

RHO_{Rx}CHI post

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AN AWARD-WINNING, STUDENT-OPERATED NEWSLETTER BY THE
ST. JOHN'S UNIVERSITY COLLEGE OF PHARMACY AND HEALTH SCIENCES' RHO CHI BETA DELTA CHAPTER

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Smartphone Applications for Pharmacy Students

By: Hayeon Na, PharmD, Co-Copy Editor [Content-focused]

Going through the PharmD curriculum and working as a student pharmacist, I often wished that I could somehow connect my brain to all the wonderful pharmacy resources I had *at home* or *in my bag*. I don't doubt that you've also had a variation of this idea of your own. Unfortunately, we can't bring this dream to life yet using the technology we have on hand. But you can still find some useful resources by searching through some of the currently available apps on the market. If you ask me, having information at your fingertips is not the worst alternative to automatically downloading information to your brain. Of course, having the best artillery of drug-information apps on your mobile device may not have helped you much during finals week. But becoming familiar with some key resources and keeping a few screenshots handy, you'll begin to internalize all the knowledge you thought couldn't possibly fit in your head. The following are some of the apps that I found helpful for my tasks both in the community pharmacy and on the rounds during rotations.

• Micromedex®¹

It seems like many of us aren't utilizing Micromedex® enough. St. John's University provides students with a subscription, which includes mobile access. Navigating Micromedex® is similar to using the website. Here are the steps to getting the access code to activate mobile access:

1. Download the **Free Micromedex Drug Reference for Internet Subscribers** (Apple and Windows 8 devices) or **Free Micromedex Drug Reference** (Android devices) onto your mobile device.
2. On your device, log in through the school's resources page onto the Micromedex web page.

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Single Line Stories

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Great Promise for Factor Xa Inhibitor Antidote: Andexanet Alfa

By: Galina Perel, PharmD Candidate c/o 2016

Andexanet alfa's has achieved great advancement in part one of the Phase 3 ANNEXA-A study conducted by Portola Pharmaceuticals. The study demonstrated the effects of andexanet alfa being the proposed antidote to the oral anticoagulant Factor Xa inhibitor: apixaban (Eliquis®).¹

Apixaban received FDA approval in late 2012 to reduce the risk of blood clots in patients with non-valvular atrial fibrillation, leading to reduction in the risk of stroke.² Apixaban is a selective inhibitor of both free and bound Factor Xa, a clotting factor composed of serine proteases. Furthermore, apixaban inhibits prothrombinase activity, which converts prothrombin to thrombin via cleavage, and indirectly inhibits platelet aggregation. Due to its mechanism, apixaban alters the coagulation cascade by decreasing thrombin development and formation.³ However, apixaban carries a risk of bleeding, and thus development of an antidote is essential.

Andexanet alfa is a recombinant Factor Xa derivative that works by acting as a decoy for Factor Xa inhibitors. It is not catalytically active due to the mutation of a serine to an alanine in the protease catalytic triad.⁴ The GLA domain, which is the membrane bound domain of Factor Xa, is removed in andexanet alfa composition, eliminating prothrombin assembly. Once andexanet alfa binds to Factor Xa, it will sequester the Factor Xa inhibitor (apixaban) and reduce its concentration and anticoagulant effects.⁶ The recombinant Factor Xa derivative binds to apixaban with high affinity, forming a complex that cannot act on the coagulation cascade; it reverses the anticoagulant activity of apixaban, which may be necessitated during emergency surgery or during a major bleeding episode.⁵

ANNEXA-A is a randomized, double-blind, placebo-controlled study in which the primary endpoint is the percent change in anti-Factor Xa levels, and the secondary endpoints are change in free apixaban concentration and change in thrombin concentration.⁴ In part one of the Phase 3 study, there was a total of

33 older healthy participants, with a mean of 61 years of age. Subjects were given apixaban 5 mg twice daily for four days, and then 400 mg IV bolus of andexanet or placebo. All participants completed part one of the study and no adverse effects were reported. The results concluded that there was a $\geq 90\%$ of anticoagulation reversal with andexanet and a 94% change in anti Factor Xa levels ($p < 0.0001$). Part one of the study concluded that andexanet alfa restored coagulation levels within 2 minutes of IV administration, with effects lasting up to 2 hours after the time of bolus infusion.⁵ This study demonstrated that andexanet alfa was successful in terms of safely and effectively reversing anticoagulation caused by apixaban, and concluded that both its primary and secondary endpoints were met with high statistical significance.⁵ In part two of the study, subjects received apixaban 5 mg twice daily for four days, followed by a 400 mg IV bolus of andexanet and continuous infusion (4 mg/min) of andexanet or placebo for about 2 hours.^{4,5} Additional results from the study will be evaluated later this year.

"These highly statistically significant phase 3 ANNEXA-A data demonstrate that andexanet alfa has the potential to be the first agent approved as a universal Factor Xa inhibitor antidote," said John T. Curnutte, M.D., Ph.D., Executive Vice President of Research and Development for Portola.⁴ Andexanet alfa has been recognized as a breakthrough medication by the FDA with hope to speed up the approval process so it that can be utilized in emergency situations.^{1,6} Portola Pharmaceuticals has collaborated research with large pharmaceutical companies to perform studies on andexanet alfa and other Factor Xa inhibitors, such as rivaroxaban (Xarelto®), edoxaban (Lixiana®), as well as enoxaparin (Lovenox®).^{4,6}

FDA approval would allow andexanet alfa to be the necessary developmental drug available on the market for reversal of Factor Xa anticoagulant therapies.

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An Aspirin a Day? New Study Assesses Rate of Inappropriate Aspirin Use for Primary Prevention of CVD

By: Svetlana Akbasheva, Staff Writer

Aspirin 81 mg, or “baby” aspirin, has become almost ubiquitously known as being “heart-healthy” and for playing a role in preventing heart attacks and strokes. With cardiovascular disease reigning as the number one cause of death worldwide, more than 50 million adults in the United States currently take daily low-dose aspirin therapy for cardiovascular protection.^{1,2} However, aspirin is not for everyone, and its antiplatelet properties can do more harm than good in certain patients.

According to the American Heart Association and American Stroke Association guidelines, low-dose aspirin is appropriate in two general groups of patients.^{2,3} The first group describes patients who have already suffered a cardiovascular event and require secondary prevention against future occurrences. The second group encompasses patients with no history of cardiovascular events but who would be candidates for primary preventative therapy, i.e. those with a ten-year cardiovascular disease (CVD) risk score of greater than or equal to six percent. Therefore, in patients without a cardiac history whose ten-year CVD risk score is less than 6%, the bleeding complications associated with low-dose aspirin are thought to outweigh its cardioprotective effects.^{2,3}

A recent study was conducted to estimate the rate of inappropriate low-dose aspirin use for primary prevention of CVD in the United States.² A cohort of patients on aspirin therapy between January 2008 and June 2013 was identified using the American College of Cardiology's Practice Innovation and Clinical Excellence (PINNACLE) registry, in which 119 medical practices are enrolled nationwide. As the

main aim of the study was to identify inappropriate use of aspirin for primary prevention, patients on aspirin for secondary prevention were excluded. Another exclusion criterion was patients who were on any other anticoagulant or antiplatelet medications. Within the primary prevention cohort, the ten-year CVD risk score was calculated for each patient using the Framingham general CVD risk assessment tool. This instrument assesses the risk of future cardiovascular events using variables that include age, sex, cigarette smoking, hypertension, diabetes, and cholesterol levels. The study authors classified subjects with a ten-year CVD risk score of less than six percent as receiving inappropriate aspirin therapy.²

The results of the study showed that 11.6% of patients on aspirin for primary prevention of cardiovascular disease had a ten-year CVD risk score of less than six percent and thus were not appropriate candidates for aspirin therapy.² Inappropriate aspirin use varied widely among different medical practices and was more prevalent in younger patients. The study retained similar results after doing three separate analyses that excluded women over 65, diabetic patients, and patients on statin therapy, respectively, as these three groups thought to be possible sources of confounding.²

It is important to note that this study had several limitations; study authors did not have access to aspirin doses, many subjects were excluded due to inadequate information, and the study did not assess adverse effects (e.g., bleeding) in patients with a calculated ten-year CVD score of less than six percent.² However, even with the limited information availa-

ble, the outcome that about 10% of patients may be inappropriately receiving aspirin for primary prevention of cardiovascular events appears significant. In addition, the over the counter availability of aspirin makes it even more likely that many patients are taking this medication without consulting their doctor.

The bleeding risk with low-dose aspirin therapy is not insignificant and should not be overlooked. In fact, it is due to this risk that the FDA recently rejected Bayer's request to allow for the marketing of aspirin for primary prevention of CVD.⁴ Just because a medication is available over-the-counter does not mean that it is safe and appropriate for everyone; all patients should be evaluated by their doctor or pharmacist before the decision to begin aspirin therapy is made.

Magic Mushrooms: The Future of Smoking Cessation?

By: Maximilian Magun, PharmD Candidate c/o 2016

While the harm in smoking is well known, quitting is easier said than done. Prescription and over-the counter nicotine replacement therapies (e.g. nicotine patch, gum, inhaler, nasal spray, lozenge), as well as oral tablets (e.g. ZybanTM, Chantix[®]) have mediated success for some. In fact, when used correctly, these products can increase the rate of quitting by 50 to 70%.¹ However, with the long-term consequences of smoking continuously surfacing, increased efforts are being made to help more smokers reach their goals. Psilocybin, the active chemical in "magic mushrooms," has been studied in the context of smoking cessation, and has shown promising results.

Psilocybin is a psychoactive alkaloid that is present in more than 180 species of mushrooms. In the body, psilocybin is dephosphorylated to psilocin, a nonselective serotonin (5-HT) agonist with high affinity towards the 5-HT_{2A} receptor.² As a result, psilocin induces alterations in mood and thinking, and may cause hallucinations, delusions, and paranoid ideations. Medium doses of about 12-20 mg show a controllable altered state of consciousness that lasts three to six hours.² However, psilocybin is classified as a Schedule I drug, which means that it has a high abuse potential, no current medical use, and cannot be prescribed even under medical supervision.³

Researchers at the Johns Hopkins Department of

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Psychiatry and Behavioral Sciences conducted a study on the effects of psilocybin and its potential as a smoking cessation aid. Psilocybin was administered as part of the comprehensive cognitive behavioral therapy smoking cessation program. This program involved weekly counseling sessions that addressed quitting techniques, such as keeping a diary of when cravings occur. Patients included in the study were ages 21 to 65 and had no demonstrated history of psychiatric disorders or recent history of alcohol or drug abuse.⁴ This fifteen week pilot study consisted of 15 individuals (ten males) with an average age of 51, average cigarette intake of 19 per day, average smoking years of 31 years, and an average of six previous failed quitting attempts. A moderate (20 mg) dose of psilocybin was administered to study subjects in the form of an oral capsule on the day that each participant wanted to quit smoking, followed by two subsequent higher (30 mg) doses two weeks and eight weeks from that first date.⁵ Subjects were observed for six hours post-dose and given eyeshades and headphones to help them relax from the psychogenic effects of the drug. After a six-month follow up of the study, 12 of the 15 subjects showed abstinence from smoking.⁶

Due to the modest sample size, further trials are needed to prove the effectiveness of psilocybin ther-

apy in smoking cessation. The usefulness of this approach may be limited by drug schedule, side effects, and time requirements (e.g. multiple hours at administration sites); however, with multiple failures of other therapies, novel therapies encourage the use of risk vs. benefit analysis to identify the next possible treatment option in smoking cessation.

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Understanding and Managing Diabetic Peripheral Neuropathy

By: Tamara Yunusova, Senior Staff Editor

Diabetic peripheral neuropathy (DPN) is a common complication of diabetes, burdening almost 50% of the diabetic population.¹ While diabetic neuropathy is a broad term that may refer to a spectrum of autonomic, focal, proximal and peripheral neuropathies, it is generally characterized by poor gait and abnormal cold/heat sensations. As numerous studies have shown neuropathy to be closely tied to hyperglycemia, strict glycemic control is imperative to prevent the progression of the disease.² Although pharmacological therapy has yet to target the underlying mechanisms of neuropathy, current treatments are well equipped to address neuropathic pain, which is present in 10 - 20% of cases of DPN.³ Tricyclic antidepressants and anticonvulsants are commonly used to treat DPN-associated pain.

DPN is defined as the presence of signs or symptoms of peripheral nerve dysfunction in a patient with diabetes after ruling out other causes.⁴ It is caused by the degeneration of small, unmyelinated C fibers or thinly myelinated A β sensory fibers that mediate pain and temperature sensation.^{2,5} Damage to the C fibers results in small fiber neuropathy which is characterized by allodynia, non-painful stimuli that are perceived as painful, and hyperesthesia, which is when normally painful stimuli become excruciatingly painful.⁶ Symptoms of DPN include numbness, tingling, burning, aching, and an abnormal sensation response to pain and temperature.^{2,6} More specifically, peripheral neuropathy can be characterized by negative and positive symptoms or may be

asymptomatic. Negative symptoms include loss of sensation and strength, while positive symptoms include pricking and pain.⁷ Over time, symptoms may progress from the toes to the foot and eventually up the leg. Furthermore, symptoms are not restricted to the lower limbs and may occur in the hands and fingers as well.^{2,5} Relative to various neuropathies, peripheral neuropathy is the most common in diabetics.

The results of the Diabetes Control and Complications Trial (DCCT), a clinical study conducted between 1983 and 1989, support the theory that diabetic peripheral neuropathy develops as a result of hyperglycemia.⁸ This study assessed the development and progression of DPN in 1,441 patients with type 1 diabetes mellitus who were assigned to receive conventional or intensive therapy. Conventional therapy consisted of one to two daily injections of insulin, daily monitoring of urine or blood glucose (BG), and education about diet and exercise. Intensive therapy consisted of three or more injections of insulin or administration via an external pump. The goal of conventional therapy was to attain a preprandial BG between 70 and 120 mg/dL, postprandial BG < 180 mg/dL, a weekly 3 am measurement > 65 mg/dL, and a monthly hemoglobin A1C < 6%. Study results indicated a 60% reduction in neuropathy in patients who had received intensive therapy. This was confirmed by a follow-up study, which showed lower incidence of DPN in the intensive therapy group at years 13 and 14.⁸

From a biochemical standpoint, the polyol path-

way illustrates the correlation between hyperglycemia and peripheral neuropathy. The underlying principle of the pathway is that under hyperglycemic conditions, the body metabolizes glucose differently. As a consequence of the impaired metabolism, nerve conduction is delayed.¹⁻² More specifically, in a non-hyperglycemic state, glucose is metabolized by glycolysis, the citric acid cycle, and oxidative phosphorylation.² However, when glucose levels are elevated, glucose bypasses these processes and, instead, is reduced to sorbitol by aldose reductase, and then further oxidized to fructose by sorbitol dehydrogenase.¹⁻² Excess levels of sorbitol and fructose byproducts decrease the expression and uptake of myo-inositol in rats with streptozocin-induced diabetes leading to the slowing of nerve conduction.²

Moreover, as the conversion of glucose to sorbitol and fructose is an NADPH-depleting process, the resulting oxidative stress is another factor that may contribute to the development of DPN. This cofactor is necessary for the recycling of GSSH to GSH or glutathione, an enzyme that prevents the formation of superoxide radicals and thereby reduces oxidative stress.¹⁻² A recent study conducted by Ho et al.² showed that deletion of aldose reductase prevented GSH depletion and superoxide formation. By inducing alterations in metabolism and increasing oxidative stress, hyperglycemia poses as DPN risk factor.

Based upon the findings of the DCCT study and biochemical studies which demonstrate the role of hyperglycemia in the development of DPN, it can be concluded that strict control of blood glucose levels can delay progression of this condition. By educating patients about the importance of keeping blood glucose levels under control with routine self-monitoring and proper BG meter use, pharmacists can delay the progression of neuropathy and, ultimately, improve the quality of life in patients with DPN. In addition to BG control, proper foot care constitutes another facet of effective DPN management. Pharmacists can educate patients about foot care and the importance of routine foot examinations. Patients are recommended to inspect their feet daily for open sores, blisters and changes in shape or color of the skin. It is also recommended that patients wash their feet daily with warm water and soap and dry them thoroughly. Patients should be advised to wear comfortable shoes and socks and avoid walking barefoot.⁸

While studies such as the DCCT underline the contribution of hyperglycemia to the development and progression of DPN, the findings of more recent studies diverge from the notion of the glucocentric model. In addition to hyperglycemia, many factors including neuronal insulin resistance and dyslipidemia may play a role in the pathogenesis of DPN. Relative to the etiological factors, however, the contribution of glucose is currently most understood.

Tricyclic antidepressants (TCAs) serve as the first line treatment for neuropathic pain. TCAs modulate pain transmission by inhibiting the reuptake of norepinephrine and serotonin. The American Diabetes Association recommends amitriptyline as the first choice among tricyclic antidepressants.⁹ However, due to anticholinergic adverse effects, dose titration to higher doses is restricted with this agent.^{9,10} Duloxetine, a selective serotonin norepinephrine reuptake inhibitor, is the only TCA that is FDA approved for neuropathic pain.⁹ Studies indicate that duloxetine 60 mg and 120 mg daily are efficacious for treating pain.¹¹ Common side effects of duloxetine include nausea, somnolence, dizziness, decreased appetite, and constipation. Because nausea is common, patients are encouraged to take the drug on a full stomach. Duloxetine should not be used in conjunction with other serotonin or norepinephrine reuptake inhibitors, but can be combined with anticonvulsants.⁵

In the presence of contraindications or ineffective treatment outcomes, anticonvulsants (e.g. gabapentin or pregabalin) may be used in place of TCAs. The starting dose for gabapentin is 300 to 600 mg three times daily. The drug can be titrated slowly up to a maximum of 900 mg four times daily. The major side effects of gabapentin are somnolence, dizziness, and ataxia. Pregabalin is initiated at 50 mg twice a day and slowly increased to 150 mg two times a day. The maximum dose approved by the FDA for the treatment of DPN is 300 mg/day. Common side effects of pregabalin include dizziness, vertigo, incoordination, ataxia, blurred vision, sedation, and confusion. It is classified as a Schedule V drug and thus, may be habit forming.⁵ In comparison to gabapentin, pregabalin is more readily absorbed (1 hour vs. 3-4 hours) and has greater bioavailability.² Gabapentin and pregabalin modulate neurotransmitter release and regulate neuronal hyperexcitability by binding to the $\alpha 2\text{-}\delta$ subunit of voltage-gated calcium chan-

nels and decreasing calcium influx at nerve terminals.¹² While both compounds are structurally related to GABA, it is important to note that neither is metabolically converted to GABA nor inhibits GABA uptake or degradation.¹³ Currently, duloxetine and pregabalin are the only treatments approved by the FDA for peripheral neuropathy-associated pain.

An alternative to the aforementioned therapies is the use of topical lidocaine or capsaicin patches. Therapeutic advantages include lack of drug interactions, minimal side effects, and no need for dose titration.⁶ Lidocaine 5% patches are FDA-approved and have shown to be effective in the management of neuropathic pain. Relative to other treatments, lidocaine patches have fewer and less severe side effects, which include burning sensation, elevated aspartate aminotransferase levels and blood pressure, headache, muscle spasms, and tingling sensation. Capsaicin, which is available as 0.075% cream or an 8% patch, is another option for the management of neuropathic pain. Although it is an efficacious pain treatment, daily use of capsaicin can result in the degeneration of epidermal and dermal nerve fibers. The nerve fibers regenerate upon discontinuation of the agent. Cautious use of this agent is recommended as its effects are more pronounced in DPN patients.⁶

As close monitoring of blood glucose levels and preventive measures constitute the most effective treatment for DPN, pharmacists are integral in educating patients about proper glucose control and the importance of preventive measures such as routine foot examinations and exercise.

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BACK TO COVER

Smartphone Applications for Pharmacy Students

By: Hayeon Na, PharmD, Co-Copy Editor [Content-focused]

3. Under “Resources,” you’ll see a link named “Download Mobile Apps”
4. Follow the steps to input the access code into the downloaded app on your phone

- **Lexicomp®²**

This is often my go-to drug information resource. When I switched over from iOS™ to Android™, I noticed a significant lag in the Android app; however, I think some of the lagging issues have resolved since. Unfortunately, students at St. John’s University do NOT have mobile access to Lexicomp. If your institution (most commonly school or hospital) provides this, here are the steps to activate the mobile access:

1. Create a Lexicomp account with your institutional e-mail
2. Select your platform and follow the directions in this link: ³ <http://www.lexi.com/codes/?universal> This will link your account to your institution’s subscription, enabling you to have access to Lexicomp® on your mobile phone

- **GoodRx⁴**

GoodRx, trademarked by GoodRx Inc., is a drug-price estimating Smartphone App (DPSA) that offers you an accurate price range for big chain pharmacies.⁵ The navigation is self-explanatory, and the app is frequently updated to provide up-to-date price estimations and coupon codes for prescription medications that are honored in many pharmacies.⁵ While this proves beneficial for those of us working in the community setting, it can also benefit those of us in hospitals, by helping smooth the uninsured patient’s transition after discharge (or those with high co-pays). Knowing drug prices before patients step into the pharmacy may mitigate their anxiety and lower barriers to prescription filling and adherence.⁵

- **Pharmacist’s Letter®**

All of us know and love the Pharmacist’s Letter® for their useful charts—if you haven’t checked it out yet, students at St. John’s University have access to it.

This helpful mobile resource, with a different layout from the website, makes it convenient to easily access resources—say, a statin equivalency chart—to help support your dosing recommendation for safely and effectively switching over a patient from lovastatin to pravastatin, in an effort to cut drug costs. Plus, the next time you’re stuck on the bus, you can quickly catch up on the most current issues of Pharmacist’s Letter® using your mobile device.

- **HIV iChart**

Created and trademarked by the University of Liverpool, the HIV iChart makes it easy to check for interactions in patients with HIV. The app has a colorful and simple layout that is easy to navigate, and you can simply select the HIV medications from an existing list. One caveat is that the app doesn’t seem to have a search function. This means a lot more scrolling, but it may beat making typos when dealing with names of drugs that you just learned in class.

- **ASCVD Risk Estimator**

The ASCVD Risk Estimator, put together by the American College of Cardiology (ACC) and American Heart Association® (AHA), is a quick way to compute the patient’s 10-year and lifetime risk of atherosclerotic cardiovascular disease (ASCVD), which may aid in determining the intensity of HMG-CoA inhibitor therapy along with other patient factors.⁶ Also available as a web-page (<http://tools.cardiosource.org/ASCVD-Risk-Estimator/>), this app will help you immensely when you want to put together that perfect SOAP note (sure to impress all your preceptors) on the new cardiac patient.

- **Medscape**

If you’re already on the list for e-mail updates from Medscape, this is a no-brainer. Medscape is a great resource for those who want to quickly brush up on the cholesterol guidelines or read the “Top 10 clinical trends for February 2015.”⁷ Because it’s a shared platform for physicians, pharmacists, and other healthcare professionals, you can access content geared towards other professionals, which may be helpful in understanding the basics of some diseases.

For those who were hoping for some non-drug resource apps to lessen the workload, here are some apps that I always return to:

- **Adobe® Reader®**

To open, highlight, and type notes onto resources and lecture notes

- **Dropbox™**

This is already an immensely popular app. I use it to sync all of my best notes so I have them on all my devices, even on the school computer!

- **PDF-notes**

Unfortunately, this app is only available on Apple devices. I use this to take hand-written notes on lectures provided as PDF files. It has a wrist guard—a feature I love—that prevents you from accidentally marking up the PDF with your arm while you're writing with a stylus.

- **Genius Scan**

Ever since I downloaded Genius Scan, my life has been as paperless as could be. This app converts images of loose leaf or handouts into PDF or JPEGs that can be e-mailed or saved on your mobile device, easily creating a digital copy of all your important papers.

There are millions of apps that I have yet to explore, including many that St. John's University students do not have access to. Until I become a pharmacist, I may be missing out on some of the resources that are out of reach for me financially; still, this is a great place to start preparing for your pharmacy career, which may become even more dependent on mobile resources than mine has ever been in the past six years. If there are any corrections or updates that you'd like to make, please contact us. Now, I'm off to try out the new AMA citation generator on the

Rho Chi Post's author resources section. Hopefully I'll catch up with you years down the line, on the other side of this digital revolution.

SOURCES:

1. Mobile Micromedex®. Micromedex® Solutions website. http://www.micromedexsolutions.com/jerome.stjohns.edu:81/micromedex2/librarian/ND_T/evidencexpert/ND_PR/evidencexpert/CS/901DEC/ND_AppProduct/evidencexpert/ DUPLICATIONSHIELDSYNC/8B1303/ND_PG/evidencexpert/ND_B/evidencexpert/ND_P/evidencexpert/PFActionId/evidencexpert.Mobile. Accessed March 7, 2015.
2. Installation Instructions for iPhone, iPod touch, & iPad. Lexicomp® website. <http://www.lexi.com/pda/iphone/installation/>. Accessed March 7, 2015.
3. Access Your Smartphone & Mobile Device Software. Lexicomp® website. <http://www.lexi.com/codes/?universal=>. Accessed March 7, 2015.
4. Frequently Asked Questions. GoodRx website. <http://www.goodrx.com/faq>. Accessed March 7, 2015.
5. Choi S, Na H. Abstract: Drug Pricing Estimations with Smartphone Applications. *New J J Pharm.* 2014; 88(3): 12.
6. Stone NJ, Robinson J, Lichtenstein AH, et al. 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation.* June 24, 2014; 129(25): suppl 2 S1-S45.
7. Medscape Pharmacists. Medscape website <http://reference.medscape.com/pharmacists>. Accessed April 3, 2015.

Has your article been published in the Rho Chi Post? **Congratulations!**

Here is a suggested format for citing / referencing your work:

[Author(s)]. [Article Title]. *Rho Chi Post*. [Year and Month Published]. [Volume]([Issue]):[Pages].

To view some examples, please visit our [Citation Guidelines](#)

Congratulations to the Graduating Class of 2015!

EVENTS



Congratulations to the Graduating Class of 2015!



Matching Column:

LOOK ALIKE SOUND ALIKE



By: Sang Hyo Kim
Section Editor

Can **YOU** match the
fact with the correct
medication?

Answers

on next page

- | | |
|--|----------------|
| 1. Iloperidone | A. Fanapt |
| 2. A continuous dosage regimen of a progestin-estrogen combination | B. Femara |
| 3. An aromatase inhibitor | C. Femhrt |
| 4. Allergy symptom reliever | D. Fentanyl |
| 5. An opioid analgesic | E. Fioricet |
| 6. Combination of acetaminophen, butalbital, and caffeine | F. Flonase |
| 7. Prozac® | G. Flumazenil |
| 8. Injection used for the management of benzodiazepine overdose | H. Fluoxetine |
| 9. Administered via an aerolizer device | I. Fluvoxamine |
| 10. Luvox® | J. Foradil |

Lexi-Comp Online®, Lexi-Drugs Online®, Hudson, Ohio: Lexi-Comp, Inc.; March 30, 2015.


How Did You Do???

Answers to Look Alike and Sound Alike

1) A 2) C 3) B 4) F 5) D 6) E 7) H 8) G 9) J 10) I

Quote of Month

By: Nicollette Pacheco, Staff Editor [Graphics-focused]



“A creative man
is motivated
by the desire
to achieve,
not by the desire
to beat others.”

Ayn Rand

PUZZLES

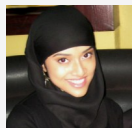
Do you enjoy our puzzle?

Send us a suggestion for a brainteaser at

RhoChiPost@gmail.com

We will feature your work in our next issue!

RHO CHI POST: TEAM MEMBERS



@ Tasnima Nabi (5th Year, STJ; Editor-in-Chief)

Writing has always been my greatest outlet for experience and knowledge, through which I hope to keep you engaged and informed. It is imperative to keep up with our changing profession and community, and I look forward to bringing pertinent information to the newsletter.



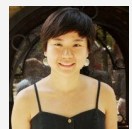
@ Katharine Cimmino (6th Year, STJ; Copy Editor [Content-Focused])

I have always been an avid reader and writer. As a member of the Rho Chi Post I am able to merge my passions with the professionalism that comes with aspiring to be a healthcare provider. I am eager to be a part of a publication that promotes my interests and vocation.



@ Bharat Kirthivasan (PhD, Copy Editor [Content-Focused])

I am a doctoral candidate 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.



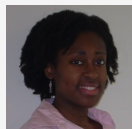
@ Hayeon Na (6th Year, STJ; Copy Editor [Content-Focused])

Hello! My name is Hayeon Na. I am a 2015 PharmD Candidate and one of the Copy Editors for the Rho Chi Post. I hope the information I present will be helpful, or at least interesting. If you have any comments regarding my contribution, feel free to contact me at any time!



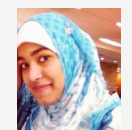
@ Erica Dimitropoulos (6th Year, STJ; Copy Editor [Content-Focused])

As busy student pharmacists, we often fail to keep current with healthcare developments. My aim is to sort through the news and provide quick updates that are important to our profession. Feel free to contact me if there are any topics you would like to see covered in the next issue!



@ Davidta Brown (4th Year, STJ; Copy Editor [Content-Focused])

My two great loves are innovative science and quality writing, and 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.



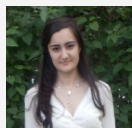
@ Fatema Elias (5th Year, STJ; Copy Editor [Content-Focused])

I am honored to be a part of the Rho Chi Post team. In this age of technology and the continuously changing healthcare profession, I hope to engage like-minded students and professionals. Writing is something that I hold dear to my heart and I hope with this newsletter we can all stay well informed, interested, and educated.



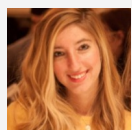
@ Melissa Roy (6th Year, STJ; Copy Editor [Graphics-Focused])

We as future healthcare professionals owe it to our patients and ourselves to be aware and current on the events affecting our profession. The Rho Chi Post is our way to learn new things and stay in touch with the pharmacy world, on- and off-campus. Feel free to reach out to me with suggestions and comments.



@ Tamara Yunusova (4th Year, STJ; Section Editor: Clinical)

My name is Tamara Yunusova, and I am a 4th year Pharm D candidate at St. John's University. I enjoy articulating information in a captivating and insightful way. I hope to make this publication more informative, student-friendly, and innovative.



@ Beatrisa Popovitz (6th Year, STJ; Section Editor: Clinical)

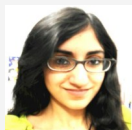
I am eager to relay current information on interesting topics making waves in the world of healthcare pertinent to the advancement of our profession. As student pharmacists, we are molding the future of our profession, and the Rho Chi Post facilitates the cultivation of a relationship (between students, faculty, and other members of the healthcare community) to share ideas and spread awareness of various issues.

RHO CHI POST: TEAM MEMBERS



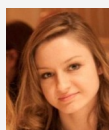
@ Sang Hyo Kim (3rd Year, STJ; Section Editor: Puzzles)

Advancements of technology and developments of new medicines, prolonging the lifespan and improving the quality of life, have increased the geriatric population. In years to come, pharmaceutical industries and healthcare systems will persistently work to find solutions to changing demands and new problems of the society. Through the Rho Chi Post, I wish to learn, educate, and prepare myself and others for the future.



@ Azia Tariq (4th Year, STJ; Section Editor: News)

The Rho Chi Post is a prominent and highly esteemed resource for pharmacy students and professionals. I am privileged to be a part of the team and hope to contribute informative and engaging pieces to the newsletter.



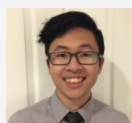
@ Ada Seldin (6th Year, STJ; Staff Editor [Content-Focused])

I am thrilled to have become a new member of the Rho Chi Post team. I hope to further strengthen the goals of this newsletter and make a lasting contribution. It is important, as future pharmacists, to collaborate with our peers, as well as accomplished professionals in the field. Rho Chi Post provides a vehicle to voice our opinions and share relevant news.



@ Nicolette Pacheco (4th Year, STJ; Staff Editor [Graphics-Focused])

As a new member of the Rho Chi Post team, I have a vast appreciation of what it means to be a future pharmacist in the rapidly evolving world of healthcare. I am looking forward to being on the team as a graphics-focused staff editor, and I hope to bring my passion for science and creativity to the Rho Chi Post.



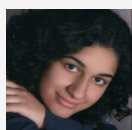
@ Andrew Leong (5th Year, STJ; Staff Writer)

Students have to do more than what is required of us in classes to truly learn about our profession. That's why I joined the Rho Chi Post. This publication represents a channel by which our team members, faculty, and readership can share information - something I believe is important in this ever-changing pharmacy world.



@ Svetlana Akbasheva (5th Year, STJ; Staff Writer)

I am very excited and honored to be part of the Rho Chi Post! In a profession that is constantly evolving with new developments, it is so important to remain informed and current. The Rho Chi Post helps do just that, and I look forward to contributing to this unique publication.



@ Sylva Ohanian (4th Year, STJ; Staff Writer)

The Rho Chi Post is a refreshing outlook on our profession. I am thrilled and grateful to be able to work with the other members in continuing its success, and hopefully to bring greater attention to it, which it deserves.



@ Fawad Piracha (5th Year, STJ; Finance and Outreach Manager)

I am delighted to join the editorial team. I have the firm intention of broadening readership and facilitating growth of the Rho Chi Post.



@ Joshua Bliss (5th Year, STJ; Social Media Manager)

By providing student-organized, reliable information in the healthcare field, the Rho Chi Post helps us all in fulfilling our education both in and out of the classroom. Education is the tool we use to set paths for our futures, and every chance to expand our education is a chance at building a better future. I am honored to be a part of the Rho Chi Post and look forward to the future!



@ You!

We are always looking for creative and motivated students to join our team!
If you are interested in becoming a Rho Chi Post editorial team member, please visit:
<http://rhochistj.org/RhoChiPost/Application>

RHO CHI

The Rho Chi Society encourages and recognizes excellence in intellectual achievement and advocates critical inquiry in all aspects of Pharmacy.

The Society further encourages high standards of conduct and character and fosters fellowship among its members.

The Society seeks universal recognition of its members as lifelong intellectual leaders in Pharmacy, and as a community of scholars, to instill the desire to pursue intellectual excellence and critical inquiry to advance the profession.

THE RHO CHI POST

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

1. To provide the highest quality student-operated newsletter with accurate information
2. To maintain a healthy, respectful, challenging, and rewarding environment for student editors
3. To cultivate sound relationships with other organizations and individuals who are like-minded and involved in like pursuits
4. To have a strong, positive impact on fellow students, faculty, and administrators
5. To contribute ideas and innovations to the Pharmacy profession

CURRENT EXECUTIVE BOARD



Anthony, Tyler, Sara, Tasnima, Joshua, Fawad at the 2014 Induction Ceremony

President: **Tyler Valente**

Vice President: **Fawad Piracha**

Secretary: **Tasnima Nabi**

Treasurer: **Anthony Nania**

Historian: **Sara James**

Media Relations Coordinator **Joshua Bliss**

Faculty Advisor: **S. William Zito, PhD**

UPCOMING EVENTS

June 14-18: DIA 51st Annual Meeting
Washington, DC

June 23-24: Annual NSCLC Summit
Boston, MA

June 29-July 2: APHA Childhood Diabetes
Conference
San Diego, CA