro groups</u> (5, 10, and 15 mg) lost an average of 7.5, 10.7, and 12.9 kg; <u>Degludec group</u> gained average of 2.3 kg	<u>Mounjaro</u> : 1% with 5 mg, 1% with 10 mg, and 2% with 15mg; <u>Degludec</u> : 7%
SURPASS-4 (52 Weeks)	Insulin Glargine	All 3 <u>Mounjaro</u> doses resulted in significantly greater HbA1c reduction than <u>insulin glargine</u> , at 2.58% (28.2 mmol/mol) for the highest dose (15 mg/week), compared with 1.44% (15.7 mmol/mol).		<u>Mounjaro</u> : 6-9%; <u>Glargine</u> : 19%
SURPASS-5 (40 Weeks)	Placebo + Insulin Glargine	<u>Glargine + Mounjaro 15mg</u> : average of 2.59% reduction in HbA1c <u>Glargine + Placebo</u> : 0.93% reduction	<u>Mounjaro group</u> lost an average of 10.9 kg and reduced their insulin dose, whereas the <u>placebo group</u> gained 1.7 kg, on average, and their insulin dose rose by 75%.	Did not differ between the <u>Mounjaro and placebo groups</u> , at 14% to 19% versus 13%.

Table 1. Summary of the SURPASS Program⁸

pated in the SURPASS program achieved average reductions in HbA1c levels between 1.8 to 2.1% for tirzepatide 5 mg, and between 1.7 to 2.4% for both 10 mg and 15 mg doses of tirzepatide.⁷ Tirzepatide delivered superior HbA1c level reductions against all comparators in the SURPASS trials. Additionally, patients given tirzepatide experienced significantly greater weight loss ($p < 0.001$ for all trials) than patients given comparator treatments. On average, patients treated with the 5 mg dose of tirzepatide lost 12 lbs of weight, while those treated with the 15 mg dose saw their weight reduced by 25 lbs.⁷

Tirzepatide comes as a single-dose prefilled pen that needs to be refrigerated. It is administered once weekly by subcutaneous injection.⁹ The recommended starting dose of tirzepatide is 2.5 mg. After 4 weeks, doses may be increased in 2.5 mg increments, as tolerated, up to a maximum of 15 mg a week. Injection sites include the abdomen, thigh, and upper arm. Patients should rotate injection sites

with each dose. Administration can be at any time of the day, with or without food. If patients miss a dose of tirzepatide, they should administer it as soon as possible. If a missed dose is not administered within 4 days (96 hours), the dose should be skipped and the patient should inject their next dose as normally scheduled. Changing the day of weekly administration is possible if the time between 2 doses is at least 3 days (72 hours) apart. When tirzepatide is used in combination with insulin, the injections are administered as separate injections; they cannot be mixed. Patients may administer tirzepatide and insulin in the same body region as long as the injections are not adjacent.⁹

Regarding its safety profile, tirzepatide has a black box warning for increased risk of thyroid cancer. It is important that patients examine themselves and inform their provider of any new lumps or swelling in the neck, sudden difficulty swallowing, or shortness of breath. Common adverse reactions reported in $\geq 5\%$ of tirzepatide-treated patients include nausea,

Tirzepatide

diarrhea, decreased appetite, vomiting, constipation, dyspepsia, and abdominal pain. Patients and providers should be aware that tirzepatide delays gastric emptying and has the potential to alter absorption of other oral medications.¹¹ This may impact narrow therapeutic index drugs or drugs that need a minimum blood level for efficacy. Patients taking oral contraceptives should be counseled to switch to a non-oral contraceptive method or add a barrier contraceptive method for 4 weeks after initiation of tirzepatide, and for 4 weeks after each dose escalation.¹¹ Based on animal reproduction studies in pregnant rats and rabbits, tirzepatide may cause fetal harm, but data is insufficient to evaluate the safety of tirzepatide in pregnant women.¹² There is no data on the presence of tirzepatide in human milk, the effects on breastfed infants, or the effects on milk production. Tirzepatide should only be used during pregnancy or lactation if the potential benefits outweigh the potential risks.¹² Furthermore, tirzepatide's safety and efficacy are unknown for use in children under 18 years of age.¹¹

The increased prevalence of diabetes in the United States has led to the introduction of new treatment options like tirzepatide into the market. These innovations in medicine are created to help achieve improved glucose control. As pharmacists, it is important to not only be aware of the current treatment guidelines but to also stay up to date with the emergence of new medications. Healthcare providers should provide patients with the best medication options, however, it is equally important to provide education on non-pharmacological options, such as lifestyle modifications, to help decrease the prevalence of diabetes. Keeping this mindset allows pharmacists and other healthcare providers to be the patient's best

advocates in maintaining a healthy lifestyle.

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Rho Chi Talks: The Reality of an Emergency Medicine Pharmacist

Featuring: Colleen Bond, PharmD, BCPS

By: Justin Budz, PharmD Candidate c/o 2023



At a young age, Dr. Colleen Bond was involved in the care of a close relative, gaining early exposure to the healthcare team dynamic. The one question that no one was able to clearly answer was how medications were able to work in the body to better manage a patient's disease state. She ultimately found her answer in choosing a career in pharmacy practice. Dr. Bond graduated from Northeastern University where she herself was a member of Rho Chi Honor Society. After completing residencies at NYU Langone and Robert Wood Johnson, Dr. Bond found herself at Westchester Medical Center where she currently serves as a Clinical Pharmacy Specialist in Emergency Medicine. When she's not in the emergency room, Dr. Bond also spends time in the Neuro ICU and precepting sixth year pharmacy students undergoing advanced pharmacy practice experiences.

Tell us about your education experience.

I went to Northeastern University up in Boston, Massachusetts. I had a really great experience, specifically, the co-op experience was able to help me network. I think the more pharmacists you talk with, the more opportunities you learn about that are available in this career.

Tell us more about your residency experience.

I did my PGY1 residency at NYU Langone in the city. Initially, I was torn between geriatrics and ambulatory care, but my site had a lot of critical care and emergency medicine. I found that I liked the fast paced, quick decision-making of the emergency room. I was able to gain experience with responding to strokes, codes, rapid responses, and rotating throughout the emergency department (ED). From

there, I did my PGY2 residency at Robert Wood Johnson through Rutgers where most of my time was spent in the ED. I also got to teach a class in some of the critical care electives that Rutgers offered. I really enjoyed getting a lot of time in with students and practicing those precepting and teaching skills.

What made you want to specialize in emergency medicine?

What I like about emergency medicine is that you never know what's coming through the door. I always like to say that the most exciting 15 minutes of anyone's story always happens in the ED. I enjoy the fast pace and having to know things off the top of my head to be able to make interventions and see the impact right away. Emergency medicine is a wide area. It includes critical care, but it also includes ambulatory care, elderly care...almost everything is

seen in the ED. It keeps me on my toes and allows me to continue to learn and stay up to date on topics in clinical care.

How did you end up at Westchester Medical Center?

I live locally and had originally worked at a community hospital. All of our interesting patients always got transferred here (Westchester Medical Center), so it was difficult to help with the initial stabilization of these patients and then watch them leave through the ED. Now being at Westchester, we see a lot of unique cases transferred here, both pediatric and adult, which I think is an added complexity to the care we give, and I always feel like I'm continuing to learn because of it.

What are some of the things one can expect to experience as an emergency medicine pharmacist?

I like to get involved, so that can mean meeting with patients, being inside rooms for a trauma or stroke code, and even talking to family members to learn more about a patient's medical history. It's also important to not only know the dose of a medication, but how to prepare it, administer it, and assist the nursing staff in giving it. In the ED, a pharmacist has to be willing to get involved and be part of the team, which I think is unique compared to other areas of pharmacy practice.

What roles do you have outside of the emergency room?

We (pharmacy department) received a request from one of the neuro intensivists to have a pharmacist with them on rounds. I had always been intimately involved with the stroke program at Westchester, so I had already worked with a lot of the neurologists during stroke codes and had a level of comfort with some of

these providers. It was originally supposed to be a six-week pilot program to see what interventions I was able to make and what opportunities there would be for pharmacists to take part in, but it has since become my second place outside of the ED. I enjoy being a part of both departments because a lot of times I may go to a stroke code or code ICH (Intracerebral Hemorrhage) in the ED and then the next day I can see that same patient in the Neuro ICU and follow up on their care. It has helped me have a better understanding of the continuum of care throughout a patient's hospital stay.

What made you want to be a preceptor and what do you enjoy about it?

I've always enjoyed being a teacher, even in pharmacy school I was involved in tutoring students in the classes below me. It's why I picked my PGY2 so that I could have more exposure to work in academia. I find that being able to work clinically but still being involved with different schools of pharmacy provides me with enough exposure to students to keep myself rejuvenated. It's always nice to help students see the benefit of what they're learning in school, but at the same time it helps you re-fall in love with what you do as a pharmacist.

Do you have any tips for pharmacy students who may be looking to do a residency?

If you're interested in doing a residency, I think you should always try to network with as many people as you can to learn about the different opportunities. Most residencies are going to be standard across the board, but there may be some nuance to each program. By networking, you can find out some of these insights or where people have gone on to practice upon completing those residencies. Also, to be a

Rho Chi Talks

competitive candidate, it's not just about your grades. Programs look for your drive and personality. Being involved in other activities is always looked highly on, even if it's something outside of pharmacy, because it speaks volumes of a candidate's commitment and willingness. Showing commitment is important, especially when diving into a residency or fellowship for several years.

On behalf of the Rho Chi Post,
we would like to thank
Dr. Colleen Bond for taking the
time to share her experiences
with our community!

Interested in joining our Editorial Team?

The Rho Chi Post currently has positions open for staff writers, staff editors, content-focused copy editors, and graphics-focused copy editors. Scan the QR Code below to learn more about these positions and to apply for a spot on our team!



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Mark Your Calendars!

Join the Rho Chi Post this 2022 Fall Semester as we prepare to host the following events:

Sep. 8th: Activities Fair

Sep. 26th: RCP Informational

Dec. 7th: Writing Workshop

Follow us on our Instagram and Facebook pages to get the most up to date information on all of our semester events!



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New FDA Approval of Bydureon for Treating Type 2 Diabetes in Pediatric Patients

By: Kelly Lavery, PharmD Candidate c/o 2024

Increasing rates of childhood obesity remain a major risk factor behind a recently increased prevalence of diabetes in the pediatric population. This subject is of particular relevance in light of the ongoing coronavirus disease of 2019 (COVID-19) pandemic, which has limited children to isolation and online learning instead of normal exercise and activities, further exacerbating the childhood obesity crisis. First-line interventions used in children with type 2 diabetes (T2D) included diet and lifestyle modifications to control weight, increase physical activity, and promote healthy eating behaviors.¹ According to a meta-analysis on the effectiveness of education and lifestyle interventions to prevent pediatric diabetes, interventions that involved the patient's family and schools were most effective, however, adolescents aged 13 to 18 years old received the least benefit in obesity prevention from these interventions.² A need for treatment measures in addition to lifestyle modifications are necessary for this age group to control T2D.

Metformin may be used as a first line agent in addition to lifestyle and diet modifications to achieve optimal glucose control in pediatric patients. If necessary, this regimen can be intensified by adding insulin therapy in patients with reoccurring ketoacidosis or hyperglycemia.¹ In adults with T2D, the American Diabetes Association (ADA) prefers the use of glucagon-like peptide 1 (GLP-1) analogs before insulin therapy due to their efficacy in glucose control, decreased risk of hypoglycemia, less frequent administration rate, and potential ben-

efits in cardiac outcomes and weight loss.³ GLP-1 analogs work by enhancing glucose-dependent insulin secretion via pancreatic beta-cells, suppressing inappropriately elevated glucagon secretion, and slowing gastric emptying.⁴ In 2020, liraglutide, a GLP-1 analog given once daily as a subcutaneous injection, received approval from the Food and Drug Administration (FDA) for use in obese pediatric patients age 12 and older.⁵ This was a major advancement for the management of T2D in pediatrics as it allowed this population to receive the weight loss and cardiac benefits of GLP-1 analogs while delaying the need for initiating insulin therapy. In 2021, Bydureon (exenatide extended release), also a GLP-1 analog, was approved by the FDA for use in pediatric patients age 10 and older with T2D.⁴ Exenatide extended release (ER) is administered as a once weekly subcutaneous injection, creating the opportunity for improved adherence and implementation into the child's life.

Safety and Efficacy Data Leading to Approval of Bydureon

The FDA based its approval for the use of once weekly exenatide ER on a phase 3, double-blinded, randomized, multicenter, placebo-controlled parallel study that examined the efficacy and safety of exenatide ER vs. placebo for 24 weeks.⁶ The study was funded and designed by AstraZeneca. The average participant age was 15 years old. At baseline, the mean glycated hemoglobin, or hemoglobin A1c (HbA1c), was 8.2%. Regarding prior antihyperglycemic drug use, 12.2% of patients did not

Exenatide ER

receive any prior treatments, 40.2% were treated with Metformin only, 8.5% were treated with insulin only, and 37.8% were treated with metformin and insulin.⁶

Inclusion criteria included having a diagnosis of T2D, being 10 to 18 years of age, having a HbA1c of 6.5 to 12.0%, being treated with diet and exercise for at least 2 months, and having a fasting plasma glucose < 280 mg/dL.⁶ Exclusion criteria included having hepatic disease, renal disease, gastrointestinal disease, previous organ transplant, chronic infection, and previous history using any GLP-1 analog.⁶ The researchers needed at least 77 participants distributed in a 5:2 ratio of either once-weekly exenatide 2 mg or placebo groups to attain significant results. This goal was achieved with a final total of 82 participants distributed as 58 subjects in the exenatide ER group and 24 subjects in the placebo group.⁶

The primary outcome measured the change in HbA1c from baseline to week 24. The results showed an average decrease of 0.36% in HbA1C over the 24-week study period in the group receiving exenatide ER while the placebo group experienced an increase in HbA1c of 0.49% ($p = 0.012$).⁶ The mean difference in HbA1C values between the two study groups was -0.85% (95% Confidence Interval [CI] -1.51 to -0.19; $p = 0.012$).⁶

The study also evaluated the incidence of adverse effects over the 24-week period. The exenatide ER group had 25.4% of participants who experienced treatment-related adverse events while the placebo group had 21.7%. 13.6% of patients in the exenatide ER group experienced hypoglycemia.⁶ Neither group experienced any adverse reactions that led to discontinuation of treatments. Adverse effects included abdominal pain, nausea, vomiting, diarrhea, injection site reactions, hyperglycemia, hypoglycemia, headache, pain in extremities, and cough. 3.4% of patients in the exenatide ER group vs. 4.3% in the placebo group experienced serious adverse effects.⁶ In addition to evaluating safety profiles, other secondary outcomes included changes in fasting glucose levels, body weight, systolic blood pressure, and fasting insulin levels. However, for all of these endpoints, the study was unable to produce statistically significant values over the 24-week study period.⁶

Additional Evaluation of the Safety and Efficacy of GLP-1 Analogs

Supplementing the data from the Astra-Zeneca phase 3 trial, a meta-analysis conducted by Ryan et al. was performed to gain a larger insight into the efficacy and toxicity profiles of GLP-1 analogs in children with obesity.⁵ Data was extracted from randomized control trials conducted between 1994 to 2021. A total of 9 studies with 574 participants were included; 3 studies evaluated the use of exenatide while the remaining 6 studies analyzed liraglutide.⁵

Primary outcomes of the meta-analysis evaluated weight and cardiometabolic outcomes, while secondary outcomes evaluated gastrointestinal adverse events.⁵ Regarding change in weight, exenatide was able to exhibit a mean difference (MD) of 2.02 kg (95% CI

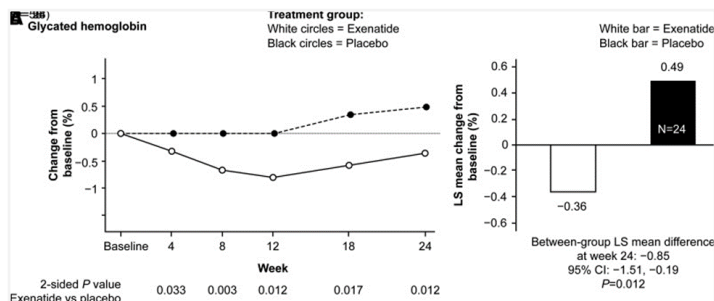


Figure 1: Change in HbA1c (%) from baseline to week 24⁶

-4.54 to 0.49; $p = 0.03$; $I^2 = 72\%$) whereas liraglutide showed a MD of 1.51 kg (95% CI -2.85 to -0.17; $p = 0.03$; $I^2 = 67\%$).⁵ Regarding change in body mass index (BMI), exenatide had a MD of 1.11 kg/m² (95% CI -1.67 to -0.55; $p = 0.54$; $I^2 = 0\%$) while liraglutide was found to have a MD of 1.55 kg/m² (95% CI -2.41 to -0.70; $p = 0.82$; $I^2 = 0\%$).⁵ When evaluating the incidence of adverse effects in liraglutide, the gastrointestinal, skin, neurologic, endocrine, and hepatobiliary systems experienced the most adverse effects. For exenatide, the gastrointestinal system was predominantly affected. The most common gastrointestinal adverse effects were nausea (36.4 to 62 per 100 participants), vomiting (27.3 to 31 per 100 participants), and abdominal pain (15 to 18.2 per 100 participants).⁵

Limitations of the meta-analysis conducted by Ryan et al. include the fact that almost half of the participants come from 1 trial, and more than half of the trials were conducted for less than 3 months.⁵ Heterogeneity may have been introduced due to the varying strengths in dose between exenatide and liraglutide. However, the authors conveyed that any variance in responses for all primary outcomes in the final statistical analysis were due to the intervention itself and not the introduction of outside sources of heterogeneity, which can provide confidence in the results.⁵ Regardless, continued post-marketing research should be conducted to establish data on long term adverse effects and ensure the safety of patients taking GLP-1 analogs.

Conclusion

AstraZeneca's phase 3 clinical trial provides statistically significant and clinically significant results that exenatide ER is effective in lowering HbA1c levels without adding a substantially increased risk of adverse effects. Limitations of this study included the fact that it was sponsored by the creator of the drug, performed over a short duration of time, and had a relatively small study sample due to the difficulties that accompany using pediatric patients in clinical research. The meta-analysis on the safety and efficacy of GLP-1 analogs serves to further substantiate the positive aspects of exenatide ER in providing glycemic control and reducing weight and BMI in pediatric patients with minor and manageable gastrointestinal adverse effects. The combined results of these two studies prove that the use of exenatide as a once weekly injection can improve the quality of life of pediatric patients with T2D and should be considered for use before initiating insulin therapy.

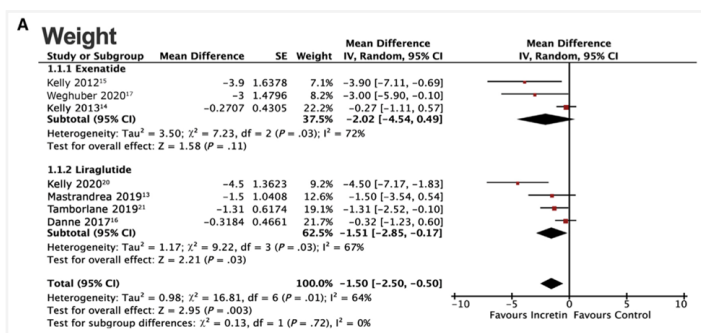


Figure 2: Change in weight for exenatide and liraglutide⁵

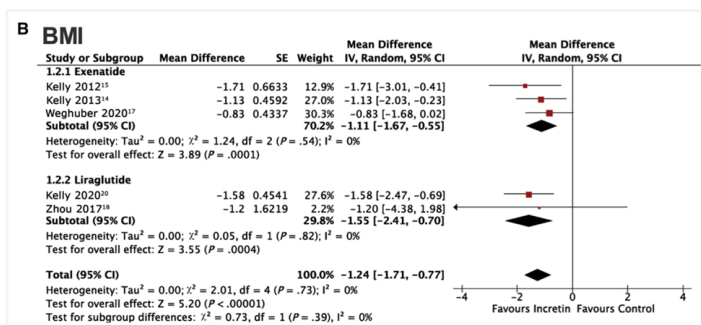


Figure 3: Change in BMI for exenatide and liraglutide⁵

Exenatide ER

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FDA Approves Tubeless Automated Insulin System for Kids 2 Years of Age and Older

By: Geraldine Ciaccio, PharmD Candidate c/o 2025

Young children with type 1 diabetes (T1D) are completely dependent on others for their care and management. It can be hard for parents, guardians, teachers, and healthcare providers to assess a child's condition as they are too young to properly communicate their thoughts and emotions. Most children are also reluctant and scared to receive injections, making it more difficult for parents and guardians to administer insulin. New therapies and devices aim to overcome these challenges and to ease the management of T1D for children and caregivers.

On August 22, 2022, the Food and Drug Administration (FDA) approved the use of the Omnipod 5 automated insulin delivery system in children ages 2 years and older.¹ Manufactured by Insulet Corporation, Omnipod 5 is the first tubeless automated insulin delivery system to be approved in the United States.² Omnipod 5 is integrated with the Dexcom G6 Continuous Glucose Monitoring System, which continuously tracks glucose levels in real-time. Patients and caregivers can connect their smartphone to the device via the Omnipod 5 app where they can view real-time insulin levels and manage insulin dosing. The Omnipod 5, Dexcom G6, and the Omnipod 5 app are constantly communicating to deliver automatic

insulin adjustments according to the patient's customized target glucose level.³ Omnipod 5 was first cleared by the FDA for patients ages 6 years and older in January 2022, and further studies have supported its improved glycemic outcomes in very young children.¹

A recent clinical trial funded by Insulet Corporation showed improved glycemic outcomes in children ages 2 to 5 with T1D.³ From August 2020 to January 2021, the single-arm, multi-center, prospective study was performed at 10 different sites across the United States. The study included 80 children within this age range who were diagnosed with T1D and had a glycated hemoglobin, or hemoglobin A1c (HbA1c), level of less than 10%. The parent, legal guardian, or caregiver of each of the participating children provided informed consent and agreed to operate the Omnipod 5, Dexcom G6, and app according to the provided training. The participants underwent a 14-day outpatient standard therapy phase with their usual treatment. Usual treatment for these participants included multiple daily insulin injections (MDI) or pump therapy. The purpose of the outpatient standard therapy phase was to collect participants' baseline continuous glucose monitoring data. Following this first phase, a 13-week automated insulin delivery system phase was

Omnipod 5

conducted. In this second phase, the Omnipod system was used to manage diabetes at home. The Omnipod system delivered insulin microboluses every 5 minutes using the participant's customized glucose target value. After completing the 94-day hybrid closed-loop phase, subjects had the option to continue using the system for an additional 12 months.⁴

The primary outcomes were decreased incidence rates of severe hypoglycemia and diabetic ketoacidosis. HbA1c levels and time within the range 70 to 180 mg/dL were compared to standard therapy data. During the second phase with the Omnipod system, there were no incidences of severe hypoglycemia or diabetic ketoacidosis. There were 20 instances of hyperglycemia, 12 of which were found to be related to the Omnipod device and infusion site issues.³ When using the automated insulin delivery system, HbA1c levels decreased as compared to standard therapy HbA1c levels. During the standard therapy phase, the mean HbA1c level was $7.4 \pm 1.0\%$. During the automated insulin delivery phase, the mean HbA1c level was $6.9 \pm 0.7\%$.³

Improved blood glucose levels were also seen in children using the Omnipod 5 as compared to standard therapy. Time in range values increased when compared to baseline and to consecutive previous days. The mean time within the range 70 to 180 mg/dL was measured to be $57.2 \pm 15.3\%$ in the standard therapy phase and $68.1 \pm 9.0\%$ in the automated insulin delivery phase.³ During days 1 to 3 of the automated insulin delivery phase, mean time in range was 61.3%. During days 4 to 6 of this phase, mean time in range was 67.8%.³ The time in range for participants increased each day of the trial, both overnight and throughout the day. With the use of Omnipod 5, children spent, on average, 2.6 more hours per

day in targeted glucose level ranges, with 83% of participants achieving $> 60\%$ time within range.³

The results of the trial demonstrated the safety and efficacy of Omnipod 5 in children ages 2 to 5. Improvements in glucose levels and management of T1D allow patients and caregivers to attain treatment goals with less of a burden. Proper management of a child's diabetes is essential for preventing long-term complications. Insulet Senior Vice President and Medical Director, Trang Ly, MBBS, FRACP, PhD, praised the ability of Omnipod 5 to "further ease the burden of glucose management for these children and their caregivers."² Patients can receive continuous insulin administration while using the automated insulin delivery system, reducing the number of injections and unhappy children with T1D.

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FDA's Approval of Pharmacists Prescribing Paxlovid

By: Imaan Sekhery, PharmD Candidate c/o 2025

On July 6, 2022, the Food and Drug Administration (FDA) revised the precedent Emergency Use Authorization (EUA) for Pfizer's Paxlovid, granting licensed pharmacists the right to prescribe Paxlovid to suitable patients. This revision will significantly increase access to Paxlovid, assisting in patient recovery from Coronavirus Disease 2019 (COVID-19). Limitations have been set to ensure pharmacists prescribe the antiviral pills to eligible patients. Sufficient information should be available to assess renal and hepatic function and to check for any potential drug interactions.¹ This FDA approval is linked to the Public Readiness and Emergency Preparedness (PREP) Act passed during the COVID-19 pandemic, which provided liability protection to licensed pharmacists, pharmacy interns, and pharmacy technicians.² Paxlovid is approved to be used within five days after symptom onset.¹ The change to allow pharmacists to prescribe Paxlovid helps provide early treatment for COVID-19 patients in need.

Paxlovid consists of nirmatrelvir, a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) main protease inhibitor, along with ritonavir, an HIV-1 protease inhibitor and CYP3A inhibitor. Ritonavir is not effective against SARS-CoV-2 on its own, however, by inhibiting the CYP3A-mediated metabolism of nirmatrelvir, ritonavir increases plasma concentrations of nirmatrelvir, resulting in further inhibition of SARS-CoV-2 replication.³ The drug has been authorized to treat patients ages 12 and older, who weigh at least 88 pounds. Patients must have tested positive for COVID-19 through either a rapid antigen home test or a

polymerase chain reaction (PCR) test.¹ Paxlovid is to be taken as three tablets twice daily for five days straight. Each package contains a total of 30 tablets.⁴

Although pharmacists have been able to prescribe Paxlovid for some time now, there hasn't been as high of a demand for the drug as planned. Small pharmacy owner Adeolu Odewale weighed in on the situation from Washington, D.C., expressing his confusion as to why his pharmacy had only dispensed the medication to seven people after having the antiviral pills in stock for well over a month. Dr. Odewale stated, "I didn't expect that I was still going to be sitting on that many of them," unsure of why more patients weren't utilizing this option.⁵ Pharmacists insist that the possibility of patients being unaware of how to be eligible and receive Paxlovid to treat themselves may be a factor in why they don't pursue the medication, but others are beginning to question whether pharmacists are truly comfortable with prescribing Paxlovid.

Pfizer's prescribing information states that Paxlovid can be recommended to patients with mild to moderate hepatic impairment, as well as to patients with an eGFR greater than 30 and less than 60 mL/min. Paxlovid is not recommended in patients with severe hepatic or renal impairment.⁶ Several local California pharmacists from CVS, Rite Aid, and Walgreens have mentioned that one of the prevailing reasons they won't prescribe Paxlovid themselves is because of the guidelines requiring pharmacists to review liver and kidney function tests.⁷ For patients to receive pharmacist-

prescribed Paxlovid, pharmacists must review the patient's medication list (both prescription and over the counter), health records from the last twelve months, and most recent laboratory blood work.¹ Earlier this year, the Biden Administration launched the "Test to Treat" federal program, allowing people to get tested for COVID-19 and receive Paxlovid on the spot,² however, this has yet to speed up accessibility of the drug.

Another difficulty with prescribing Paxlovid is the possibility of rebound COVID-19. According to case reports from the first half of 2022, patients treated with Paxlovid experienced rebound COVID-19 infections and symptoms just 2 to 8 days after completing their 30 tablet regimen.⁸ A cohort study involving 92 million patient electronic health records from a multicenter and nationwide database in the United States was conducted to determine the prevalence of rebound effects from Paxlovid and Molnupiravir.⁸ The study population consisted of 13,644 patients, all of whom were at least 18 years old, contracted COVID-19, and were treated with either Paxlovid (n =11,270) or Molnupiravir (n =2,374) within five days of symptom onset.

The 7-day risk for COVID-19 rebounds in patients who took Paxlovid vs Molnupiravir were 4.54% and 5.95% for COVID-19 infection (Hazard Ratio [HR] 0.81; 95% Confidence Interval [CI] 0.63 to 1.05), 2.61% and 3.77% for COVID-19 symptoms (HR 0.74; 95% CI 0.53 to 1.03), and 0.67% and 0.90% for hospitalizations (HR 0.78; 95% CI 0.40 to 1.51), respectively.⁸ The 30-day risk for COVID-19 rebounds in patients who took Paxlovid vs Molnupiravir were 7.14% and 8.49% for COVID-19 infection (HR 0.90; 95% CI 0.73 to 1.11), 7.55% and 8.00% for COVID-19 symptoms (HR 1.03; 95%

CI 0.83 to 1.27), and 1.21% and 1.39% for hospitalizations (HR 0.92; 95% CI 0.55 to 1.55), respectively.⁸ The above data shows that after propensity-score matching, both the 7-day and 30-day risks for COVID-19 rebound in patients treated with Paxlovid did not differ from those treated with Molnupiravir. In conclusion, the study confirmed that this rebound phenomenon is not unique to Paxlovid, as both drugs showed increased rates of rebound over time.

Since the start of the COVID-19 pandemic, more potential treatments and vaccines have emerged to improve patient safety and outcomes. About 1.2 million people have died from COVID-19 as of October, 2022, totaling to over 6.5 million people who have died from the virus since the beginning of the pandemic.⁹ The FDA's approval allowing pharmacists to prescribe Paxlovid is not only a big step for pharmacists, but also increases the accessibility and pace at which patients can recover from COVID-19. Some pharmacists have shown hesitancy in prescribing Paxlovid, whether it be due to the possibility of rebound COVID-19 or to difficulty in obtaining appropriate patient health records. Regardless, the FDA's approval for pharmacists to prescribe Paxlovid has emphasized the substantial impact pharmacists have been able to make within the past couple years of the pandemic.

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6th Year Perspective: The Establishment of RunnersRx

Featuring: Ali Baig, PharmD Candidate c/o 2023

By: Helen Li, PharmD Candidate c/o 2023

Ali Baig is a sixth-year pharmacy student at St. John's University. During his time at St. John's, Ali cultivated skillsets in business management, starting with his own car detailing business and eventually opening his own franchise of Edible Arrangements. Ali's interests in business and pharmacy practice led to the foundation of RunnersRx. This organization began as a way for community members to improve their health and wellness. As the organization continues to develop, Ali hopes to use this platform as a means of empowering its members and connecting healthcare workers from a variety of professional backgrounds.

Why did you choose to go to pharmacy school?

As a young kid, I've always been interested in business and found pharmacy to be the perfect middle ground between business and healthcare. I have a lot of family in the medical field and chose pharmacy school to make a difference in the health & wellness of society.

Describe your first business involvement.

When I was younger, I've always had a passion for business and automobiles. At the time...my family was experiencing some financial trouble. I wanted to figure out a way to support them. I saved birthday money to purchase equipment and products...and I started my car detailing business. That summer, I had taught myself all the fundamentals of starting a business. Starting from the ground up required me to build a new customer base. I gained experience by detailing the cars that belonged to my

friends and family members. This business helped me learn the importance of developing efficient communication skills. Towards my senior year of high school, it became a full-time commitment.

Elaborate on your involvement with a franchise of Edible Arrangements.

My Edible Arrangements journey began during COVID and I faced many hardships when I first started. I had to learn how to manage finance, marketing, and the overall operations of the store. My biggest challenge was learning how to manage business alongside school. Within the first eight months at Edible, we were able to increase sales by 20%. We ended the year as one of the top ten stores in the nation and as one of the top three stores in New York State. From a business/volume perspective, we reached tremendous numbers. This experience taught me that anything is possible. You just have to be willing to sacrifice certain things

along the way if you want to achieve your goals.

What advice would you offer to underclassmen interested in starting their own business career?

I think customer service and patient satisfaction are very similar. In the pharmacy retail setting, your patient is your customer. I think that the biggest thing you have to do when it comes to customer satisfaction is to separate your business from your emotions. One thing that I have learned from managing employees is that you have to be flexible and willing to cater to their needs. Going above and beyond for your employees is what sets a good boss apart from a great boss. I would tell underclassmen to find something they are passionate about and not to be afraid to pursue it.

Describe the foundation of RunnersRx.

RunnersRx started back in September of 2019. My good friend Ibrahim Hegazy and I went on a run in Long Island City and eventually started posting videos about health and fitness. The niche for us is that we want to work on the overall health and wellness for society. We want to advocate for pharmacists and show the various roles that pharmacists hold in society. Over time, I have learned that I want RunnersRx to bridge the gap between business, healthcare, and society. We have a variety of team members within RunnersRx from all different professional backgrounds. We look forward to seeing how we can grow in the future.

Summarize the general mission of RunnersRx.

The mission of RunnersRx is to empower its members. RunnersRx is made of pharmacists who run the world...I believe we are the most

versatile healthcare professionals in society.

What are some previous events that you've had for RunnersRx? What are some future events?

A previous event that we had back in July of this year was called the "Health and Wealth Expo". It was held in collaboration with the South East Queens Chamber of Commerce. Our goal for this event was to push the mission of RunnersRx. We had many tables set up and each group was responsible for a specific disease state. We came up with educational flyers and educated the community about their health. We plan on having more events like this in the future. A few weeks ago, we were able to raise funds for Pakistan due to the severe floods that the country is facing. We are excited to partner up with the New York City Society of Health-System Pharmacists (NYCSHP) to bring awareness to the Dr. Lorna Breen Heroes Foundation. Their mission is to reduce burnout of health care professionals and safeguard their well-being and job satisfaction.

Elaborate on your rotational experiences and its influence on your career.

I think my rotational experiences have shown me a lot about what I like in pharmacy. I chose all different kinds of rotations because I wanted to broaden my perspective and see what was available out there. I think being exposed to all these different environments helped me formulate my opinion about what I want RunnersRx to be. I've always wanted to help people and make a difference on a macro level. When I was on my ambulatory care rotation, I would talk to patients one-on-one and I really loved that. When I was in the hospital, we would go on rounds and see patients and I really loved that aspect too. My experiences in these areas

6th Year Perspective

have helped me create a clearer vision for my future as well as for RunnersRx and how my role can potentially influence other people down the line.

What are your post-graduation goals?

I definitely see myself working on RunnersRx. I don't know if it's going to be a full-time thing, but as of right now, I love it. RunnersRx is one of my hobbies; it fuels my passion and gives me purpose to wake up in the morning. As far as post-graduate plans, I definitely want to get involved in the pharmaceutical industry setting, whether that's working for a pharmaceutical company or doing my own thing down the line.

Do you have any advice to offer to younger students?

Surround yourself with the right people who will help you accomplish your goals. I am extremely fortunate to be surrounded by such amazing people in my life. I wouldn't be who I am today without these individuals.

**On behalf of the Rho Chi Post,
we would like to thank
Ali for taking the time to share
his pharmacy experiences with
our community!**

Want to learn more about RunnersRX?
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Rectal Cancer Disappears After Use of Immunotherapy

By: Sairah Sheikh, PharmD Candidate c/o 2024

Promising new research conducted by doctors at Memorial Sloan Kettering Cancer Center showed 100% remission of rectal cancer in 12 patients after immunotherapy. Traditionally, patients with rectal cancer are treated with chemotherapy and radiation, followed by a surgical resection of the rectum.¹ However, this method carries the risk of many adverse outcomes, including severe bowel, bladder, and sexual dysfunction; infertility; and altered quality of life. Physicians have reported a disturbing uptick in rectal cancer diagnoses in young adults, primarily between the ages of 20 to 50.² New immunotherapy options may be more appealing over traditional chemotherapy, offering better efficacy and side effect profiles.

In this phase 2 study conducted by Cercek et al., doctors alternatively used an experimental immunotherapy drug called dostarlimab, an anti-PD-1 monoclonal antibody.¹ Dostarlimab works by inhibiting programmed cell death-1 (PD-1). PD-1 is a protein found on T cells that regulates the body's immune response. Inhibition of PD-1 releases regulation of the immune system, allowing T cells to attack cancer cells.³ Dostarlimab 500 mg was administered via intravenous infusion every three weeks for six months in 12 patients. The original protocol called for follow up treatment with chemoradiotherapy and surgery unless patients achieved a complete clinical response. A complete clinical response was defined as the absence of residual disease on digital and endoscopic rectal examination and on rectal MRI. After the study period, all 12 patients were deemed 100% free of their rectal cancer.¹

The patients in this study all had mis-

match repair-deficient (dMMR) stage 2 or 3 rectal adenocarcinoma. The DNA mismatch repair system is normally able to identify and repair mismatched nucleotides during genetic recombination or from damage caused by external physical or chemical insults. dMMR can originate from germline mutations in DNA mismatch repair genes. Unrepaired nucleotide sequences increase the risk of multiple cancers, but are most commonly associated with colorectal cancer.⁴ About 5-10% of all rectal cancer patients have dMMR.⁵

Immunotherapy becomes a critical option in treating dMMR locally advanced rectal cancer. Certain cellular mutations accumulate in dMMR tumors, which normally would stimulate the immune system. To evade detection, cancer cells may produce PD-1 to down-regulate the immune response. Immunotherapy agents, like dostarlimab, are used as checkpoint inhibitors to block the PD-1 receptor, restoring the T cell's ability to recognize heavily mutated dMMR tumors and facilitate an immune response.⁵

In addition to dMMR tumors, rectal cancers may also fall under additional subtypes. One subtype is known as consensus molecular subtype 4 (CMS4) tumors. In these patients, T cells are activated, but cannot attack the tumor cells. Under a microscope, the CMS4 tumor microenvironment can be seen clustered with the presence of T cells and macrophages. CMS4 cancers are often diagnosed at advanced stages and have a poor prognosis.^{6,7} Other subtypes include CMS2 or CMS3 tumors, where the immune system shows little activity. For these subtypes, research is less focused on the tumor microenvironment and more focused on devel-

oping treatments to help the immune system recognize proteins created from tumor mutations.⁶ One potential solution could be through chimeric antigen receptor (CAR) T cell therapy. CAR T cell therapy is a type of immunotherapy where T cells are taken from a patient and are genetically modified in a lab to produce receptors that recognize antigens on the surface of cancer cells. The T cells are then multiplied and put back into the patient where they can identify and attack cancer cells.⁶

Although plenty of groundbreaking research is being conducted on colorectal cancer, some findings are not as pleasant. As mentioned before, studies are showing an increased prevalence of rectal cancer in younger patients. A 2018 study by the American Cancer Society estimated that those born in 1990 have two times the risk of colon cancer and four times the risk of rectal cancer compared to those born in 1950.² Unfortunately, the death rate for younger patients with colorectal cancer is increasing. The causes behind this trend remain unknown, but some hypothesized risk factors include inactive lifestyles, low-fiber diets, obesity, and regular use of alcohol, tobacco, and illicit drugs. The study acknowledged that adults over 55 years old are still more likely to get colorectal cancer, however, patients younger than 55 years old are 58% more likely to be diagnosed with advanced cancer.² It is advised that if a patient experiences persistent rectal bleeding, changes in bowel movements, or unexplained and frequent abdominal pain or gas, they should reach out to their physician and look to schedule a colonoscopy. It is also recommended that Americans get periodic screenings for colorectal cancer starting at age 45 rather than the previous recommendation of age 50, regardless of whether they have symptoms or not.²

With the rise in number of younger patients getting aggressive forms of colorectal cancer, research on this disease has never been more pivotal. Institutions like Memorial Sloan Kettering Cancer Center are finding more efficacious alternatives to chemotherapy and radiation, avoiding detrimental adverse effects. Instead, immunotherapy treatments like dostarlimab are coming into the spotlight, allowing patients to avoid the toxicities of chemotherapy and have improved odds of living enriched lives.

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Want to learn more about the pathophysiology and treatment options for different types of cancer? Visit the American Cancer Society at:

www.cancer.org

RHO_{Rx}CHI
post

Enjoying this issue? Check out previous issues on our website:



<http://rhochistj.org/RhoChiPost>

Stay up to date with new articles and events by following our social media accounts:



<http://fb.com/RhoChiPost>



@sjurhochipost

Have Questions? Feel free to email us at **RhoChiPost@gmail.com**

Meet Our 2022-2023 Editorial Team

Editorial Team & Production

Justin Budz

Editor-in-Chief

Over the past year, I had the pleasure of serving as the Development and Outreach Coordinator for the Rho Chi - Beta Delta Chapter. The most invaluable aspect of serving a role on their executive board was to continue the tradition of developing and distributing resources to stimulate intellectual leaders in our college of pharmacy student body. As the new Editor-In-Chief, I look forward to working alongside the talented students and graduates to produce publications that will follow advancements in healthcare and pharmaceuticals in order to continue that same tradition of promoting intellectual leadership among our readers.



Helen Li

Content-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 passion 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.



John Ortiz

Content-Focused Copy Editor

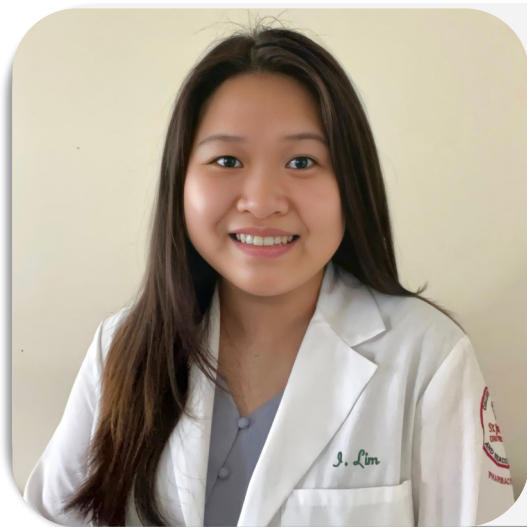
Rho Chi Post is an opportunity for students to foster their writing and investigative skills concerning pharmacy practice. By honing our understanding of new innovations and developments in pharmacy, we will be better at providing accurate information to readers and maintaining the continuous education expected of pharmacists.



Isabelle Lim

Content-Focused Copy Editor

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



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

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.



Jannatur Rahman

Staff Editor

Being a part of the Rho Chi Post is really honorable because Rho Chi is a national academic honor society in pharmacy. This society encourages and recognizes intellectual achievement. Being a part of the Rho Chi Post means that I will be responsible for communicating with the editorial team members and encourages me to teach and get to know other students and future newcomers.

Emily Kelley

Staff Editor

As a part of the Rho Chi Post team, I aspire to expand the importance of the health education programs by empowering and educating the community to live healthier lives. Knowing that my work and research could change the lives of millions is inspiring and motivating.



Sana Ahmed

Staff Editor

I believe the 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 the 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.



Geraldine Ciaccio

Staff Writer

The pharmacy profession is constantly growing as it drives for discovery. The Rho Chi Post allows student pharmacists to expand their knowledge of pharmacy while offering a space of collaboration and encouragement. I have always enjoyed writing, and I am so honored to be a Staff Writer for the Rho Chi Post this year. This opportunity will allow me to explore my personal interests within the pharmacy profession as well as encourage my peers to do the same. I am excited to collaborate with and learn from faculty, alumni, and my fellow students. These conversations are vital for change and discovery to occur. Taking a step beyond the classroom and building on previous knowledge is all it takes to grow as professional student pharmacists

Jennifer Galvet

Staff Writer

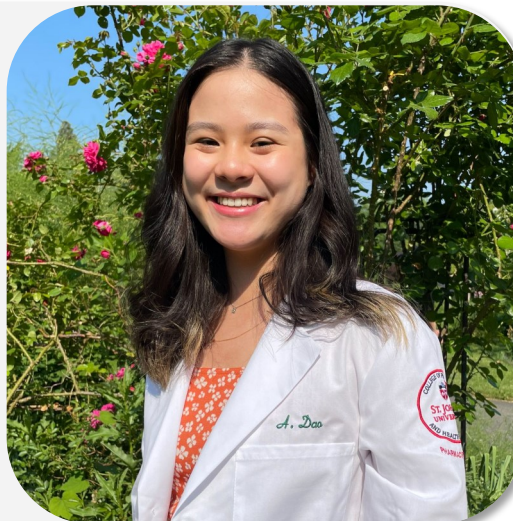
With the pharmacy profession constantly evolving and shifting its focus to advanced patient care, it is important to be knowledgeable of these changes. Although never formally part of the Rho Chi Post e-board before, I was able to utilize this platform in the past to share my writing on various pharmacy topics. I am looking forward to serving as a staff writer this upcoming year and continuing to share my passion about vital developments in healthcare through my writing. As I enter my fifth year of pharmacy school, I hope to keep fellow students informed, while simultaneously inspiring them to expand their knowledge on our ever-changing profession.



Ashley Dao

Staff Writer

The Rho Chi Post offers a place for students, alumni, and faculty to collaborate and share their experiences. Last year, I had the opportunity to serve as the Website Liaison of RCP and I am happy to come back this year as a Staff Writer. As someone who has always had a love for writing, I am grateful for the voice that the Rho Chi Post has given me. I hope that I can encourage more students to contribute to the Rho Chi Post. After all, without conversations, there can be no change.



Imaan Sekhery

Staff Writer

As students in pharmacy, it's our responsibility to educate and update, not only our peers on new medical advancements, but also educate ourselves. Being apart of the Rho Chi Post team allows us to consistently keep up to date with the ongoing improvements and innovations within the pharmaceutical field. There is only so much we can learn from our day-to-day classes, Rho Chi Post stands as another gateway to familiarizing ourselves with the professional world we will soon enter. The world around us continues to evolve, it is up to us to remain in the know. As a staff writer, I am delighted to join the editorial team and look forward to contributing in the aspect of benefitting the pharmacy community as a whole.

Sairah Sheikh

Staff Writer

Ever since I was little, writing has always been a passion of mine. I would find joy in editing my friends' and family's works of writing. I would create short stories and eagerly read them out loud to entertain guests at social gatherings, which they would take great joy in listening to. As a staff writer now for the 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 small part in that as a member of the incredible editorial team.



Nancy Yousry

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 incoming Staff Writer, I look forward to bringing these current events to light and to serve as an educational resource for passionate readers and writers alike



Learn More About Our Editorial Team Responsibilities!



Staff Editor

Staff editors are the first to revise an article upon submission. The focus is to review the structure and content of an article. Specifically, staff editors evaluate the clarity/flow of the article and writing mechanics used by the author.



Staff Writer

Staff writers produce 2 articles per semester. Topic ideas are pharmacy/healthcare related, falling under any of the following categories: *News/Politics, Events, Clinical Articles, Pharmacy Pearls, Advice/Opinions*



Content-Focused Copy Editor

Content-focused copy editors are second in line to revise an article. After staff editors have made revisions, copy editors go through the same steps, with the addition of fact checking. Copy editors ensure that all names, dates, times, statistics, facts, URL's, and citations are all accurate, properly cited, and from credible sources.



Graphics-Focused Copy Editor

Graphics-focused copy editors create the upcoming official electronic issue via Microsoft Publisher. They are tasked with updating the Rho Chi Post template with newly approved articles, relevant images, advertisements/filler information, etc.

Social Media & Outreach

Noor-ul-ain Buksh

Engagement & Outreach Manager

I am incredibly grateful to be serving as an Engagement and Outreach Manager for the Rho Chi Post. As someone who has frequently seen people silenced in the media, I strongly feel that it is important that our newsletter displays diverse perspectives on pharmaceutical topics and I hope to play a meaningful part in helping that happen. Oftentimes, it is easy to lose connection with the student community. I want to avoid that and prioritize the opinions of our readers and writers. While upholding the Rho Chi Post's mission, I plan to work my hardest to promote inclusivity and stay connected with the student body. The pharmaceutical world is never static so I am excited to learn and work alongside my peers.



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 as students who will become the healthcare leaders of tomorrow.

Rukhsar Farheem

Social Media Manager

I am beyond honored and excited to serve on the executive board as Social Media Manager. Since my first year of pharmacy school, I always knew I wanted to be a part of the Rho Chi Post and contribute to this excellent platform, as it allows students, faculty and alumni to share their knowledge and insights on the current events in the pharmacy world. I love how this organization provides multiple mediums to voice our opinions and explore our interests in the various aspects of pharmacy. Since high school, I have been a social media enthusiast and have participated activities revolving around graphic design. I'm excited to see this organization continue to grow, and I hope that I can encourage more students to join and contribute to the Rho Chi Post.



Advisors

Dr. Elsen Jacob

PharmD, MS, BCPS, BCGP, CPPS

As the faculty advisor for the Rho Chi Society and Rho Chi Post, I've had the opportunity to work closely with exceptional students who have a genuine passion for learning, service, leadership, and innovation. I look forward to what Rho Chi will accomplish this year!



Dr. Joseph Etzel

PharmD

Dr. Joseph Etzel is serving as the Rho Chi Post's interim faculty advisor for the 2022-2023 academic school year. 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 working with him this year!

Dr. Mohammad Rattu

PharmD, BCOP, BCPS, BCGP

I am thankful to have been the 2012 editor-in-chief of the Rho Chi Post 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

Meet Our 2022-2023 Rho Chi Executive Board

Executive Board

Vassilia Plakas

President

Rho Chi represents academic excellence, professional development, and service to our younger peers and fellow colleagues. Our programs and events reflect the value of scholastic leadership. Being part of Rho Chi has been such a wonderful experience so far; I am humbled and grateful to work with a strong executive board and a dedicated fifth year class.



Frances Alexis Dela Cruz

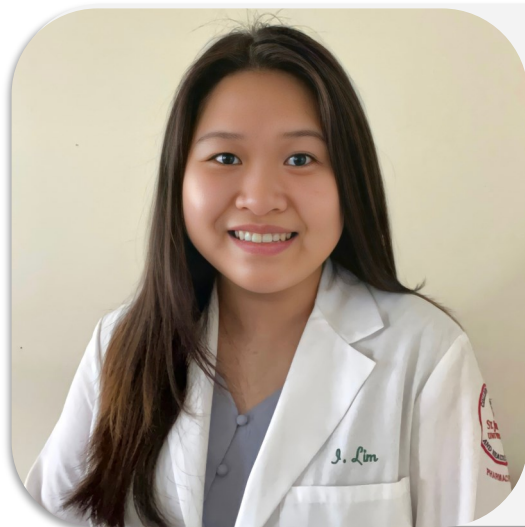
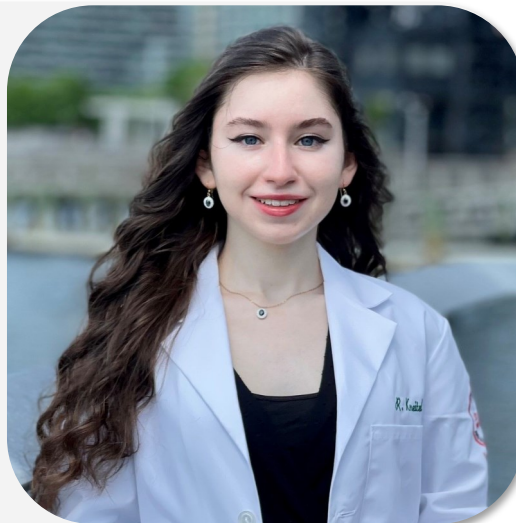
Vice President

Rho Chi is a community that promotes academic excellence and service to others. By providing academic assistance and professional development opportunities, we strive to foster a supportive space for our members and younger peers to succeed. Rho Chi has played a significant role in my pharmacy journey thus far, and I am honored and humbled to be a part of this organization.

Rachel Kneitel

Secretary

Rho Chi to me is a collaborative space where students can encourage and support each other to excel. This organization allows students to spark stimulating conversations about pharmacy and healthcare as a whole.



Isabelle Lim

Treasurer

Rho Chi serves as an opportunity for students to academically support and collaborate with one another. Over the years, I personally have come to appreciate Rho Chi's study materials and review sessions as an integral resource when preparing for exams. I am honored to be a part of Rho Chi in a way where I can help other students just as Rho Chi has helped me in previous years.

Amanda Schleider

Historian

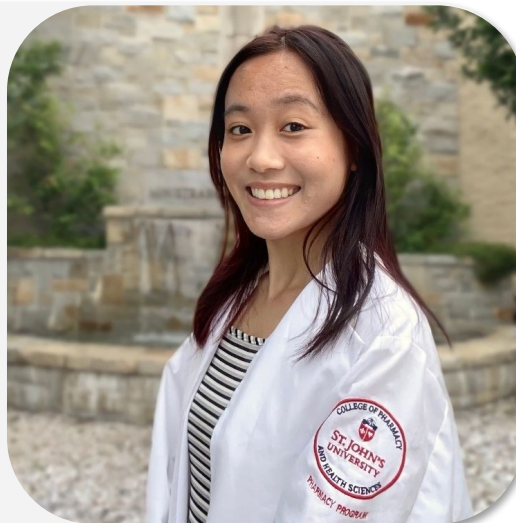
As the top students in our class, we have a unique opportunity to help our fellow classmates and younger pharmacy students succeed. This is a challenging program, and we all want to get through it. I am proud to be part of an organization that values assisting pharmacy students with their studies and connecting them with alumni and faculty members at our famous coffeehouse chats!



Joanne Fung

Development & Outreach Coordinator

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.



Shankun Lin

Academic Committee Coordinator

Rho Chi is an honor and an accomplishment that I am proud of. As a Rho Chi member, we should be humble and give back to our community for intellectual and professional success.

Riya Vinoy

Academic Committee Coordinator

Rho Chi is a collaboration of individuals that are committed to advancing the field of pharmacy that recognizes and promotes intellectual leadership. This collaboration fosters the growth of intellectual leaders by providing resources that can assist in achieving academic excellence.



Mark Your Calendars for our 2022 Fall Semester Events!

September							
	S	M	T	W	T	F	S
					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	

December							
	S	M	T	W	T	F	S
					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

Sep. 8th: Activities Fair

Sep. 26th: RCP Information

Dec. 7th: Writing Workshop

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!

Interested in joining our Editorial Team?

The Rho Chi Post currently has positions open for staff writers, staff editors, content-focused copy editors, and graphics-focused copy editors. Scan the QR Code below to learn more about these positions and to apply for a spot on our editorial team!

