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QUOTE OF THE MONTH

By: Matthew Kahn, Graphics Editor

Quiet people have
the loudest minds.

Stephen Hawking

CDC and pharmacists fight antibiotic resistance

By: Katharine Russo, PharmD Candidate c/o 2021

With the continued increase of antibiotic resistant diseases, scientists are calling this current healthcare climate a pre-antibiotic era. β -lactam antibiotics, the most common class of antibiotics globally, include penicillins, cephalosporins, and carbapenems. They all act on the human body through the same mechanism of action (MOA) - inhibiting the synthesis of the bacterial peptidoglycan cell wall of gram (+) bacteria. Resistance can occur through many mechanisms. The most common MOA is the production of β -lactamases. Other less common MOA's include alterations in or acceptance of penicillin-binding proteins (PBPs) and a decreased entry and/or active efflux of the antibiotic. Mutations decrease the affinity β -lactam antibiotics have for several PBPs thus increasing resistance through the inability of agents to penetrate its specific site of action.¹

In 2016, the CDC gave funding to all 50 states to increase the quality and number of laboratories focusing on antibiotic resistance (AR) research as well as public health initiatives. While research is being done on ways to prevent resistance, the CDC has provided a containment protocol to every state to isolate rare or deadly infections at the point of onset in order to lessen the spread of the disease. This process allows the CDC to be contacted immediately at the onset of the protocol to begin research of the underlying bacterial cause. In January of 2018 the CDC reported that their protocols have enabled multiple states to isolate and contain disease.² As a hub for international travelers, New York received a higher level of aid from the CDC to enhance testing and technology which helps detect, support, respond to and prevent AR threats across the nation and internationally. New diagnostic technology allows bacteria to be identified more accurately to ensure proper treatment from the beginning of disease onset.³

Pharmacists continue to play a major role in the fight to prevent AR. The International Pharmaceutical Federation (FIP) published an article in 2015 regarding the role pharmacists will play in fighting AR. Counseling

patients prior to starting antibiotics is one of the most important things pharmacists can do in this public health pursuit. Reminding patients that fully completing a course of antibiotics is imperative to fighting resistance. Additionally, it is pertinent they are reminded of the bad effects of self-treating future disease with leftover medication or sharing it with family and friends as this easily allows for a rapid increase of AR. Finally, advocating for immunizations is the most direct way to avoid subsequent bacterial superinfections thereby eliminating the need or use of antibiotics to treat patients.⁴

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2018 ACC/AHA new hypertension guidelines review

By: Gabrielle Flavoni, PharmD Candidate c/o 2018

This past November, the ACC/AHA released a new definition for the word “hypertension” that has been updated for the first time since 2003. Under these new guidelines, more than half of the U.S. population will now be categorized as having high blood pressure. Presented at the AHA’s 2017 Scientific Sessions, the new controversial guidelines now lower the threshold for blood pressure to 130/80 mm Hg instead of the previous 140/90 mm Hg.¹

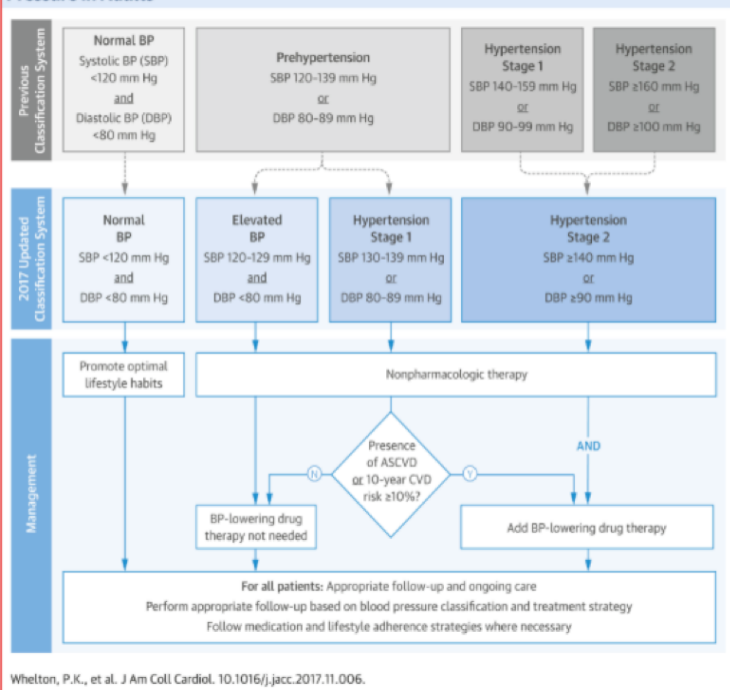
The goal of having a lower threshold is to identify high blood pressure earlier in order to prevent complications. Based on the earlier guidelines, a significant amount of adults who had consistent elevated blood pressure went untreated, and progressed on to develop poor cardiac outcomes. By beginning treatment earlier, patients are able to prevent blood vessel damage and improve future outcomes.² This is especially important in the younger populations, who can be properly educated and keep themselves healthier before medical intervention becomes necessary.

The big question becomes, where does this leave us now? The new guidelines have different numerical definitions for each level of hypertension, and patients need to be educated as to where their numbers place them. Health care providers will continue to play a pivotal role in the education of the general public, and not just in terms of where they fall on the hypertension spectrum. The priority should also lie in demonstrating to patients the proper way to measure blood pressure at home, as well as lifestyle modifications that can help bring them closer to their blood pressure goal.²

That being said, having elevated blood pressure does not automatically place patients into a category requiring medication. It is simply seen as a warning sign for lifestyle modification to prevent the elevation to progress. In fact, the new comprehensive guidelines recommend that patients in the “Stage I” classification (SBP 130 – 139 mmHg or DBP 80 – 89 mmHg) to only be medicated if they have already had a cardiovascular event, such as a heart attack or a stroke, or if they are at a high risk for a cardiovascular event based on other health conditions such as diabetes or chronic kidney disease.^{1,2}

The new guidelines also highlight the idea that many people with hypertension will require more than one medication to control their blood pressure. One of the biggest hardships with controlling disease states lies in medication adherence. Therefore, maximizing “combination pills” that contain more than one medication in a single pill can be a primary tool in improving health care outcomes. Identifying patient-specific factors is also important in maximizing treatment. Authors suggest that identifying the socioeconomic status, race, psychological stresses, and other risk factors is vital in the development of a patient’s care plan.^{1,2}

For now, providers should focus on education. When our patients can fully understand their health status, they have a better ability to help themselves while preventing further damage. This includes teaching those in the community how to properly measure their own blood pressure at home, sharing tips on how to keep a record of their readings for their providers, and educating them on how to become the healthiest versions of themselves.

CENTRAL ILLUSTRATION: 2017 Updated Classification and Management of High Blood Pressure in Adults

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You vs. diabetes

By: Gabriel Ilyayev, PharmD Candidate c/o 2018

My grandpa is a type 2 diabetic. My father is a type 2 diabetic. I've seen the injections, the side effects, the limitations that they're forced to accept because of their condition. You know what I say to that? This must be stopped. My aunt, Stella Ilyayeva, MD, FACE, an endocrinologist, has impacted the lives of many diabetics and I'm simply in awe of what she does. My family is my inspiration to go out there and educate patients whenever I get the opportunity and teach them how they can avoid diabetes and win the battle.

I will never forget August 29th, 2017. It was the day that I, as a soon to be pharmacist, educated an audience on diabetes prevention. I had the support from my wonderful preceptor, Dr. Joshua Rickard, PharmD, BCPS. He served as a mentor during this event and was able to answer any questions I may have not known. We had over 10 handouts that were given out to the audience and they were extremely pleased to receive this important information.

The first topic that I discussed was the ABCs of diabetes. A stands for A1C, B stands for blood pressure, and C stands for cholesterol. If patients can control these three aspects, they will prevent the development of diabetes. This is huge because diabetes is like a monster; it only gets stronger as it gets older. Now, the keys to preventing diabetes is eating correctly and partaking in physical activity. Having said that, I asked our patients what a healthy plate look liked. For starters, half of it must be vegetables. Additionally, I encouraged patients to make their veggies as colorful as the rainbow. Next, there is a quarter allocated for starch and a quarter for protein. The proper order to consume the food is from vegetables to protein to starch. Not only does a person feel fuller and then eat less starch, their glucose levels will increase in a much slower pattern this way. I also

talked about how females should consume about 90 grams of carbohydrates per day (30 grams per meal) and males should consume about 135 grams of carbohydrates per day (45 grams per meal). Believe it or not, two Pop-Tarts have 76 grams of carbohydrates! So one should be full after eating, right? Wrong, foods like Pop-Tarts are just empty calories and can spike a person's sugar levels. It is imperative to avoid food that contains a lot of sugar, is fried, or is very salty. I advised patients to avoid cookies, fries, potato chips, and processed foods. I went into great detail on what not to eat and what to eat. I also reinforced the importance of knowing how to read nutrition labels. Adequately doing so allows a patient to make the right decisions and prevents them from negatively impacting their body. Remember one more thing, portion control is crucial.

Exercise is also extremely important and any form of exercise will do. Walking, jumping, dancing, running, are all excellent means of exercising. Do what makes you happy and makes you move! Exercising with a friend can make it even more fun! Exercising can keep you very healthy and can prevent any cardiovascular complications and prevent the onset of diabetes. Some tips to include are to warm up before exercising, wear comfortable shoes, and always carry a few pieces of hard candy. Also, don't forget, exercise also makes you feel less stressed and thus much better. Why is it important to wear comfortable shoes? Well, if a person is diabetic or approaching diabetes, they may bruise easier and be more prone to infection. Additionally, due to possible nerve pain that may occur as an unwanted complication, patients must wear comfortable shoes and always maintain proper foot hygiene.

Hyperglycemia and hypoglycemia. What in the world is that? Hyperglycemia is a state of high blood

glucose. Some symptoms generally include polyphagia, polydipsia, polyuria, blurred vision, and much more! This all usually happens when people eat very unhealthy and don't exercise. This complication of diabetes, if uncontrolled, can also lead to nerve pain and infections. You must call your healthcare provider in these instances and monitor your blood glucose daily. Hypoglycemia is a state of low blood glucose, which is when the levels are lower than 70 mg/dL. Symptoms include hunger, palpitations, and dizziness. Hypoglycemia is generally more dangerous than hyperglycemia because having a low blood sugar for a prolonged period of time is considered a medical emergency as it can lead to death. When a patient feels this, they must take three to four glucose tablets or drink four ounces of orange juice. This will normalize their blood sugar levels. It is important not to overshoot and not to take too much sugar. It's recommended to wait at least 15 minutes after consuming the glucose tablets as it will take approximately 15 minutes for the glucose levels to normalize.

I said that diabetes is a monster. Why? Well, diabetes can lead to blindness, peripheral neuropathy, elevated blood pressure, and amputations. Eating right and exercising are the keys to preventing diabetes from occurring.

I wanted to thank Queens Library-Forest Hills for allowing us to host the event. I want to thank Dr. Rickard for taking time out of his busy day to precept the event. I also want to thank my diabetes elective professors, Dr. Mazzola, PharmD, CDE and Dr. Ginzburg, PharmD, CDE who facilitated very similar events during the semester which counted as academic service learning. Partaking in those events inspired me to take initiative and do the same. I also want to thank my aunt, Dr. Stella Ilyayeva. She is an endocrinologist and seeing what she does flabbergasts me and I simply can't wait to become a pharmacist. This is the first of several installments. I want to educate as many patients as I can around New York. Stay tuned for what's coming soon to a library near you!!



"Inspiring others is the greatest inspiration."

-Anonymous

Review on the use of hydroxyurea - 50 years of FDA approval

By: Jonathan Mercado, PharmD Candidate c/o 2019

Hydroxyurea is a versatile, multi-functional drug that has been used for decades in the United States. It was originally approved in 1967 as an antineoplastic drug for use in multiple cancers including melanoma, ovarian cancer, and most prominently chronic myeloid leukemia (CML).¹ Although approved as a chemotherapeutic agent, its diverse set of mechanisms eventually led to FDA approval for the treatment of sickle cell disease (SCD) in 1998.² While its use has evolved over the past half century, hydroxyurea remains a viable tool in the modern chemotherapeutic arsenal, and is the pillar for the pharmacological treatment of SCD.

In contemporary medical practice, hydroxyurea's primary use is for the treatment of SCD. SCD is a hereditary red blood cell disorder that alters hemoglobin, the protein responsible for carrying oxygen, into what is commonly called hemoglobin S (HbS; SCD specific hemoglobin). Two critical changes occur as a result. First, there is reduced transportation of oxygen that leads to a plethora of issues such as chronic pain, acute severe pain crises, and ongoing fatigue. Second, hemoglobin S morphs the normal voluminous disk shape of red blood cells into a thin crescent shape; this change promotes clotting and can lead to coagulopathy.³

While hydroxyurea is classified as a ribonucleotide reductase inhibitor, the drug's ability to increase hemoglobin F levels (HbF; hemoglobin found in fetuses) makes it effective in treating SCD. An increase in HbF levels have been shown to help prevent the sickling of red blood cells and improve symptoms in SCD patients.⁴ Not only that, hydroxyurea has multiple other functions such as decreasing the quantity of leukocytes and reticulocytes in circulation, modifying adhesion molecules, and providing vasodilation which further improve coagulopathy induced by SCD.⁵ Hydroxyurea has also been shown

to provide protection to the spleen and kidney and is often used in conjunction with red blood cell transfusions. The combination allows for an active attempt at counteracting the effects of SCD while providing a healthy supply of fresh red blood cells as support. Hydroxyurea is dosed orally at 20 mg/kg/day for children and 15 mg/kg/day for adults once daily for the treatment of SCD, even in patients who are asymptomatic.⁴ Patients must be over nine months old to use this medication. It is well tolerated at these doses with side effects that include mostly rashes and less commonly, mouth or skin ulcers.⁴

While hydroxyurea is a mainstay in SCD, it's original indication for a variety of cancers has changed over several decades. Due to the advancement of medicine, cancer is now treated with drugs that target highly specific receptors in the body. Hydroxyurea is a drug that is non-specific in its nature, which is why it has been phased out of modern therapy due to the rise of agents such as tyrosine kinase inhibitors (i.e. imatinib, nilotinib) that have pinpoint targets based on the cancer's pathophysiology.⁶ Currently hydroxyurea is reserved as an option in CML rather than the various cancers it was initially approved for.

Hydroxyurea plays an emergency role in situations when treatment needs to be initiated immediately and BCR-ABL1 gene has yet to be confirmed as the cause of CML. Hydroxyurea's nonspecific mechanism helps reduce white blood cell (WBC) counts significantly when patients are experiencing leukocytosis, symptoms of splenomegaly, or other severe symptoms.⁷ In these cases, hydroxyurea is dosed at anywhere between 20 to 40 mg/kg/day as deemed appropriate based on the WBC count. As the count reduces, so should the dose of hydroxyurea. Before switching from hydroxyurea to one of the tyrosine kinase inhibitors, it is recommended to taper

gradually.⁸ At higher doses, the risk for adverse events such as ulcers, edema, changes in skin color, and seizures increases.

While ulcers and rash are by far the most common symptoms that are encountered with use, hydroxyurea has two major black box warnings. First is the risk of bone marrow suppression, a common risk in many chemotherapeutic agents. This makes it essential to consistently monitor blood counts throughout its use and adjust doses accordingly. Second is secondary malignancy; while hydroxyurea is a chemotherapeutic agent, it is also carcinogenic. While risks are very low for secondary malignancy, it is still important to monitor patients to ensure there are no new complications that arise due to therapy. Furthermore, hydroxyurea is classified as a category D drug in pregnancy, and therefore it must be avoided in pregnant women. Women taking this medication must not plan on becoming pregnant and must use contraceptives to avoid pregnancy. This drug also passes into breast milk, so breastfeeding must be avoided while on this medication.¹ In regards to handling the medication, the drug is cytotoxic and thus requires healthcare providers and patients to wear disposable gloves when making physical contact with it. Hands should be washed before and after doing so, and proper flushing of the skin and eyes are necessary if the drug comes in contact with those areas. If the drug spills on a surface, there is a cleaning protocol with detergent that must be followed; patients taking this medication should be counseled on all these safety issues.¹

Hydroxyurea, although five decades old, is an essential drug in treating SCD and retains a niche but important role in treating CML. While it has its risks, the medication is safer than most nonspecific chemotherapeutic agents and is significantly less expensive. Nevertheless it should be prescribed and counseled on appropriately. While the growth in pharmacotherapeutic options continues to advance, it appears that hydroxyurea will remain a backbone in the treatments for SCD and CML for years to come.

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Pharmacotherapy in posttraumatic stress disorder and the link to increased dementia risk

By: Michelle Huang, PharmD Candidate c/o 2021

In the midst of countless chronic diseases that we face today, one that is usually overlooked is posttraumatic stress disorder (PTSD). On average it affects 5.2 million individuals per year and women are twice as likely to develop PTSD.¹ This overwhelming incidence is greatly attributed to the number of veterans who served during the Vietnam or Gulf Wars or faced other, similar life-threatening experiences. As a result, new studies suggest a correlation between PTSD and risk of developing cognitive decline and dementia.²

A recent study conducted at the University of Iowa elucidated the negative effects of psychoactive medications. At baseline, or initial reading, patients were assessed on their cognitive function after an adverse life event. In 2002 to 2003, researchers compared initial readings to follow-up data in order to determine the likelihood of developing dementia.² Scores were determined and adjusted according to sex and age as to minimize discrepancies. The researchers concluded that there was an additional risk for dementia among PTSD patients who took antipsychotic medications. Patients who did not use any medications did not develop dementia during the follow-up and those who took medications were at greater risk for developing the condition. Antipsychotics were also proven to speed up the process of developing dementia altogether.²

However, the correlation between PTSD and increased dementia risk could not be established because increased dementia risk could be due to numerous factors.³ Amongst the various factors, PTSD symptom severity has been shown to be highly confounding since severe PTSD usually means that the individual has received treatment with psychoactive medications.³ Furthermore, there are a lack of studies conducted that posed any association between PTSD and risk for dementia. Some even claim the medications themselves influenced the risk for dementia.

The topic of antipsychotics as a psychotherapy for PTSD is crucial because there is a direct correlation these medications and an increased risk of dementia that cause patients to sustain a higher extracellular activity of serotonin and noradrenaline.⁴ In doing so, the medications can impair cognitive function and increase the risk of dementia among PTSD patients.² Stress can also play a major role in dementia development since it damages the hippocampus, which is critical in memory and learning. Malfunctioning of the hippocampus leads to abnormalities in neurotransmitters and hormone levels, subsequently triggering dementia.⁴

There is still no substantial information to help us understand the relationship between antipsychotic medication use and dementia. We should continue to look for treatments that would ultimately reduce the risk of adverse health outcomes like dementia through advanced screening for cognitive impairment. Perhaps by finding appropriate and effective treatments for PTSD patients, we can start to eliminate the drugs that account for the development of dementia in old age. Ultimately, continued research on the effects of antipsychotic medications for PTSD and other related conditions can help determine ways to improve patient care and outcomes altogether.

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An overview of “leadership” in pharmacy education

**By: Shivani Shah, PharmD Candidate c/o 2021 and Jagannath Muzumdar,
PhD Associate Professor Pharmacy - Pharmacy Administration and Public Health**

INTRODUCTION

The Center for the Advancement of Pharmacy Education (CAPE), in its most recent pharmacy education outcomes report, has called attention to the lack of personal and professional development of pharmacy students. In what is commonly referred to as Domain 4, the members of the CAPE Outcomes report have focused on the topic of leadership and developing leadership qualities in pharmacy students specifically in subsection 4.2. Integrating pharmacy students' leadership skills is of particular importance as it not only encourages students to be leaders in their field, but as the American Association of Colleges of Pharmacy (AACP) also notes, it is a crucial step in the advancement of professionalism, within which leadership is a vital component. Leadership connotes a variety of definitions. However, broadly characterizing it by defining leadership as an active commitment to demonstrating responsibility for creating and achieving shared goals, regardless of position, CAPE incorporates the impression that all student pharmacists can be actively engaged and lead positive change in the healthcare field.

Similar calls to action for leadership exists in other related healthcare fields, such as medicine and nursing. Training of leadership skills in medical education for physicians is actively being researched. One study reviewed catalogues of learning objectives published worldwide in medical education curricula. The results showed that the development of leadership skills at present clearly does not constitute a central element of research into physicians' undergraduate and continuing

medical education in Europe and the USA.¹ Although physicians are expected to take on the role of a leader, to bear responsibility and to make important medical decisions facing a heterogeneous environment, there seems to be a lack of training in the related discipline. In nursing, there are two leadership models the field has taken on, transformational and transactional. Nurse leaders need to be able to respond to an ever-changing healthcare environment, including organizational expectations and changes to local and national policy. As such, the call to action for leadership in nursing commits to the motto “practice changing practice” in which nurse leaders are not concerned with using models and developing an “eclectic” strategy. Rather, the models are used as framework that suits the individual leader. Leadership in related disciplines shows that CAPE's call to action for leadership is applicable to other healthcare professionals, and specific strategies and characteristics of leadership in pharmacy need to be further explored as pharmacists are becoming an integral part of medical care teams.

The purpose of this study is to provide an overview of different leadership definitions and key characteristics that have been identified in research journals. This study will also illustrate different interventions that have been taken to integrate leadership in curricula in pharmacy schools across the United States. By assessing these definitions and characteristics as they relate to the interventions, the study will objectively discuss the results of the interventions.

Table #1: Definition of Leadership Identified in Pharmacy Literature

Article	Definition/Key Characteristic
Sorensen et al ²	<ul style="list-style-type: none"> • Using personal strengths • Leading adaptive change • Creating visions for the future • Articulating messages clearly • Engaging in personal reflection • Professional networking
Mospan et al ³	<ul style="list-style-type: none"> • The ability to advocate for their profession • Ability to push for new healthcare policies • Participating in political legislative processes
Patterson et al ⁴	<ul style="list-style-type: none"> • Self-awareness development • Monitor and self-regulate behaviors and emotional reactions
Sucher et al ⁵	<ul style="list-style-type: none"> • Ability to self-assess strengths and weakness • Enhance skills as lifelong learners • Creating individual plans for their continuous professional development
Feller et al ⁶	<ul style="list-style-type: none"> • Explaining the importance of leadership • Demonstrating self-awareness in leadership • Developing knowledge of organizational culture
Allen et al ⁷	<ul style="list-style-type: none"> • Successfully navigate through change
Chesnut et al ⁸	<ul style="list-style-type: none"> • Taking greater part in patient care • Being involved in disease state management • Managing medication costs
Mort et al ⁹	<ul style="list-style-type: none"> • Pharmacy leader is driven by the mission of the organization/activity (patient care/outcomes), rather than by personal motivations and continually strives to improve

Table #2: Assessment of interventions

Article	Objective	Intervention	Assessment/Conclusion
Sorensen et al ²	To develop and implement a course that develops pharmacy students' leadership skills and encourages them to become leaders within the profession	Elective Course	The courses addressed important elements for establishing a foundation for leadership. It also provided an opportunity for development of skills important for leadership, including the ability to articulate a vision and effectively persuade others on professional issues.
Mospan et al ³	To provide rationale for the need for a greater emphasis on development of these [leadership] skills within student pharmacists, evidence of curricular experiences surrounding advocacy from the literature, initial observations from a piloted curricular thread at one school, and implications for the academy.	Legislative Advocacy Curriculum	There is a need for further work to describe additional curricular innovations centering on legislative advocacy. Faculty must be future-minded in their design of innovations and corresponding identification of impact and success.
Patterson et al ⁴	To develop and implement a flexible-credit elective course to empower student pharmacists to develop lifelong leadership skills and provide teaching practice opportunities for graduate students.	Graduate-student taught flexible credit elective course	Student pharmacists found the course a positive experience overall with the amount of effort close to expectations. Graduate students found course development challenging but useful in developing skills necessary for service as future faculty members. If the pharmacy profession it to assume a greater role in patient-centered delivery of care and improving medication use and safety, colleges and schools of pharmacy must embrace leadership development as a critical component of pharmacy education.
Sucher et al ⁵	To describe the design, implementation, and evaluation of a leadership-development elective course.	Elective Course	The content and activities in this course were broad in scope to parallel the broad understanding of leadership, offering each student a menu of tools and concepts related to leadership. This allowed for each student to personalize his/her own leader development plan. The interactive nature of the course was a perceived strength, resulting in class sessions in which students used leadership tools, applied leadership concepts, and participated in facilitated discussions by the instructors.

Table #2: Assessment of interventions (Continued)

Article	Objective	Intervention	Assessment/Conclusion
Feller et al ⁶	To summarize student pharmacist leadership development opportunities delivered by pharmacy programs, to describe selected opportunities, and to assess how these opportunities meet leadership development competencies.	Multi-method study	Most US pharmacy programs offer their students an array of opportunities to develop leadership abilities. Pharmacy programs should consider expanding opportunities beyond elective courses. No information was available from some schools, which may suggest a lack of opportunities.
Allen et al ⁷	To discuss servant leadership and transformational leadership in academic pharmacy.	Debate	Determining an appropriate leadership model for academic pharmacy is open to debate. A servant leader is one who leads from behind by supporting the development of individuals in the organization while a transformational leader provides a common goal and vision and develops individuals to meet those goals.
Chesnut et al ⁸	To assess the effectiveness of the Student Leadership Development Series (SLDS), an academic-year—long, co-curricular approach to developing leadership skills in pharmacy students.	Guest speaker, monthly forms, poster presentations, creating a personal leadership platform through activities	By spanning the full academic year, this student leadership development program allowed for both curricular and co-curricular components to be incorporated. The goals of this program appear to have been fulfilled and the program has positively influenced students' leadership development.
Mort et al ⁹	To describe a longitudinal leadership program involving all students and report the perceived impact.	Longitudinal leadership program	Students gained a greater appreciation of leadership. Half of the students indicated that they participated in a leadership role to meet the Report of Leadership Activity requirement, and more than one-fourth sought a leadership role.

CONCLUSION

Instilling leadership qualities in pharmacy students requires many key characteristics that need to be objectively measured and assessed. Although pharmacy schools have used different tactics in their respective curriculum, the main goal of all these interventions is to ultimately develop students as professional leaders in their field. As the perception of the role of a pharmacist has changed in the last couple of years, from being mechanical prescription dispensers to vital players in a healthcare team, there is a lot of work yet to be done in making sure student pharmacists are well equipped with the skills and knowledge to excel in the healthcare industry.

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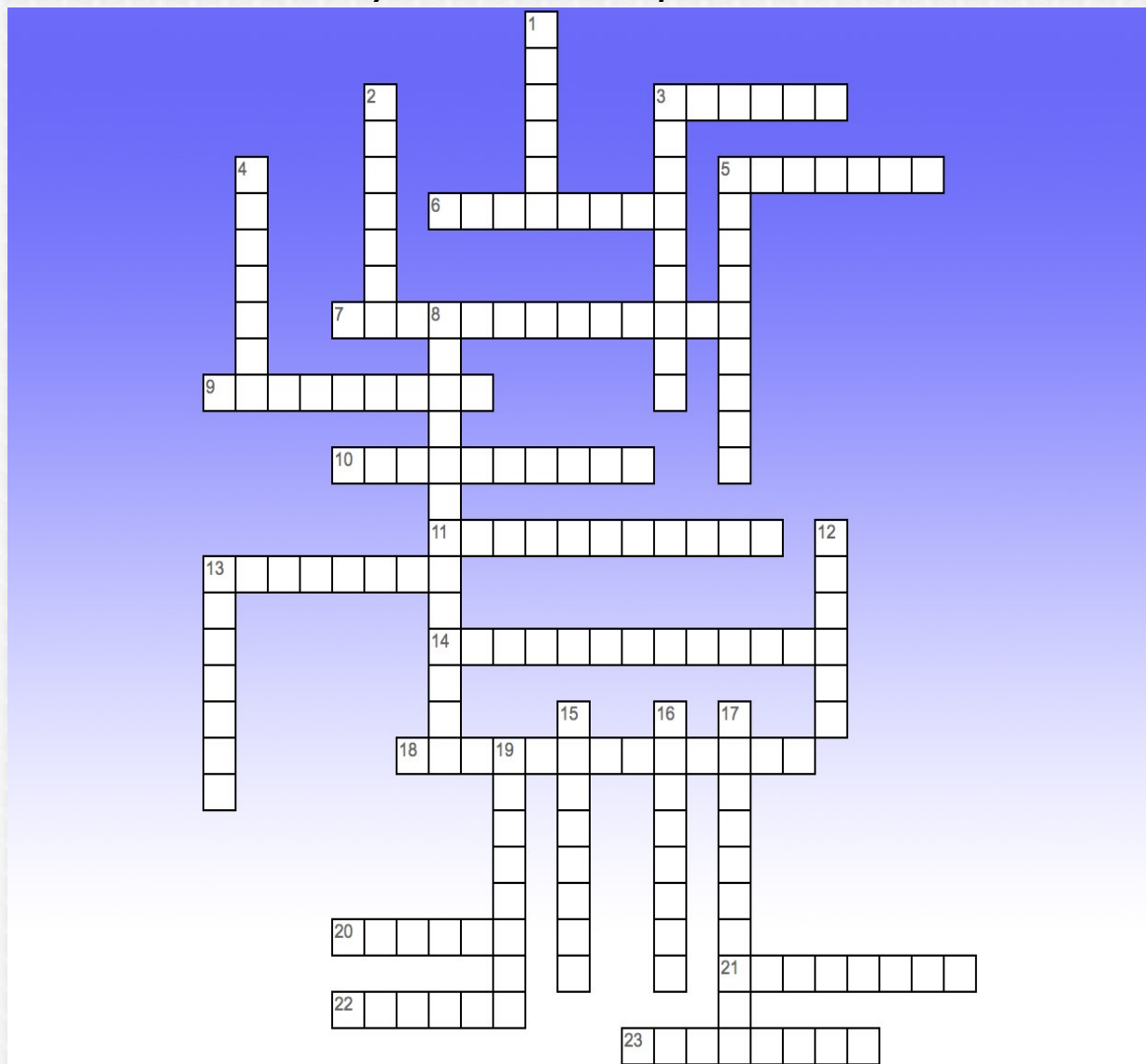
Do you attend events on campus, but you prefer not to write?

SUBMIT YOUR PHOTOGRAPHS

**Send them to our editors at RhoChiPost@gmail.com
and we will feature your pictures in our next issue!**

Puzzle: Brand and Generic Drugs Crossword

By Matthew Kahn, Graphics Editor



Across

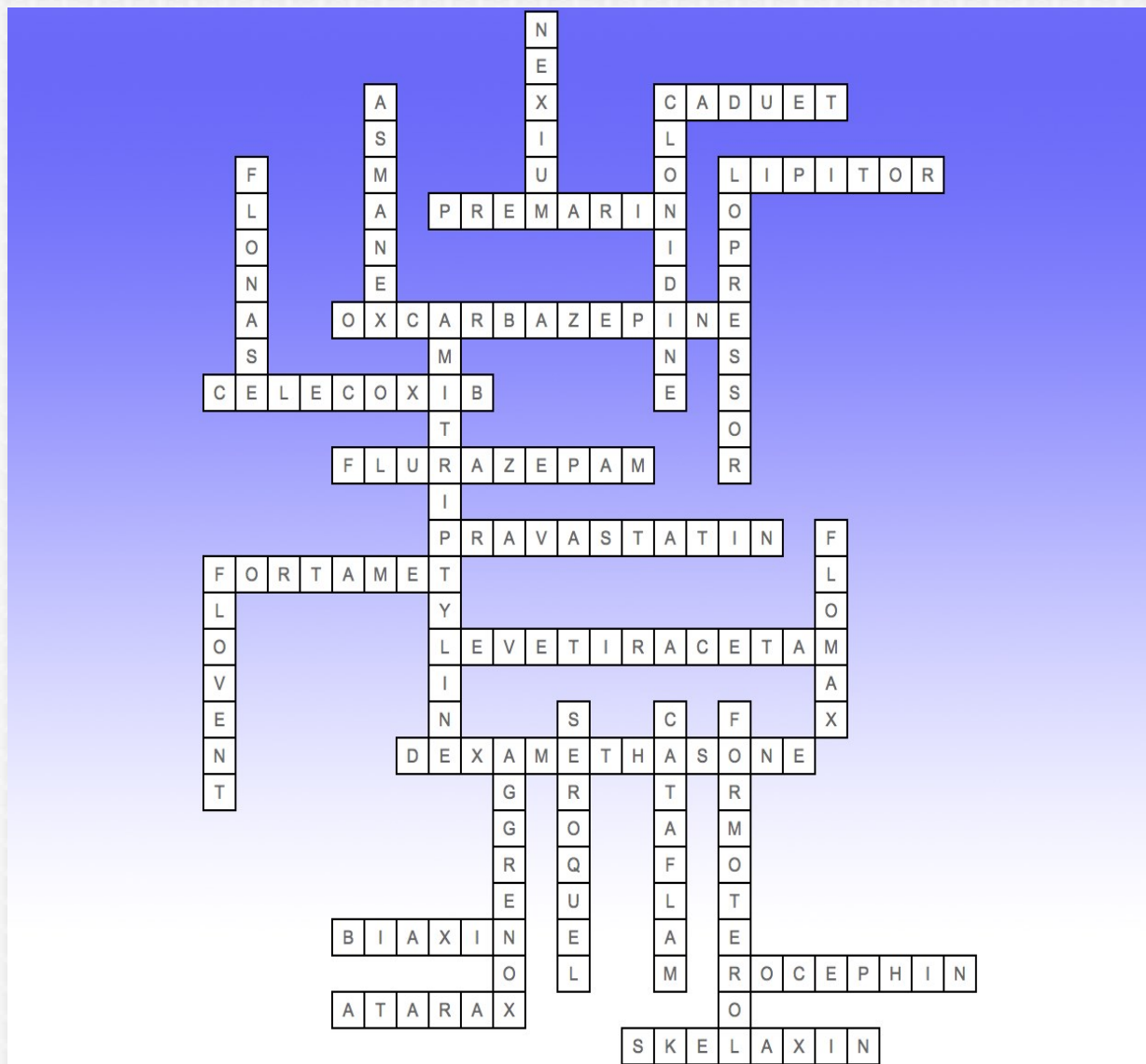
- 3 combination drug made up of amlodipine besylate/atorvastatin calcium
- 5 brand name of Atorvastatin
- 6 Brand name of Conjugated Estrogen
- 7 generic name of trileptal
- 9 generic name of Celebrex
- 10 generic name of dalmene
- 11 generic name for Pravachol
- 13 Brand name of Metformin ER 1000mg (OSM)
- 14 generic name of Keppra
- 18 generic name of maxidex
- 20 brand name of clarithromycin
- 21 brand name of ceftriaxone
- 22 Brand name of Hydroxyzine Chloride
- 23 brand name of metaxalone

Down

- 1 Brand name of esomeprazole
- 2 inhaler form of mometasone
- 3 generic name of Catapres
- 4 Brand name of Fluticasone Nasal Spray
- 5 Brand name of metoprolol tartrate
- 8 generic name of Elavil
- 12 brand name of tamsulosin
- 13 inhaler form of Fluticasone
- 15 brand name of quetiapine
- 16 brand name of diclofenac potassium
- 17 generic name of Foradil
- 19 Combination drug made up of dipyridamole and aspirin

Puzzle: Brand and Generic Drugs Crossword

Answers



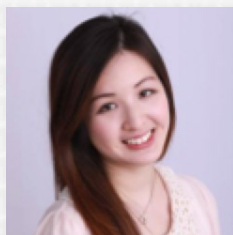
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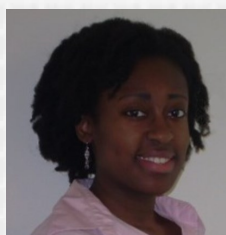
RHO CHI POST: TEAM MEMBERS



@ Karen Lin

6th Year, STJ; Editor-in-Chief

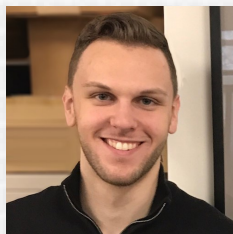
The Rho Chi Post allows me to have an appreciation for interactive pharmacy learning as well as the art of writing. With each newsletter, my goal is to provide current information to readers who come across the Post. As an editor, I hope to make the newsletter one-of-a-kind and motivate and influence writers to explore science with their creative talents.



@ Davidta Brown, PharmD

Graduate Copy Editor [Content-Focused]

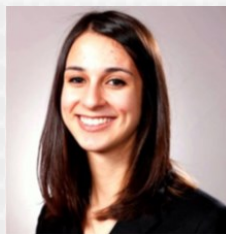
My two great loves are innovative science and quality writing; the Rho Chi Post is an insightful combination of both. As an editor, I look forward to bringing relevant information and fresh perspectives to the student and faculty of St. John's University, as well as to making the Rho Chi Post a newsletter that offers something new to every reader.



@ Matthew Kahn

5th Year, STJ; Graphics Editor

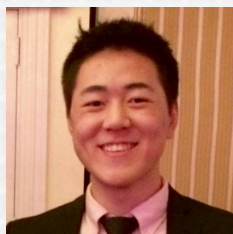
I've always loved graphic design, so I was thrilled at the opportunity to be a part of the Rho Chi Post team and contribute to future publications. I'm excited to explore new ways to make the Post even better, and also to be continuously exposed to new ideas in the pharmaceutical field.



@ Nicollette Pacheco, PharmD

Graduate Editor [Graphics-Focused]

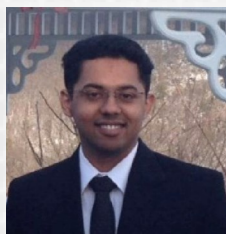
As a member of the Rho Chi Post team, I have a vast appreciation of what it means to be a pharmacist in the rapidly evolving world of healthcare. As a graduate editor, I will continue to bring my passion for science and creativity to the Rho Chi Post.



@ Jack (Hongkai) Bao

6th Year, STJ; Copy Editor

In my 3rd year of pharmacy school, I was introduced to the Rho Chi Post, an award-winning newsletter run by students. My involvement began by simply reading monthly articles, but as time passed, my passion for writing grew. Coupled with my interest in pharmacy, I made the initiative to apply for a position. Now, as a team member, I believe that the Post is a great way for students and faculty to stay up to date concerning pharmacy news.

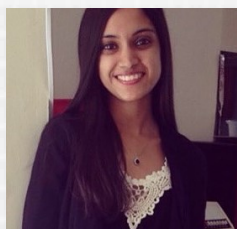


@ Bharat Kirthivasan, PhD

Graduate Copy Editor [Content-Focused]

I received my doctorate in Industrial Pharmacy researching nanoparticles for delivery to the brain. The only thing I enjoy more than reading a well-written piece of work is writing it. I am glad to work for the Rho Chi Post, and I encourage others to do the same.

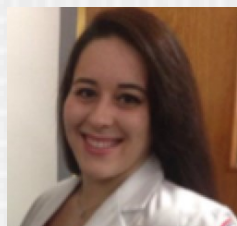
RHO CHI POST: TEAM MEMBERS



@ Shivani Shah

4th Year, STJ; Staff Writer

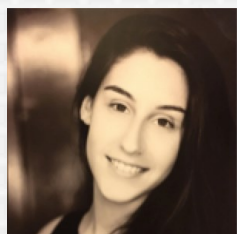
As students in an dynamic healthcare profession, it is important to keep up to date with literature and publications regarding the pharmacy profession. Rho Chi Post serves as a great outlet for students to catch up on pharmaceutical innovations and progress going on in the career. Being a staff writer motivates me to constantly research and share new, exciting advancements with fellow students. I look forward to reading articles in the Post and hope to spark others curiosity and interest!



@ Gabrielle Flavoni

6th Year, STJ; Staff Editor

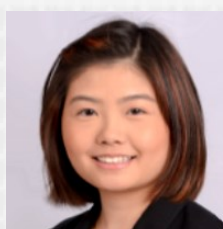
Writing has always been an enormous passion of mine, and I'm blessed to join such an amazing team that encourages me to explore it. As a new Staff Writer for the Post, my goal is to aid others in staying up-to-date about the pharmacy world, while also utilizing a creative outlet to make an impact on those around me.



@ Anna Diyamandoglu

4th Year, STJ; Staff Editor

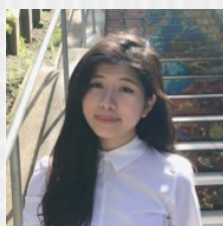
Throughout my time in the PharmD program, my understanding of pharmacy as a profession has evolved and deepened as much as my desire to create awareness, particularly to non-science students, about the diverse role pharmacy plays in various healthcare and non-healthcare settings. I have always had an affinity for writing and am looking forward to combining my interests in literary composition and pharmacy to write relevant pieces for Rho Chi Post which both pharmacy students and non-pharmacy students alike will find relatable and take an interest in.



@ Mei Fung

6th Year, STJ; Staff Editor & RCP Website Liaison

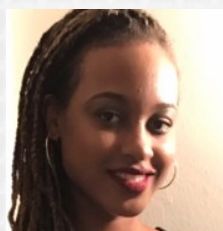
It's always interesting to see how the healthcare field evolves and all the advancements in pharmacy come to fruition. I joined the Rho Chi Post because it brings together a variety of these topics with distinguishing perspectives from our peers in pharmacy practice. I am ecstatic to join the team in continuing Rho Chi Post's endeavors in promoting the profession.



@ Anna Chen

4th Year, STJ; Staff Writer

The Rho Chi Post is a fantastic opportunity for future health professionals to keep up with the vastly changing healthcare world. As the pharmaceutical landscape keeps changing, it is crucial that we join the conversation in voicing our opinions and clinical input into current healthcare debates. Healthcare is limitless in possibilities to better patient centered care and I aim to deliver content that is both invigorating and inspiring to both students and practicing professionals.

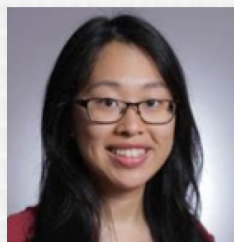


@ Thanesha Graham

5th Year, STJ; Staff Writer

As a writer for the Rho Chi Post, I have the unique opportunity to convey my knowledge, discoveries and interests to the general public. I will be able to enlighten individuals about issues that will not only impact them, but also their families, and communities. I look forward to supplying this newsletter with valuable and relevant information about the evolving field of pharmacy.

RHO CHI POST: TEAM MEMBERS



@ Vicky Liu

6th Year, STJ; Staff Writer

As a Staff Writer, researching and writing articles about current medicine gives me the opportunity to explore and understand more about pharmacy. I hope that my readers will also feel the same excitement as I do when I learn new things about medicine.



@ Alex Chu

5th Year, STJ; Staff Writer

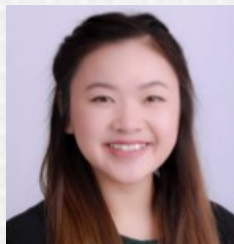
With a constantly evolving healthcare field, it is imperative that we keep ourselves up to date with the latest news. This is what led me to join the Rho Chi Post, which constantly comes out with interesting and informative topics. It is an honor to write for the Rho Chi Post, and I wish to contribute innovative and intriguing articles to this newsletter.



@ Katharine Russo

3rd Year, STJ; Staff Writer

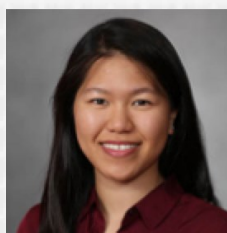
In my first two years as a pharmacy student, I was exposed to numerous opportunities to write medical based articles for classes and clubs. This is what first sparked my interest in health care literature and I look forward to being a Staff Writer for the Rho Chi Post in hopes of being able to share my passion and enthusiasm in writing health-care related publications.



@ Amy Nguyen

4th Year, STJ; Events and Social Media Manager

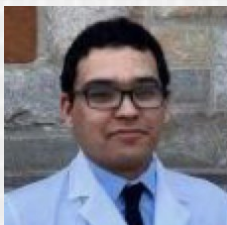
Because the pharmaceutical industries and healthcare systems are constantly changing and evolving, it's important to stay up to date on such topics. The student-run Rho Chi Post brings such relevant issues with a creative twist to the table. As the Events and Social Media Manager, I hope to create more outreach events geared towards showcasing the importance and benefits of the Post to students, alumni, and faculty of St. John's University and from other campuses.



@ Angela (Yan Yi) Chan

6th Year, STJ; Staff Writer

Being part of the Rho Chi Post would help me build experience with writing and reading research articles that would be helpful in my future to stay updated in the innovative world of health. I look forward to being a part of such a great team.



@ Jonathan Mercado

5th Year, STJ; Staff Writer

The Rho Chi Post breaks barriers for students that want a glimpse of their future and acts as an inspiration to work harder to achieve their goals. It is an embodiment of the motivation and intelligence that drives pharmacy students to be the most informed and capable professionals they can be. I am glad to a part of that mission and to channel my passion and interests through this newsletter.



@ Nicole Cheung

6th Year, STJ; Finance and Outreach Manager

As the Finance and Outreach Manager for the Rho Chi Post, I will act as the primary liaison and collaborate with the Graphics Editor to present information promoting our newsletter to other Rho Chi chapters. Using my experience of applying for NIH and Novo Nordisk Grants, I will assist with writing up proposal budgets as well as maintain accurate financial records. I am proud of our student-operated newsletter publication, and look forward to expanding our organization and network to create more educational workshops and further promote the pharmacy profession.

MISSION

The Rho Chi Post is an award-winning, monthly, 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, faculty, and administrators.

VISION

The Rho Chi Post aims to become the most exciting and creative 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 essentially sets the stage for the future of student-operated publications in pharmacy

VALUES

Opportunity

Teamwork

Respect

Excellence

GOALS

To provide the highest quality student-operated newsletter with accurate information

To maintain a healthy, respectful, challenging, and rewarding environment for student editors

To cultivate sound relationships with other organizations and individuals who are like-minded and involved in like pursuits

To have a strong, positive impact on fellow students, faculty, and administrators

To contribute ideas and innovations to the Pharmacy profession