

Volume 18, Issue 4 2016-2017

MONOGRAPH

The Voice of the Pharmacy Student



the MONOGRAPH | volume 18, issue 4 2016-2017

Hi Pharmacy!

Welcome to Issue 4! We hope you are having an excellent second semester! We're fast approaching the end of the year, but here's Issue 4 to keep you going!

We are happy to announce our two winners from last issue's Diabetes Challenge. The winners were:

- Michelle Tam
- Choukri Hersi

They each won a \$5 gift card to Tim Hortons!

This issue's challenge can be found in the Study Break Section, and this time, two winners will receive a \$5 gift card each to Aroma! The same rules apply for submission for Issue 4: into the polka dot Monograph Box it goes!

We hope you enjoy this issue!

Naomi Lo and Natalie Ternamian

The Monograph could not be brought to you without the hard work of the following individuals:

1T7 Representative	Leyla Warsame
1T8 Representative	Brett Hevenor
1T9 Representative	Vaishali Sriprathap
2T0 Representative	Narthaanan Srimurugathan
Staff Editor	Walter Gao
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An army of dedicated Staff Writers

... and you, for reading the Monograph ;)

February-March 2017

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The Monograph wants to send an EXTRA special "Thank You" to 2T0 Rep Narthaanan Srimurugathan for going above and beyond his roles as a Monograph Class Rep!

You rock, Narth!

UPS ADDRESS

Hello Pharmacy!

With March now upon us, that means we're officially getting started with Pharmacist Awareness Month (PAM)! UPS has some great events planned for this month and we encourage you to attend as many as you can! We'd like to thank our title sponsor, Pfizer, for supporting our PAM initiatives this year.

Wake up to PAMCakes! - March 2nd

UPS and CAPSI are hosting the first-ever PAMCake event which will be happening at noon in the Atrium. We'd love for you to come out and celebrate PAM with Dean Boon's ceremonious Ribbon Cutting Ceremony! Best of all you can also come get some PAMCakes™ and enjoy activities with students and faculty members alike. Look forward to using our very-own PAM Snapchat filter and writing down your dreams for the profession!

Kick'n Off PAM: Lip Sync Battle - March 3rd

With the help of the Enhancing the Student Experience Fund, the 1T8 Class Council is kicking off Pharmacist Awareness Month through a Lip Sync Battle. Lip syncing is an attainable feat for everyone. It's an avenue where creativity and originality is highly encouraged, while endorsing the fact, that confidence is vital for pharmacy students. We encourage you to attend this highly anticipated event, with prizes galore and even guest performances from the faculty!

Semi-Formal - March 10th

Each year, UPS hosts our annual Pharmacy Semi-Formal. This year we've increased our capacity of seats to 240 people and since we loved the location from last year, it will once again be hosted at the Great Hall in Hart House (a 5 minute walk from PB!). This allows everyone to easily access public transit and come and go whenever you'd like! Furthermore, we've ensured to include everyone's diverse dietary needs so we'll have halal, vegetarian, vegan, and gluten-free meals available! It will certainly be a night to remember as we'll be burning up the dance floor and even cool down with some drinks! So dress up and come out! Be sure to get your tickets, for \$60/pharmacy student, as early as possible as sales are anticipated to hit capacity (240 people) within the first week.

Community Outreach - Throughout March

During this week, CAPSI and SOAPE will be running community outreach booths across campus, at various Toronto hospitals, at local pharmacies, and nearby elementary schools. We encourage you to all apply to be a part of one these events! It's a great opportunity to educate the public and put your clinical skills to use!

There's many more events on top of all this and we encourage you to give the PAM calendar a look!

All the best,

Faraz Razzagh and Alex Mok
UPS President and Vice President

Contact us: ups@uoftpharmacy.com

Permission was obtained to publish this photo of the UPS President and Vice President.



CLUBS CORNER- CAPSI

Hey Pharmacy,

CAPSI brought back our annual Social Media Challenge this year, and it was a great success! We were excited to see the over=whelming response; over 200 entries were received. We kicked off our Social Media Challenge by asking you what your favourite CAPSI event is, or what upcoming CAPSI event you're looking forward to. Many of you said your favourite CAPSI event is the Professional Development Week (PDW) Conference and you're excited about Toronto's Next Top Pharmacist (TNTP). Planning is well underway, and we're just excited about TNTP as you are! Can you guess who the contestants are going to be?

In addition, we had some great entries for our picture challenges. Featured in the photo are students Joel (1T8) and Nga (1T8) showing off their favourite perks the CAPSI agenda and RxTx App! There was also an iMCQ challenge to see how ready you are to answer PEBC questions! The questions were kindly provided by Agro Health.

Recently, a change was made to the Pharmacy Act allowing pharmacy students and interns to administer injections, provided that they have undergone the appropriate training in their curriculum. Many of you shared your opinions with regard to this act during our Social Media Challenge, and the response was highly positive! While some of you were hesitant about administering an injection for the first time, while many students agreed that it would make them feel more comfortable if they got practice as a student and had a preceptor to guide them along the way. Others felt that it was a logical step, since students in other health professions have been able to administer injections, and allowing pharmacy students to administer injections is just another way to push our profession forward. Check out what some of your peers had to say:

- Taranom (1T8) shared: "Absolutely love this act! I see this as one step closer to our bigger goal of minor ailments. I hope we, as the new generation of pharmacists, can embrace this to the full extent and bring this to our daily practices. This way we can provide proof of the efficacy, safety, and cost savings for the government. Only with evidence do they believe and trust us. So we need to provide as much evidence to them so we can persuade them that minor ailments prescribing by pharmacists will also bring the same results. Cannot wait to see what the future holds. Always have belief in our profession!"

- Phillip (1T7) shared: "This was definitely a great development. I hear too often that after graduation that new pharmacists haven't given any injections on a real patient before. I feel having this environment, where they are under direct supervision of the pharmacist, will allows students to perform more comfortably and when they graduate will have real experience and boost their confidence. This will definitely boost the number of pharmacists that would be willing to give flu shots (as well as other vaccinations since that is new as well)."



With February coming to a close, it means it's time for our favourite month - March! Stay tuned for all of the exciting activities CAPSI, UPS and other pharmacy clubs have planned for you to help promote the profession during Pharmacist Awareness Month (PAM).

Sincerely,

Maria and Nisha

CLUBS CORNER- ATHLETICS

Hey Everyone!

It's been another amazing season! So many of our teams made it into playoffs!

Pharmacy students who attend a Pharmacy intramural championship game will receive 1 UPS for spectating and cheerleading. This will apply starting March 2017 and continue in future years. Athletic directors will be distributing UPS points at each championship game.



-ATHLETES OF THE MONTH- JANUARY

Phillip Kim (1T7)

Phillip has been an active participant in intramural sports during his entire four years in Pharmacy. He has played in the following sports teams: Lacrosse, Volleyball, Flag Football, Innertube Water Polo, Ultimate Frisbee, Basketball, Badminton, Softball Tournament, Soccer, and Dodgeball. In addition to playing in and being the captain of many of these teams, Phillip has dedicated his time and energy to encourage and recruit new players, ensure adequate field/court times for badminton games, and lastly, he has been the most passionate fan of Pharmacy Intramurals. Thank you, Phillip, for a wonderful four years of leadership

and sportsmanship in Pharmacy!



Megan Arnott (1T8)

Megan is the captain of the Women's Volleyball team. She has excellent leadership and always starts the games off with the energy to have fun for her team. In addition to Volleyball, Megan has been a valuable athlete in Innertube Water Polo, Dodgeball, and Women's Flag Football. Way to go, Megan!

FEBRUARY

Taylor Smith (1T8)

Taylor is the captain of the Pharmacy's Men and Co-ed Hockey Team. He led our team into an amazing hockey season through tough practices and training. His dedication and energy was required to ensure our best performance at the annual OPA Hockey Cup against Waterloo. In addition to representing U of T Pharmacy in the Hockey Cup, Taylor also represented our school in the annual Soccer game against Waterloo. He was also MVP of the Men's Soccer Team in the Fall. Couldn't have done it without Taylor!

Tess Simpson (1T8)

Tess has been an important athlete in Pharmacy Volleyball and Innertube Water Polo. She has been a Volleyball enthusiast since day 1 of Pharmacy school. She never finished a semester without dedicating her time and energy to Volleyball. Keep it up, Tess!

Congratulations to all of our athletes!

Drugs on three,

*Élise De Francesco and Sylvia Kong
Sr. and Jr. Athletics Directors*

Contact: athletics@uoftpharmacy.com



CLUBS CORNER- OPA



ONTARIO
PHARMACISTS
ASSOCIATION

Advocating Excellence
in Practice and Care

Hey Pharmies!

As I write this update, I am currently enjoying a cup of coffee while in the comfort of my Wookiee housecoat so life is pretty good. I hope everyone had a relaxing and enjoyable Reading Week and that you didn't spend TOO much time studying.

Since our last update in the fall issue of the Monograph, OPA successfully completed its 5th annual Queen's Park Day in early December during which OPA members and staff spoke to MPs to reiterate the value that pharmacists can, and do, bring to healthcare. As a result of our advocacy efforts for the profession of pharmacy, we were also successful in securing the ability to administer common travel vaccines – a total of 13 vaccines such as hepatitis A/B, HPV, and shingles, in fact. Although our Lunch-and-Learns have finished for the school year, it's time to get excited because on Sunday, March 12th we have the annual OPA Cup hockey match versus Waterloo! Come bring all your UofT swag, cheer, cowbells, pots and pans, and wooden spoons to make some noise at an event you will not soon forget. The tailgate will be happening in the atrium of PB starting at 12:30pm. Food and drink tickets will be handed out upon entry and there will be plenty of music, face painting, and sign making to get everyone in the spirit. The game will begin at 3pm at Varsity Stadium followed by the after party and appetizers at The Maddy! In the event this Monograph issue comes out after the match, I hope to see that gleaming cup in our lobby trophy case once again!

If you still haven't renewed your OPA membership and personal liability insurance, both expired on December 31st. Make sure to be prepared for your summer placements and renew with the link below in only 5 minutes!
<https://www.opatoday.com/professional/membership/become-a-member/student>

Good luck with the rest of the semester and final exams, everyone!

Tanner

LEARNING ON THE GO- Pharmacy Perspectives

Harm Reduction Approaches in the Pharmacy: Methadone Treatment

Farhat Hossain

The distribution of methadone at both community and hospital pharmacies has been a longstanding harm reduction practice to assist those struggling with opioid use disorder. Methadone treats individuals that are addicted to opioid drugs such as heroin and oxycodone by preventing symptoms of withdrawal from arising¹. By preventing the occurrence of withdrawal symptoms, opioid users have reduced cravings for these drugs¹. The effects of methadone are not intoxicating or sedating, so it does not interrupt an individual's daily activities². Methadone is ingested orally, usually in a fruit flavored drink, in order to mask its bitter taste.

Methadone treatment was first developed in the 1960s, however the regulations regarding its use were very restrictive¹. It was not until the 1990s, that methadone treatment to become more accessible¹. Methadone is safe to be taken long term. Tolerance to this substance develops very slowly, so a person is able to stay on the same dose for a long period of time^{2,1}. Therefore the length of the treatment can be long term or short term depending on the patient^{1,2}. If a person has agreed to end their methadone treatment, their methadone dose is tapered down gradually over weeks or months to prevent withdrawal¹. Additionally, methadone is safe to be used in pregnant women, as it prevents harm to the unborn fetus¹. Opioid withdrawal in pregnant mothers increases the risk of miscarriage or premature birth; therefore administration of methadone improves chances of having a healthy baby¹. Even though methadone appears to be a safe drug in treating opiate addiction, it is potentially dangerous to people who are not tolerant to its effects¹. To account for this, the dosing of methadone needs to be individualized according to the patient's needs to prevent them from experiencing toxic effects of this drug.

The success of methadone intervention in patients with an opioid use disorder depends on certain parameters of the patient population being treated. A study conducted by the Oslo University Hospital in Norway introduced a safe low dose methadone project in attempt to treat "hard to treat" opioid-dependent patients³. "Hard to treat" opioid dependent patients were considered to be those concurrently using benzodiazepines and CNS depressant drugs³. The study found that 75-80% of previously non-compliant patients have benefitted from receiving a low dose of methadone over a 15-month period³. There was no report of serious intoxications or overdoses among the 20 patients that were recruited for this study³. However patients who successfully adhered to the treatment regimes had higher levels of education and prevalence of work experience compared to other treatment groups³. There is a suggestion that education, gender, and ethnicity are predictors of early treatment drop-out in a substance abuse clinic³.

Thus, to effectively treat opioid use disorder, methadone intervention requires both an appropriate dose to be administered, but also the appropriate socioeconomic factors affecting the patient's compliance.

References:

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- 2.Non Prescription Needle Use Initiative. (2007). Working with people who use drugs: A harm reduction approach. Edmonton, AB: Author. Retrieved from http://www.liver.ca/files/PDF/Publications_English/Working_with_People_who_Use_Drugs-A_Harm_Reduction_Approach_Manual_and_all_supplements.pdf
- 3.Henriksen, K., Waal, H., & Krajci, P. (2016). Will non-compliant 'hard-to-treat'opioid-dependent patients profit from low threshold methadone treatment? A prospective 15-month evaluation of patients on Low Dosage Methadone treatment at Oslo University Hospital. *Addiction is a treatable disease*, 23.

LEARNING ON THE GO- Drug Developments

A New NOAC

Sandra Wood

As a 1T7-er, I lucked out in not having to memorize this new non-vitamin K oral anticoagulant (NOAC) in PHM204 but I do recall mention of this drug in our workshop discussion. I can anticipate that this new anticoagulant will be included in the topic of anticoagulants as it received approval back in November 2016 (so take notes, 1T9s!). The beautifully named, Lixiana (edoxaban), manufactured by Servier Pharmaceuticals, is expected to hit the market in early 2017. It has approved indications for the treatment and prevention of thromboembolic events as well as the prevention of stroke and systemic embolic events in patients who have atrial fibrillation.

Similar to apixaban and rivaroxaban, edoxaban is a direct thrombin Xa inhibitor. Like rivaroxaban, edoxaban also boasts convenient once-daily dosing; however, it can be taken without regard to food. The usual dose for prevention/treatment of VTE (after heparin bridging) and also for stroke prophylaxis is 60mg once daily. Another advantage of edoxaban is that it demonstrates few drug interactions. A dose modification is not required with concomitant use of CYP inhibitors or inducers, which would otherwise be a consideration for apixaban and rivaroxaban. However, a dose reduction to 30mg once daily is required with concomitant use of P-gp inhibitors. Edoxaban can also be used in patients with mild renal (dose found to be safe at 60mg once daily) or moderate hepatic impairment (30-50mL/min with the dose adjusted to 30mg once daily). However, in patients with severe hepatic impairment or renal function less than 30mL/min, edoxaban is not recommended as safety data has not been established. In regards to adverse events, not surprisingly as is the case with all oral anticoagulants, bleeding is the most common adverse event.

At the moment, it's uncertain whether edoxaban provides superior efficacy and/or safety compared to the other NOACs on the market as comparative studies of these agents are lacking. But perhaps it provides an option for better compliance in patients, especially in those taking medications that pose CYP-interaction considerations.

References:

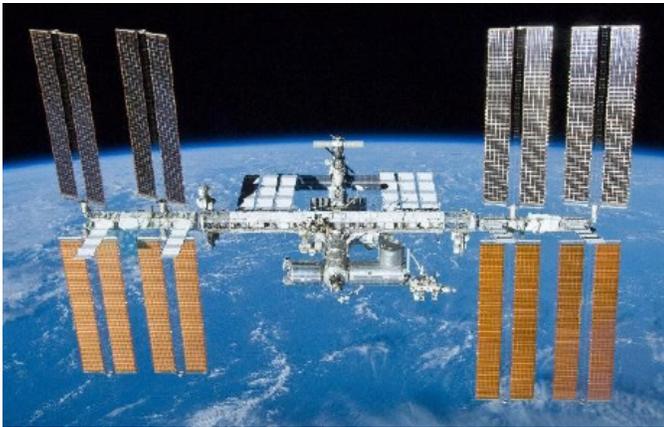
Murdoch, L. (2015, Nov 15). Edoxaban (Lixiana) approved in Canada. Canadian Healthcare Network. Retrieved from: <http://www.canadianhealthcarenetwork.ca/pharmacists/clinical/health-index-therapeutics/cardiology/edoxaban-lixiana-approved-in-canada-37968>



LEARNING ON THE GO- Space

NASA Sends Superbug to the International Space Station?

Josephine Ho



The International Space Station, NASA

On February 19th, 2017, the SpaceX Falcon 9 rocket took off to send colonies of methicillin-resistant *Staphylococcus aureus* (MRSA) into space, where it will be studied in the US National Laboratory in the International Space Station. The lead researcher of this project is Dr. Anita Goel, a Stanford-Harvard-MIT trained medical doctor and a physicist. She is also the chairwoman and CEO of the company Nanobiosym. Nanobiosym is a lab and company that aims to combine physics, biomedicine, and nanotechnology to create breakthrough scientific insights.

Dr. Goel explains that they aim to study the effects of microgravity on the growth and mutation of the MRSA bugs. In particular, they hypothesize that microgravity will accelerate the mutation of these bugs. By studying these mutations and the gene expressions, they can use this information to predict future mutations of MRSA on Earth. This may help researchers target

drug discovery to these anticipated mutations so that we are armed with effective defenses against them. Some compare this experiment to trying to see your opponent's moves in advance when playing a game of chess.

These kinds of experiments have been done in the past too. In 2000, the Russian space station, Mir, conducted an experiment looking at mutation rates of a cloned bacterial gene inserted into yeast. After 40 days on Mir, the mutation rates were up to three times higher than on Earth. The reasons for this accelerated mutation may be because metabolism-related proteins are more active in space, and the effect of exposure to radiation on certain genes.

In terms of the logistics of transporting the bacteria, Dr. Goel assures that the astronauts in the space station will never come into direct contact with the bacteria. The bacteria samples are tightly sealed with three levels of containment. There is also a portable habitat to protect it from rapid depressurization and the transportation process on the Falcon 9 rocket. In order to study the mutations of the MRSA strains in the microgravity environment, one of Nanobiosym's own devices will be used. In 2015, Nanobiosym developed the Gene-RADAR device. This device detects any disease that has a genetic fingerprint and it is done in real time at the point-of-care. The company claims that their device can diagnose any disease at the point-of-care with gold standard accuracy. It is based on real time PCR technology that is embedded in a nanochip to provide its portability. Besides use in the ISS for this project, Nanobiosym aims to put their technology to use in the diagnosis of HIV, Ebola, and other global infectious diseases. They hope to bring real time diagnosis technology globally to places where access to centralized diagnostic labs is not available.

Check out this video where Dr. Goel explains the technology and their vision: <https://www.youtube.com/watch?v=LFPo4pJT40k>

References:

<http://www.cnn.com/2017/02/17/health/superbug-mrsa-space-station/>

<http://www.businessinsider.com/spacex-launching-lethal-bacteria-february-2017-2>

IN THE NEWS- Headlines in Healthcare

The Abortion Pill is Available in Canada

Narthaanan Srimurugathan

After an unusually long three-year application process, Health Canada finally approved Mifegymiso in July 2015. It has already been approved in more than 60 countries including the United States, Australia, and China, and for as long as 30 years in countries like France. Moreover, Mifegymiso has been on the WHO's list of essential drugs since 2005 and is the gold standard for medical abortion. The two-drug combination product hit the market in late January.



Mifegymiso, which is distributed by Celopharma Inc. in Canada, consists of mifepristone and misoprostol. Mifepristone blocks progesterone which helps prepare the uterus lining for pregnancy. The lining then breaks down and sheds. Misoprostol is taken 24 to 48 hours later for the uterus to contract and expel the pregnancy. The process is similar to a miscarriage, with bleeding starting within hours of using misoprostol. Most women experience significant cramping, especially as the pregnancy is passing. Mifegymiso is more than 99% effective.

The combination drug is quite effective and safe for early pregnancies. In comparison to the surgical alternative, it avoids anesthesia, instruments, and vacuum aspiration. Women can also terminate their pregnancy in the comfort of their own homes as opposed to in clinics. However, patients may experience more substantial bleeding and cramping compared to surgical abortion. Furthermore, at least two follow up visits are required. Currently, the drug is quite costly at \$300. Mifegymiso is also under review to be included by provincial and territorial formularies. It is not clear whether private insurance plans will cover the heavy cost of the drug. However, Mifegymiso is significantly less costly than a surgical abortion, saving money for healthcare systems.

Despite its recent approval, Mifegymiso is still relatively inaccessible to Canadians. Physicians must complete a six hour online course in order to prescribe the drug. The drug can only be dispensed by the physician, who must also directly supervise the administration of the first drug. Canada has also stated that the drug should not be used in pregnancies that are further than seven weeks along.

The drug is also quite inaccessible in remote regions, where physicians may not be able to stock Mifegymiso. In fact, having physicians directly dispense the drug makes Mifegymiso more regulated than drugs on the Controlled Substances Act. Furthermore, this would also discourage physicians who currently do not specialize in women's reproductive services from dispensing the drug. Evidence from other countries suggests that Mifepristone can be safely used beyond seven weeks of pregnancy. In fact, the United States approved the drug to terminate pregnancies of up to ten weeks last year. Celopharma Inc. has therefore applied to Health Canada requesting an upper limit of nine weeks. They have also requested for the pill to be dispensed by pharmacists, as they dispense most other drugs.

Since its market release in January, Mifegymiso has already been used in Vancouver and Calgary. The Bay Centre for Birth Control at Women's College Hospital will be dispensing the drug in Toronto. Although it is effective, safe, and convenient, Mifegymiso is still relatively inaccessible to Canadians.

Photo: Courtesy of citynews.ca

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-Mifegymiso. Retrieved from <http://www.mifegymiso.com/home>

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IN THE NEWS- Headlines in Healthcare

Should progestin-only contraceptives be first line for endometriosis?

Leyla Warsame

On my recent drug information rotation, I have come across many interesting journal articles that have supported what we've learned in school, but also, studies that contradict general recommendations. I thought that the following article by Robert Casper, MD at Mount Sinai Hospital was interesting since it's a contradictory view point to common recommendations of clinical guidelines and our Women's Health Course! Here are 3 main points derived from the article:

1. Combined oral contraceptive (COC) agents may be relatively ineffective in reducing pain associated with endometriosis.

- Many women using COCs for dysmenorrhea had recurrent pelvic pain or ineffective pain control requiring switching to other COCs, which may delay diagnosis of endometriosis.¹
- Basic research has shown that endometriosis implants do not behave or respond like regular endometrium, therefore, COC use to relieve pain may lead to treatment failure. Moreover, the large doses of estrogen in COCs could lead to endometrium resistant to estrogen and disease progression.¹

2. There is limited clinical evidence and biological data to support the use of COC in patients with endometriosis.

- There is only 1 RCT published to date that examines the effectiveness of COCs on pelvic pain and dysmenorrhea in women with endometriosis.¹
- Majority of evidence for use is based on anecdotal evidence, prescriber comfort with prescribing COCs and patient acceptance since COCs are commonly used for other indications.¹

3. There have been several randomized controlled trials published that show the effectiveness of using progestin-only pills in patients with endometriosis

- Medroxyprogesterone and Norethindrone acetate has been shown to completely eliminate pelvic pain and dysmenorrhea and decrease endometriosis implant size. These are findings that have not been demonstrated with COCs.¹
- Dienogest, recently approved for treatment of endometriosis in Canada, also showed benefit in pain relief compared to placebo and reduction in use of NSAIDs.¹

This article was a review by an expert in the field of women's health and by no means should replace clinical practice guidelines recommendations. However, articles like this that challenge normal practise can lead to practise change and further research into the matter. Should you switch all your patients with endometriosis from COCs to progestin-only pills? Probably not. However, it should prompt you to ask further questions if there is a patient suffering from endometriosis and standard of care is just not cutting it.

Reference

1. Casper, R. F. (2017). Progestin-only pills may be a better first-line treatment for endometriosis than combined estrogen-progestin contraceptive pills. *Fertility and Sterility*.



ENTERTAINMENT- On the Small Screen

Decoding the Pharmacist: A look at TV pharmacists

Anonymous

What is a pharmacist? Webster's dictionary defines a "pharmacist" as "a person licensed to engage in pharmacy." The AFPC defines pharmacists as "care providers, communicators, collaborators, managers, advocates, scholars, and professionals". And we, of course, know pharmacists are the brave, selfless heroes on the frontlines of healthcare.



But who reads dictionaries anymore? How does the public really get to know what being a "pharmacist" is all about? I'd argue that the public comes to understand "the pharmacist" through the most pervasive and influential mind-shaper of all: the television. So let's find out what the TV has to say about "the pharmacist."

Pharmacist = Smarter than the doctor

Case study: *Curb Your Enthusiasm* (2005)

In S5E4, Larry David goes to the Cal Oaks Pharmacy to fill his father's prescription for "blood thinners." Instead of giving Larry the drug the physician prescribed, the pharmacist recommends a drug that his patients prefer. Larry must make a choice: should he go with the pharmacist, or with the physician? In the end, Larry goes with the pharmacist. Great choice! Until of course, further shenanigans ensue.

Pharmacist = Sexy

Case study: *Nurse Jackie* (2009)



Eddie is a recurring character in the HBO series *Nurse Jackie*. He works at the same hospital as Jackie, with whom she has a torrid on-and-off again love affair, mostly on a hospital cot in the back of the pharmacy. Although she's cheating on her husband, the viewer can sympathize with Jackie's attraction to Eddie because he wears leather jackets and drives a motorcycle—but if that wasn't enough, he's a pharmacist too.

Pharmacist = Intuitive

Case study: *Master of None* (2015)

In the pilot episode, main character Dev is in need of "Plan B." In a midnight run to the pharmacy with his date, before Dev can even ask for it, the pharmacist pulls out a Plan B box. Wow! Talk about customer service! That kind of discrete and efficient service reflects the A+ care-providing well-known to pharmacists everywhere. Well-done, nameless pharmacist!



If these shows are any indication, it looks like pharmacists rest safe in the public imagination. Thanks TV! But if you're interested in the other ways pharmacists are shown in the media, I recommend checking out the readings below. Some will argue TV representations of pharmacists don't always fairly reflect our brains and sex appeal. For contrasting views about pharmacists on the small-screen, see:

Don't pharmacists have sex appeal? By Advit Shah

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3567793/>

Pharmacists on TV. By Emily Hardaker

<http://www.pharmaceutical-journal.com/opinion/blogs/pharmacists-on-tv/11091090.blog>

How Does the Media Portray Pharmacists? Hero, Villain, or Most Accessible Health Care Provider? By Eileen Oldfield

http://www.pharmacytimes.com/publications/career/2013/pharmacycareers_fall2013/how-does-the-media-portray-pharmacists-hero-villain-or-most-accessible-health-care-provider

ENTERTAINMENT- Movie Reviews

John Wick: Chapter 2

Joseph Correia

John Wick: Chapter 2 is the second installment to build upon Chad Stahelski's previous film centered on the same title character. Before I begin this review, it's worth noting an experience I had after watching the previous John Wick movie because I think it perfectly encapsulates what you're in for when you watch these films. While walking out of the theater back in 2014, the person walking to my right said, "Man, was that not the coolest movie you've ever seen?" while the person on my left asked, "Did I just watch a movie about a grown man seeking out vengeance over his dead puppy?" The answer to both these inquiries is, in short, yes. At the time, that was one of the coolest movies released that year and the plot wasn't much deeper than the way the guy on my left elegantly summarized it. Don't get me wrong, I am a sucker for a cute puppy as much as the next guy, but a lot of people die over this puppy (128 according to screenrant.com). I actually thought the puppy vengeance was more emotionally-driving than the reason John Wick has for killing everybody in this film. In this sequel, he is racking up a body count because he owes somebody a favor and he really has no other choice. That being said...I really enjoyed this movie.

John Wick: Chapter 2 takes everything that worked with the first film and improves upon it, which is what any good sequel should do. It takes place in an underground society of assassins, where John Wick (Keanu Reeves) has a reputation for being the most dangerous member. This movie continues the dark and gritty feel of the first, but also adds rules and organizations to this world that really help its viewers understand the stakes involved for John Wick. It also adds layers to this world, making it feel fully functional and intricate while giving the audience something to become immersed in between all of the action set pieces (which are well worth the wait). These action scenes are directed with perfection with no shaky cam drawing you out of focus and no abrupt cuts that take you out of the action. The scenes are all fluid, done with carefully thought-out choreography and excellent stunt work. Keanu Reeves has again proven himself to still be one of the greatest action stars working today by doing many of his own stunts, which is so important for making coherent action scenes. His actual acting abilities in terms of emotional range may be questionable, but for this role, it works just fine.

Overall, I loved this movie, but beware if you are looking for something that is story-driven or has Oscar-worthy performances because you won't find them here. What you will find is an interesting twist on your typical shoot-em-up movie with some truly amazing action.

Verdict: 4.5/5



ENTERTAINMENT- Movie Reviews

Three Reasons You Need to Watch La La Land (Again and Again and Again)

Vaishali Sriprathap

February. Ah, the month of love! Or not so much? Being a pharmacy student in the month February is more likely about midterms and labs than romance. Sometimes there just isn't enough time, but when we do have it, we must spend it wisely. Since it is February, why not watch a romantic musical that makes you fall in love all over again? Yes, we are talking about La La Land! With six academy awards, seven golden globes, and six British academy film awards already, this film may have won more awards by the time this article is published! If those record-breaking awards don't convince you enough, here are three reasons why you should watch La La Land!



1 Emma Stone: Ryan Gosling's character as a musical genius anti-social hermit in the movie is great, but we know that he would not be complete without the amazing Mia Dolan (Emma Stone). Every time the viewer watches this movie, they are sure to find something new in her acting and performance. Everything from her accessories, to hair and to acting gels in perfectly with the "old-hollywood" look they have going. When she is struggling and finally gives up on acting, you feel the pain and agony her character faces. Her acting is so powerful that you are able to cry with her when she is distraught and rejoice when she is happy. One thing to keep in mind is that Mia's character is a direct representation of the struggles Stone personally faced as an upcoming actress. The next time you're watching her amazing performance, you may want to pause and think for a second on whether she's acting or channeling her past.

The songs are catchy: When you first listen to the tunes, they seem normal, but overtime they become increasingly catchy! When you are watching this movie, make sure you watch it on a big screen along with a good sound system. Director Hurwitz's fusion of pop music and jazz is incredibly fresh and rousing. A must-listen for all would definitely be "Audition (the fools who dream)" by Emma Stone. We have to note that Ryan and Emma don't have a wonderful singing voice, but they do have tremendous feel, expression, and soul, which is – in my opinion – far superior to any technically sound artist. Definitely give these songs a listen as the music does grow on you!

2

3 The End/Climax: Just when you thought the movie couldn't get better, it does! The magical, provocative, and ambiguous ending gives us a whole new meaning to bittersweet endings. We won't reveal too much here because you need to see it to believe it!



ENTERTAINMENT- *Campus Drama*



Directing 7 Stories

Lyudmyla Pashkivska

The last show of the season at the Hart House Theatre will be Morris Panych's 7 Stories. This dark comedy takes place on the seventh floor ledge of an apartment building where a man is considering suicide while his neighbours interject and share their views on life. For this edition of the Monograph, I interviewed the director of this performance Rebecca Ballarin and assistance director Mirka Loiselle.

Tell us about directing 7 Stories.

Rebecca: 7 Stories is so interesting because there are a lot of opportunities for you to fall into certain traps. Since the script walks a line between being very real and being surreal, the challenge is figuring out how to stay in the middle of both. This requires creating characters that bring out the comedy and absurdity of the piece but not going so far that you lose that they are real people and on the other hand, not going so far into real people that you lose all the comedy in the piece.

Another interesting aspect of the play is the doubling of roles, so that six of the seven actors play two characters each. This requires helping the actors create two distinct characters that they are playing on stage.

Mirka: For the character of the man, we were very lucky in getting Brian. He is different from what we conceptualized in the beginning and he brings a lot to the show. Brian helped us tell the show in a way that allows the audience to follow his journey through his eyes, although for most of the script he is receiving what these other characters are throwing at him.

Rebecca: There is always a key moment in any piece that we are working towards and we would like to have the biggest impact. It is imperative to identify what we want that moment to be for the audience and how we can get to that place on time.

What does a badly directed performance look like?

Mirka: Bad directing can be a result of failing to make enough choices with the script. This leads to uninteresting directing with a superficial interpretation of the text. At other times, I have also seen directors make really poor choices. I think part of good direction is having an idea of what you want and making that idea known for the audience.

Rebecca: Sometimes, when a director forces the actors to do something, like to stand in a triangle even though it makes no sense, it becomes very obvious that the actors have no connection to this arrangement.

At the same time, you have extreme auteur directors like Robert Wilson, who are known for their radically different performances. Although that is not always my cup of tea, it goes back to choices, selecting something specific and embracing it completely. As long as it is coming from the play in some way, then it is interesting. But if it is just imposing something on the script for no reason other than to just to try to be controversial or funny, then that I find a little bit annoying.

Additionally, when I watch pieces directed without the audience in mind at all, I find myself feeling like an outsider. It is as if they came up with something in the rehearsal room that they thought worked really well, but nobody stepped back to consider if it would connect with the audience.

I would like to thank Rebecca Ballarin and Mirka Loiselle for their time, as well as Andrea Wasserman for setting up the interviews. I am really looking forward to the man on the edge and watching his story unfold. Will he choose life or death? Although 7 Stories is the last performance of this season at the Hart House Theatre, I am excitedly waiting for the release of the next season's line up.

OPINIONS- *Interests and Perspectives*

Why we ♥ and Need the Ontario Pharmacists Association (OPA)

Sara Temkit

Pharmacy is in the midst of a revolutionary change. The ban on generic medication rebates has made it impossible for many pharmacies to survive. Several pharmacy professionals feel anxious and distraught, fearing the loss of job security and lamenting the fate of the pharmacy profession. In the midst of all this chaos, the Ontario Pharmacists Association (OPA) has been a front-runner in advancing the pharmacy profession, rescuing the the profession in Ontario and enhancing our professional experience as pharmacy students.

Thanks to the OPA, as pharmacy professionals, we have recognized that it is no longer okay for us to stand behind the counter. The OPA has called and continues to call us to a higher standard of pharmacy practice to enhance the lives of patients and earn the title of valuable health care professionals. As the largest advocacy organization in Ontario, the OPA aims to influence public policy and provincial resource allocation decisions in an effort to advance expanded scope. The OPA embarks on several media campaigns, public speaking, commissioning, and research publication initiatives to catapult pharmacy into the political sphere. We need the OPA, as it plays a significant role in the politics of modern-day pharmacy profession.

The OPA has earned us the right to provide emergency prescription refills, adapt prescriptions, conduct Meds Checks, administer flu shots, and prescribe for smoking cessation purposes for eligible Ontario patients. In fact, the sustainability of our profession lies in the hands of the OPA, as it strives to further broaden the government's reimbursement of expanded scope services to include all Ontarians.

These advocated services will provide Ontarians with greater accessibility, redirect non-critical patients away from doctors' offices, and maximize pharmacists' opportunities to participate in patient-centred care. Currently, the OPA is working with the Ministry of Health and Long-Term Care to develop timelines for pharmacists to administer travel vaccines and to prescribe for minor ailments.



Now that we have covered the great feats undertaken by the OPA, we can better appreciate the perks of student membership. The OPA offers several career advancement, continuous learning, and networking opportunities that allow students, pharmacists, and pharmacy technicians to deliver new expanded scope services and meet a higher standard of care. Personally, I love being a member of the Ontario Pharmacists Association. I am a third-year pharmacy student who has had several years to benefit from the guidance and support offered by the OPA. I would like to introduce you to these opportunities, so that you can benefit from them too!

Friends of mine continue to boast of the great experience which they had at the annual OPA conference. The most recent Canadian Pharmacists Conference was held in Ottawa during the summer and was co-hosted by the Canadian Pharmacists Association. The joint collaboration offered a rich array of keynote speakers which conferred their wisdom on significant pharmacy issues, such as chronic pain management, vaccine administration hurdles, and business development, to name a few. The

OPINIONS- Interests and Perspectives

Why we ♥ and Need the Ontario Pharmacists Association (OPA) Continued

Sara Temkit

student reception during the conference was the most phenomenal experience, allowing students to relax, dance, and mingle against the backdrop of great food and entertainment.

In addition to the annual OPA conference, the OPA offers a plethora of opportunities for students to make meaningful contributions to the pharmacy profession. As a member, you can benefit from the opportunity to be an OPA student representative, sitting on the board of directors, and attending pertinent meetings. Other opportunities for direct involvement include the OPA summer student membership program, a paid internship position that offers full-time second-year and third-year students the opportunity to gain practical experience, network with leaders, and learn about the most recent practice changes.



The OPA also sponsors social events for students, allowing us to enhance our university experience. The OPA Student Cup, an annual hockey game between the University of Toronto and the University of Waterloo, is one of these initiatives and allows us to build professional partnerships early.

For students burdened by financial stress, have no fear, the OPA is here! The OPA offers three Ontario-Carleton Pharmacists' Association Student bursaries, each valued at \$1000 and online applications are a click away. The OPA student membership also allows us to benefit from the advantages of a full membership at a considerably reduced price.

The membership confers access to therapeutic tools (such as RxFiles.ca and the Canadian Pharmacists Journal) as well as allowing us to save costs with regards to professional liability insurance, first aid training with the Canadian Red Cross, and OPA's continuing education programs. Other savings include mobile phone plans, GoodLife Fitness Centre membership, group mortgage programs, and much more.

So, take advantage of the opportunities the OPA has to offer so that you can enhance your pharmacy student experience and get an early head-start on your career. The OPA has been a catalyst for the wonderful changes in the pharmacy profession, and I plan to continue my involvement with the OPA beyond my university years.



OPINIONS- *Interests and Perspectives*



Like our Facebook page to receive updates about PSWH events and current issues in women's health!
www.facebook.com/PSWHToronto

Henrietta Lacks: An Immortal Life and Legacy

Ersilia D'Andrea

If someone asked you who you believe to be the most important figure in modern medicine, what would your answer be?



There is definitely no shortage of influential individuals to choose from. You may think of Frederick Banting and Charles Best, the co-discoverers of insulin. Or Joseph Lister, who pioneered antiseptic techniques; or Alexander Fleming and his discovery of penicillin. The list goes on. All of these people made ground-breaking contributions to medicine and health care. However, it may surprise you to consider the most impactful, consequential person in the history of medicine to be a poor and uneducated woman who could have never guessed what her life would mean for the future of medicine when she passed away in 1951.

Born Loretta Pleasant in 1920 in Virginia, it is unknown how Henrietta acquired the name that history would eventually know her by. A descendent of slaves, Henrietta was raised by her grandfather in a small log cabin on the property that had once belonged to her white, slave-owning relatives. She grew up with her first cousin, David "Day" Lacks, who she would eventually marry. They worked alongside each other in the tobacco fields during their youth, and the couple eventually moved to Maryland where they struggled to find better work.

It was shortly after delivering her third child in 1951 that Henrietta commuted to John Hopkins Hospital after finding what she described as a "knot" in her womb and experiencing abdominal pain. During that period of racial segregation in America, this was the only hospital in the area that treated black patients.

A physician names Howard Jones biopsied the "knot" and after a series of laboratory tests and the ruling out of other possibilities, Henrietta was diagnosed with cervical cancer. In the weeks that followed, she underwent harsh treatment with blood transfusions and radium tube inserts, which severely burned her skin and left her feeling very unwell. At one point during her treatments, a tissue sample from the tumor was taken from Henrietta without her permission or knowledge and given to George Otto Gey, a physician and cancer researcher. After an excruciatingly painful illness, Henrietta passed away at John Hopkins on October 4, 1951 and an autopsy confirmed that her cancer had metastasized, riddling her body. Decades later, her cancer was clarified to be adenocarcinoma (cancerous growth of epithelial tissue). She was only 31 years old.

After many disappointing and frustrating years of trying to understand how normal cells transformed into cancer, Gey finally had his answer. He soon realized that Henrietta's cells were unique, reproducing rapidly, and dividing continuously, so that they could be studied for longer and more in depth than ever before. For this reason, they were dubbed as "immortal". They were officially labelled as "HeLa" cells, because Gey's routine was to name cell lines according to the first two letters of patients' first and last names. Before long, the cells were shipped to scientists and physicians around the world in large quantities. It was these cells which gave rise to the development of the cell culturing techniques still used today and which allowed for enormous advances in molecular cell biology.

OPINIONS- *Interests and Perspectives*

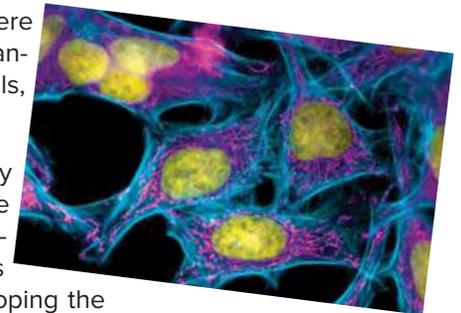
Henrietta Lacks: An Immortal Life and Legacy Continued

Ersilia D'Andrea

The descendants of the cells originating from Henrietta's body, unbeknownst to her, have gone on an amazing journey. They were the first cells successfully cloned in 1955; they have been shot into outer space and exposed to radiation, nuclear testing, and numerous toxins in efforts to study the effect of these things on human cells; they have expanded our understanding of cancer, HIV/AIDS, human cells in general, and gene mapping. These are the cells that Jonas Salk used to develop the Polio vaccine after they were mass produced in the first cell production factory. They are the same cells that are used in testing cosmetics and other products today. They are also considered a treasure trove for drug development. In short, HeLa cells have changed the world.

For years, the full name of the unknown patient only referred to as "HeLa" was reported inaccurately in news reports and medical journals. When her identity was discovered, her family members were tracked down for information about her by the media and scientific community alike. When HeLa cells were contaminated in the 1970's, her family was harassed for blood tests and cell samples in order to possibly replace the contaminated cell lines. Unfortunately, Henrietta's family did not understand the extent to which her cells were being used, nor were they provided with information about this. Despite the substantial profits that pharmaceutical companies and researchers made off of HeLa cells, they never saw a penny of it.

Despite all of the positive work that has been done with HeLa cells, they have also been the subject of controversy. In addition to being taken without the consent of Henrietta, they were injected into cancer patients and healthy prison inmates, again without consent, by a virologist named Chester Southam in the 1950's and 1960's. For these reasons, Henrietta Lacks has played a major role in developing the ethical standards and privacy rights which patients are guaranteed today.



In 2010, author Rebecca Skloot brought the story of HeLa cells and the woman behind them back into the spotlight with her popular book "The Immortal Life of Henrietta Lacks". While researching for the book, she formed a lifelong friendship with the Lacks family, specifically with Henrietta's oldest daughter, Deborah. I highly recommend reading this book, which blends the moving biography of Henrietta Lacks and the fascinating scientific events surrounding her cells in a captivating back-and-forth way. A movie starring Oprah Winfrey is actually in the works and will be released this April. Finally, the woman behind the cells is getting the attention she deserves and is now being honoured and recognized by annual Women's Health conferences around the world.

If you reconsider your answer to who the most influential person in medicine is- would it now change?

DEAR DRUGGIST- Questions from Students



Question #1:

Dear Druggist,
Like others, I'm a student who isn't sure what they want to do in pharmacy and seems to love everything from industry and community to hospital and drug information. How do I decide what to do and which direction of pharmacy to choose????
Thanks in advanced,
Anon.

Answer: Hi Anon!

You are right, in the pharmacy profession there are different settings within which you can apply your skills. You can work in the community, in ambulatory care, inpatient hospitals, research, industry, academia, and many others.

It is alright not to know exactly where you want to practice as each of these fields, despite sharing similarities, are also unique. Keep in mind that even if you begin your career working in one of these areas (e.g. hospital pharmacy), you are not necessarily limited to that specific setting but can divide your practice among the different areas. There are pharmacists who work in both the hospital and community and others who combine hospital practice with research. In terms of finding out which of these areas you would prefer, there are different ways you can go about it. One way to do this is through your APPE rotations. You might have placements in various hospital and community pharmacies, which would give you the opportunity to identify the similarities and differences among these settings. You can also connect with professionals working in the areas you are interested in to get a sense of what their practices are like. If you have a mentor through the Pharmacy Mentorship Program, don't hesitate to reach out and ask any questions you may have. There is a lot you can learn from other people's experiences so reach out whenever possible.

Also, consider the residency programs that the various hospitals and industries offer. A one-year residency is one of the best ways to learn the ins-and-outs of a particular practice setting. Completing my ambulatory care residency equipped me with relevant clinical and patient care skills that I can apply to any area of practice. Reach out to both industry and hospital residents as this could help you determine if a residency is right for you. You may find more information about residencies here: <https://myopra.wordpress.com/>

Question #2:

Dear Druggist,
How do you ensure you are always up to speed in your clinical knowledge?
Thanks,
Sara

Answer: Hey Sara,

There are different opportunities to keep up to speed, the most important thing is to actively seek those opportunities to identify gaps in your knowledge and take the necessary steps to fill in those gaps. For example, during my commute, I listen to podcasts such as the Best Science Medicine Podcast, where practice relevant topics are discussed. I have an active subscription to relevant journals and publications. Whenever new research is published, I receive an email notification, which enables me to access the article. Doing this has kept me on top of emerging trials in my field. I also attend weekly lunch and learn sessions as well as pharmacy-specific rounds.

There are also a number of continuing education programs and courses that are organized by organizations such as the Ontario Pharmacist Association as well as by the Faculty. These programs and courses provide comprehensive updates on specific pharmacy topics that are highly applicable to practice. Also, I work as part of an inter-professional team, which enables me to learn from my fellow professionals and vice versa.

Don't underestimate the power of Twitter and LinkedIn. These are great platforms to receive instant news about what is trending in your field. On Twitter, I follow other pharmacists, organizations, journals, etc., and receive notifications about practice-relevant news my peers are Tweeting about. I also use the platform to share news I also stumble-upon, so it's a great way to network and stay updated!

PHARMACY SHOUT-OUTS!

TO THE PHARMACY BADMINTON TEAM: what happened on Feb 10 was amazing, and will go down in the pharmacy badminton history books, as well as my own fond memories! Thanks for the fun times!

Shoutout to Andrew Henry who's a scratch for OPA cup. Can't wait to see that high slot bardeez wristy next year <3

Sadaf R., I see you lowkey encouraging everyone. So its my turn to give you a shout <3 #QueenB #BstandsforBacillus

To Annie! You are literally a bundle of joy every single time I see you <3

To Brendan Sudbury (#84) for sniping his first career intramural div 2 hockey goal. Stay Hot.

Shout out to Hassan (the starter of the Krispy Kreme trend) for being the most amazing bff ever !

Shout out to Linda Mangeria for being super extra this month. <3

TO SHANE NIRULA, THE UPS GOD! PLEASE STAY WITH US AND BLESS US FOREVER AND EVER AND EVER, or at least till we find the next you.

Shoutout to Yung Moneyz, Big Daddy, Orangutang, and Baby Matt of VP Power. Since having a blast planning charity week together with some friendly competition, our chat has grown into something special to me. Thank you for putting a smile on my face everyday! :) - Shao Khan

Shout-out to Andrew Henry for recording his first Intramural hockey career goal! It was a beauty! He made a strong debut with 4 points in 2 games! Keep it up!

Sorry Samier. I can die with a clear conscience now.. :]

Shout out to the 1T8 council for organizing a month-full of fun and thoughtful events in the gloomy month of January! It made the weather slightly more tolerable :) Thank you! -V.Chan

Shout out to the 1T8 class council team for helping create 1t8 Appreciation Month events!! Best way to start 2017 -Anon

1T8 Appreciation Month Appreciation

Mad love to PDW squad for making it a truly lit week in Winterpeg. Special shout out to Maria and Nisha for their hard work and keeping us behaved. <3 :) -Arpit C

Phriends

PDW #SQUADLOVE Continues

fourteen

Shout-Outs

STUDY BREAK- Sudoku Time

Hey Phamily,

You know the rules. You know the drill.

We are happy to bring you another Sudoku Challenge this month! Fill out the following information, have a blast participating in the Challenge, and stay tuned for your chance to win one of two \$5 Aroma Cafe gift cards!

NAME: _____

Year (Circle One): 1T7 1T8 1T9 2T0

EMAIL: _____

	6			3			5	
9			2		4			6
		3				2		
	5						9	
7				9				8
	4						6	
		4				1		
3			1		7			4
	7			6			3	

Source: <http://artistinaction.net/sudoku-printables/>

STUDY BREAK- Behind the Lens



Green Architecture
Crystal Ng, 1T8



Green Architecture
Crystal Ng, 1T8



Things Are Looking Up
Tammy Nguyen, 2T0

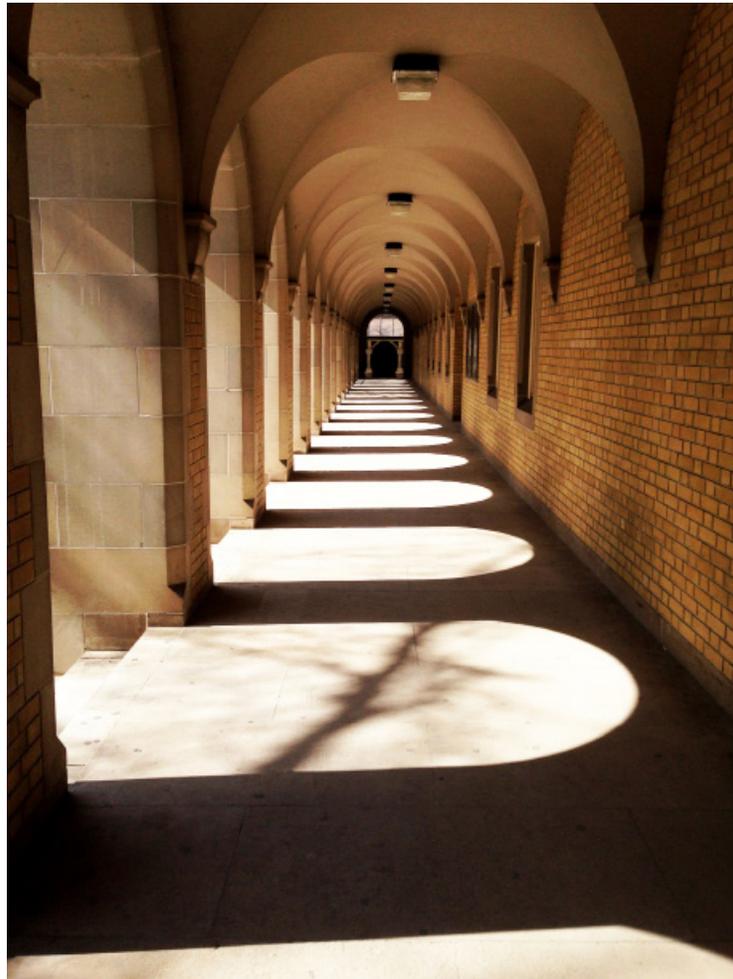


Spring Lilacs
Bailey Hogben, 2T0



Bloom
Roman Pelyavskyy, 2T0

STUDY BREAK- Behind the Lens



University College
Bailey Hogben, 2T0



Lake Minnewanka
Tammy Nguyen, 2T0

