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Student Spotlights: Pharmacy Honors Program Graduates

BY: Steve Soman, PharmD Candidate 2013

The St. John's University Honors Program features small classes, faculty mentoring, and an impressive number of academic and cultural opportunities for students to excel. These opportunities range from performances at the Metropolitan Opera, New York City Ballet, and the New York Philharmonic to museum visits and Manhattan walking tours. For students to complete the Honors Program, they have to take a minimum of 30 credit hours in Honors courses or their equivalent and maintain at least an overall GPA index of 3.3. Pharmacy students only have to complete 24 credits as the final two years of pharmacy are counted as 6 credits for a total of 30 credit hours. The Honors credit can be obtained if the students take classes designated as 'Honors'—Advanced Placement (AP) credits for core classes, International Baccalaureate (IB) credits - and gain 3 credits of research experience, among other requirements.

It is with great pride that the College of Pharmacy and Health Sciences

Above: PharmD Class of 2013 members who completed the Honors Program From Left: Tawfeek Khan, Amanda Tolento, Pooja Patel, and Mahdieh Danesh Yazdi Jayoung Park, Anika Raisa, and Wendy Chan are not pictured.

Inside This Issue

announces the completion of the Honors Program by six of their students. The Doctor of Pharmacy (PharmD) program is challenging in and of itself, and it is amazing to see students investing time and effort to pursue the Honors Program Certificate. Thus, we congratulate Pooja Patel, Tawfeek Khan, Amanda Tolento, Mahdieh Danesh Yazdi, Jayoung Park, Anika Raisa, and Wendy Chan for completing the Honors Program.

Student Spotlight: Amanda Tolento

"The Honors Program Certificate can be earned by completing 30 credits through various means. I was able to take six honors courses, with phenomenal professors, including Dr. Robert Forman, one of the chairmen of the Honors Program. These faculty members were some of the most inspiring and motivating people I have met, encouraging me to work my hardest and moving me to develop my own opinions and means of independent thinking. I was also able to complete an 'honors contract,' in which I was awarded honors credit for a regular course based on a special project approved by the instructor and the chairman. This was a unique experience because I was able to focus on an area of interest to me, online pharmacy regulations, during my contract in my Pharmacy and Legal Issues class. I was able to look at the legal issues related to online pharmacies, in terms of national and international regulation of products, and verification of valid prescriptions. I also addressed the issues related to consumer protection from receiving counterfeit or illegal substances through online pharmacists, specifically the risks that relate to the patients. I thoroughly enjoyed this project because I was able to take it wherever I wanted it to go, which the Honors Program really supported and encouraged. Another way that I earned an Honors Program credit was by completing "Discovery Essays" while I was studying abroad. Here, I was able to able to document particular experiences that provided eye-opening insights into the countries I was living in. This was different from what I could do with the Honors Program for the rest of my years because I was able to focus on something outside of science. I was able to explore Spain, France, and Italy and really appreciate the art, architecture, and cultures of these places. These "Discovery Essays" helped me document some of my most memorable moments, such as when I first saw Gaudí's *La Sagrada Família,* when I lost myself exploring the numerous exhibits in the *Musée du Louvre* for hours, and when I celebrated Easter Sunday Mass at the Vatican. I was also awarded six graduate credits for my pharmacy courses that I took during my fifth and sixth years.

I am beyond grateful for the experiences I had during my participation in the Honors Program. Being part of the Honors Program is like being part of a family. Whenever I stepped into the Honors Commons, I was greeted with a warm 'hello' from my fellow students. Dr. Forman was always available to talk and was genuinely supportive and interested in how I was doing throughout my academic career. He really is the backbone of the Honors Program, and he really cares about the well being of his students. He is very dedicated, and I will miss this kind-hearted man once I graduate."

Student Spotlight: Mahdieh Danesh Yazdi

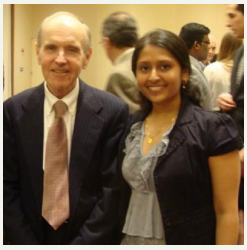
"For the past six years I've had the privilege of studying pharmacy at St. John's University. As this journey comes closer to its end, I've had an opportunity to reflect upon my experiences here, and I must admit that few have been as rewarding as being a member of the Honors Program.

My friends and I would look forward to the shows we went to each semester from the Nutcracker ballet, and to the operas: *The Magic Flute*, *The Barber of Seville*, *Le Comte Ory*, *Tosca*, and *Faust*. They were a much-needed break from our often-stressful pharmacy classes, not to mention that they allowed us to see a side of New York City that we had not experienced before.

My favorite part of the Honors Program has to be the Honors Commons. Members of the Honors Program also have access to the Honors Commons, which is a lounge area for their specific use and is open 24/7. I can't recall how many times my friends and I have stayed overnight in the Honors Commons studying for D&Ds, compounding, kinetics, and every other difficult class we have had over the years. We would store

food in the refrigerator, heating it up as we became hungry while studying late into the night. These nights are some of my fondest memories.

I would be remiss if I did not thank all the professors who taught me through the Honors Program, who gave me a platform to learn and grow. I especially thank Drs. Robert Forman and Robert Pennachio, who run the Honors Program at St. John's University. Dr. Pennachio helped us keep track of our requirements for the Honors Program and was instrumental in my completion of the program. Dr. Forman is the heart and soul of the Honors Program. He is a generous advisor who will do everything in his power to make students feel welcome and help them navigate the waters of a post-secondary education. He is also one of the kindest people I have met, and he has enriched my college experience. I will forever be grateful to him for his guidance and compassion. It was an honor to be part of this program and to be considered for the Jack P. Franzetti Award."



Student Spotlight: Pooja Patel

"The honors program is one of the best things offered by St. John's. Students who have maintained academic excellence in high school qualify for entrance and because of the high standards for acceptance into the Pharmacy program, almost all Pharmacy students can enter. The problem is that students never formally accept the invitation into the program. I did and I am glad for it. The courses offered by the program are focused on the Core requirements by the university and are structured to have a smaller numbers of students to foster a better Professor-to-student relationship. Most of my classes had an average of 25 students or less and I found that I was given more opportunities to voice my opinion and be heard than my larger, non-Honors courses. The professors do expect a higher level of performance from students but this didn't mean that my classes were harder or required more work. I found that the core courses like Theology or Philosophy became more interesting because the Professors that taught it were so passionate about their subjects and expected us as students to reciprocate the same enthusiasm that they had. I feel like my Honors courses resembled my daydreams for what college courses would be like; the personal feel and the possibility for involvement in discourse highlighted what I expected and wanted from my Core classes.

Outside of the academic responsibilities that most students seem to focus on, the Honor's program has had a large impact on my social life. With events designed to bring students from different years and fields of study together scattered throughout the semester, I found a way to focus my rare free time in things outside of simply "Pharmacy." The highlight of each semester I feel is opportunity to visit the various Opera, Ballet, and Philharmonic performances at the Lincoln center. The Honor's program offers free tickets to select performances as well as Walking Tours around the city and trips to museums. They fill the Metropolitan mission of St. John's well and have made my educational experience all the more fulfilling. I would love to thank Dr. Foreman and the entire Honor's Program for awarding me the Jack P. Franzetti Award. My acceptance into the program has been a bright spot in my academic career and the Professor's and fellow students that I have become acquainted with have provided me with intellectual stimulation and joy. Dr. Foreman has always been guiding and supporting us in any way that he was able to and I am touched that he considered me and Mahdieh for this honor."

Pharmaceutical Industry: More Than One Way In

By: David Ong, PharmD Candidate 2014

There are many research opportunities available for pharmacists after graduation. However, most pharmacy students do not know enough about these opportunities as they progress through pharmacy school. Jason Lee, a guest speaker at the monthly Drug Information Association meeting, explained the different aspects of industry and industry fellowships. He discussed broad concepts, ranging from the vigilance needed in drug safety to the nuances between Medical Communications and Medical Science Liaison. He elaborated on what is expected from pharmacists in different positions in the pharmaceutical industry.

A fellowship is traditionally defined as "a directed, highly individualized, postgraduate program designed to prepare the participant to become an independent researcher."[1] A traditional fellowship gives the pharmacist an opportunity to grow and progress in the research side of biopharmaceutical and pharmaceutical industries. On the other hand, industry fellowships "prepare candidates for a career in industry [by providing] […] skills and knowledge in clinical research, regulatory affairs, medical affairs, information, pharmacovigilance, and other areas essential to a successful industry career."[1]

Although everyone appreciated the practical information that Jason shared, it was his remarkable journey that really inspired the audience. Similar to many in the audience, Jason grew interested in the pharmaceutical industry while studying in school. During rotations, he decided to take on as many industry rotation sites as he could in order to understand and pursue his interest. When time came to further his career, Jason was not so fortunate. The fellowship programs he interviewed for did not see him as the best candidate. However, despite all the adversity and hardship, he did not give up. He continued to search for positions in industry and build his repertoire for about three months, in hopes of landing his dream job. On one unexpected drive to Subway, he received a call. Earlier that month, a friend on Facebook contacted him in regards to a job opening. He had sent in his CV without high expectations. Little did he know that he was about to land a great position in the Medical Communica-

tions department at Actavis as a Medical Communications Specialist.

At the meeting, Jason emphasized the importance of not getting discouraged by missed opportunities. He stressed that one should still strive for excellence in academia.. Making connections and strengthening old ones is vital to creating new opportunities for ones career. In addition to self-improvement, he spoke about utilizing various sources available to get ones name out to other companies through recruiters or head hunters (e.g. Monster.com). While Jason's story may sound unlikely and may require a bit of luck, it proves that with enough perseverance and a little bit of knowhow, anything is possible. In the words of Jason Lee, "Follow your dreams."

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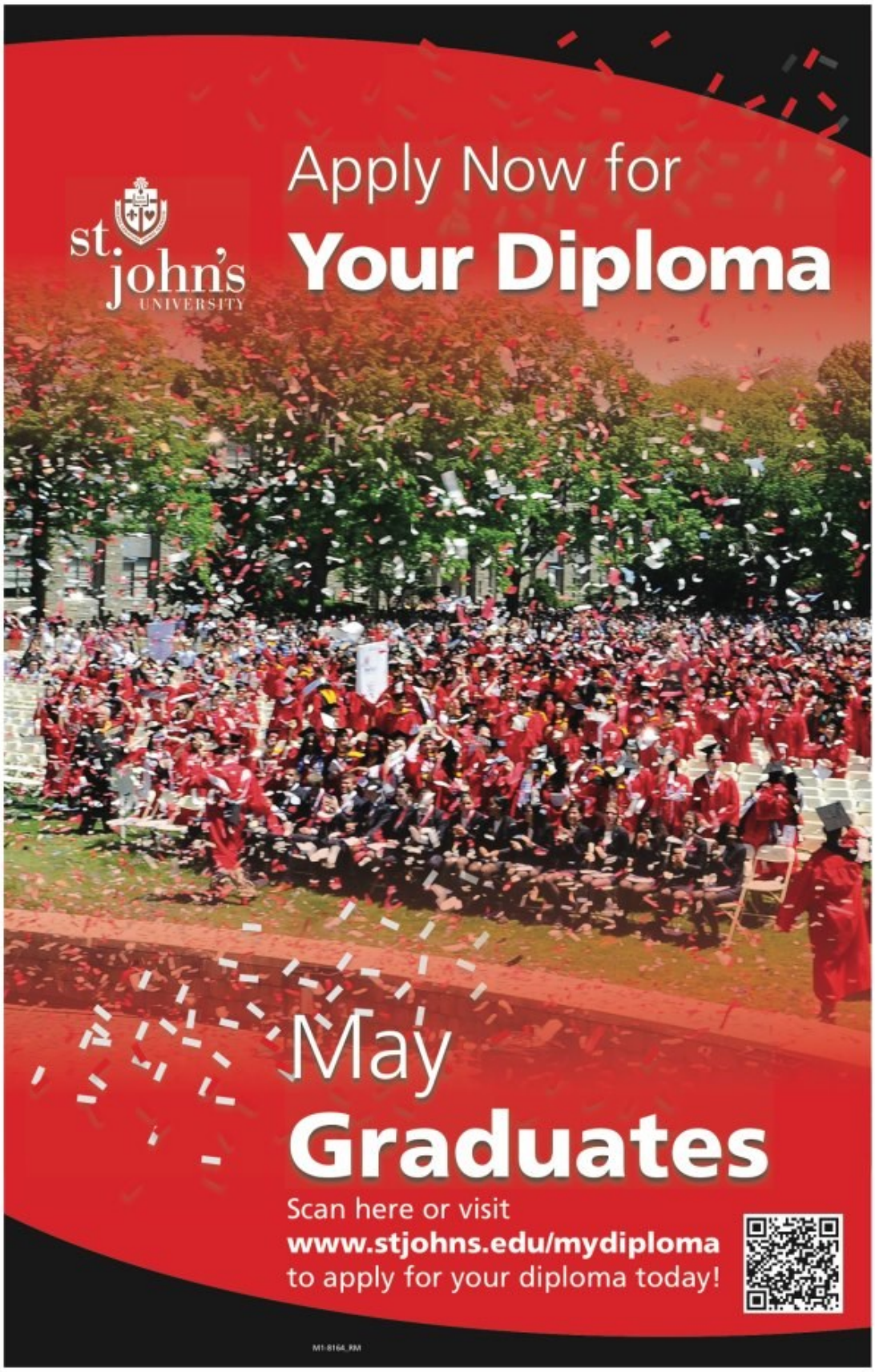
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Increased Cost of Treatment due to the DSM-V: Implications for Pharmacy Practice

By: James W. Schurr and David Gao, PharmD Candidates 2014

A recent Op-ed in Newsday by Allen Frances, MD (of Duke University School of Medicine and chairman of the task force that produced the DSM-IV, the current guidelines for psychiatric disease diagnosis) criticizes the American Psychiatric Association for being "extravagantly indifferent to all matters of cost" in preparing the DSM-V.[1] This new manual, he argues, will vastly expand psychiatric diagnoses to those who do not require treatment. He also posits that the pharmaceutical industry, and not the patients, will be the only beneficiaries of this new manual. If there is any merit to these claims, it is imperative for pharmacists to help mitigate these increases in costs through collaborative practice. The medical literature is replete with examples that illustrate the benefits pharmacists provide to patients through direct care models.

One collaborative care model for the treatment of depression was studied by Finley *et al*. and published in Pharmacotherapy in 2003.[2] In this study, 13 primary care providers (PCPs) referred patients who were newly diagnosed with depression and started on antidepressant therapy to clinical pharmacy services within the Health Maintenance Organization (HMO). Clinical Pharmacy Specialists provided medication maintenance and follow-up patient care at the clinic. In this setting, pharmacists were granted prescribing privileges for co-managing their patients in conjunction with psychiatrists. Pharmacists performed intake interviews with patients that involved active listening for patient assessment as well as education on depression as an illness, their pharmacologic treatment, and importance of adherence to therapy. When this model was studied for impact on depression in primary care, the authors concluded that the interdisciplinary treatment model emphasizing clinical pharmacy services was associated with significant increases in treatment adherence, greater patient satisfaction, and improved resource utilization.[3]

A study published in 1982 by Berchow in the American Journal of Hospital Pharmacy examined the effects of adding a clinical consultant pharmacist to a multi-disciplinary team at an institution for the mentally disabled. The facility was reviewed twice—before and after the service was added. Over one year, the long-term use of drugs fell from 76.1 – 56.8%. Antipsychotic drug use fell from 34.2 – 16.8%. Although a pharmacoeconomic analysis was not provided for this study, the decreases in drug use were significant ($p < 0.001$).[4]

"... interdisciplinary treatment model emphasizing clinical pharmacy services was associated with significant increases in treatment adherence, greater patient satisfaction, and improved resource utilization"

A similar study was performed at another institution for the mentally disabled by Ellenor et al. This group implemented a drug assessment program for individual patients, performed a chart review, and determined the impact of a pharmacist team member on prescribing patterns over 2 years. This non-controlled and non-randomized study revealed that pharmacist involvement reduced antipsychotic agent use by 18%, antianxiety and antidepressant use by 58%, and sedative-hypnotic use by 58%. Net savings were projected to be $10,000 per year after subtracting a full-time pharmacist's salary.[5]

Lobeck et al. performed a retrospective chart review to determine the effectiveness of pharmacy services in an outpatient mental health clinic at a Veterans Affairs (VA) hospital. Over 3 months, pharmacist recommendation decreased clinic visits by 44%, the number of prescriptions per patient by 16%, and actual cost per prescription by 35%. Projected annual net savings were $22,241 per year after deducting a pharmacist's salary.[6]

Gray et al. determined the impact of adding clinical pharmacy services at a VA day-treatment center. Data gathered from patient interviews, drug history records, and medical records over 3

months were analyzed according to a Likert Scale. Although mental functioning scores dropped slightly from 55.8 to 52.7, reductions were observed in adverse effects (62 to 21) and drug use problems (61 to 3). The yearly savings in drug costs was $27,750 and personnel cost savings was $18,750.[7]

Non-adherence to antipsychotics has long been associated with relapse and re-hospitalization and, consequently, an increase in cost of treatment. In fact, hospitalization can account for up to 40% of direct costs involved with schizophrenia. Long-acting injectable antipsychotics (LAIAs) have been suggested as a cost-saving alternative. However, inpatient administration of LAIA has financial limitations. In particular, second generation LAIA cost more but don't garner any additional reimbursement. Phan and Vandenberg conducted a study evaluating the financial impact of shifting LAIA administration from an inpatient to a pharmacy-run outpatient setting. Based on quarterly charges and costs, annual pharmacy purchase savings were projected at least $12,000 per year and unreimbursed inpatient charges avoided were projected at $25,000 per year.[8]

Pharmacy practice models for the treatment of patients with psychiatric illnesses have been developed and studied with positive humanistic, clinical, and economic outcomes. Pharmacists specializing in psychiatric pharmacotherapy, especially those with board certification, are in a prime position to manage psychiatric patients. If costs rise as predicted by Dr. Frances, the medical field should turn to pharmacists, the pharmacotherapy experts, to ensure that patients receive optimal and cost-effective pharmaceutical care.

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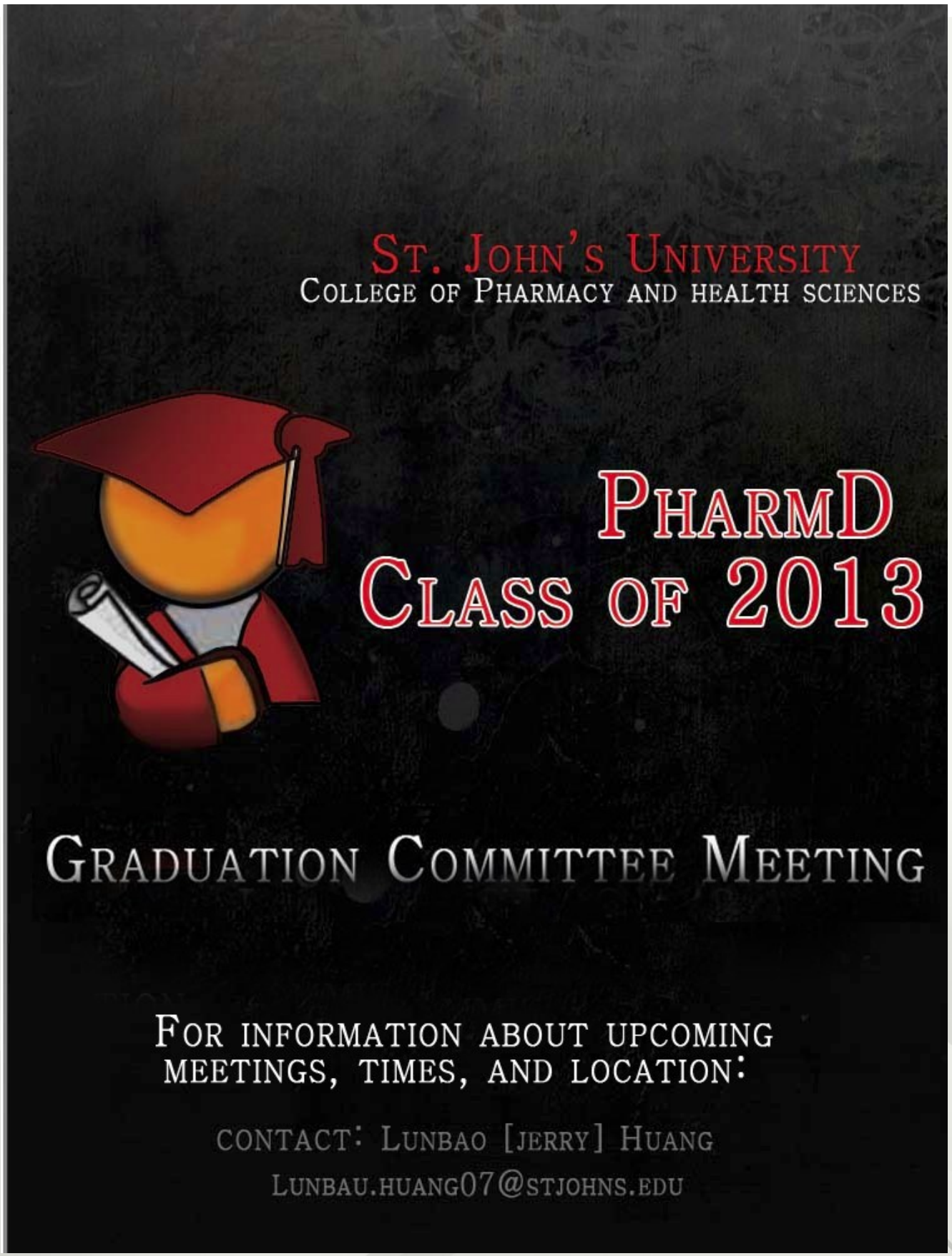
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Three-Person IVF: Combating Mitochondrial Disease or Ethical Tipping Point?

By: Bharat Kirthivasan, Co-Copy Editor

The UK government might soon become the platform for an explosive debate on the uses and ethics of three-person *in vitro* fertilization (three-person IVF). According to the Human Fertilization & Embryology Authority, there is no evidence to suggest that any form of IVF is unsafe for the mother or the fetus. A public vote on whether three-person IVF should be considered for legalization showed "general support" for the idea.[1] Three-person IVF involves assembling an embryo containing nuclear DNA from the two original parents, using mitochondria obtained from a donor.[1] A potential hot-button issue, the implementation of three-person IVF may further polarize the debate concerning the ethics of IVF.

Nonetheless, the technology may be essential in aiding many who suffer. About 1 in 5000 children suffers from progressive and debilitating mitochondrial diseases, with the rate of incidence in adults being approximately 1 in 10,000.[2,3] The United Mitochondrial Disease Foundation lists 44 known mitochondrial diseases such as Barth syndrome, creatine deficiency syndrome, and Kearns-Sayre syndrome. Mitochondrial diseases have no cure—current treatments only manage symptoms and retard disease progression.[4] While mutations in either nuclear DNA or mitochondrial DNA (mtDNA) can cause mitochondrial diseases, the latter is more likely, perhaps due to increased levels of mutagenic free radicals and reduced capacity for DNA-repair in mitochondria.[5]

While both sexes suffer from mitochondrial disease, only women transmit the disease to their children.[6] Children get equal nuclear genetic information from both parents, but their mitochondrial DNA is purely maternal.[6] Hence, children inherit their mothers' mitochondrial defects.[6] Prenatal and preimplantation testing are used to inform women of underlying mitochondrial aberrations, so that couples with high risks for inherited mitochondrial disorders could decide to pursue adoption or IVF involving an egg-donor.[6]

However, if the nuclei from the mother's ovum and the father's sperm are taken along with mitochondria from a healthy donor (the third parent), the developing embryo will have the donor's mitochondria. By using the original parents' nuclear DNA and the cytoplasmic machinery of the third parent, crippling diseases with origins in mtDNA can be evaded.[2]

"Three-person IVF involves assembling an embryo containing nuclear DNA from the two original parents, using mitochondria obtained from a donor."

There are two basic approaches to three-person IVF. Either the mother's nucleus is added to the cytoplasm (ovum depleted of nucleus) of the third parent and then fertilized with a sperm (maternal spindle transfer or MST), or the nucleus from a fertilized ovum is added to the cytoplasm of the third parent (pronuclear transfer or PNT).[2] Tachibana *et al.* successfully employed MST in Rhesus monkeys[7], yielding offspring that were healthy and had developmental statistics in the normal range. The scientists found that the donated mtDNA did not affect the nuclear DNA and the impacts thereof. Craven *et al.* in the UK performed PNT on abnormally-fertilized human eggs and found under 2% carryover of defective mitochondria in the embryos.[8]

However, three-person IVF has unsettling moral implications. Allowing scientists to genetically manipulate embryos, even on a peripheral level, may be a point-of-no-return in technological development—for the first time, human beings would have genetic material from more than two parents. Some might look askance at the possible phenotypic ramifications of such children growing into adulthood, and others might be wary of the slippery slope towards modifying nuclear DNA to produce 'designer babies.' The extent of permissible intervention in a natural, evolutionary step in human development—growing from a single cell to an organism—will soon be tested, as will the already tenuous relations between religion and science in some regions.

The Nuffield Council on Bioethics reviewed the ethics of the various IVF techniques that are in consideration for the prevention of mitochondrial disease.[6] Among the various bioethical contemplations is the idea of limiting this technology to the conception of male embryos only, as males do not pass on their mtDNA to their offspring, thereby restricting any possible consequences from this procedure to that single generation. The council added that if the donor were a direct genetic relative of the original mother, the ramifications in future generations could be partially assuaged because the mitochondrial DNA would essentially be identical to the mother's, but without the mutation that the mother may have acquired later in life. [6]

Hugh Whittall, the Director of the Nuffield Council on Bioethics weighs in on the legal rights and responsibilities of the 'third parent': "Given that only some elements of the donor egg are used, not including the cell nucleus, we do not believe that it is legally or biologically correct to refer to the mitochondrial donor as 'third parent' of the resulting child. We therefore argue that mitochondria donors should not be treated in the same way as egg donors for IVF, for example, they should not be required later to be identifiable to those born from their donation."[9]

The experts on the council consider mitochondrial donation akin to tissue donation and hence not subject to the scrupulous evaluation reserved for gamete donation.[6] This logic is used to draw a distinction between mtDNA donors and sperm- or egg-donors, who might risk being found legally responsible for the welfare of the child.[10]

Amidst the overwhelming support among scientists, there exist voices of caution. Debates over the ethics of the procedure call for further evaluation of risk-to-benefit ratio. Dr David King, the director of Human Genetics Alert, opines: "Historians of the future will point to this as the moment when technocrats crossed the crucial line, the decision that led inexorably to the disaster of genetically engineered babies and consumer eugenics."[1]

"The experts on the council consider mitochondrial donation akin to tissue donation and hence not subject to the scrupulous evaluation reserved for gamete donation."

While the U.S. government has softened its stance on federal funding for human embryonic research in recent years, it still seems likely that the first clinical data will come from the UK.[11] The legalization of three-person IVF in even one country, however, will bring permanent changes to the whole world, given the ubiquity of international travel and possibilities of immigration in today's world. The ethical and moral implications notwithstanding, this technology would help women with mitochondrial defects whose currently available options preclude a genetic connection to their children.

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MERCK SETTLES LAWSUITS OVER VYTORIN®

BY: TASNIMA NABI, SENIOR STAFF EDITOR

Merck & Co. will pay $688 million to settle two lawsuits filed in December 2008 over their patent-protected statin, Vytorin®. The suits state that Merck and Schering-Plough delayed releasing the results of their ENHANCE study to avoid a decrease in revenue.[1]

Vytorin® is a combination drug of simvastatin and ezetimibe. ENHANCE was a trial conducted by Merck and Schering-Plough hoping to prove that the combination therapy of simvastatin and ezetimibe could prevent plaque buildup in arteries and prevent/reduce heart attacks and strokes, in addition to reducing low-density lipoprotein cholesterol levels.[2] ENHANCE was a double-blind and randomized 24-month trial comprising of 720 patients diagnosed with heterozygous familial hypercholesterolemia. The patients either took simvastatin 80 mg and ezetimibe 10 mg, or simvastatin 80 mg and a placebo. The change in carotid intima-media thickening (cIMT) in each patient was measured. After the two-year treatment, there was no statistically significant difference in carotid thickening between the two treatment groups.[3] While patients treated with ezetimibe did show a larger reduction in LDL cholesterol levels, there were no differences in the occurrence of adverse effects or cardiovascular events.[4]

The results of ENHANCE were released on January 14, 2008. Merck and Schering-Plough had completed the trial by April 2006, but failed to prepare and release data from the study on time.[5] A class-action lawsuit was filed in December 2008 because Merck and Schering-Plough did not release information proving that Vytorin® was not more effective at reducing plaque buildup than less-expensive generic drugs already on the market.

Merck has agreed to pay $215 million in a suit that involves its defendants and $473 million in a suit involving Schering-Plough defendants and added that the company acted responsibly. Bruce N. Kuhlik, executive vice president of Merck, stated, "It is in the best interests of the company and its shareholders to put this matter behind us, and to continue our focus on scientific innovations that improve health worldwide."[6]

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Documentation of Drug Allergies in Hospitalized Older Adults

By: Multiple Authors, See Below

Article by Nandini Puranprashad, Sibyl Cherian, and Tracey Cannova, PharmD Candidates from St. John's University College of Pharmacy and Health Sciences and Olga Hilas, PharmD, MPH, BCPS, CGP.

Adverse drug reactions are estimated to occur in 10-20% of hospitalized patients and in 7% of the general population.[1] One-third of these reactions are of an allergic or pseudo-allergic nature. The consequences of these hypersensitivity reactions include substantial medical expenses, morbidity, and mortality. Elderly patients are particularly vulnerable to adverse drug reactions due to factors such as pharmacokinetic and pharmacodynamics changes associated with age, multiple medical conditions, and polypharmacy.[2] No true epidemiological studies have been conducted because many reactions that are thought to be allergic are often simply suggestive of an allergy and not true drug allergies.[3] Based on this, we, along with our preceptor, decided to conduct a research project in the geriatric unit of our medical facility.

Our objectives of this project were to determine the most common types of hypersensitivity allergic reactions in geriatric patients, the frequency with which these allergic reactions are reported, to assess the validity of these allergies and then to compare what is documented in the medical record system and the impact of having a pharmacist intervention on correct documentation of allergies.

We evaluated the prevalence of drug allergies reported in our older patient population admitted to the geriatric unit, particularly those allergies reported incorrectly. Prospective reviews were conducted in the study group using ECLIPSYS electronic medical record system. Patients were interviewed to determine the nature and extent of their allergic reactions to verify if the allergies are correctly documented. Demographics such as age, gender, number of drug allergies, and what the documented allergy is, were noted. Patients' allergies were documented as either a true allergy or drug intolerance. Documentation of the allergy by health care professionals such as doctors, nurses, and physician's assistants was also noted. Any incorrect allergies were removed from the patient's chart with the help of the pharmacists.

The clinical pharmacy team conducted 51 patient interviews and identified 105 documented drug allergies. Of these reported reactions, 36.5% were labeled correctly as either a true allergy or intolerance. However, 27.8% were incorrectly labeled in the patient medical record and another 35.6% could not be verified due to underlying psychiatric and/or non-communicable conditions.

Regarding the reporting of drug allergies,

51.9% were not described properly in the patient medical records (reported as "other" or "unknown"). The clinical pharmacy team was able to obtain more information from patient interviews regarding these drug reactions, and they advised the geriatric medical team to update both incorrect labeling and incorrect reporting of drug allergies in the electronic medical records of the patients.

It is important to understand the significant role of clinical pharmacists in the identification and documentation of drug allergies. Incorrect labeling and reporting may result in less than optimal pharmacologic prescribing (or lack thereof), particularly in the elderly population.

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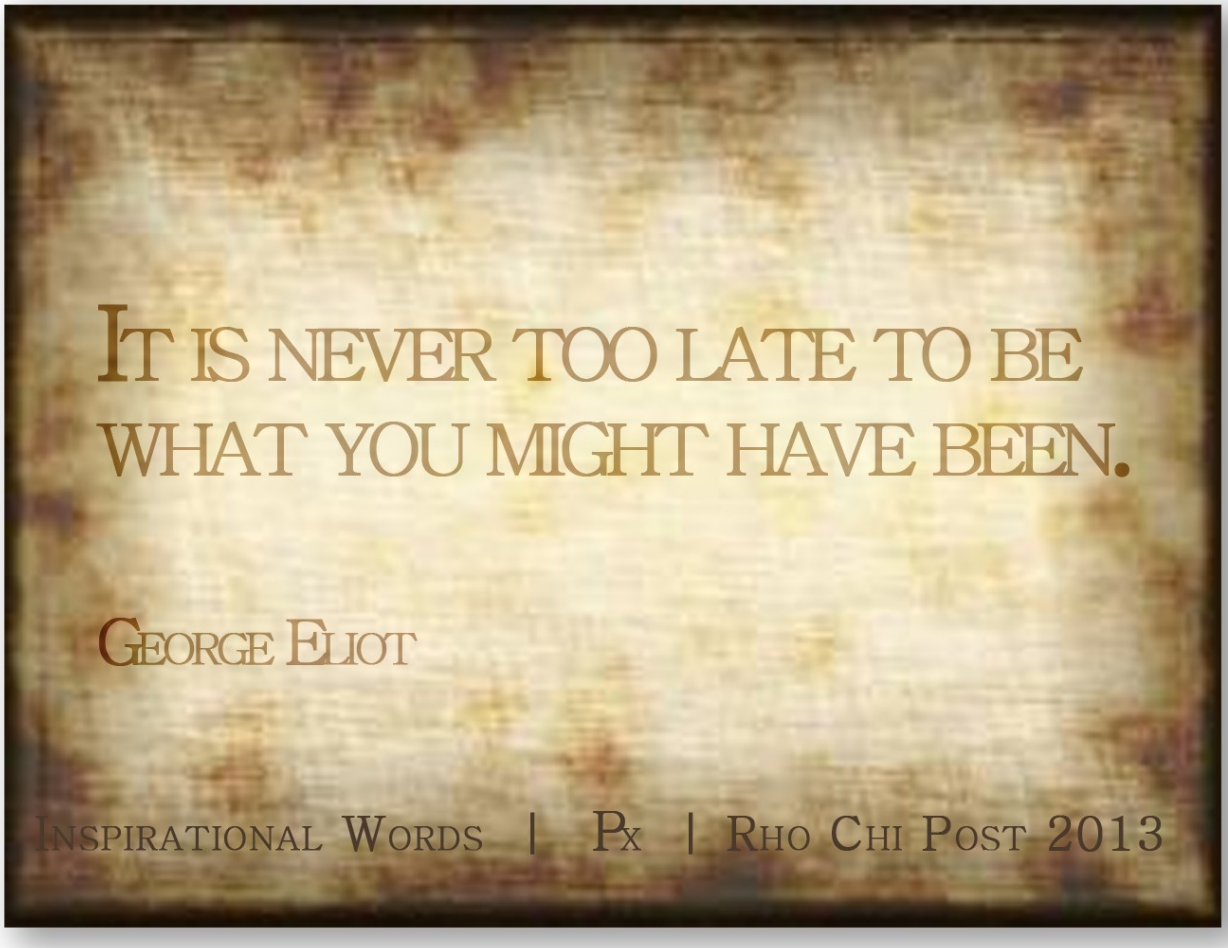
QUOTE OF THE MONTH

BY: ALEENA CHERIAN, CO-COPY EDITOR



Say Goobye to Yearly Flu Shots: The Universal Flu Vaccine

By: Diana Gritsenko, Staff Editor

Every flu season, it is the same story: long lines at doctors' offices and pharmacy counters as patients scramble to get the year's vaccine before supplies run out. Year after year, doctors and pharmacists groan while explaining over and over again to patients why they need to get a brand new vaccination this year.

The reason behind the frequent vaccinations lies in the nature of the vaccines. Current seasonal vaccines are made from the three most common influenza viruses circulating in a particular flu season. These viruses are grown in eggs (hence the intolerance in some patients with egg allergies) and are weakened or killed so the patient's immune system can develop antibodies with little to no risk of the patient falling ill from the vaccine itself. However, it takes patients two weeks to develop antibodies from the vaccine, and they might still get the flu from a strain of the virus that they were not vaccinated against.[1]

Scientists from the National Institutes of Health (NIH) are developing a universal flu vaccine. Whereas the seasonal flu vaccines prompt the body to make antibodies against the lollipop-shaped head of the virus (called hemagglutinin, or HA), the universal vaccine targets the stem of the HA. What makes this vaccine universal is that the stem of the HA, unlike the head, varies very little from virus to virus. In theory, patients vaccinated with the universal vaccine would be immune to any strain of the flu vaccine—not just the most prevalent.[2]

Another benefit to this vaccine is that the patient would not need yearly vaccinations. Scientists at the NIH have discovered that immature antibodies can recognize the stem portion of the HA only when those antibodies are attached to the surface of a naïve B cell. Once the attached antibodies recognize the stem of the HA, they replicate into many daughter cells, called memory B cells. Because memory B cells last in the body for several years, or even a lifetime, a patient would remain immune for years after vaccination.[2]

The significance of the new vaccine is clear to many. However, the implications go beyond the frequency of administration. Periodically, a microorganism evolves and causes a pandemic. For example, in 1918, the Spanish flu infected 20 – 40% of the world's population and killed 50 million people.[3] If such a disease were to arise today, scientists would not be able to develop a vaccine until it was well underway. With the universal flu vaccine, there would already be a weapon against it.

Prime-boosting vaccines, given before administering the seasonal vaccine, are already being tested in humans for safety and efficacy. Soon, these trials will move on to a larger-scale and, within three to five years, we should expect to see efficacy trials for the broadly protective universal flu vaccine.[4] Hopefully, within this decade, health professionals and patients alike will be relieved of seasonal flu vaccines.

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Run for the Health of It!

By: Taryn Mondiello and Frances Trosa, PharmD Candidates 2015

On Saturday, April 13th, there was a Red Storm on campus. This Red Storm, however, was probably not the one you are thinking about. While the people were in fact wearing red, they were actually participants of the APhA-ASP's event "Run for the Health of It". This symbolic color was worn to show their support for the fight against cardiovascular disease, and to raise money to benefit the American Heart Association (AHA).

Cardiovascular disease (CVD) is currently the number one killer of Americans. About 800,000 people die of CVD in the United States every year, and each minute someone in the United States dies from a heart disease-related event.[1] These startling facts published by the CDC indicate that CVD is a prevalent and life threatening epidemic. "Run for the Health of It" was therefore held to promote advocacy and awareness of cardiovascular health. There were a total of 42 participants, including St. John's students, faculty, friends, and family. The participants completed a 2.13 mile course as walkers or a 4.26 mile course as runners around the St. John's University Queens campus.

When everyone completed the course, they gathered on the lawn adjacent to Sun Yat Sen Memorial Hall. People broke up into teams and competed in some friendly relay races, including a 3 legged race and a wheelbarrow race. During this time, participants also got the opportunity to buy raffle tickets for heart healthy prizes, all proceeds benefitting the AHA. Prizes were also distributed to the first place runner, first place walker, and the "best dressed" participant for wearing the most red. To conclude the event, APhA-ASP provided information and pamphlets that promoted heart health and a healthy lifestyle through diet, exercise, smoking cessation, and regular contact with doctors and pharmacists. Participants were encouraged to take this information and pass it onto others, as to promote cardiovascular health and awareness.

Taylor Lucchesi, a PharmD Candidate c/o 2014 at St. John's University College of Pharmacy and Health Sciences and Operation Heart Coordinator of the Patient Care Project Team for APhA-ASP was the primary organizer of "Run for the Health of It." In order to make this event possible, Taylor received a grant from Target for the second year in a row. She commented, "Thanks to the generosity of Target, APhA-ASP was given an incredible opportunity to get the community physically active for

such an amazing cause as the AHA! I want to extend the utmost gratitude to Target for their continuing support."

Taylor and the student chapter of APhA achieved great success in the second annual "Run for the Health of It". They will be donating about $500, proceeds that were raised from entry into the walk/run and raffles, to the American Heart Association. Upon completion of the fundraiser, Taylor expressed her excitement staying, "I am so pleased to hear such wonderful feedback from participants! A successful event is always evidenced by increased participants, and this year we saw a twofold increase, a testament to an enjoyable experience."

Make sure to look out for details regarding the Third Annual "Run for the Health of It" in April 2014!

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All photos for this article have been contributed to us by Danielle C. Ezzo, Pharm.D., BCPS, CGP, Associate Clinical Professor at St. John's University College of Pharmacy and Health Sciences. Please email her for permission to reprint the images at: ezzod@stjohns.edu

FDA Approves New Drug: Tofacitinib for Rheumatoid Arthritis

By: Erica Dimitropoulos, Senior Staff Editor

Rheumatoid arthritis is a painful and often debilitating autoimmune disease characterized by symmetric polyarthritis, most commonly of the proximal interphalangeal and metacarpophalangeal joints, elbows, knees, ankles, and spine.[1] Its clinical manifestations vary, from a slowly progressing onset of fatigue and musculoskeletal discomfort to a sudden and worsening destruction of joints and periarticular structures. Furthermore, as an autoimmune disease, rheumatoid arthritis carries an increased risk of mortality from infection, vasculitis, gastrointestinal hemorrhage, and heart complications.[1] Although the cause of rheumatoid arthritis is unknown and the cure is unfound, non-steroidal anti-inflammatory drugs (NSAIDs), disease-modifying anti-rheumatic drugs (DMARDs), corticosteroids, and biologic response modifiers have been shown to control the pain and flares of this disease for most patients. However, other patients who are either nonresponsive or have developed tolerance to these drugs are turning to new options to manage their disease.

On November 7, 2012 the FDA approved Pfizer's tofacitinib (Xeljanz®), an oral drug that targets patients with rheumatoid arthritis who are intolerant to or have failed therapy with methotrexate.[2] As a Janus kinase (JAK) 1 and 3 inhibitor, Tofacitinib interferes in the pathway involved with the inflammation and damage associated with rheumatoid arthritis. To elaborate, once a cytokine receptor associates with its respective cytokine, it undergoes a conformational change that causes JAKs to bind to it and phosphorylate its tyrosine residues. This triggers STATs, or signal transducers and activators of transcription, to bind to the newly phosphorylated domain. The JAKs can now phosphorylate and therefore activate the STATs, which then dissociate from the receptor complex and form an active dimer that is capable of entering the nucleus and regulating gene transcription processes. Blocking this pathway therefore blocks the activity of the inflammatory cytokine.[3]

STATs in particular have recently been proven to play an important role in rheumatoid arthritis and other inflammatory diseases. Individuals with the highest levels of inflammation have overly activated STAT1 pathways with an increased expression of STAT1 and the genes it regulates. Thus, since STAT activity may be modulated through JAK, particularly JAK3, the pathology of disease clearly demonstrates the potential of inhibitors of the Janus kinase pathway in treating rheumatoid arthritis.[3]

Tofacitinib has been approved at 5 mg twice daily as a second-line agent for rheumatoid arthritis, either as monotherapy or in conjunction with methotrexate or other DMARDs. The most common side effects include headache, diarrhea, and nasopharyngeal inflammation. Tofacitinib has also been associated with an increase in cholesterol and liver enzyme levels and a decrease in blood counts.[4] Patients should be informed of the increased risk of infection, and all patients should be tested for tuberculosis before initiating therapy.[2] Lastly, the FDA has required Pfizer to conduct a postmarketing study to determine if this drug is associated with heart disease, cancer, or serious infections.[4]

An important yet incomplete 24-month research initiative called the ORAL Start study compares the effectiveness of tofactinib with methotrexate in methotrexate-naïve patients who have active rheumatoid arthritis.[2] The study included 952 patients who were split into three groups and given tofacitinib 5 mg twice daily, tofacitinib 10 mg twice daily (dose not yet approved), or methotrexate up to 20 mg weekly. After one year, the ACR70 response has been 36% to 38% in patients receiving tofacitinib, compared to only 12% for patients treated with methotrexate. The incidence of serious adverse events was the same for all groups (7%), although infections were slightly more common in patients treated with tofacitinib (32% to 39% compared with 27%). Thus, tofacitinib monotherapy was proven to be superior to methotrexate in improving the symptoms of rheumatoid arthritis and inhibiting the worsening of structural joint damage associated with this disease.[2]

In closing, despite the promising outlook and numbers this new drug has to offer, the true test of efficacy will come only when Tofacitinib enters the

market and begins to be used in all patient populations and situations. Unfortunately, as its price is said to be comparable to that of biologic agents, its high cost may both deter prescribers and patients .[5]

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Breaking the Mold

By: Beatrisa Popovitz, Staff Editor

We've all been there. You've got an insurance company on hold on one line and a doctor on another, 20 prescriptions lined up to be typed, the phone ringing off the hook, and a patient at the drop-off window in shock and disbelief that it will take some time for their prescription to be filled despite it being "right there in your hands". The American public often has a misinformed view on what the professional work of a pharmacist actually entails. Most patients identify their pharmacist as the person in a white lab coat behind a raised counter at their local pharmacy, but pharmacists are transplanting themselves into institutions and establishments far beyond the local pharmacy counter. They have been progressively contributing to the scientific progress of healthcare, and have been promoting and aiding in the overall health improvement of countless patients.

As the healthcare industry is evolving, and many changes are taking effect under the Patient Protection and Affordable Care Act, the pharmacy profession continues to expand. Vast numbers of PharmD candidates are taking an avid interest in diverse areas of pharmacy practice and many are even considering residencies and fellowships post-graduation. The pursuit for residencies and fellowships is currently buzz worthy amongst our PharmD candidate peers and recent graduates. Many organizations, such as Rho Chi Society, are hosting events focused around gaining student involvement in considering the once uncommon pharmacy career paths.

Interestingly, pharmacy residencies in the United States were originally termed internships and actually began as early as the 1930s, with the intention of training pharmacists for the management of pharmacy services in hospitals.[1] Today, the term residency expands beyond hospitals. According to the American Society of Health System Pharmacists, a residency is an organized, directed, postgraduate training program in a defined area of pharmacy practice.[1] Pharmacy residencies are offered in a variety of practice settings including hospitals, managed care facilities, and community pharmacies. They are typically two years in duration, with the first year exposing residents to a more generalized area of practice and the second year tailoring to a particular specialty in pharmacy (e.g. pediatric medicine, infectious disease, ambulatory care). Institutional residency accreditation is attained through the American Society of Health System Pharmacists,

and prospective PGY residency candidates can access the nationwide residency directory on their website to become familiar with institutions involved.

Students are often misinformed and interchange the terms residency and fellowship. Although they are not mutually exclusive, the two terms are not quite the same. In comparison to residencies, fellowships are postgraduate programs designed to prepare participants to become independent researchers. They are highly individualized programs that vary in duration of time and are most often run by accredited pharmacy schools, specialized healthcare institutions, pharmaceutical companies, and academic health centers.[1] Above all, students are more familiar with fellowships for pharmaceutical companies in various areas of pharmaceutical industry affairs. Similar to the American Society of Health System Pharmacists, The American College of Clinical Pharmacy also has a website that offers a nationwide directory of fellowship programs as well as residency and other post graduate programs available for pharmacists.

"Why does that pharmacist have to be two and a half feet higher than everybody else? Who the hell is this guy? "Clear out everybody I'm workin' with pills up here. I'm taking pills from this big bottle and then I'm gonna put them in a little bottle! That's my whole job. I can't be down on the floor with you people." -Jerry Seinfeld

Furthermore, St. John's College of Pharmacy and Health Sciences has fostered an environment for students to gain access to resources in regards to various areas of pharmacy practice, including the aforementioned postgraduate programs. The advent of a new and unique student-run peer mentoring program enables interested students to learn about expectations for the application process and the work involved for such programs. This is done in a creative way, which also bridges the gap between PharmD candidates in the P1 through P4 years.

In addition to residencies and fellowships, there are many other opportunities for pharmacists to work more closely and share their knowledge with other health care professionals. Under new health care reform, pharmacists are increasingly playing a greater role in preventative healthcare. Pharmacists in the U.S. are already authorized to administer vaccines. Pharmacists are also becoming more involved in medication therapy management (MTM) services for patients suffering from chronic diseases. This is done to help improve therapeutic outcomes, reduce medication adverse effects, and ensure that patients are properly monitoring their medical condition.[2]

Aside from being granted the power to immunize patients and being able to run MTM programs, pharmacists can host "brown bag" events in their local communities. Brown bag events enable patients to have all of their current prescription medications and OTC products reviewed by a pharmacist, often times checked against pharmacy history profiles. These events allow pharmacists to identify any potential medication misuse, adherence issues, drug interactions, or duplicate therapy. Events like these enable pharmacists to address any medication-related questions patients may have, and allow pharmacists to make therapeutic recommendations when applicable.[3]

In addition to playing an active role in healthcare management in the local community, pharmacists have been able to offer their expertise internationally in conjunction with "Doctors Without Borders" missions. Once one earns their Pharmacy Doctorate degree, opportunities are bountiful. The road to acquisition is not an easy one but taking advantage of the abundant resources and opportunities can help pave the way towards becoming future health care leaders in society.

Initiation from the scholarly level is an increasingly popular and practical way to further our pharmacy profession in the medical world. Events on our campus such as "Vascular Valentine" and the S4Gift/Rho Chi co-hosted "Bone Marrow and Organ Donation Counseling Registration series" are gateways for pharmacy students to become more readily involved in bestowing their medical knowledge to others in the community. The latter is particularly unique in that it enables health care professionals and healthcare students to become

educated in the processes of bone marrow and organ donation, and to find ways of spreading awareness for donation amongst members in local and national communities. Similar organizations and events can be found on pharmacy school campuses nationwide.

Student pharmacists have and will continue to make footprints on the moon of healthcare. Recently, a St. John's student has tried to gain recognition for pharmacists as healthcare providers. [4] Passion and the power of the pen united student pharmacists and pharmacists across the nation to help make a change in our country's history, as over 25,000 signatures on an online petition may soon warrant an official response by the Obama administration to legally acknowledge pharmacists as health care providers.[4] This just goes to show how far we have come as health care professionals, the vast extent to which the role of pharmacists has evolved over time, and how we will continue to improve health care in the future. Mahatma Ghandi once spoke the wise words, "As a man changes his own nature, so does the attitude of the world change towards him." In essence, be the change you wish to see in the world, and as a world of opportunity awaits you, you can start breaking the mold today!

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NEW $P2Y_{12}$ ANTAGONIST ON THE RISE

BY: NANCY RIZKALLA, PHARMD CANDIDATE 2015

Percutaneous coronary intervention (PCI) with subsequent stent implantation is a highly effective approach in reducing the risk of death or ischemic complications following a myocardial infarction as well as improving the quality of life in patients with stable angina. PCI is ultimately performed in 60 – 70% of patients with acute coronary syndromes who undergo diagnostic coronary angiography.[1] Its widespread use notwithstanding, there is substantial concern regarding thrombotic complications during the procedure, despite adjunctive administration of antiplatelet therapies. $P2Y_{12}$ receptor antagonists are most commonly the drugs of choice for this purpose, as they help reduce the risk of stent thrombosis.

However, they have their limitations. To date, the available $P2Y_{12}$ receptor antagonists are administered only in the oral form. Furthermore, there is a delayed onset of action, and, with most agents, the effects last for several days, which increases the risk of subsequent bleeding. Considering the circumstances in which these drugs are used, there is a need for more optimal therapy. For example, the patients who benefit most from such an intervention are the ones in the throes of an acute cardiovascular illness, such as acute coronary syndrome. Concomitant states of nausea, impaired absorption, and perfusion also typically occur in these patients. Such conditions may limit the bioavailability of oral $P2Y_{12}$ receptor antagonists, compromising their efficacy. Furthermore, variations in pharmacokinetic and pharmacodynamic responses among individual patients have been noted with some of these agents.[2] In high-risk patients, additional antiplatelet therapy, namely a GP IIb/IIIa receptor inhibitor, is given to further reduce the risk of thrombotic complications. However, the effects of these agents last for several hours and cannot be readily reversed. In

addition, they have been associated with frequent episodes of major bleeding.[2] These issues have prompted the search for an intravenous, fast-acting, reversible, and potent antiplatelet agent, ultimately leading to the development of cangrelor.

Cangrelor certainly addresses the shortcomings of its predecessors. It is administered intravenously, eliminating the need for absorption before antiplatelet effects can be seen. The onset of action is not delayed—when a bolus of cangrelor is administered, the antiplatelet effect is immediate and can be maintained with a continuous infusion. The effects of cangrelor are reversible as the plasma half life is 3 – 5 minutes, and platelet function is restored within one hour of cessation of the infusion.[2] More importantly, cangrelor significantly outperformed the current gold standard $P2Y_{12}$ antagonist, clopidogrel, in the CHAMPION PHOENIX study, a large, phase III global trial of patients who underwent coronary stent procedures.[3]

CHAMPION PHOENIX, a randomized, double-blind trial, compared cangrelor with oral clopidogrel in approximately 11,000 patients at 153 centers around the world. It included a broad variety of patients with every type of acute coronary syndrome, angina, and other conditions for which people undergo PCI, as long as they had no recent exposure to a $P2Y_{12}$ inhibitor and could swallow a pill. Other exclusion criteria included recent use of GP IIb/IIIa inhibitors or fibrinolytics and specific factors that would predispose one to a high risk of bleeding. Cangrelor performed significantly better than clopidogrel across efficacy measures: 4.7% versus 5.9%, or a 22% reduction in the odds of the primary endpoint, which was composite incidence of death, myocardial infarction, ischemia-driven revascularization, or stent thrombosis at 48 hours after randomization (adjusted odds ratio with cangrelor, 0.78; 95% confidence interval [CI], 0.66 to 0.93; P=0.005)[2]. Stent thrombosis developed in 0.8% of the patients in the cangrelor group and in 1.4% in the clopidogrel group. In other words, cangrelor showed a 38% reduction in the odds of the key secondary endpoint, incidence of stent thrombosis at 48 hours (odds ratio, 0.62; 95% CI, 0.43 to 0.90; P=0.01)[2]. Both treatment arms showed a low, statistically comparable incidence for the safety endpoint of severe bleeding at 48 hours: 0.16% versus 0.11%[3] (odds ratio, 1.50; 95% CI, 0.53 to 4.22; P=0.44).[2]

Experts agree that the endpoints measured in this study represent a real concern regarding the outcomes of PCI with stent implantation. According to Deepak L. Bhatt, MD, MPH, chief of cardiology at VA Boston Healthcare System, senior physician at Brigham and Women's Hospital, professor of medicine at Harvard Medical School, and Robert A. Harrington, MD, chairman of medicine at Stanford University School of Medicine, co-principal investigator, "These are endpoints we worry about a lot in interventional cardiology and cardiology in general." They then go on to say, "This study examined a very wide spectrum of patients, which means the results really do apply to a substantial percentage of patients undergoing stent procedures around the world."[3]

The discovery of cangrelor is exciting news in the cardiology world, as it is an agent currently unmatched in its advantages and provides consistent, superior benefit to patients. The data is compelling, and we can certainly expect The Medicines Company®, the pharmaceutical company that developed cangrelor, to seek FDA approval for this new compound.

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Flu Season 2012-2013: Rising Opportunities for Pharmacists

By: Fawad Piracha, PharmD candidate 2016

The 2012-2013 influenza season has developed into one of the greatest nationwide flu outbreaksof the decade.[1] Amid this crisis, many flocked to healthcare providers with flu-like symptoms, while others scoured doctors' offices, clinics, and pharmacies for the vaccine. With the flu claiming many lives throughout the U.S., and many consequent region-wide declarations of health emergencies, healthcare professionals continue to educate patients of the benefits and risks of vaccines. Using a joint effort, professionals' goals is to administer vaccinations to as many individuals as possible.[2] The CDC considers vaccinations as one of the most efficient measures of disease prevention and one of ten greatest public health feats of the twentieth century.[3] Millions of lives have been saved since the introduction of vaccines in the late eighteenth century.[4] Although vaccination prevents many illnesses, it has entered the scope of a pharmacist's practice only recently. The pharmacist's right to administer vaccines has been realized due in large part to the organized efforts of special interest groups, such as the American Pharmacists Association (APhA). These groups promote and advocate greater forms of pharmacy practice. By October 2009, all 50 states permitted pharmacists to administer various vaccines and immunizations.[5] This flu season reveals the profound impact that pharmacists can have on public health crises.

Influenza, commonly known as the flu, is a highly contagious and mutable virus. The predominant serotype widespread in the 2009 swine-flu pandemic was H1N1, one of several serotypes confirmed in human beings. The CDC estimates that 43 million to 89 million people contracted H1N1 between April 2009 and April 2010.[6] They estimate between 8,870 and 18,300 H1N1-related deaths.[6] The symptoms common to flu patients include fever, cough, nasal congestion, severe cold, fatigue, body aches, and shivering.[7]

The most widely prescribed medicine for flu patients is oseltamivir phosphate (Tamiflu®). Oseltamivir phosphate is an antiviral drug used to prevent or treat influenza. Tamiflu® comes in two dosage forms: capsule and oral suspension. It is approved for use in infants, children, adults, and even the elderly. The FDA recently approved the administration of Tamiflu® to infants over two weeks of age.[8] The effects of the drug are not very pronounced. According to Roche, "children aged 1-12 years who received Tamiflu® within 48 hours of first flu symptoms recovered up to 26% (36 hours) faster than those who didn't receive Tamiflu®."[9] Frequently, entire households are prescribed an antiviral medication even if only one member is diagnosed with the flu.

Although many pharmacists and physicians deem oseltamivir phosphate (Tamiflu®) not very effective, its demand spiked during this season, causing a shortage. Many pharmacists were forced to compound oral suspensions from the Tamiflu® capsules while others counseled parents of young children to sprinkle the contents of the Tamiflu® capsules on food. Even with these different methods being applied, there was still a shortage this season. Although Tamiflu® can be used to treat or prevent flu-related illnesses, the flu vaccine is the superior measure to prevent the infiltration of the virus. The CDC reports that early season flu vaccine effectiveness is 62%.[10] This figure encompasses the effectiveness of the vaccine against the two most widespread flu virus strains: H3N2 and H1N1.

Pharmacists have played an important role in combating some of the fears that have resulted from the shortage of primary care physicians, especially during this past flu season. A causative factor of this is the dominance of managed care in healthcare today. More and more frequently, physicians and other healthcare professionals are constricted in treating patients due to various factors, including cost containment. Regardless of constraints, people still need to be treated and so this has led to an emergence of greater opportunities for other healthcare professionals, particularly for pharmacists. For example, it is less costly for managed care entities to have their patrons receive flu shots from pharmacists than from physicians. For this reason,

insurance plan providers encourage their patients to receive flu shots from a pharmacist. This is a model that has been inspired by Medicare, whereby flu shots are covered under Medicare Part B. Another contributing factor to the growth of vaccine administration by pharmacists is the fact that pharmacists are more accessible than any other health care professional. Appointments are often not required and the vaccine administration process, from being billed to being bandaged, does not take a great deal of time. Convenience is indeed a major factor that has led patients to prefer receiving vaccines from a pharmacist. The pharmacist is especially preferred for customers who do not have health insurance. Without insurance, someone could pay more than $100 to just see a physician.[11] At a chain pharmacy, a flu shot costs around $30. And so, the savings and the convenience resonate particularly well for individuals who are bereft of health insurance.

In administering vaccines, it is important to understand the importance of targeting high-risk individuals. Healthcare personnel, the afflicted, the aged, and the young are among the groups of individuals who are amongst this group. People who meet the criteria of this category are strongly encouraged to be vaccinated, preferably early on. Employers of healthcare personnel often obligate their subordinates to be vaccinated. The rationale is rather elementary: healthcare personnel are more susceptible to being infected by the flu virus from direct or indirect contact and are also more likely to transmit viruses and the like to their subjects, who are frequently immunocompromised patients. Individuals who suffer from chronic conditions including asthma, diabetes, or HIV/AIDS are prone to more critical symptoms upon exposure of the flu virus, which can progress to fatal conditions in the absence of intervention.[12] Age is an important factor in determining the risk level of an individual as well. Severe influenza complications are most common in children who are under two.[13] As well, the CDC estimates that "90 percent of seasonal flu-related deaths and more than 60 percent of seasonal flu-related hospitalizations in the United States each year occur in people 65 years and older."[14] This can be attributed in large part to atrophied immune defense. And so, it is evident that influenza can be fatal to people who are 65 years and older. Numerous deaths have been reported this season as a result of the flu. Many of the deceased included children and elders who were more susceptible to being affected by exposure to the flu strain, yet did not receive influenza vaccinations. The deaths of such individuals make manifest the heightened importance that should be placed on receiving vaccines.

The increasing role of pharmacists in administering vaccines and in educating patients on methods to prevent the onset and contagion of the flu has indeed resulted in a less severe flu season. It is a privilege for pharmacists to serve patients in this regard and it ought to be regarded as such. Pharmacists have contributed to healthcare in recent flu seasons in a very public health oriented manner. Vaccine administration and educating patients are indeed paradigms of prophylactic care. It is imperative for pharmacists and professional entities to document and publish the impacts that pharmacists have had in the course of recent flu seasons. The findings will prove to lawmakers that pharmacists are deserved of administering vaccines. This would certainly set a precedent, which would make greater forms of practice for pharmacists imminent.

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Pharmacist administering flu shot to Local 727 member

Image Source: http://www.teamsterslocal727.org/news/news_2011/110811_Pharmacy_FluShots.html

RHO CHI POST: EDITORIAL TEAM

@ Katharine Cimmino ***(4th Year, STJ; Editor-in-Chief)***
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 Candidate, STJ; Co-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.

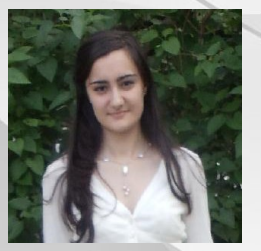
@ Hayeon Na ***(4h Year, STJ; Co-Copy Editor [Content-Focused])***
Hello! My name is Hayeon Na. I am a 2015 PharmD Candidate and one of the Copy Editors for the Rho Chi Post. I hope the information I present will be helpful, or at least interesting. If you have any comments regarding my contribution, feel free to contact me at any time!

@ Aleena Cherian ***(5th Year, STJ; Co-Copy Editor [Graphics-Focused])***
The Rho Chi Post has been a source of current information and great advice to students and professionals in this evolving profession. After years of experience in media and graphics-related work, it is now my privilege to be a part of this endeavor as a Co-Copy Editor. I hope you learn as much from future editions of the newsletter as I have, and I welcome your feedback!

@ Erica Dimitropoulos ***(4th Year, STJ; Senior Staff Editor)***
As busy pharmacy students, 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!

@ Tasnima Nabi ***(3rd Year, STJ; Senior Staff Editor)***
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.

RHO CHI POST: EDITORIAL TEAM



@ Tamara Yunusova ***(2nd Year, STJ; Senior Staff Editor)***

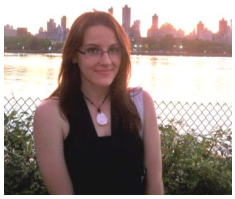
My name is Tamara Yunusova, and I am a 2nd year Pharm D candidate at St. John's University. I enjoy articulating information in a captivating and insightful way. I hope to make this publication more informative, student-friendly, and innovative.

@ Beatrice Popovitz ***(4th Year, STJ; Staff Editor)***

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. Feel free to contact me if you would like to share your ideas with other members of the University community through this platform.

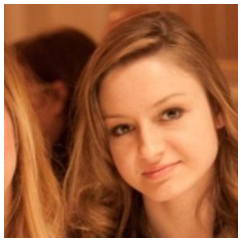
@ Omar Khalid ***(5th Year, STJ; Staff Editor)***

I am honored to be a part of this great publication. Pharmacy is in a period of drastic change and growth as we move from behind the counter to on the floor interacting as pivotal members of a healthcare team. I wish to promote this growth and be at its forefront as I bring awareness to the great amount of benefit pharmacists can bring to society.



@ Diana Gritsenko ***(4th Year, STJ; Staff Editor)***

I am proud to serve as an editor for the Rho Chi Post. The Post combines my love for Pharmacy and writing and I am glad to share that passion with all of you! I look forward to working with you and sharing this amazing opportunity!



@ Ada Seldin ***(4th Year, STJ; Staff Editor)***

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.

@ *you!*

We are always looking for creative and motivated students to join our team!

If you are interested in becoming an editor for the Rho Chi Post, please visit: **http://rhochistj.org/RhoChiPost/?page_id=36**

RHO CHI post

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 a monthly, electronic, student-operated, dean-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

Zinnia, Majd, Moisey, Elissa, and Anh at the 2013 Induction Ceremony

President: **Moisey Rafailov**
Vice President: **Majd Ahmad**
Secretary: **Elissa Tam**
Treasurer: **Anh Nguyen**
Historian: **Zinnia L. Yu**

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

UPCOMING EVENTS

Apr 9: CNS Orphan Diseases

Holiday Inn London Bloomsbury, London, United Kingdom

Apr 9-10: QualitySync II --

"Transforming Care Through Innovation"

The Westin Richmond, VCU School of Pharmacy, Virginia

Apr 15-16: 9th Annual Asthma & COPD Conference

Copthorne Tara Hotel, London, United Kingdom

Apr 17-20: Symposium on Medicinal and Aromatic Plants (MESMAP-2013)

Convention Center of Eastern Mediterranean University in Gazimagosa, Gazimagosa (Famagusta), Cyprus

Apr 24-26: Annual Pediatric Clinical Trials Conference

Hilton Philadelphia City Avenue, Philadelphia, Pennsylvania

May 6-8: Strategic Alliance Management Congress

Loews Hotel, Philadelphia, Pennsylvania,

May 8-10: Pharma Project Management Workshop

Holiday Inn Mumbai International Airport, Mumbai, India

Promote your event through us!

Submit the name, location, date, and time of your venue to our editors at:

rhochipost@gmail.com

We welcome all pharmacy-related advertisements