

THE MONOGRAPH

VOICE OF THE PHARMACY STUDENT

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REFLECT



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Hey Pharmacy!

Time sure does fly! Exam season is almost upon us and although the month of April will be draining with many sleepless nights spent trying to cram study for final examinations, remember to relax and breathe. Freedom is almost on the horizon!

From the OPA Cup to Pharmacy Raptors Night Out to the Pharmacy Mentorship Program's Career Night, there have been a lot of exciting activities held over the month of March. Congratulations to House Hurst on winning the House Trophy for the 2013-2014 school year!

Special thanks to our Events Co-Directors Amir and Sarah, as well as the several organizations (CAPSI, SOAPE) involved with the very successful Pharmacy Awareness Month. We hope you all took the time to attend many of great events and really get engaged in the pharmacy profession.

It has been an extraordinary and wonderful year at the Leslie Dan Faculty of Pharmacy and it has been a pleasure for us to serve as your UPS President and Vice President over the past year.

We want to thank all of the student leaders on UPS and Class Council who have dedicated a lot of their time and effort to make this a very successful school year. To the new incoming UPS/Class Council members, we wish you all nothing but the best.



Good luck on your exams and we hope you all have a great summer!

Duke Boamong & Jennifer Ma
President & Vice President 2013-14
Undergraduate Pharmacy Society

The articles published in the Monograph are not reflective of the Undergraduate Pharmacy Society, Leslie Dan Faculty of Pharmacy, or University of Toronto. They are strictly the opinions of their respective authors.

all the special moments in Pharmacy.

It is with great pleasure that we look forward to the Monograph 2014-2015, which will be brought to you by incoming co-editors Chi Zhang and Ruyi Wang.

A recurring theme in this final issue: understand the past as you go forward into the future. So as we come to the end of another school year, we must also look back and reflect on the milestones passed along the way. Our time at PB can be a whirlwind of good times and bad times, even triumph after dismay. Let us raise our sails to that wind and take on the journey ahead.

And with that we bid you adieu.

Nusrat Amin & Bonnie Nghiem
The Monograph Editors 2013-14

*Courtesy of PB's haiku poet-in-residence, Yin Cheng, IT5

Mr. Pharmacy 2014

The Good, The Bad, and The Beautiful

Mr. Pharmacy is quickly becoming a staple event of Pharmacy Awareness Month (PAM; previously known as PAW). This year we had 5 participants, each yearning to receive the title of Mr. Pharmacy 2014 and each bringing their own special flavor to the competition.



JOSH MARBLE



We were able to raise \$401 for the Prostate Cancer Canada to support research. Thank you to the brave men for participating - we couldn't have done it without you!

IT7: Komail Nadeem
IT6: Thomas Boyang Huang,
Nathan Wong, Paul Gillespie
IT5: Christopher Siu

We tracked down the previously crowned Mr. Pharmacy men from the past 3 years and had them answer a few questions. Take a look, you may find some funny and helpful advice for those considering competing next year!

- 1) What advice do you have for the future 2015 pageant participants?
- 2) What was your favourite event of the Mr.Pharmacy pageant and why?
- 3) Have you ever used your Mr.Pharmacy title to get ahead in in life in some way?

Alysha Prata & Aarti Patel
Sr. CAPSI Rep & Jr. CAPSI Rep
torontosr@capsi.ca & torontojr@capsi.ca

1) Do some push-ups backstage just before the swimsuit competition to give your muscles more definition. It didn't really work for me, but it worked for Peter Lupa - which is strange because we have such similar physiques.

2) My favourite event of Mr. Pharmacy was the talent portion - I like showing people what I can do with my balls (juggling balls, that is).

3) I once used my Mr. Pharmacy title for a very elaborate role-play with my girlfriend, but I don't think anyone needs to hear about that.

PHOTOS: PHARMAKON 2012-2014



The IT4 Class Council is grateful to both Pharmasave Ontario and Scotiabank Professional Banking Centre for sponsoring the IT4 Graduation Formal!

Unfortunately, there was no opportunity to host the Pharmacy Drug Fair this year. However, these two sponsors were very generous and decided to still contribute to the graduating class. Thanks again to Pharmasave and Scotiabank for their generosity!

Ian Pang & Ophelia Chik
IT4 Grad Formal Representatives



KERO MOUSSA

1) I would tell the future participants that they should have fun with it after all it's for charity. Entertain the lovely women (and profs) of pharmacy, and when in doubt... hip thrust.

2) The best part is definitely the talent show... some people have talents, others don't, but either way it's fun to watch

3) I hate to admit this but one time I was in a Costco food sample line-up and there was only one sample left... so I pushed through the line announcing my title and when everyone was distracted I took that last one.



PAUL GILLESPIE

1) The less clothing you wear, the better. In fact, skip the clothing all together.

2) Definitely the talent. It allowed me to fulfill my childhood dream of being a Backstreet Boy. And by childhood dream I mean adulthood dream. (Someday...)

3) It's already on my resume above work experience. I'm considering just wearing my tiara to interviews so employers know what's up.



Editors' Note

Five issues yearly,
Thoughts, anecdotes, stories from
Our phamily album.

Our Monograph team
Working tirelessly to
Exhibit your art.

Join us next year, all!
Share with us, smile with us, and
Always, keep reading.*

We are proud to present the last issue of the Monograph 2013-2014. Our sincere thanks to all contributors this year, because it is you who make the Monograph what it is. Special shout-outs go to Anna Chan and Sophia Li for their creativity and know-how, to Ar-



man Zereshkian for his riveting story, and to Sandra Wood for bringing current social issues to the forefront.

And of course nothing would have been possible without the hard work and outstanding efforts of our reps - Justin Saraceno, Linda Lee, Nathan Wong, and Seiwon Park. We are also indebted to Pharmakon for capturing

PHARMACY ATHLETICS



Hey sports fans, the winter term is coming to a close, which also means the end of intramural sports. We entered this season with great momentum from the fall term with eager players all fighting for a playoff spot for a chance to represent their faculty and win those bright blue championship T-shirts!

In **men's indoor soccer**, Pharmacy finished second in their pool and faced Commerce in the first round. It was a tough loss of 2-1 causing them to be eliminated early from the playoffs. We commend you for the great effort and we hope to see you all back on the field in the fall.

The **men's volleyball** team has dominated the division 2 for 5 terms in a row, so the team decided to challenge themselves and move up to division 1. They played against many tough teams but with our many dedicated and talented players, they once again found themselves in the finals against KPE. Unfortunately, they were unable to reclaim their title and lost 2-0 sets in the finals.

The **men's flag football** team unfortunately did not secure playoff positions but played a hard fought season. They finished the season with a 1-3-0 record. We hope to see you all back on the field for next year's season.



Our **men's basketball** played the regular season with no losses and one tie on their record. They once again found themselves in the finals, this time against dentistry. Sadly, the boys fell short from the championships with a final score of 38-33. **Men's hockey** finished 2nd in their pool and defeated Law during the quarterfinals. The team suffered a loss against dentistry in the semi-finals and was unfortunately eliminated.

The ladies in **women's indoor soccer** had a great season and finished 3rd in their pool. They faced Law during the quarterfinal match and won 2-1, advancing them into semi-finals. The team faced Medicine but was unable to get the win, with a final score of 1-0.



The **women's volleyball** team played a tough season, finishing 3rd in the pool. They managed to secure a playoff spot but were unable to continue as they lost to Woodworth 2-0 in the quarterfinals.

The **co-ed basketball** team came into the season with a rocky

start but managed to get themselves into playoff standing. The team fell short when they faced OISE in the quarterfinals and were eliminated with a final score of 36-22. **Inner tube water polo** played a great season this term and finished 3rd in their pool. They secured a playoff spot and faced Nursing/Dentistry/OISE in the first round and was unfortunately eliminated with a final score of 14-8.



Co-ed volleyball played an eventful season finishing 2nd in their pool. They battled their way through playoffs and once again found themselves in the finals. They won against Trinity in 2 easy sets and we managed to hold on to the title for one more term. Congratulations guys!

The **Indoor Ultimate Frisbee** team finished 4th in their pool and was unfortunately unable to advance to the playoffs. It was great to see so many people interested in the sport and we hope to see you all back on the field in the fall. The **co-ed flag football** team finished a tough season in 6th place but were able to last in the playoff position. KPE defaulted the quarterfinal match and we automatically advanced to the semifinal match. We faced SGS in the semifinals and came short, with a final score of 24-15.

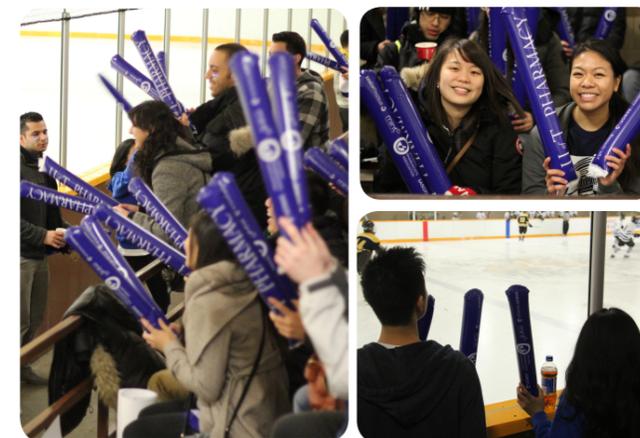


The **OPA Cup** was fun and exciting as always. This year the Cup was hosted by Waterloo, so our Hockey Team and student spectators travelled to Kitchener for a day of friendly competition. The pep rally was held in our atrium where fans made their posters and painted their faces as we prepared to go to battle.

The battle, of course, isn't just on the ice but also on the stands. This year we provided our fans with thunder sticks so they can be the louder crowd compared to Waterloo's fans. Waterloo took the cup for the fourth year in a row, but we'll get 'em next time!



Although the season is coming to a close, you have one more thing to look forward to from Athletics. The last challenge of the **Robax Cup**, the **Dodgeball tournament** will be taking place on April 7th, so form your teams and come to out to see which class will take home the cup. Keep an eye out for more details.



Kevin Yang
Male Athletics Director
athletics@uoftpharmacy.com

Hazel Gamboa
Co-ed Athletics Director

SPEP Q&A with KENNY CHAN, IT4

What type of pharmacy are you at for your SPEP*?

My first rotation was in Kincardine, Ontario, where I conducted Long-Term Care MedsChecks at various facilities across the Bruce/Grey County area alongside my preceptor who is a pharmacist consultant. I am completing my final rotation at a Shoppers Drug Mart in London, Ontario.

What sort of pharmacy services are provided?

Focuses of our services in long-term care included reducing unnecessary anti-psychotic meds usage (DART-AD RCT demonstrated a 25% reduction in mortality), reducing unnecessary benzodiazepine usage and making renal dose adjustments where necessary based on lab results.

I was very impressed with the amount of patient information I had access to - condition(s), medication(s), labs and notes from other professions (nurses, physiotherapy, etc). It presented a clear picture of each patient's health, which gave me the confidence to recommend the right course of therapy. My experience in Pharmacy so far had been 95% community, and all I could think about was how amazing it would be for community pharmacists to have something like this!

Currently at Shoppers Drug Mart, my preceptor is a Certi-

Athletes of the Month!



This month's male athlete of the month is **Adrian Lau**. He is a part of the graduating class of IT4 but still participated in many intramural teams, such as men's volleyball and co-ed flag football. He managed to find time during his SPEP rotation to help our teams advance this season. He was the MVP of both co-ed flag football and men's volleyball. Congratulations Adrian and we wish you the best of luck in SPEP.



The female athlete of the month is **Amber-Lee Carriere** of IT5. Amber is the co-captain of the Inner Tube Water polo team and also plays on co-ed basketball team. She has shown great effort and sportsmanship both in the pool and on the court. She comes to games always cheering on teammates and shows great leadership in water polo. Congratulations Amber and we wish you good luck in APPEs.



fied Diabetes Educator and also smoking cessation pharmacist. Thankfully I am not expected to dispense during my rotation so I've had quite a bit of time to focus on providing more clinical services such as MedsCheck and smoking cessation counselling.

What has been the most memorable thing that you've experienced or learned so far during your rotation?

In Kincardine, Ontario, there was this one time I got totally outsmarted by a patient. I was eating my lunch and enjoying my Timmies when a patient rolled in on her wheelchair and turned on the faucet across the room, rolled up to me and stared. I asked her if she wanted some water (she was holding an empty Timmies cup)...no reply. Since the faucet was still running, I went to turn it off and as soon as I turned back around my Timmies was gone. Apparently she was known as "the Timmies thief" around the facility. She then held two empty Timmies cups in front of me in victory.

Editors' note: Find out more about long-term care & pharmacist counselling!
www.health.gov.on.ca/en/public/programs/ltc/15_facilities.aspx
www.health.gov.on.ca/en/pro/programs/drugs/smoking/
www.ocpinfo.com/practice-education/continuing-education/
www.cdcb.ca/?i=15786&mid=1000&id=390245

*Structured Practical Experience Program

1-MINUTE READ: 5 THINGS YOU NEED TO KNOW

1. March was Pharmacist Awareness Month! OPA launched the theme this year as “The Pharmacist is in”, raising awareness to the range of services offered by pharmacists in Ontario. To see their featured videos, visit their Youtube channel at “OntPharmacists”.

2. New Canadian Research explains why the 2012-2013 flu vaccine was only 41% effective: the H3N2 component of that year’s flu vaccine was not exactly what WHO experts had ordered.

3. E-cigarette sales exist in a legal grey zone. They can be sold if they release vapour with no nicotine and they cannot be advertised as healthy alternatives to cigarettes. However, their vapour cartridges can easily be swapped with nicotine and there is also no evidence for their benefit so Health Canada is now tracking their sales.

4. The private health insurance market is deemed to be inefficient and requires better government intervention and regulation as researchers have found that there is a gap between premiums and payouts in claims that reached \$6.8 billion in 2011. This results in people directly paying higher premiums or indirectly getting lower wages.

5. Doctors are now prescribing exercise. In British Columbia, new prescription pads are now available for prescribing exercise to those who are less active. This is part of the “Exercise is Medicine” program.

Carol Nguyen
SOAPE Vice-President 2013-2014

Check out all “1-Minute Read” articles at www.soape.ca/

Health Is Wealth By KATHERINE KOROLUK, 1T5

Ever since I was very young, my dad would teach me life lessons through typical “dad sayings” like “Make hay while the sun shines” and “A penny saved is a penny earned”. I definitely appreciate these words of wisdom now. The most important of these sayings is my dad’s favourite: “Health is Wealth.”

For many of us, the gravity of this lesson will be learned later in life as we watch our parents age or as our own vitality starts to diminish. Even though we see patients struggling with health conditions in practice, we often take our own good health for granted until it is compromised in some way. As one of my favourite singers Joni Mitchell wrote, you don’t know what you’ve got ‘til it’s gone.

I gained a true appreciation for the value of health when I lost my mother to cancer at the age of eighteen. As terrible as it was to watch her health be stolen away so quickly over the course of her four-month battle with cancer, it taught me at a young age to truly appreciate my own health and the health of those I love.

Our most precious possession is our own body, and I try to remind myself regularly how lucky I am to have good vision, healthy lungs and strong muscles. It can be difficult to maintain self-esteem under a constant barrage of unrealistic beauty standards from the media, but you only need to remember how lucky you are to have strong, functional legs before the thought of comparing them to a model’s seems ludicrous.

It can be difficult to find money in our students’ budgets to donate towards charities to help improve the lives of those less fortunate than ourselves. We may not currently have the financial means to help others, but we are rich in other ways that money can’t buy. My mom

didn’t lose her hair during her cancer treatment, but I have been growing and donating my hair since she died.

Donated hair is used to make wigs for people who lose their hair due to cancer treatments or genetic diseases. I am about to cut and donate my locks for the third time and am currently raising money to accompany my hair donation (you can donate your spare change in the atrium during Cancer Awareness Week, March 31-April 3 or online). I am also a registered organ donor and regular blood donor, and recently participated in UPS’s Blood Drive.

A cancer diagnosis is so immensely devastating for an individual and their family, so it is important for the psychological distress of losing their hair or needing regular blood transfusions to be minimized by having access to these resources. The hair on our heads and the blood in our veins are often things that we take for granted, but after a cancer diagnosis they are only available from the charity of others.

If you have ever considered donating your hair or blood, please do so! Only 8” is needed for a hair donation to organizations associated with the Canadian Cancer Society, and eligibility criteria for blood donations is available from Canadian Blood Services.

Growing your hair takes little effort, registering to become an organ donor is simple, and it is incredibly easy to book a blood donation

appointment that will take less than an hour of your time. The Canadian Blood Services clinic is located just across the street from the Pharmacy Building at 67 College St. Book a donation appointment with a friend (the first time can be a bit daunting), or pledge to grow your locks until they can be cut and donated.



Though many of us are lucky enough to have healthy families now, you never know when you or a family member will be in need of a life-saving blood transfusion, organ transplant, or a wig to help foster hope for the future. Health is wealth, and we should not take our riches for granted.

Canadian Blood Services:

1-888-2-DONATE or www.blood.ca

Canadian Cancer Society: www.cancer.ca, Wigs and Hair Donations (Pantene Beautiful Lengths)

Trillium Gift of Life Organ Donation: www.beadonor.ca

Pharmacy Awareness Month

What can your pharmacist do for you?

The Canadian Pharmacists Association recently changed Pharmacy Awareness Week to Pharmacy Awareness Month! In response, SOAPE has been busy planning events and initiatives for the entire month, getting students involved in advocating for the profession.

Our theme for this year was “What Can Your Pharmacist Do For You?” We were excited to re-introduce Pharmacy Students for Medication Safety, adapted from OPA’s SafeMeds for Seniors Program. Pairs of students delivered seminars to adults in senior homes educating them on medication safety.

SOAPE was once again set up across *University Health Network* as part of our public outreach initiative. Our topics for the week included *Diabetes Management, Antimicrobial Stewardship, Heart Health, Seamless Care, and Sunscreen Protection*. We had over 70 volunteers across all four years help promote the image of pharmacy to the public! This year we expanded our project to also include Toronto Rehabilitation Institute and reached out to over 1000 members of the public!

SOAPE also expanded its On-Campus Initiative for PAM this year by organizing interactive booths presenting two new topics: *Seasonal*

Allergies and Vitamin and Mineral Deficiencies. Booths were set up at Medical Science and Sidney Smith, and pharmacy students from all years volunteered to educate other U of T students about the role that pharmacists play. Students learned to differentiate the symptoms associated with the cold, flu and seasonal allergies, the proper use of EpiPen and Allerject, as well as learn about supplements available for deficiencies commonly seen in young adults. We look forward to continuing to promote our profession to students across campus!

On behalf of the executive team, we would like to thank all the students for making this the largest, most successful Pharmacy Awareness Month yet! Good luck on your finals, and look for us at the 2014 OPA Conference in Niagara Falls!

Seann Seto, Carol Nguyen, Jaspreet Shokar
SOAPE Executives
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To view the pictures taken by Pharmakon, visit: <http://www.flickr.com/photos/uofipharmakon/sets/>



Editorial

The Shape of Things to Come

It’s clear that changes have been afoot within our profession. They are largely positive and affirming, such as the evolving scope of practice which is expanding across the country. Other changes may manifest in more incipient ways; one example has stemmed from Ontario’s government reform measures on drug supply and reimbursement in recent years.

On Tuesday, January 28th, the Ontario Pharmacists Association hosted its first-ever “Meet the Board” event. On that day, several pharmacist members from community practice brought forth issues about performing as a health care professional, and the disconnect felt between this and the lack of workplace resources. Examples included: - Pressure to promote & complete MedsChecks - Pressure to train & administer flu vaccinations - Endeavours to embrace expanded scope of practice against the backdrop of a busy practice

Promotion of the profession’s expanded scope of practice and meaningful contribution to health care is a good and desirable thing. Today, many committed members of the profession are also diabetes educators, smoking cessation

counselors, and certified to administer flu vaccinations. One fundamental pharmacist service is an effective review of a patient’s medication regimen. In Ontario, this can be billed under the MedsCheck program, for patients taking three or more chronic prescription medications.

The caveat lies within the interpretation of medication reviews and other pharmacist’s services by some employers as services to increase performance and balance chequebooks. The obligation to provide compensation for good work and a return on investment for stakeholders is well-understood. Yet where does the obligation to patients stand in this equation?

As a drastic example, imposing target numbers on a clinical service has been studied with the medication review debate in the U.K., where the service is termed “Medicines Use Review”.¹ With a 400-per-year reimbursement cap set by the U.K.’s National Health Service, community pharmacists reported being expected by their employers to “meet the cap”. The cap thus became a service quota, leading many pharmacists to point out the compromise to the quality and safety of patient care - especially without additional resources or support.

Despite these and other inherent risks within the profession, there are indeed great opportunities in store as the pharmacist’s role within an interdisciplinary healthcare team evolves.

Many students are already looking ahead to understand the profession that we are to inherit, including Rob Zaborowski (1T5), who has been active in his encouragement of awareness and advocacy amongst our student population.

As he puts it, “the current transformation in pharmacy certainly affects (and will continue to affect) all of us to some degree. Together, we can find solutions that will allow us - and the generations to follow - to provide patient-centric pharmaceutical care.”²

Key Points

1. Be informed on the issues & changes ahead.
2. Be active in the profession’s associations; engage with pharmacists already out in practice.
3. Reach out to other provincial and national bodies (CPhA). Connect with other professional associations with a strong history of self-advocacy, such as the OMA or the ONA.
4. Advocate for support for pharmacists, within structured organizations *and* through a culture of support for quality patient-centred care.

References

1. Sukkar E. Have medicines use reviews come to represent profit over patient care? *Pharm J* 2013; 291:137.
2. Commentary on “The OPA Open House: A glimmer of hope.” B. Brown. Canadian Healthcare Network. Rogers Pub. Ltd. www.canadianhealthcarenetwork.ca/pharmacists/discussions. Jan. 29, 2014. Accessed March 20, 2014.

The Vaccination Debate

By SEIWON PARK,
IT7 Monograph Rep

Although measles was considered to be virtually eliminated in 2000 in the U.S., 20 cases have already been reported in NYC this year. Even in Canada, British Columbia's east Fraser Valley region, which has a vaccination rate of approximately 60%, confirmed five cases of measles, as well as almost 100 suspected cases.

This epidemic apparently originated from a publicly funded Christian school in Chilliwack, whose students are members of the Reformed Congregation of North America. "We leave it in (God's) hands," said Reverend Adriaan Geuze to the Vancouver Sun.

Measles is a leading cause of vaccine-preventable childhood mortality. The best protection against measles infection is two vaccine shots, the first one given between 12 and 15 months, and the second between 4 and 6 years of age. And yet, why isn't everybody required to vaccinate? Only three provinces, Ontario, New Brunswick and Manitoba, require parents to vaccinate their children against measles before sending them to school, and even then, exemptions are available for reasons of religion or conscience.

A society is a cohesive, collective group that must learn to live together in a way that does not bring harm upon people for the sake of adhering to one's values – but unvaccinated people pose a real and valid threat. Since the vaccine does not have a 100% success rate, it requires "herd immunity", which may be as high as 94% for measles. In fact, 2013 saw the highest number of measles cases in the last two decades. Unvaccinated people were responsible for 80% of those cases, with the reason for opting out being most often "philosophical differences".

Last year, the Centers for Disease Control and Prevention in the US reported that anti-vaccine beliefs have led to a rise in measles cases. These beliefs have been around for decades; for instance, one of most famous anti-vaccination literature originates from a 1998 study linking vaccinations and autism [Wakefield et al., 1998] Despite the fact that the study had been proven to be flawed and was consequently discredited - the damage had been done, and the seed of fear planted in countless parents' minds.

In the past few years, celebrities have become some of the most well-known and outspoken protestors against vaccinations, namely Jenny McCarthy, who publicly defended Wakefield in 2010. Their

impact on the public's views on vaccinations is not to be underestimated: in 2008, about one in four adults reported they were familiar with McCarthy's views about vaccines, and 40% of them said her claims led them to question vaccine safety.



Unfortunately, it is difficult to change parents' minds once they start to associate vaccines with autism or other harmful consequences. A study published in the Journal of the American Academy of Pediatrics highlights the struggle to convince parents of young children to vaccinate their kids for measles.

Although researchers provided parents with information about the lack of a proven association between vaccinations and autism, information about the dangers of the diseases that vaccinations protect against, pictures, and anecdotes — the study concluded that "none of the interventions increased parental intent to vaccinate a future child".

If education does not work, what will? This issue should resonate with us as pharmacists; since we are now allowed to administer immunizations, we arguably have a duty to promote vaccinations, educate the public of their reality and their importance, and to seek solutions to the challenges of vaccinations.

External Affairs & UPS Present: The External Affairs Student Writing Award

At the UPS Awards Night on Tuesday, April 8th, two annual awards will be presented to recognize students who promote and raise awareness about opportunities offered by OPA and CSHP.

Criteria

- Active student member of either CSHP or OPA
- Submitted an article to the Monograph, between September and April, about a service provided by the organization that you are a member of. Examples include conferences, CE events, social events, etc.

Award value

- 1 year membership in the organization
- Plaque with name presented by a CSHP or OPA member (One award each for CSHP and OPA)

Questions? Contact external@uoftpharmacy.com

CSHP Professional Practice Conference 2014

By JENNIFER JIN, IT5

After working last summer in an Ottawa community hospital pharmacy, I joined CSHP as a student member. I was really excited to learn more about hospital practice and wanted to experience as much as I could in my last year at school, so I decided to sign up for CSHP's Professional Practice Conference (PPC).

PPC is an annual gathering of hospital pharmacists from all across Canada and is held in the Sheraton Centre Toronto Hotel at the start of February. It is the largest pharmacy conference in Canada and I knew that attending the PPC would be like taking a seat at the "grown-up table", but I also knew it would be a valuable experience.

PPC Highlights

The Student and Resident Networking Night was a fabulous free event held the evening before PPC officially started. After grabbing some refreshments and mingling with fellow classmates, all the students

and residents were seated at round tables, hospital administrators would then come along in pairs to chat with us and share their wisdom.

It was a great opportunity to learn more about hospital residencies and find out what pharmacy directors look for in hiring individuals. Many directors told us that completing a hospital residency was like a golden ticket into hospital practice, since residents gain so much experience in one year of intense training.

The evening was a prime opportunity to network and all the attendees were even given a box of personalized business cards! Hospital pharmacy is such a tight knit community of practitioners, so it's definitely worthwhile to make connections and get to know your future colleagues (and maybe even future bosses).

Over the next few days, I slipped in and out of the Sheraton Hotel before, between, and after classes to attend various talks at the conference. There are so many topics specific to institutional care that we don't have a chance to cover while in school, so attending educational sessions is a great, low stress way to expand your therapeutic knowledge and learn about new research or events in the pharmacy world.

There were several concurrent sessions throughout the conference, so delegates could focus on the topics that were of most interest to them. Some of my favourite talks this year included Allan Mills' recount of his "Journey from Clinician to Director," a panel discussion on lessons learned from the Oncology Under-Dosing Incident, as well as an overview of diabetes management in hospital and recent antimicrobial surgical prophylaxis guidelines.

It wasn't just talks available at PPC there were plenty of other activities to explore. Exhibitions were held in between talks and delegates were invited to browse through various booths and research posters. An open Career Night provided attendees the opportunity to speak to various employers and companies about job openings in hospitals all across Canada. There was even one medical centre from Doha, Qatar that came to recruit clinical pharmacists to work in pediatrics and women's health on the other side of the world!

The 4-day conference cost around \$275 for a CSHP student member. This is admittedly, a lot of money, but if you're interested in hospital pharmacy, I think it is a worthwhile investment in your education and future career.



The *Canadian Society of Hospital Pharmacists* is a national organization of pharmacists committed to advancing hospital pharmacy practice in Canada. Members come together for educational sessions and conferences, discuss clinical practice issues, and advocate for better patient-centred care.

Upcoming CSHP events:

- Educational talks at Leslie Dan Faculty of Pharmacy, organized by our dedicated U of T CSHP Council
- Summer Educational Session 2014, Aug. 9-12, St. John's, NL.
- CSHP Ontario Branch AGM and Educational Sessions 2014, mid-November, LDFP
- PPC 2015, Jan. 31-Feb. 4, Sheraton Centre, Toronto

The Pharmacist's Role in Mental Health

By JUSTIN SARACENO,
IT4 Monograph Rep

During my first SPEP placement, I spent two months working at Kingston General Hospital on the mental health unit.

Even though I had some experience working in this field, I was apprehensive at first because I knew how challenging it could be to talk with acutely ill patients.

I started off helping my preceptor do Med-Recs and chart reviews to understand patients' often complex psychiatric histories. However, it wasn't long until I became more familiar with how to approach patients and saw from my preceptor some of the important ways

that pharmacists could get involved in managing patients with mental illness. What started off as a challenging rotation ended up being quite fulfilling by the end.

One of the first things that stood out to me was the value of building rapport with patients. This is the first step of the pharmaceutical care process, but I think its value is easy to take for granted especially when trying to engage someone to talk about their mental health.



Jack Nicholson, *One Flew Over the Cuckoo's Nest*
Milos Forman, 1975
Based on the novel by Ken Kesey

Reading recent chart entries often allows you to find problems a patient has been experiencing such as insomnia, pain, constipation and so on.

After meeting a patient I'd start by discussing any concerns and try to offer some form of support, before launching into a Med-Rec. Showing patients that you were there to help made them more willing to discuss their medications. Checking back in on a patient's concerns at a later date further reinforces rapport when doing follow-up.

Long-term adherence to medications is remarkably low in psychiatric patients and many stop taking their medications

due to side effects or misconceptions.

Building rapport also encourages patients to be upfront with you about any side effects or questions related to their medications. Some side effects can be managed and others will subside over time, and pointing this out to patients can help keep them onboard with treatment. Pointing out the benefits of treatment and addressing misconceptions can help patients to better understand the usefulness of their therapy.

Medications are only part of the solution and patients often need to develop coping skills for the long-term. Learning about their conditions is often the first step. Googling "CAMH depression" or "bipolar" may be a good starting point. There Helpful apps include *MoodyMe*, which acts as a mood diary and provides a support community. Websites like moodgym.org or llttf.com offer free CBT modules which can be quite useful if patients aren't able to access these services in the community.

Building the Evidence

Clinical Trials Pharmacy Q & A with NANCY GUO, IT5

The practice of evidence-based medicine requires validated therapeutic approaches. The use of a drug – and when and how to use it – is investigated through an arduous process that culminates with approval or consensus regarding the results obtained from clinical trials. As Nancy Guo (IT5) found out during her summer 2013 placement in Investigational Drug Services at the University Health Network, the pharmacist is crucial to the quality and integrity of how investigated drugs are prepared for and used in clinical trials.



Tell us about your summer student experience at UHN.

I was in Clinical Trials (Investigational Drug Services) at Toronto General Hospital. When I first heard about it, I didn't know what the job entailed. It turned out to be an amazing experience to see how drugs in clinical trials are managed, and how those trials are conducted. The best part was working with the Clinical Trials team at TGH. Everyone was so friendly and fun to be around.

What does a clinical trials pharmacist do?

A clinical trials pharmacy manages all the drugs undergoing different phases of clinical trials at the hospital. A clinical trials (CT) pharmacist meets with investigators, sponsors, and coordinators to determine how a trial drug is dispensed, ordered and distributed, and how to maintain blinding. In the CT role, the pharmacist is not on the floors seeing patients, but rather works mostly at the CT office or participates in meetings with the investigational team.

It sounds like a highly specialized role.

It does require a special skillset. Any new protocols in the hospital that involves research on a trial drug must be submitted to the Clinical Trials Pharmacy. Once approved by the ethics board, the investigational team and sponsors may move forward. The clinical trials pharmacist is involved in discussions on the blinding, dispensing, ordering, and distribution of the drugs. A pharmacy services fee agreement will be drafted and signed by all parties.

A site initiation meeting with the coordinator and sponsor is held with all of the CT staff to brief everyone on the type and purpose of the trial and its dispensing process. All the trial drugs are kept at the CT pharmacy with their own labels.

CT pharmacists educate other inpatient pharmacists about trial protocols and drugs, especially if a trial requires overnight on-call dispensing. There is a lot of documentation, email, and phone correspondence with coordinators, investigators, and sponsors. The CT pharmacist needs to be very meticulous about every aspect of the distribution process: ordering, receiving, dispensing, sending returns, and destruction.

"Monitors" from the sponsors will visit every few months to track trial progress and perform drug reconciliations, so everything should be in order when they come in, including site temperatures to minimize confounding factors that can affect results.

We know that "RCTs are the gold standard." What else can you tell us about CTs?

Investigator-initiated CTs are usually overseen by a physician and focus on using a drug for a different indication than the one(s) for which it is currently marketed. Sponsor-initiated ones are typically multi-centre studies by a pharmaceutical com-

pany on either a new drug or a currently marketed drug under a different indication. Sponsors provide the drugs to the CT pharmacy based on patient enrollment.

Many trials are multi-centre and multi-national trials that could potentially have huge impact in their respective areas of study. Many trials have also been conducted for many years and are under extension phases of published trials already found in practice guidelines.

Would you recommend this kind of placement to other students?

Definitely. It's very different from inpatient pharmacy, and it'd be a great opportunity to see whether you like this type of work compared to seeing patients on the floors. You'd learn a lot of about how a clinical trial is conducted, and how the medications involved are managed. It's really rewarding to see the results of a trial that you were involved with get published in practice guidelines!

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In conversation with **Professor Reina Bendayan**



Research on drug transport across biological membranes is a significant contribution to our understanding of pharmacokinetics, the mechanics of how the body takes up, processes, and ultimately disposes of a drug molecule. With research on the human immunodeficiency virus (HIV) in particular, this focus on transporters may potentially illustrate how even a potent anti-retroviral therapy can be met with resistance.

Advances in available treatments have in many cases prolonged the expected lifespan after a HIV-positive diagnosis. But for some patients, despite intensive multi-drug regimens such as highly active anti-retroviral therapy (HAART), the resistance of the virus continues to be a major hurdle. Other challenges include drug toxicity and the impact of drug-drug interactions.

Testing the barriers

In Professor Reina Bendayan's lab at the Leslie Dan Faculty of Pharmacy, the focus has been on the transport of anti-HIV medications at the blood-tissue barriers of the gastrointestinal tract, central nervous system, and testes. Less-than-desirable levels of drug transport across these membrane barriers could constitute a potential factor in promoting viral resistance, by allowing for the formation of viral reservoirs within these tissue sites.

The Bendayan lab works with animal models and cell culture systems. These include commercially available HIV-like transgenic or "knockout" gene rodent models for transporter genes, as well as tissue isolates and capillaries. Collaborations with clinician-scientists within the University of Toronto and other research institutions such as the University of California have enabled studies involving tissue samples from HIV-positive patients.

An emerging area in HIV research is the post-infection inflammatory response as a key element of HIV-1 associated pathogenesis, especially at the blood-brain barrier (BBB) [see Figure 1]. HIV-associated inflammation in the brain is related not only to the role of drug transporters, but also to investigating about a potential role for anti-inflammatory agents.

"We are now investigating the potential of several adjuvant drug therapies in preventing or reversing the inflammation in the brain", as well as the neurocognitive dysfunction found in many HIV-positive patients. These agents include minocycline, a tetracycline derivative with evidence for neuroprotection in neurodegenerative diseases such as Alzheimer's disease, and chloroquine, an anti-malarial which also has anti-HIV and anti-inflammatory effects.

Resistance to therapy

The protease inhibitor atazanavir (recommended as first-line therapy in HIV therapy) is substantially metabolized by cytochrome P450 (CYP450) enzymes and is also a substrate of ATP-binding

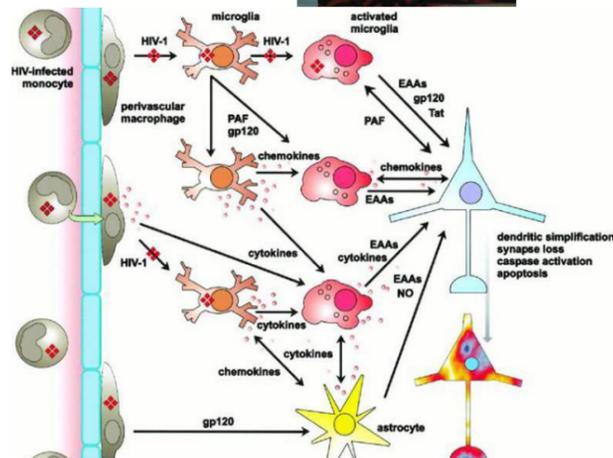


Figure 1. Mechanisms of HIV-induced neuropathogenesis.
Courtesy of Prof. Bendayan; Adapted From: Garden G. (2002); Persidsky and Gendelman (2003); Ronaldson, Persidsky and Bendayan (2008)

cassette (ABC) membrane drug transporters; in particular, P-glycoprotein (P-gp). Atazanavir is also a ligand for nuclear receptors that induce the expression of transporters and metabolic enzymes.

These properties can potentially compromise the efficacy of the drug, explains Dr. Bendayan. "[As] substrates for metabolic enzymes and efflux transporters, they won't reach high cellular concentration. As nuclear receptor ligands, they are going to induce metabolic enzymes and transport proteins, thus [causing further] metabolism and efflux of the drug. They will tighten the BBB, causing even less drug penetration into the cellular target sites."

"At the intestinal barrier, drug oral bioavailability is highly dependent on metabolism and transport processes which occur in the enterocytes of the intestinal mucosa. Many anti-HIV drugs, especially PI, have very poor bioavailability – they are highly metabolized and actively effluxed by transporters such as P-glycoprotein at the level of epithelium of the intestinal mucosa. We have particularly examined mechanisms of drug permeability across the intestinal mucosa in several *in vitro*, *in situ*, and *in vivo* models.

Seeing the whole picture

Health professionals' clinical perspective helps to inform on the efficacy and safety of pharmacotherapy, including the involved mechanisms, says Prof. Bendayan. "Clinically, we see many HIV patients living much longer with current antiretroviral therapy that is very effective in eradicating viral load in the periphery, in the plasma." Yet daunting complications remain. Despite achieving significantly reduced viral loads, for example, some patients "are aging prematurely and developing neural cognitive deficit. It is clear that the infection is not eradicated in the brain. Other sites such as gut lymphatics constitute another site for the virus to escape and remain latent."

Current therapy is still not fully curative, nor is it preventative, as with many previously widespread infectious diseases held at bay by the rise of immunization. Unfortunately, efforts at developing an anti-HIV vaccine have been unsuccessful. In North America, even with greater accessibility to care and ongoing work to break social stigma, HIV/AIDS is a devastating diagnosis. In sub-Saharan Africa and parts of Asia, it can have catastrophic effects on infected individuals that ripple through families and entire communities.

For researchers, the work must continue well beyond the foreseeable future. Prof. Bendayan is currently overseeing the research and thesis work of several MSc, PhD, and undergraduate students, as well as post-doctoral fellows. Teaching is a core responsibility, as she coordinates and teaches in various undergraduate pharmacy (pathobiology, pharmacokinetics) and graduate (pharmacology, drug transport) courses.

Sometimes, a graduate student's commitment to a certain project can last beyond his or her conferred degree. One of her graduate students has decided to continue with clinical post-doctoral training with a collaborating research group, "to verify clinically several of the mechanisms that we have demonstrated *in vitro* and in animal models."

Training & Career Highlights

- BPharm, University of Montreal
- PharmD, University of Florida
- Clinical Assistant Professor, University of Montreal
- Clinical Pharmacist, Royal Victoria Hospital
- Post-doctoral research fellowship, Medical Research Council of Canada (CIHR)
- Post-doctoral training, Dept. of Pharmacology, University of Toronto and Addiction Research Foundation (CAMH)
- Career Scientist, Ontario HIV Network, Ministry of Health of Ontario
- Professor, Leslie Dan Faculty of Pharmacy, University of Toronto
- Previous academic appointments: Graduate coordinator; Chair/Associate Dean of Graduate Education, Leslie Dan Faculty of Pharmacy

Building a path to research

This dedication to continued learning and the dissemination of its results has been foundational to Prof. Bendayan's own career path. After her BPharm at the University of Montreal and later on, a PharmD degree, she became Clinical Assistant Professor at the Faculty of Pharmacy in Montreal. She was also affiliated with the Royal Victoria Hospital, McGill University, supervising students in clinical clerkship. "This is where I found out that I really liked academia," she notes. "I realized that in terms of a career path, I truly enjoyed teaching even more than [practicing as a] hospital pharmacist."

To gain further experience and training in research, she applied to what was then the Medical Research Council of Canada [now known as CIHR] for a post-doctoral research fellowship. Once granted, she came to the University of Toronto to join the Department of Pharmacology and the Addiction Research Foundation [today, CAMH]. Upon completion of her research fellowship, she decided to stay in Toronto.

"The project that I worked on at the Addiction Research Foundation was related to nicotine addiction, disposition, pharmacokinetics, and transport, particularly in the kidneys," she explains. "My supervisor at the time, Dr. Ed Sellers, was highly involved in psychopharmacology and he introduced me to a membrane cell biologist, Dr. Mel Silverman at the University of Toronto," with whom she did further study on glucose and drug transport. The enjoyment she found in these projects established her direction to focus on drug transport within her academic career.

Today, as an expert on drug transport and tissue distribution, she is constantly travelling to participate in or chair research conferences such as the Gordon CNS Conference (Barriers of the CNS) and the International Cerebrovascular Meeting. She is also serving as chair-elect of the Pharmacokinetics, Pharmacodynamics, and Drug Metabolism section of the American Association of Pharmaceutical Scientists.

Interested pharmacy students are encouraged to seek opportunities at the Faculty to gain exposure to research. "Undertaking the summer research program or taking a research [elective] course" are examples highlighted by Prof. Bendayan. "They serve as a nice introduction to the research field. The hope is that, in the classroom, [we] professors can convey and share about what we do in research."

The potential to help open up a new avenue of interest and a potential career for students is an aspect that Prof. Bendayan has found greatly satisfying: "to witness the success of the students in their respective careers; to see them established and very successful, and to see them growing throughout the many years of training."



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Moving Forward by Looking Back By LINDA LEE, 1T5 Monograph Rep

It has been quite a long journey through pharmacy so far. Grad photos certainly made me feel that the end is finally approaching, yet I still have one more year until I actually reach "it".

It seems just like yesterday when I received my acceptance letter, and participating in the MMI as an interviewer this year gave me an opportunity to experience how it's like to be on the other side of the table. Looking at all those candidates made me think back to how nervous I was during my interview and the thoughts I had going into first year.

I've been running non-stop without looking back to reflect on the last three years, both the good times and the bad. Sometimes the bad times seem most impactful but that's because we've been taught to never make a mistake. What I believe though, is that a successful pharmacist is able to acknowledge and reflect on mistakes to continue lifelong learning.

I've made countless mistakes ever since I started in pharmacy. But making a mistake is not actually a "failure" - it is when you do make them but don't try to fix them or improve. We are encouraged to try and learn new things while at school, because being a student might be the only time when you can depend on someone else to check your work for errors. For a pharmacist in the real world, people

might not be as forgiving. Failing to acknowledge and improve could put both yourself and your patients in danger.

Are there things I could have done differently? If I could go back in time, I would study harder, manage my time better, get involved in more social activities, and so on. I would choose working in a community pharmacy as my top wish.

Since the summer after first year, I've been working at the Sunnybrook Health Sciences Centre acute care pharmacy. I've loved working in hospital pharmacy and my EPE rotations with amazing preceptors (although I did not enjoy waking up at 5 am to get to work by 6).

I never got to work in a community pharmacy because I was too comfortable working in hospital and was afraid to try new things. APPE selection time came and I finally realized that I have absolutely no experience working in community and this puts me at a disadvantage when I start those rotations. Pursuing what you love is great but I made a mistake of not trying out other options outside of my comfort zone.

Don't be afraid of challenging, new things and making mistakes. You gain experience when you learn from mistakes. If you are not giving yourself an opportunity to make them, you won't be able to gain experience.



NERD CORNER By JOYCE WANG, 1T6 & MICHAEL NORMAN

One of the most shocking things I've learned after coming to Pharmacy is that a celebration is warranted for anything that is a PASS. There's no doubt that many defeated thoughts come to mind and that learning interesting and stuff we call "knowledge" no longer seems... fun.

Part of it may be due to the fact that we are not studying in the most efficient manner. After discussing with a close friend, Michael Norman, in another healthcare profession (Doctor of Chiropractics), we have explored some study habits and tricks.

It's important first figure out what type of learner you are. Typically, people can be broken down into 3 categories: **Visual learners** learn best by watching; **Auditory learners** have an open ear and learn best by listening to some-

one describe what they need to know; **Kinesthetic learners** need to perform something, or get firsthand experience to commit something to memory.

It's likely that each of us lies on a scale somewhere amongst all three, but may still relate to one type more than the others.

If you are a visual learner, try incorporating as many images and pictures in your study notes as you can. Things like mind-maps, diagrams, drawings, and color-coding of notes can be useful tricks.

If you are an auditory learner (or happen to love the sound of your own voice), read your notes aloud! Listening to recordings can definitely help consolidate the material as well.

If you are a kinesthetic learner, why not

try making models of some of the things you learn in class? This may be helpful for subjects like anatomy or physiology.

It is important though to not limit yourself to just one category. Let your strength be your focus, but use some of the techniques that the others do. The more ways in which you learn something, the more connections your brain makes to the information and that means more pathways for retrieval. And this makes exam time go a lot smoother. With that in mind, here are some tricks that everyone can use:

Have a Study Spot - Have a location where all you do is study. Don't eat, don't play games on your phone. This may seem absurd on paper but believe it or not, it helps to prime your brain for work and you will find focusing to be much easier.

An evening in Gex By SHEENA TALWAR, 1T4

It is 1 am and I am stuck in Gex, France. The entire time on the bus, I believed wholeheartedly that it would turn around and take me back to Gare Cornavin, the main train station in Geneva. When the bus driver parked the bus, grabbed his things, and offered to drop me off in Ferney-Voltaire, France - where I might be lucky to find a taxi to take me home - I panicked, ran to the nearest bus stop, and decided to wait for the first bus in the morning to take me back. Little did I know how long that night would be.

This entire ordeal began with my childhood dream of interning for the World Health Organization. I had applied the year before and wasn't selected; miraculously, my prayers were answered this year and I would be interning for UNITAID.

UNITAID is a global health organization that relies on levies from select airline tickets to provide funding for medicines, diagnostics and prevention for HIV/AIDS, Malaria and Tuberculosis (TB) in developing countries. I would specifically be working alongside the HIV/AIDS and TB technical officers, but would help out in other areas as deemed necessary.

At the WHO, I learned more about global health than I could have imagined, thanks to my supervisors and from meeting with and attending seminars by experts in the field. I also had the opportunity to meet with Dr. Margaret Chan, the Director General of the WHO as part of an intern question and answer period. In terms of my actual work, I had the opportunity to assess upcoming products and trends in the oral rapid diagnostic tests for HIV and write a report on my findings.

Back in Gex, it was now 2 am and I just wanted to go home. A middle-aged man had appeared on the other side of the street, smoking a

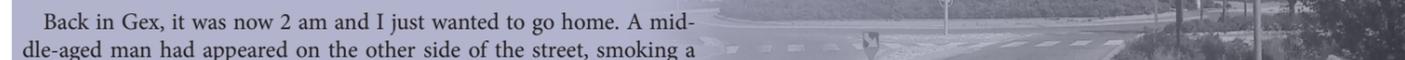
cigarette, and after the first 20 minutes, I realized that he was there to stay. I used my data while on roaming and managed to find the number of a local hote, but the concierge was closed. I tried calling a few cab companies in Geneva using my broken French. Many operators hung up on me and with each passing attempt, I was convinced that my chances of making it through the night were slim to none. Eventually, I figured that my best bet would be to sit tight and wait until sunrise.

Just then, the middle-aged man reappeared and I figured that it would be in my best interest to perhaps confront him. To my surprise, he only spoke French and warned me that this was a dangerous area for women. I had been wrong about his intentions and just as I attempted to tell him about calling for a cab, a taxi with a Geneva license plate came to a halt in front of the bus stop.

A wave of relief crashed over me when the driver said that the taxi was for Ms. Talwar to Geneva. I quickly grabbed my bag, said bye to the man, and arrived home at 4 am. Between the \$700 roaming data charges on my phone and the 90 Franc cab ride, Gex was inadvertently the learning experience of a lifetime. I made it a point to memorize the phone number of a 24-hour cab company during my stay in Geneva and never took the bus after midnight again.

Special thanks to the following individuals, without whom the UNITAID experience would not have been nearly as rewarding or as interesting:

Dr. Jillian Kohler, Dr. Brenda Waning, Katherine Blumer, Fabienne Maertens, Carmen Perez-Casas, Janet Ginnard, Brian Kaiser, Romane Theoleyre, Yamuna Mundade, Mircea Eftimescu, the Leslie Dan Faculty of Pharmacy (Enhancing the Student Experience Fund) and Sayathan Thavarajah.



Start working and the second you find your mind start to wander, get up and take a quick break away from the spot. Then come back and work again.

You may only get 5 minutes of work done at a time, but you will find yourself working longer and longer periods without interruption. When you come back to this spot, focusing will become natural and automatic.

Keep in mind that your spot should be a neutral location, preferably not somewhere with a lot of distractions and definitely not your bed as this can lead to poor sleep, which brings us to...

Get 40 Winks - Sleep is important, but how many of us actually make it a priority. We need sleep, and in our sometimes chaotic lives it is the first thing to

be pushed aside. This is a mistake; our brains need to rest just as much as they need to work. When we sleep our brains consolidate the day's information, meaning we are committing things to memory. It's been shown that driving after a sleepless night is comparable to driving under the influence, so why write a test drunk?

Get Your Heart Rate Up - The human body isn't made to sit all day. We are supposed to move and be active, so our physical activity is excellent for our mental health. Exercise, even a little, can do wonders for mental efficiency.

Don't Cram - Easier said than done. Who has the time to read all our notes every day? But take some time to review throughout the semester to ensure that you understand the material or ask the questions you need

to before the exam rush, and that come exam time you're not learning anything new, but rather, reviewing and enhancing those neural pathways Think of it this way, what takes longer, building a new road or repairing pot holes in an existing one? (although the way Toronto construction crews work, both seem to take forever...)

Relax - Probably the hardest one on this list, but also the simplest one to start with and see an immediate response. We all have different ways to calm down, so just make sure you find yours. We can't function properly under high stress. Even professional athletes, who get paid millions to do nothing but practice, can collapse under pressure.

Take a deep breath, clear your mind for a minute. People have gone before you and succeeded - so can you.

The Zombie Apocalypse *Finale*

The End of Days

by ARMAN ZERESHKIAN, 1T4

Our hero had realized that the zombie apocalypse was a biblical event where God had unleashed zombies upon the world. The souls of those who encountered the zombies and were bitten and turned would ascend to heaven, while those who encountered the zombies and lived, were doomed to live a hellish life until their souls descended into a dark abyss.

The sirens were pounding in my head but I just stared out the window at the mayhem that was unfolding. There was nothing I could do to stop this, no running, no hiding, no hope. How can we fight against the end of days? We were meant to be wiped out. My head began to spin. I saw no way out and I didn't want to try anymore. What was the point?

A sudden slap of my face jolted me back to reality, "What do you think you're doing?" asked Wells, Jr. "There's no point. There's no point in anything we do, we were meant to be obliterated," I replied. "What do you mean? Stop being Foo-", started Wells, before I interrupted him, "DON'T YOU GET IT? THERE IS NO VIRUS, THERE IS NO BIOLOGICAL SOURCE, THERE IS NO REASON, NO LOG-IC," I started yelling at him, the tears streaming down my eyes, my voice hoarse and jagged.

"No hope of a cure," I said quietly settling down in my chair while cradling my throbbing head. "I know," said Wells Jr., a sad but acknowledging look on his face, "Given how long it's been and how much effort has been put into determining a source, most of us started to realize the truth." He grabbed a chair and sat beside me and put his arm around me.

"We reap what we sow, eh?" he said smiling at me, "The whole story of infection spreading from Detroit, from experimentation, it was just a lie we told ourselves so that we would have hope." "Why even put up a fight if there is no hope?" I asked, utterly defeated.

"Because maybe...just...maybe we'll do something that might make the big man upstairs less likely to damn us to an eternal abyss," he said, "OR maybe just to show that same God that what he created won't go down without a fight and would rather fight with its brethren until the last bitter breath" said Wells Jr, with a small yet strong smile remaining on his face.

The sounds of fire and explosion were coming closer. "Come on, we have to start packing up and evacuating the survivors northward," said Wells Jr, walking towards the door. "I thought you said we would stay and fight!" I yelled. "Running to survive against zero chances of an everlasting peace is still fighting, ain't it?" said Wells Jr., grabbing his shotgun and kicking open the door, "Besides, I meant I would stay and fight, not you."

The scene that unfolded in front of our eyes was terrifying. The compound gates had been blown apart and zombies were fighting with the compound militia. Bullets were flying everywhere and the screams of the innocent could be heard from every direction. The sound of the shotgun to my right and the thud of a bloodied zombie grabbed my attention. "Help the others escape," said Wells Jr., "I'll see you when I see you" he said running off into the fray.

I ran towards the dormitories to help the evacuation process. I ran through the halls and found no one was still remaining. "You there, where are you going?" a strange voice talked from the other end of the hall. "I'm trying to find the evacuation party," I said. "They've gathered at the northern gate of the compound and are starting to flood out the back entrance; best make your way there" said the stranger.

I started running towards the northern gate when I heard the shouts and screams of zombies coming closer and closer. They were advancing. I ran over the barriers that were set up to protect the interior layer of the compound from the mindless shuffling gait of the slower zombies. I spotted ahead of me the remaining survivors fleeing out of the northern gate, being rushed by a small group of soldiers (roughly 20 or so soldiers for the 200 survivors that were fleeing).

I looked back and stopped in my tracks. Large zombified moose and bears were battering the barrier with their rotting faces and claws and pushing them aside. Behind them lay hundreds of zombies. Some were missing arms, others missing legs, but still they shuffled onwards towards the innocent flesh they desired.

It seemed the minefield that had separated the southern, western and eastern edges of the compound had done little to slow down all manner of undead beasts or undead humans. No true zombies could be this coordinated. How could hundreds of them gather after such a short amount of time in such coordinated attack formation?

It was clear. This final attack on one of the last remaining human strongholds was divine. I knew now that Wells Jr. had been killed trying to keep the survivors alive. I knew now that over 100 men had stayed behind to save the rest of us from extinction. That was why he had come looking for me, wasn't it? Because of my skills as a pharmacist; because he believed I could save them from starvation.

I owed him a debt. I know I did. I looked at the gateway and saw that the people were moving too slowly. I looked to my left and saw the armory. It was the only way. I ran to the armory and looked for the explosives to place near the barriers to give the survivors some time to flee.

My heart sank as I opened the doors to the armory. There were very few supplies remaining, most of it having been used to fend off the initial assault. The larger explosives however remained as they were too heavy to carry. There was no way I could move these to the barrier in time - and no way could I do it by myself!

All I saw around me was a forgotten emergency responsiveness kit and a half empty gas canister. I let out a sigh as I realized what had to be done. I grabbed the gas canister and started to spill its precious liquid on the ground near the explosives. I undid the clasp of the emergency responsiveness kit and found the flare gun. I loaded it with its bullets, ran to the door, and fired a shot into the zombie hordes.

As the last barrier collapsed and the moose and bears moved aside to let their undead human counterparts pass, they looked directly at me. I fired another shot, and then another, and another until I only had one flare left. The zombies turned their approach away from the gate towards me. I ran back into the armory and waited.

While I waited for the zombies to encircle the armory I thought again of what the world had become. It gave me solace to think that my final act in this world was to give others a chance to live longer, even if their fate was still the same. After all, what do we do as pharmacists do if not put the interest of others above our own? We help them with their health so that we may delay the inevitable death that will eventually consume us all.

I guess in the end I was still a pharmacist, even though what I was doing was not what a pharmacist would typically do.

The sounds of the zombies became unbearable and they started to filter into the armory. I took one last look at the last few people who were rushing out the gate and smiled. I fired my last flare into the explosives laced with gas, and knew that even If we as a race would lose, at least I had won today.

Darkness consumed me, with a trickle of light at the end.

Spring's Deceit

By NATHAN WONG, 1T6 Monograph Rep

The winter's cold grip loosens,

Spring's sun pierces through the cold,

The foolish shrug their heads down and shy away from the wind,

Cursing the false light and their light jackets.

The morning mist steams from their breath,

Gloved hands shoved deep in pockets,

They shuffle on, wondering why anyone would chose to live here,

Then resign themselves to habit.

Another day of class to listen,

Another shift at work; mundane,

We live our lives toiling through whatever hardship await us,

In hopes of something better.

When will it end?

Where is the light?

We steel ourselves at our desks, poring over notes,

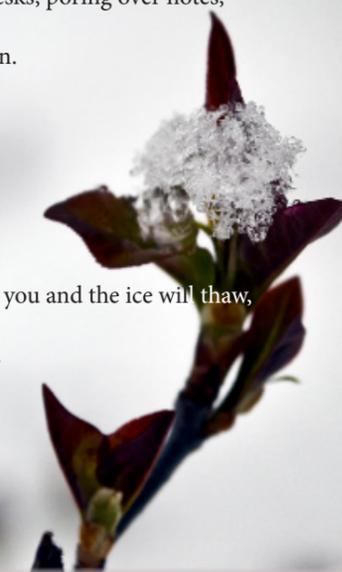
And pray something goes in.

Fear not weary student,

There is hope in sight,

The final stretch lies before you and the ice will thaw,

Summer's reprieve cometh.



Granola Bar Recipe



By MELISSA LAM, 1T5

Ingredients

- 2 1/2 cups (230 g) old-fashioned rolled oats
- 1/2 cup natural sliced almonds (substitute with pecan/walnut or mixture)
- 1/3 cup honey
- 1/4 cup (56 g) butter, cut into pieces
- 1/4 cup packed light brown sugar
- 1/2 teaspoon vanilla extract
- 1/4 teaspoon salt
- 1/2 cup raisins (substitute with dried cranberries/blueberries)
- 1/4 cup mini chocolate chips (may substitute with more raisins/almonds etc.)

Directions

1. Prepare oven and pan. Heat oven to 350°F (177°C). Line an 8-inch or 9-inch square pan with aluminum foil. Lightly oil the pan or spray with cooking spray.
2. Toast oats and nuts. Add oats and almonds to a small baking sheet and bake for 5 minutes. Then, stir and bake for another 3-5 minutes until lightly toasted. Transfer to a large bowl.
3. Prepare granola bars. Combine butter, honey, brown sugar, vanilla extract, and salt in a small saucepan over low to medium heat. Stir occasionally until butter and sugar dissolve completely.

Pour butter mixture into the bowl with toasted oats and almonds, and mix well. Allow the mixture to cool for about 5 minutes, then add raisins and chocolate chips. Stir to combine. (Chocolate chips may melt, but this will help to hold the bars together. Adding them too early will melt them completely and result in chocolate-flavoured bars).

Transfer and use a rubber/wooden spatula to press the oat mixture into the pan. Press hard for at least 1-2 minutes to ensure that the bars will stay together. Cover and refrigerate for at least 1.5 to 2 hours.

After refrigerating, remove the block of granola mixture from the pan and peel away the aluminum foil. Cut into bars. You can store the granola bars in an airtight container for up to one week.

For softer granola bars, keep at room temperature. For slightly harder bars, store in the fridge.



By GINYOUNG LEE, 1T7



By SARAH CARR, 1T6

If There is One Thing My First Year in Pharmacy

Has Taught Me, It's...

By the 1T7s, as compiled by SANDRA WOOD

Passing everything is not easy

Remember everything that you read/hear/watch. Everything.

Collaboration and networking is the most essential skill.

The different dosing sizes.... of Tim Horton's coffee.

It's to stay positive and keep moving, while holding on.

Friends are forever.

I've spent just as much money on coffee as I have on tuition.

To be confident in my abilities and have some faith in myself. You can't rely on other people for everything.

It's that the community is small, so don't make enemies.

Marks don't reflect my learning anymore...

Life is pointless if you only come here to get good grades.

I need to work out more to open the doors of PB.

To not fall down any T-tubules. Thanks, Dr. Ballyk!

More acid when pH is low.

"I am very sorry to hear that" and "I hope that we can work together to make you feel better." #mtm.

Dose response curves are directly applicable to everyday life.

Lower your expectations.

To respect deadlines by planning ahead and being organized.

Success, and happiness doesn't revolve around school.

To never doubt yourself and compare yourself to others. You're smarter and more capable than you think!

I'm not as smart as I thought I was and have so much more to learn.

Reflection is an integral feature of making sense of our lived experience. It allows us evaluate our realities and provides the foundation to promote self-improvement. I thought it would be interesting to engage in this process of reflection with my fellow classmates. I posed the open-ended statement: "If there is one thing my first year in Pharmacy has taught me, it's..."

Among the comical comments, which I did enjoy reading, the responses that resonated with me the most were the ones that recognized our capabilities within the program but also admitted that, as students, we still have much learning and growing to do. It is important to acknowledge that during this process of growth we are subjected to fluctuations in our attitudes and perceptions. For me, my growth took the form of adaptation. I was not used to waking up ridiculously early.

I was not used to making my life revolve around the GO bus or train schedule. I was not used to a 90-minute commute. And these are just factors of getting my physical self to school! Challenges also faced me academically. My final year of undergrad consisted of mainly sociology courses that basically

only required 12 hours of lectures a week. So you can imagine my state of mind after the first week. There were definitely times when I felt overwhelmed and even moments when I was discouraged and disappointed with some of my academic outcomes. I recall vocalizing my distress to an upper-year friend. His response was simple, "it shows that you care".

The fact I was dissatisfied with myself demonstrated that I knew I could do better and this program was important to me. I had to adjust. Late-night studying didn't work for me anymore secondary to the 5:45am wake-up calls. I had to be more organized and start assignments and studying earlier than I would usually do. I had to stop using the fact that I did not come from a pharmaceutical chemistry program (or anything remotely close to that area of subject matter) as a "crutch" for not understanding something. I had to re-assert myself that I am capable of comprehending concepts that seemed so abstract to me. I had to adapt.

Learning to adapt and believing in myself... That, my friends, is what my first year in Pharmacy has taught me.

Hope, Strength, Humanity



At Lundbeck, our approach to innovation is shaped by our Danish origins, a centuries-old tradition of respecting every individual and taking care of one another in times of need. It's part of our culture, and it's something we know Canadians take to heart.

This focus on the individual has already helped us become specialists in CNS disorders, changing the lives of people all over Canada. And now we're applying that same passion and drive to oncology. Creating partnerships, working with healthcare professionals and putting patients first will always be an important part of everything that we do, and we will continue to lead the way as we branch out into oncology.

At Lundbeck, caring is our culture.

