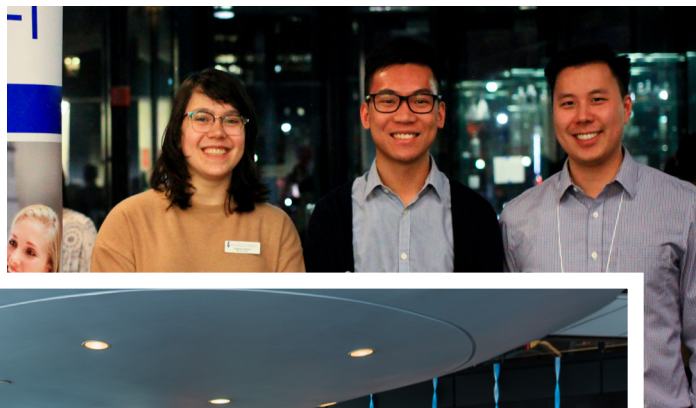


Volume 19, Issue 4 2017-2018

MONOGRAPH

The Voice of the Pharmacy Student



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The Monograph would not be made possible without our dedicated team of writers and readers like you!



Good luck on Finals!

Final exams are just around the corner. As you study vigorously to ace your courses, we bring you the fourth issue of the Monograph. This issue is filled with exclusive content from PB; from club highlights to the newest movies to quick-prep meals, Issue 3 has it all! Flip through the pages to read what your peers have put together.

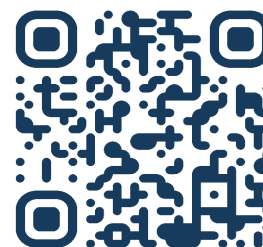
Congratulations to Wenting Jia (2To), Hedy Romero (2To), Cris Iconaru (2To), and Adrian Bumstead (1T9) for winning gift cards to AROMA. We thank everyone for submitting completed Sudoku puzzles from the last issue.

This issue's contest is brought to you by the Pharmacy Students for Antimicrobial Stewardship Society (PSASS). Two lucky winners will win gift cards to SECOND CUP. Use your ID therapeutics to solve the clues and complete the word search (Don't fret 2T1s - Googling answers is allowed!) Submit your completed word search (from page 22) to the polkadot box on the Monograph stand or email us at monograph@uoftpharmacy.com. As hard copies are limited, feel free to print the contest from our site and submit it.

Visit us at: monograph.uoftpharmacy.com, or use the QR code.

Enjoy reading, and we look forward to your submissions in the future! We have one more issue coming out this year!

Ersilia and Narthaanan
The Monograph Co-editors
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UPS ADDRESS

Hello Pharmacy!

This March has definitely been unforgettable. We had so many great events planned for Pharmacist Awareness Month (PAM). We hope you took the time to attend as many events as you could and advocate our profession. We'd like to thank our title sponsor, Pharmasave, for supporting our PAM initiatives this year.

Wake up to PAMCakes!

UPS and CAPSI hosted the second PAMCake event on Friday March 2, 2018 during the UPS block. There were some delicious homemade PAMCakes with a wide range of toppings, and an assortment of other goodies. Dean Boon, along with Allan Malek and Mike Cavanagh from OPA, were also present for the festive Ribbon Cutting Ceremony! Several clubs, including SOAPE, EVOLVE, and CAPSI, held booths in the Atrium. There was a photo booth and Snapchat filter for all you shutterbugs! #UofTPAM2018

Semi-Formal: Masquerade

This year, UPS hosted our annual Pharmacy Semi-Formal at the Great Hall in Hart House. Thank you to UPS Events Directors Samuel Chan and Cindy Zhang for planning an amazing night, and UPS Marketing Directors Roman Pelyavskyy and Chris Tse for the wonderful promotional material. Full course dinner with wine, and one free drink ticket was included. Students mingled within the historic venue and enjoyed the fine dining experience, a Pharmakon booth, a cash bar, and dancing after dinner. Thank you to Pharmakon for capturing the wonderful moments which are now available on Facebook. It was definitely a night to remember!

OPSIS

The 7th Ontario Pharmacy Students Integrative Summit was held in Niagara Falls this year in collaboration with the School of Pharmacy at the University of Waterloo. The three-day conference took place at Marriott on the Falls for a subsidized cost of \$80 (which included transportation, hotel rooms, and all breakfasts, and dinners). UofT delegates were chosen by students at the University of Waterloo following a short application. Students from both universities collaborated in case competitions, debates, panels, and engaging talks. There was plenty of time to mingle during the icebreakers, pub night, gala dinner, and club and casino night. It's a highly anticipated event, so definitely come out next year!

Once again, we would like to thank all the clubs for hosting events to make PAM a huge success. We'd also like to thank all of you for attending these events and celebrating our profession.

All the best,

Steven and Onella

UPS President and Vice-President
ups@uoftpharmacy.com



UofT delegates at OPSIS 2018

PHARMACY

OPA CUP AND SOCIAL

The Ontario Pharmacy Association takes care of pharmacists from the start of their career as students, to the retirements of seasoned pharmacists.

One way that OPA influences the student body is through the establishment of the OPA Student Cup. It is an annual hockey game between the University of Toronto and the University of Waterloo pharmacy students. The winning school gets to keep the trophy for the year and then it is up for battle again the next year. The game facilitates professional networking opportunities as well as team building opportunities between the two Ontario Pharmacy Schools.

The event is celebrated with a festive pep rally on the day of the game. There are seas of black and yellow representing the University of Waterloo, and seas of blue and white representing the University of Toronto. OPA makes sure that students are taken care of and have a wonderful time. Lunches, snacks, and beverages are served. There is music, face painting, and poster making. OPA further ensures that the tradition between the two universities is sustained by sponsoring the busses and arena rental every year. There is always an after party in the hosting city to celebrate the champion school's win.

Sport events generate great enthusiasm, attracting the most proactive students from both universities to celebrate. Participating in the OPA Student Cup fosters leadership, teamwork, reliability, and pride. These are valuable characteristics that OPA advocates for in the profession of pharmacy.



This event bridges the distance between the two cities and ultimately leads to future professional partnerships. It is a valuable tradition that becomes an unforgettable memory for pharmacy students to look back on as they graduate from their career as students.

The University of Waterloo won the 10th annual OPA Cup with a score of 4-2.

Sylvia Kong
Sr. Athletics Representative
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ATHLETICS

CLUB'S CORNER • CAPSI

CAPSI CORNER



As many of you are aware, CAPSI held its annual Social Media Challenge during February and it was a great success! We gave away Apotex backpacks, Starbucks gift cards, TEVA speakers, and TEVA prize packs (which included water bottles, TEVA notepads, diabetes workbooks, and I Heart My Pharmacist pins)! We were definitely impressed by students' creativity and enthusiasm throughout these daily challenges!

During our first challenge, students were asked what their favourite CAPSI event was or which event they were most looking forward to and why. Many students said that Professional Development Week (PDW) was their favourite event! They felt as though it was a great experience to bond with their UofT peers and meet pharmacy students from all across Canada. Students also seemed to be looking forward to seeing the new talent which will be showcased at Toronto's Next Top Pharmacist (TNTF) this year!

On Day 2, students were asked to take a selfie with our CAPSI/IPSF reps and UofT's new CAPSI National executive members. Day 3 brought out our pharmacy brainiacs, with our iMCQ practice PEBC challenge provided by Agro Health. Students were asked what their favourite CAPSI perk was during our final challenge. Common answers included: PDW, discounted textbooks, the RxTx app, CAPSI competitions, CAPSI agendas, and discounts on continuing education programs. We are happy that students are taking full advantage of their CAPSI memberships and all that CAPSI has to offer!

In anticipation of Shoppers Drug Mart's recent deals with cannabis suppliers, for the fourth challenge, students shared their thoughts on the imminent shift allowing pharmacists to dispense medical marijuana. Most responses were positive; students felt that with sufficient training, pharmacists would be best suited for managing marijuana's efficacy and safety, and providing patient specific education on its therapeutic use. Here are some responses from your fellow classmates:

"I think it's a good idea because pharmacists can help educate patients on [its] use, and monitor patients' use. Additionally, doing this helps optimize patient care because we have a complete medication history so we can make better decisions regarding their medications."

- Simona Milijanic, 2To -

"Regardless of whether or not a given pharmacy will dispense cannabis, all pharmacists will have to know the literature on cannabis (which is currently very limited) to the same degree that they know the pharmacology of alcohol, since any given patient who walks into a pharmacy may now be using cannabis recreationally (and can readily admit it)."

- Michael Vu, 2Tr -

"Medication experts expected to sell medication that we have no expertise on. More research and training is required. Otherwise, we will just end up being another one of these green dispensaries you can find downtown."

- Khoi Bui, 1T9 -

We congratulate all our prize winners and hope that CAPSI's Social Media Challenge has gotten you excited for what we have planned throughout Pharmacist Awareness Month (PAM)! More prizes and opportunities to get involved with CAPSI are headed your way during PAM – stay tuned!

Sincerely,
Nisha Gajaria and Rachel Anisman
Sr. and Jr. CAPSI Representatives

CLUB'S SHOUTOUTS • *Feature Clubs*

PHARMACY BOARD GAMES ASSOCIATION

Shelby Yiu, 2T1

Stressed from all your MTM labs, care plans, or studying? Come out and play some games with the Pharmacy Board Games Association (PBGA). PBGA is a club which any pharmacy student is free to join. Currently, PBGA has over 20 different board games you can play, such as Avalon, Codenames, and Sushi Go. Like our Facebook page for notifications about our biweekly meetings on Friday afternoons, and for any future events.



PHARMACY MENTORSHIP PROGRAM

Fulbert Tu, 1T9



The Pharmacy Mentorship Program wants to thank you for making last semester's 'Meet and Greet' event another success! Dozens of us gathered over colourful catering as we listened to the mentors share their experiences. We encourage you to continually stay-in-touch with your mentors as they are beyond-willing to help!

The annual 'Career Night' took place on March 26th. This event featured a select panel of pharmacists with diverse experiences across retail, clinical, industry and research sectors. It showcased the innovative career paths a PharmD opens up, and provided students an exclusive opportunity to expand their professional network!

#PMP #ConnectingPharmacy

COMPOUNDING OPPORTUNITIES AND MENTORSHIP PROGRAM

Jason Chio, 1T9

COMPPS is a student-run club that is driven to bring compounding experiences to our students that are not emphasized in the current pharmacy curriculum. Our team is composed of 13 students with the advisory from Dr. David Dubins of the Faculty of Pharmaceutical Sciences. Each year we aim to organize several compounding workshops, an industry visit, and an event with an expert panel of compounding pharmacists. We use standard lab equipment, molds, and pharmaceutical grade chemicals from Medisca and PCCA to formulate many dosage forms!



CLUB'S CORNER • PharmaPride



CROSSING THE ROAD: HIV PATIENT CARE (AND CHICKENS)

Ian Lin, 1T9 and Michael Reynen, 1T9 on behalf of PharmaPride

PharmaPride was incredibly proud to have brought you the HIV Dinner and Learn in early February. We welcomed pharmacist, educator, and activist Michael Fanous to teach students about HIV pharmacotherapy and novel counselling approaches for LGBT patients. We also introduced special guest Tim McCaskell, a renowned author and long-time activist, to talk about the history of HIV criminalization and struggles in the LGBT community.

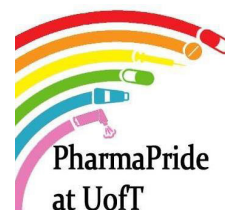
These speakers were passionate about sharing their knowledge with us and kept us engaged throughout the evening. Michael Fanous recommended fully understanding the patient experience around HIV, by watching several different films including “Dallas Buyer’s Club” and “A Normal Heart”. Tim McCaskell also suggested that we go see the AIDS memorial within Barbara Hall Park, which displays how many people died from HIV each year in Toronto.

We are very, very grateful for the continued support of students in our events. It is no secret that food was a major factor because nothing gets our attention faster than FREE FOOD.

So, did we blow our entire budget on food to make this happen? Actually, no. We just talked with the Nando’s at 832 Bay St and they were willing to sponsor us. As students, we can be cynical about getting sponsorships, but these businesses are also part of our community. They often look for chances to support groups with mutual passions, and so that’s how we managed to pull off the impossible.

The moral is to talk with those around you. We talked with HIV activists and coworkers and we got two phenomenal speakers: Michael Fanous and Tim McCaskell. The same thing goes for food - give it a shot and ask around. That’s how we got the chicken to cross the road.

Until our next event, with love.



Like our Facebook page to receive updates about PharmaPride events and current issues in the LGBTQ community!

THE TRAGEDY OF THALIDOMIDE: HOW ONE WOMAN BECAME A DRUG DETECTIVE

Ersília D'Andrea, 2T0 & Elaine Nguyen, 2T1 on behalf of PSWH

Synthesized by the West German pharmaceutical company Chemie Grünenthal in 1954, thalidomide became marketed three years later as a sedative-hypnotic for the treatment of anxiety and insomnia. Soon after, it became more widely used to relieve morning sickness in pregnant women in 46 countries around the world. Canada was late to distribute this so-called “wonder drug”, licensing it as a prescription medication in 1961. It was also three months late to ban the drug from its market one year later, when physicians were being told by pharmaceutical companies that their supplies of thalidomide were to be destroyed.

The reason: the tens of thousands of women taking this drug were suffering miscarriages and stillbirths, and the babies who did survive were born with severely stunted limbs. Although it is unknown how many babies were born with this disfigurement, it is estimated that upwards of 10,000 babies fell victim to the terrible effects of thalidomide.

Although the number of babies affected by this pharmaceutical catastrophe is staggering, the numbers could have been even higher had it not been for a woman by the name of Frances Oldham Kelsey. Frances was born on Vancouver Island in 1914, and was educated in both Canada and England. Her interest in biology and biochemistry eventually led her to the study of pharmacology, for which she earned a bachelor's and master's degree at McGill University, and then completed a PhD in pharmacology at the University of Chicago. This was definitely an unusual path for a woman of that time period - her acceptance letter for Chicago even referred to her as “Mr. Oldham”, assuming she was a man.

During World War II, Frances and her husband Fremont Ellis Kelsey worked together to find a substitute for the anti-malarial drug quinine. Frances eventually worked for the Federal Food and Drug Administration in Washington as a medical officer.

One day, an application from the William S. Merrell Co. of Cincinnati came across her desk. The company was requesting approval to sell a German-made drug branded as Kevadon. Its active ingredient - thalidomide. Frances was one of three people, the others being a pharmacologist and a chemist, who had 60 days to decide the fate of this drug in the market. Each member of this trio found their own problems with the drug. They found that translation of the original German documents were not accurate, and that animal studies were not sufficiently

indicative of the potential toxicity of thalidomide in humans. Frances determined that the clinical studies submitted to them were incomplete, and so the drug's claims were not supported with evidence from trustworthy scientific studies. Importantly, she was not convinced that the drug did not cross the placenta in pregnant women.

Frances continued her search for more well-founded information about thalidomide, even finding in the British Medical Journal that it caused a painful tingling sensation in the arms and feet of some users which Merrell had not mentioned before. Merrell denied knowledge of this side effect, and grew impatient as a year passed without approval for the drug. Despite experiencing pressure from Merrell and the FDA to move this medication along, Kelsey remained determined to learn more about it before approving it blindly.

In the meantime, news of the birth defects caused by thalidomide were emerging in countries where it was already approved, such as Germany, Australia, and Canada. By November of 1961, the drug was removed from their markets and within months Merrell withdrew its still-pending application from the FDA. Frances was recognized with an award ceremony by President John F. Kennedy for her persistence, which prevented the approval of thalidomide in the United States and therefore the miscarriages, stillbirths, and deformities that it caused elsewhere. Although 17 babies were born with deformed limbs in the States due to thalidomide samples given out by some physicians, thousands more were spared from its disastrous effects which thousands of individuals around the world, now in their fifties, continue to deal with.

Frances' demanding of better evidence has led to major changes within the FDA and other regulatory agencies around the world with regards to the approval process for drugs and the legal requirements for evidence on efficacy and safety before distribution. This is one reason why the approval process of medications takes between 8 to 12 years on average. Thalidomide is still used today, though far less commonly, for certain therapeutic purposes such as the treatment of leprosy and as chemotherapy for multiple myeloma. The dispensing of thalidomide is tightly regulated when used, due to the knowledge we now have about its effects on the developing fetus.

CLUB'S CORNER • **IMAGINE**

DECENT WORK FOR ALL: TAKING ACTION TO ADDRESS THE HEALTH IMPACTS OF PRECARIOUS WORK, AN IMAGINE CLINIC HOSTED CONFERENCE

Farhat Hossain, 2To written with Sandani Hapuhennedige & Madeline Bondy
from the *Dalla Lana School of Public Health*

The task of inputting a patient's insurance billing information is a common responsibility at the pharmacy that many of us had the opportunity to carry out. The patient's employer, through third party insurance companies, often provides coverage for their medications. Those who have low income, have disabilities, or more recently, are under the age of 25, will receive prescription drug coverage through the Ontario Drug Benefit program. Despite these initiatives taken by both the Ontario government and certain employers, there is considerable interest in implementing a national pharmacare plan. The next question we must ask ourselves is whether this plan is the only effective approach to improving health outcomes in the Canadian population.

Key, influential social determinants of health include a person's income, employment, and working conditions. When there is instability in these conditions, this can negatively impact an individual's health. Referred to as "precarious employment," risks of poor health increases for individuals due to poor working conditions, inadequate wage, lack of employment benefits, and extensive lab hours. These conditions are particularly worse in racialized and immigrant populations as they are more likely to be employed in precarious forms of work. For example, racialized men and women make a significantly lower wage compared to their counterparts.

The reality is that these households face significantly lower wages. They are unable to afford basic necessities and may further experience challenges with accessing basic health care services. This results in individuals experiencing poor health outcomes and a lack of well being compared to high-income households. As future practicing health care professionals, we have a shared social responsibility to advocate for opportunities that provide: fair wages, decent work hours and scheduling, security in the workplace, stable employment, healthy working conditions, opportunities for personal development, social protection, and equal opportunity to participate in work that is productive. By addressing these issues, we can all work to together to significantly improve the health, well being, and quality of life for individuals

who are precariously employed.

This year, the IMAGINE Health Advocacy team is proud to present the 3rd Annual IMAGINE Student-Led Conference, "Decent Work for All: Taking Action to Address the Health Impacts of Precarious Work" on April 28, 2018. This one-day event will bring together students, academics, health care providers, activists, and community members and organizations who are interested in promoting the health of communities affected by precarious work. This conference will examine the impact working conditions and precarious work have on the health of an individual and consider new ways of addressing health disparities through health care and policy change. The goal of the conference is to highlight precarious work as a determinant of health, focus on the voices, knowledge, and experiences of diverse workers who are local champions for organizing decent work, and explore actions that can be taken by health care students, academics, and health care providers. This also provides an opportunity for interested groups and community members to engage in a timely dialogue on progressing labour-related issues in the province.

IMAGINE (Interprofessional Medical and Allied Groups for Improving Neighbourhood Environments) is an interprofessional student-run community health initiative that is aimed at providing and promoting barrier-free health care services (no ID or OHIP required) to the core neighborhoods of downtown Toronto. Under professional guidance from practicing health care professionals and faculties at the University of Toronto, aspiring health care students apply their knowledge and skills at the clinic tailored to the specific needs of vulnerable and underserved populations. Our organization aims to create and maintain an atmosphere of social accountability and civic engagement when navigating the diverse health care needs of our community members.



ON ONTARIO'S REVIEW OF ESA EXEMPTIONS FOR PHARMACISTS

Stefan Saragosa, 1T8

Pharmacists currently benefit from labor exemptions relative to the Employment Standards Act. There are variations on these exemptions in other provinces, such as Manitoba, New Brunswick, and Quebec. Most of these exemptions primarily impact the practice of pharmacists in community or retail settings. As of December 31, 2016, there were 15 715 pharmacists registered in Ontario, 10 742 of whom practice in community pharmacies. Conceivably, this could also affect the practice of pharmacists in family health teams.

On May 30, 2017, the Government of Ontario announced that there would be a review of the regulatory exemptions and special rules under the Employment Standards Act, 2000 (ESA).

The premise of the ESA is that all employees should be covered. Exemptions deny workers certain protections and/or also impact the competitive positions of employers.

The reason these exemptions exist is because pharmacists are thought to have an obligation (i.e. professional duty) to respond to patients' needs. Further, it was once presumed that professionals such as pharmacists dictate the pace and terms of their employment, and therefore do not require such protections.

Now, an exercise: which group, A or B, would you consider pharmacists belonging to?

Group A	Group B
Homemakers, Residential Building Superintendents, Janitors and Caretakers, Architects, Information Technology Professionals, Residential Care Workers, Managerial and Supervisory Employees, Domestic Workers.	Veterinarians, Physicians, Surgeons, Dentists, Optometrists, Naturopaths, Chiropractors, Chiropractists Physiotherapists, Psychologists.

Pharmacists, along with workers in Group A, are having certain privileges reviewed, such as those in:

Part VII: Hours of Work, Rest and Eating Periods
Part VIII: Overtime Pay
Part IX: Minimum Wage
Part X: Public Holidays
Part XI: Vacation with Pay

Select excerpts are highlighted on the next page.



IN THE NEWS • ESA

Group A Privileges
<p><u>Part VII: Hours of Work, Rest and Eating Period</u></p> <ul style="list-style-type: none"> - Employer cannot force employee to work more than 8 hours per day. - Employer cannot force employee to work more than 48 hours in a week - Employer cannot force employee to work two shifts with less than 8 hours rest them, if either of the two shifts is 13 hours <p>Overtime could not be forced by employer for requests such as:</p> <ul style="list-style-type: none"> - Rush orders needing filling or during seasonal rushes; - During inventory taking; - When an employee does not show up for work; - When poor weather slows shipping or receiving; <p>For eating, employees would receive a minimum of 30 minutes every 5 hours, typically unpaid. They could be given as two 15-minute eating periods if employee and employer agree to this. Even if lunch hours are paid, they would not count towards reaching overtime threshold.</p>
<p><u>Part VIII: Overtime Pay</u></p> <p>Overtime would be after a weekly maximum of 44 hours per week, or 44 hours averaging over a period of 4 weeks.</p>
<p><u>Part X: Public Holidays</u></p> <p>Get day off + public holiday pay or employer can ask you to work, at which point employer would owe you premium pay for hours worked + public holiday pay paid out on the next day off. (...) Most employees of a retail business have the right to refuse on a public holiday.</p>

The Governing Conditions and Criteria, which are the criteria to qualify for consideration for ESA exemption, are outlined below. The occupation would need to meet criteria A or B, as well as the Supplementary Condition.

Governing Conditions and Criteria
<p>First, the occupation or industry must meet Core Condition A and/or Core Condition B.</p>
<p><u>Core Condition A:</u></p> <p>The nature of work in an industry is such that it is impractical for a minimum standard to apply. Applying the standard would preclude a particular type of work from being done at all or would significantly alter its output. The work could not continue to exist in anything close to its present form. “Nature” of the work relates to the characteristics of the work itself. It does not relate to the quantity of work produced by a given number of employees. The relevant question is whether applying a minimum standard would hamper the viability of the tasks being performed?</p>
<p><u>Core Condition B:</u></p> <p>Employers in an industry do not control working conditions that are relevant to the standard.</p>
<p>Second, if one or both of the Core Conditions is met, a further Supplementary Condition must be met.</p> <p><u>Supplementary Condition:</u></p> <p>The work provides a social, labour market, or economic contribution that argues for its continued existence in its present form, even in the absence of one or more minimum standards applying to it.</p>
<p>Third, consideration must be given to two other factors before an exemption is granted or maintained:</p> <ol style="list-style-type: none"> 1) The employee group to whom the exemption or special rule would apply be readily identifiable, to prevent confusion and misapplication of the exemption/special rule. 2) Both employees and employers in the industry agree that a special rule or exemption is desirable.

A recognition by Ontario’s Ministry of Labour that pharmacists require ESA protections will be tantamount to acknowledging the death of retail pharmacist professional autonomy.

References:

Ministry of Labour, Ontario. [October 18, 2017.] ESA Exemptions Toolkit: Pharmacists. www.ocpinfo.com/library/news-and-alerts/download/ESA_Exemptions_Pharmacist_Toolkit.pdf

RISE OF THE AVOCADO

Michelle Wang, 2To

No other fresh fruit is hyped as much as the avocado. The number of avocados imported into Canada nearly doubled from 2006 to 2016. Why the sudden outpouring obsession for avocados? Is it because they are naturally delicious and incredibly satisfying? Avocados are indeed a wonder fruit – you can use them in spreads, salads, shakes, and even ice cream! Its promoted health benefits and versatility has infatuated the “green and clean” crowd, and we are in love.

A few years ago, the avocado was hardly considered a kitchen staple. “As a kid in the ’70s in Toronto, [the] avocado was very exotic,” said food trend expert Dana McCauley. Mass advertising (i.e. Superbowl commercials) and successful Mexican cuisine, due to increased Hispanic population in America (i.e. Chipotle), have also contributed to the avocado trend. The lucrative market for avocados emerged after loosened import restrictions between Mexico and the U.S. As a result, the obscure Hass avocado gained recognition overnight as the ideal breed for the business.

Mexico was, and still is, the world’s largest avocado producer. From 1914 to 1993, the U.S. prohibited avocado imports from Mexico due to phytosanitary reasons. Prior to 1995, the U.S. levied a tariff on avocados. Without sufficient supply, all avocados consumed in the U.S. were grown in California, which could not guarantee year-round fresh avocados. Since the implementation of CFTA and NAFTA, the tariff has reached zero and the fruit trade has increased substantially within North America. Although Canada did not impose restrictions on avocado imports, many consumer trends are influenced

by the U.S. Canada was an orphan for the U.S. avocado market for many years. The growing popularity of the avocado in the U.S. had a ripple effect throughout Canada. While price was a prior impediment, the increased avocado supply allowed for competitive market pricing. Even with recent price increases, the demand for avocados has not lessened.

The Hass variety account for 95% of avocado imports in the U.S. and Canada. It was a serendipitous discovery – a seedling of unknown origin planted by Rudolf Hass in 1926. People love the nutty, buttery fruit and farmers revered the productive tree. Its single disadvantage is its black colour, which has been associated with rotting fruit. Previously, distributors had challenges preserving quality during transportation and storage. Unlike conventional avocados, Hass avocado ripens slowly, changes color, stays fresh for long and has thick skin. When the U.S. opened its market, only the Hass was cleared as hosts of invasive pests. As an ideal fruit for mass-production, the Hass avocado quickly gained popularity with farmers and consumers.

So, what does the future hold for the avocado? Trump is currently proposing a border tax with Mexico on avocados to pay for his wall. Fortunately, Canada is safe from avocado threats. The avocado craze is strong and is making waves in Asia. It can be found featured on top of bibimbaps and in Japanese McDonald breakfast sandwiches. Don’t expect Instagram posts of avocado toast #millennialdiet to die down soon.



LEARNING ON THE GO • *New in Research*

TL: DR

Michael Vu, 2T1

This issue: Opioid-Sparing Effect of Cannabinoids: A Systematic Review and Meta-Analysis.

By Suzanne Nielsen, Pamela Sabioni, Jose M Trigo, Mark A Ware, Brigid D Betz-Stablein, Bridin Murnion, Nicholas Lintzeris, Kok Eng Khor, Michael Farrell, Andrew Smith and Bernard Le Foll.

Published in: Neuropsychopharmacology Volume 42, Issue 9, Pages 1752-1765 in August 2017.**BACKGROUND:**

Two important topics in contemporary pharmacy collide! Given the current opioid abuse crisis, anecdotal evidence has suggested that co-administering cannabinoids with opioids can reduce the dose of opioids required for pain management (ie. an opioid-sparing effect), possibly by a synergistic mechanism. Decreasing opioid requirements promises to decrease side-effects and mortality in those taking opioids for chronic pain.

tl;dr: There isn't good evidence for an opioid-sparing effect of cannabinoids in humans yet.

WHAT:

The authors conducted a systematic review and meta-analysis of the literature to answer the question: What is the strength of the evidence in support of cannabinoid co-administration in reducing opioid doses in chronic pain management?

WHO:

First author Suzanne Nielsen is a pharmacist and researcher from Australia. Her work focuses on prescription drug problems, especially in pain management. Mark Ware, a pain researcher from McGill with expertise in cannabinoids, is another co-author. He served on the nine-member Task Force on Cannabis Legalization and Regulation formed by Health Canada to guide the cannabis legalization process now in progress.

HOW:

The authors performed a systematic review of articles examining the interaction of opioids and cannabis. They found nineteen pre-clinical (animal) studies where the outcome was analgesia (EC₅₀), and nine clinical (human) studies where the outcome was opioid dose requirements or analgesia. Of the nine clinical studies, only three were randomized control studies (RCTs), as the others were uncontrolled or observational studies.

None of the high-quality RCTs in humans found an opioid-sparing effect of cannabinoids given as a spray or orally. This may be because very few studies actually measure opioid requirements as an endpoint.

Within the preclinical studies, six studies in rats and mice were similar enough in design to perform a meta-analysis. These studies showed a robust effect of cannabinoids (administered intraperitoneal, transdermal, or orally) on analgesia induced by morphine or codeine. The tests used to measure analgesia were common animal pain tests such as tail flick tests and hot plate tests. The meta-analysis found that morphine administered with delta-9-THC reduces the EC₅₀ of morphine by 3.6 times. It also found that codeine administered with delta-9-THC reduces the EC₅₀ of codeine by 9.5 times. These animal studies stand in contrast to human studies where this strong effect is not seen.

TAKE-AWAYS:

Analgesics with different sites of action may be combined for a synergistic effect.

Citations of this paper will be sure to quote that "cannabinoids reduce codeine requirements by 9.5 times," but they may not mention that the evidence for this is in rats and mice, and not in humans. Animal results often do not translate directly onto humans, especially the doses and effect sizes.

This paper exposes the limitations of the cannabinoid and opioid literature, and makes a good argument for further studies. It would certainly be an interesting treatment option for those with chronic pain. Whether the upcoming legalization of recreational cannabis will spur more research remains to be seen.

JOURNEY TO THE WEST (COAST)

Peter Zhang, 2T1

I had the opportunity to interview Jinglin Tang. She is a 1T7 Alumni of the Leslie Dan Faculty of Pharmacy who is currently completing her hospital residency in Vancouver.

Peter Zhang (PZ): Could you give us a little background about your time at the Leslie Dan Faculty of Pharmacy?

Jinglin Tang (JT): Of course. I graduated from Leslie Dan and received my PharmD just this past year in June 2017. It was a challenging but rewarding four years. The professors were great role models who shared their passion for pharmacy, and I had the opportunity to meet and work with many colleagues who have now become some of my closest friends. I also enjoyed the fourth year Advanced Pharmacy Practice Experience (APPE) rotations, which allowed me to synthesize and apply the concepts learned in class. It was quite exciting to get out there and practice! The four years I spent at the faculty have created a strong foundation for me to build upon as I venture further into the pharmacy profession.

PZ: Where are you now almost one year after graduating?

JT: I'm currently completing a hospital residency through the Lower Mainland Pharmacy Services (LMPS) Pharmacy Practice Residency Program in Vancouver, British Columbia.

PZ: Congratulations! When did you decide to pursue hospital pharmacy?

JT: For me, I've had the idea since year one and really hoped to explore hospital pharmacy practice more throughout school. Luckily, during the four years of my pharmacy education, I had many opportunities to complete rotations in hospital settings. It was the stimulating experiences that I had through these rotations that confirmed my passion for hospital pharmacy.

PZ: I see. What sort of experiences in school

helped you with the residency process?

JT: I think it was really the hospital rotations. They offered opportunities for me to see and experience the responsibilities of hospital pharmacists and the impact they had on patients and the interprofessional healthcare team. The rotations allowed me to practice and familiarize myself with the patient work-up process, which made me more comfortable jumping right into clinical care at the beginning of residency. Also, the fourth-year research elective gave me a sense of the research aspect of residency and helped develop my research skills. This foundation has been helpful for me as I'm working through my residency research project this year.

PZ: Can you share more details about the kind of research and residency work you do?

JT: For my research project, we are exploring the efficacy of a mnemonic consisting of non-pharmacological and pharmacological sleep interventions. This mnemonic was created as a bundled-care package tool for pharmacists and nurses to implement to help improve sleep in ICU patients. It's designed as a two-phase validation project separated into pre- and post-mnemonic implementation phases.

The residency program is designed to develop residents' therapeutic knowledge and patient work-up process as we rotate through various clinical areas. We work-up patients daily, and we manage the medication aspect of patient care from hospital admission to discharge. This includes optimizing drug therapy and ensuring continuity of care in terms of medications reconciliation and prescription planning at transfer and discharge. We work closely with the interprofessional healthcare team to discuss and optimize management and treatment of patients and to select the most effective and safe medications for patients. The residency program also provides residents with experiences in other aspects of hospital practice, such as drug distribution.

CLUB'S CORNER • CSHP

PZ: Do you mind telling us how CSHP has helped you as a student and as a resident?

JT: CSHP has provided many educational references and conferences that have allowed me to keep on top of new developments and advancements in drug therapy and treatment of medical conditions. It plays a big role in continuing education.

PZ: Could you tell me more about any conferences you've attended?

JT: I attended the CHSP-BC Branch Clinical Symposium back in September 2017. It was an informative conference with three therapeutic talks presented. I remember hearing from a speaker who presented new data regarding reversal agents for antiplatelets and oral anticoagulants. Another speaker discussed about medical assistance in dying in British Columbia and the logistics of pharmacist involvement in the medication dispensing process. The last topic was about sepsis and the speaker talked about how to identify sepsis and the treatment considerations in terms of antibiotic choices in a patient-specific context. There was also some really good food!

PZ: Yummy! Is there a particular reason why you chose to do your residency in British Columbia?

JT: It's because I wanted to explore a different area while learning new things and building upon my therapeutic skills. In addition, for the LMPS residency program, there was a wide array of clinical rotation areas to select

from, and I liked how it encompassed multiple clinical sites. I really enjoy that diversity and exposure.

PZ: How many years is the program?

JT: It's a one-year residency program with an optional one-year return of service contract.

PZ: What are your plans after your residency?

JT: I would like to continue my journey in hospital pharmacy and work towards building up my clinical skill-set and work experience as a hospital pharmacist.

PZ: I see. Thank you Jinglin. On a final note, do you have any advice for students looking to follow the same path?

JT: I would advise them to find opportunities to explore hospital pharmacy, whether it be through rotations or work/volunteering experiences, to see if it's what they like. Engage in research; the fourth-year electives and summer research programs are a great way to do so. Be active, be involved. And continue to challenge yourself on a daily basis because hospital pharmacy incorporates much continuing education and lifelong learning.



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SUPERHERO MOVIES: WHY DO THEY NOT SUCK?

Kyle Yuen, 2T1

Let's set the scene. A bunch of innocent people are in grave danger and the evil guy responsible for it is about to enact his diabolical plan! But all of a sudden, a hero emerges at the last minute, wearing a colourful costume and stopping the grand scheme in the nick of time! - Wow! I did not see that coming at all!

Alright that's enough snarkiness from me. If you've spent about 5 seconds talking to me, you'd know that I'm an unapologetic nerd for superheros (comics and movies) and this enduring storyline trope is something that has kept me quite entertained for a long time. Many others could say the same. That's why comic book storylines tend to get super weird and esoteric, especially in a lot of modern runs. Everyone knows the whole saving the day schtick, since it's been done just about a thousand times. But when you have stuff like evil Superman punching reality itself and resetting the timeline or Hulk getting catapulted onto a distant planet where he eventually enacts revenge on the Avengers (these are actual stories), that gets super weird, super quick. That's why I do enjoy superhero movies, because they typically don't get into the super weird too quickly, or if they do, it's an extended release. They streamline rather convoluted stories into a crisp product for the masses which isn't a bad thing at all.

The question is how do you keep the genre fresh when there's a static formula to be had? I will admit, you'll probably only understand these next few paragraphs if you follow along with the Marvel Cinematic Universe or DC Extended Universe at least on a casual level. And there's massive pretentious nerdage incoming. You've been warned.

Marvel seems to be doing a good job with their

movies to make sure audiences don't scratch their heads and think, "What in the heck am I watching?" since they've done a lot of groundwork establishing their universe. From the release of *Iron Man*, which in all fairness is pretty grounded considering it's about a guy who makes an invincible suit out of metal, they've slowly introduced a lot of concepts to their universe that could really only be explained as ideas created while under the influence of something. Space vikings, super soldiers from the 40's, green radiation monsters. That way when we get to the *Guardians of the Galaxy* with a talking raccoon and a tree that speaks only 3 words, we aren't so weirded out. Marvel's universe creation has allowed them to stay relatively fresh and keep moving forward; by the time we get to *Doctor Strange*, we think, "Of course there's magic." Even though the movies can seem samey, more recent projects play on a lot of tropes and dance around being a typical story.

We had *Captain America: Civil War*, which definitely broke a lot of expectations. The villain isn't typical in CW, since most of the conflict arises within the Avengers, not with the villain. And already, by virtue of this, one could argue the villain succeeds. It's quite rare to see such a movie where the villain actually wins and it's a bittersweet/almost satisfying feeling. Even more recently, we have *Black Panther*. On the surface, it looks like a dude running around in cat-themed spandex, but is a futuristic, amazing-looking, Kendrick-fueled, Shakespearean tale of familial birthrights and tons of social commentary (I won't dive too deep into this, but you should definitely read the review in this issue). Marvel is taking chances and toying with the superhero formula for the most part. You still have the core elements of the superhero genre (basically the hero isn't going to die, he/she will stop the

ENTERTAINMENT • Movie Review

villain and kick butt while doing so), but the execution of themes and stylistics allow for it to mesh with other genres in order to maintain its quality throughout the ages.

Conversely, we can see where DC is sort of lacking in its big screen movies. Don't get me wrong, I love DC comics, but their movies fall a bit flat for my taste (for clarity, I am referring to the DCEU, the movies that follow *Man of Steel*). It's mostly because they adhere to the superhero formula and play a bit too much on the nostalgia of being the original superhero (which is arguably Superman). By name alone, *Batman V Superman* garnered \$873.6 million (1) despite the overwhelming negative reviews. That might not seem like a lot considering the scope of the project, but no movie with that much vitriol thrown at it would have survived if not for the 3 cultural icons present in the movie. DC movies don't really make sense because there isn't the same groundwork laid down. It's because they introduced the characters in an ensemble film before even establishing the individual characters. How are you gonna get me to care about El Diablo from *Suicide Squad* or even the GD Batman without establishing their role in the universe? The studio was definitely jumping the gun and started into these sort of comic-y stories too quickly. Again, I don't mind that but when there's no context, it just doesn't work. There are not too many stylistic deviations or superhero add-ons that DC added to their movies, making them kind of forgettable.

I will say however, that DC animation as well as select DC live-action movies that came before even the MCU really knocked it out of the park. These movies are a bit less known. *Batman: Under the Red Hood* is easily my favourite DC animated movie. It's a stand-alone film and doesn't follow up with any sequels or anything like that. Batman deals with the death of Robin at the hands of the Joker and he soon comes into conflict with a vigilante who is much more brutal in his approach to handling crime. I won't spoil it, but basically the main conflict in the movie isn't between Batman and Joker, but something much more visceral and emotional, subverting that idea that Batman needs to beat the daylights out of Joker for

story. In addition, the *Watchmen* movie was very polarizing when it came out. I thoroughly enjoyed it and the comic it was based on. It was a much more philosophical movie, set in an alternate history where the existence of superheros has led to radically changed events in history. The story starts during the Cold War, where a bunch of retired superheroes are investigating the death of one of their own after government regulations banned superhero activities (I'm 99% sure *The Incredibles* took after this). One of my favourite things about *Watchmen* is that it critiques the very conventions that build superhero stories. Heroes get shot in the head because of their impractical capes. Heroes develop mental illness. The public does not trust the masks. These are but some of the many ways that the movie defiles and twists the superhero formula, which is absolutely phenomenal in my opinion.

If you've stuck with me this far, hopefully you got something out of reading this in your pharmacy newspaper. Superhero stories are my nicotine, and I love talking about them. It's why I am a staunch supporter of the genre as a whole and why I will always tell people to go see the movies, because they are fun at their core. If you like to watch pretty casually, superhero movies don't have to be more than a mindless entertaining flick. But, if you want something different from your superhero fix, I've laid out some stepping stones to explore other movies in the genre (comics can come later :))



References

(1) <http://www.boxofficemojo.com/movies/?id=superman2015.htm>



BLACK PANTHER MOVIE REVIEW

Joseph Correia, 2T'o

The rise of superhero movies continues and shows no signs of slowing down. The latest release in this genre is Ryan Coogler's highly anticipated *Black Panther*. The reason why these movies don't seem to show signs of fatigue is because each one is unique and functions beyond the level of a superhero movie. *Captain America: The Winter Soldier* served as an excellent spy movie, *Ant-man* had elements of classic heist movies in it, and *Black Panther* also has elements of many different genres, with emphasis on its traditional science fiction elements. This film takes place in the fictional African nation of Wakanda, however, this nation is highly advanced, which contrasts the typical third-world country view of Africa. This premise allows for an interesting fusion of science fiction elements, which integrate a futuristic society with a very traditional one. This makes for a captivating visual experience involving futuristic ships, force-fields, and hologram technology incorporated in terrains of mountains, waterfalls, and forests. This setup allows for interesting themes to be explored, such as if large advancements in technology should be publicized and shared for the common good or hidden to prevent the opportunities for misuse.

Black Panther also gives us one of the better villains of the Marvel Cinematic Universe through the introduction of Erik Killmonger played by the talented Michael B. Jordan. He extends beyond the usual "destroy the world" type of villains that Marvel usually has to offer. This is

because his end goal is to help people in nations that fail to provide equal opportunities for all and views Wakanda as selfish for not using their technology to benefit other nations outside their own. While his methods are not exactly just, his intentions are not necessarily evil, which allows an audience member to at least partially identify with him. The rest of the characters are also exciting and charismatic, but I believe that Michael B. Jordan is the standout here. Chadwick Boseman is a great addition to the Marvel team as a conflicted king who is still trying to make sense of what has been done in the name of tradition versus what should be done, which is another theme that this movie addresses. In terms of where the film can improve, I believe some of the action scenes could have been shot better. In the hand-to-hand combat scenes, especially near the beginning of the movie, some of the cuts were very obvious and there was some shaky-cam technique. This distracts from the cohesiveness of the fight and takes the audience out of the movie.

I believe this movie is a great addition to this cinematic universe and one of the better stand-alone Marvel films. I highly recommend going to watch this movie even if you are not into the superhero craze since it also stands alone as an enjoyable film.

Rating: 4.12/5

LIFESTYLE • *Mindfulness*

MINDFUL MOMENTS AT UOFT

Josephine Ho, 1T9

Whether it is on the television in the PB atrium or a drop-down poster in many buildings around campus, I've noticed that there is a lot of promotion of "Mindful Moments" at UofT this school year. In September, I somewhat accidentally attended the first session at PB, led by Jennifer from the OEE. Ever since, I have been going to a lot of the weekly sessions and have been pleasantly surprised. Here's a brief introduction into some information about mindfulness meditation.

Mindfulness is about being aware of the present moment – knowing and reflecting on where you are, what you are doing, and how your body feels. It involves intentionally reflecting on the present moment and focusing all your attention on that. Importantly, mindfulness focuses on being non-judgemental to yourself throughout the process. There is no right or wrong way to be mindful and no judgement of what you are feeling. When I first heard this, I was a bit (very) skeptical. What does it mean to be aware of the present moment? I thought it was bizarre to think that one can be unaware of their present state. Nonetheless, I thought I'd give it a try.

The actual mindfulness meditation was one of the most peaceful half hours I had in a long time. We sat in chairs, closed our eyes, and the meditation was guided verbally by the facilitator. There is heavy emphasis on focusing on your breathing and using your breath as an anchor to keep you focused on the present moment. The facilitator tells you to think about different parts of your body, your life, your thoughts, and reflect. If your mind wanders, which it will, your breath is the thing that ties you back to being aware of this moment. There are different types of meditations too. For instance, there are body scans, mindful acceptance, mindful observation, and gratitude meditations, to name a few.

Initially, I found it very hard to sit there for 30-40 mins with my eyes closed in the middle of the day just thinking. I started to think about what lectures to review after, what assignments were due, and what to make for supper. But once these thoughts came up, I tried to return back to the meditation by thinking about my breath

instead. "Inhale, exhale, inhale, exhale." Eventually, several weeks later, I felt like I was no longer sitting in a classroom during the meditations, but somewhere floating in my head exploring my mind and body (yes, I bet this sounds odd, but really!)

Mindfulness does not have to be a formal, sit-down, guided meditation for an hour. It can be done anywhere because all you need is some time and your mind. You can take 5 minutes in the morning and look out the window, while focusing on your breath and your present state. Some potential benefits of mindful meditation are improved interpersonal connections, lower stress, improved concentration, awareness of physical and mental pain, and reduced brain chatter. As busy students, we might forget about ourselves in the midst of meeting deadlines, preparing for exams, and working, but consider doing something just for yourself.

For more information on the sessions run at UofT, check out the school webpage on Mindfulness (<https://www.studentlife.utoronto.ca/hwc/mindfulness>) and maybe even look up a guided mindfulness meditation on YouTube!





EGG AND AVOCADO SANDWICH

Deevya Ramasawmy, 2nd To

As we gear up for the upcoming exams, it is hard to find time out of our busy schedules to prepare healthy meals. It may be easier to just eat out but after a while, all those fast foods taste the same. Well, if you are looking for a healthy and tasty lunch made in five minutes, you should definitely give this recipe a try.

Required Ingredients:

- 1 avocado
- 1 or 2 boiled egg(s) without the shells (approximately 10-15 minutes of boiling is required)
- 2 slices of bread – toasted
- A pinch of salt
- A pinch of pepper
- Red chili flakes
- Paprika powder
- 1/4 teaspoon of lemon juice

Steps:
















1. Cut the avocado in half, gently tap the knife with enough force so the knife edge wedges into the pit and twist the pit out.
2. Scoop out the avocado flesh with a spoon and place in a bowl.
3. Using a fork, roughly mash the avocado (just like you would for making guacamole).
4. Add the lemon juice, salt, pepper, red chili flakes and paprika powder and mix well.
5. Generously apply the avocado spread on the toasted loaves of bread.
6. Slice the boiled eggs onto the sandwich

And lunch is ready to be served! The great thing about this easy recipe is that the eggs can be boiled in advance and kept in the fridge for when you make the sandwich. You can also slice the avocado and season accordingly instead of mashing them. You will find the combination of the egg and avocado to be quite rich yet light and delicious. I hope you find this recipe tasty and useful to make during exam season.

All the best on those finals!



PHARMACY SHOUTOUTS

-  S/O to Vaani J. for always have my back in workshops.
  Shout out to Kyle Yuen for being a great dungeonmaster!
-  S/O to Hedy Romero from 2To for doing a million little things that bring joy to my life.
  Shoutout to our class reps for being amazing this year.
-  Shout out to point guard Clarence for being a great pal!
  S/O to the most amazing Dean Boon. We'll miss you! Thank you for listening to our concerns. <3
-  Hello to all my fellow 2Tos!
  To Eva for whispering me the ID answers.
-  Shoutout to Andrea and Lesley for making ID more tolerable. - Class of 2To
  To Cardio group B9 for a semester full of beta blockers, ACE inhibitors, and statins!
-  Shout out to Catherine Zhu for the flyest dance moves in 2011!
  To Cooper Papp for motivating me to come to Management.
-  Shoutout to Christine for speaking up in class. We love you!
  Shoutout to Christine for speaking up in class. We love you!
-  Shout out to Pamela Ip for the free carbs! #bulkingseason

STUDY BREAK • Puzzles

GET READY FOR SOME SUDOKU!

Zahra Khan, 1T9

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

STUDY BREAK • *Contest*

BRUSH UP ON ID AND ASP!

Listen up Pharmacy! Solve the clues below to determine the words you must find in the word search. Remember to submit your completed puzzle to the Monograph stand or to monograph@uoftpharmacy.com to win some amazing prizes. Be sure to also check out antibioticwise.ca to take the pledge to use antibiotics wisely.



Name: _____

Circle one - Year: 1T8 1T9 2T0 2T1 Staff

Email: _____

I	K	I	H	K	P	S	A	Y	C	X	X	R	D	H
T	F	K	T	D	N	E	U	A	E	N	I	Y	J	P
A	X	C	E	M	R	D	Q	M	R	U	J	B	W	B
Z	M	D	M	X	N	I	M	L	Y	Z	G	A	B	C
O	E	A	U	A	I	S	R	S	T	D	X	Z	Z	Z
B	T	D	W	P	X	O	W	Z	H	I	N	L	O	D
A	H	C	P	F	Y	C	L	K	R	B	P	X	C	H
C	I	G	G	P	M	Y	U	F	O	O	J	M	Z	M
T	C	A	V	K	Y	L	L	X	M	R	Y	O	A	X
U	I	B	B	D	L	G	K	Q	Y	C	G	Q	S	F
M	L	X	L	Z	O	O	G	V	C	A	E	Y	P	I
T	L	P	U	R	P	N	Z	D	I	M	V	A	U	F
X	I	F	F	D	D	I	Z	N	N	S	H	O	I	T
Z	N	I	X	L	I	M	G	O	U	H	P	F	W	Y
M	O	S	E	L	T	A	M	I	V	I	R	B	G	V

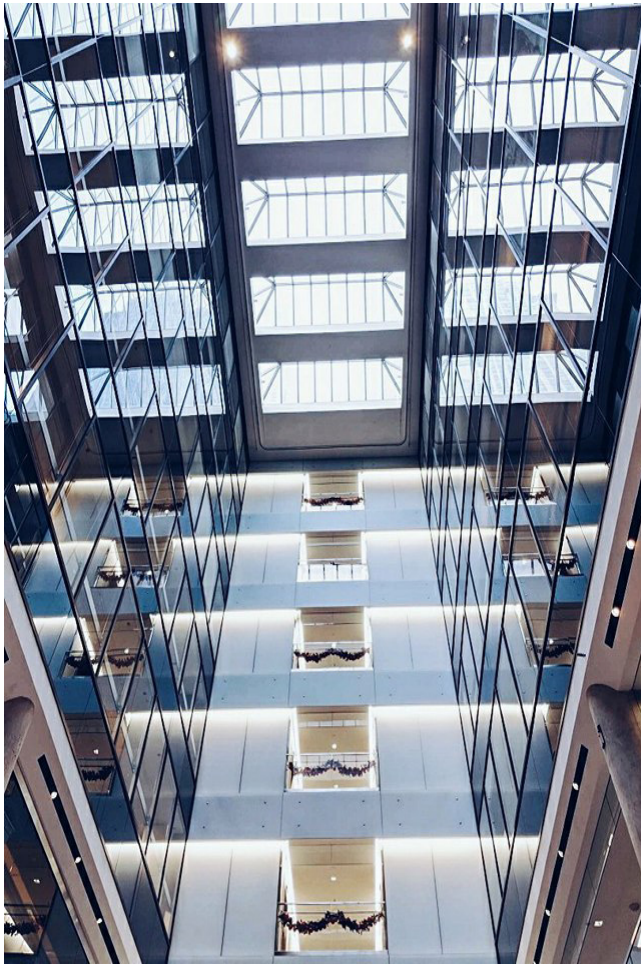
Clues:

1. An OTC antibiotic
2. _____-resistant *S. aureus*
3. What is PO Vancomycin used for?
4. Which class of antimicrobials is associated with ototoxicity and nephrotoxicity?
5. Which antimicrobial is also used to stimulate peristalsis?
6. _____ % of antimicrobial use is inappropriate.
7. What is used to treat the influenza?
8. What other agent is combined with piperacillin to battle resistance?
9. What is the first line therapy for uncomplicated UTIs?

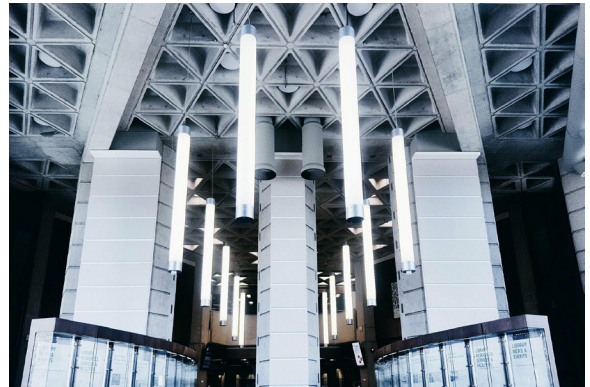




Behind the Lens



Reflections
- Tammy Nguyen, 2To



Robarts
- Tammy Nguyen, 2To



Fresh Snowfall
- Bailey Hogben, 2To