PHARMACY PHILE

University of Waterloo Society of Pharmacy Students
ISSUE 34 | May 2012

IN THIS ISSUE

PRESIDENT AND VICE-PRESIDENT'S MESSAGE

IT'S SUMMER TIME!!

Whether it's studying in your backyard on a lawn chair, or soaking in the sun on a beach, we hope you are all finding time to get out and enjoy this warm weather.

The month of May was a special one for us: SOPhS held its very first Annual General Meeting. This meeting provided a forum for our council members to showcase the numerous activities and events they were a part of planning as part of SOPhS over the past year. The tremendous effort these students contributed to improve our student life here at Waterloo was very evident. We hope the UW pharmacy student body was inspired and was also able to get a feel for what and how they can get involved with our school.

This brings us to the 2012 SOPhS Elections! We'd like to say a BIG thank you all the students who took the time to run in this year's elections; all the videos, posters, and campaign efforts were impressive - it's apparent that Waterloo has some of the best and the brightest within our beautiful (flower-covered) building. Thank you also to all the students who took the time to vote on and off campus.

Congratulations to our new SOPhS 2012-2013 Council - we're looking forward to working with you!

Lastly, we would like to wish all the best to our outgoing 4th year council members this term: Aman, Jill, Stacey, Jenny, and Deepti - you are all incredible leaders! Thank you for all your contributions to our school; you have definitely paved the way for us all.

UW Pharmacy has a jammed packed summer of activities ahead, so make sure to read the newsletters and SOPhS updates to stay connected and get the lowdown on what's going on in and around campus this term.

Hopefully we'll see some of you around at school or at the OPA Conference in June!

Keep smiling,

Saleema and Danielle

SOPhS
SOCIETY OF PHARMACY STUDENTS

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SOPhS Communications

I'm sure many of you may have noticed something a bit different about this month's Newsletter…special thanks to Vicky Sun (Rx2013) for helping the Communications Committee in creating a warmer and more UW-inspired design layout for the monthly PharmPhile! As always, we encourage any feedback related to SOPhS Communications.

Many upper years can recognize the incredible transformation of the newsletter over the last two years and the expansions that SOPhS Communications has made in striving to improve the quality of information dissemination to students. I would like to personally thank and congratulate **Dave Hughes**, our outgoing Senior Communications Director, for doing a remarkable job in taking the initiative and dedicating himself to addressing the many Communications needs and concerns of yesteryear. I know that both Trina and I can only hope to continue what Dave has started...and fortunately for us, he will continue on as an active member of our committee and in the final steps of the SOPhS website overhaul!

Jaskiran Otal, Rx2014

PHARMACY CAREER FAIR

Written by: Stacey D'Angelo, Rx2012

As Rx2012 prepares for graduation, many students are in the midst of searching for internships and, inevitably, placements in their chosen field in pharmacy. The Career Fair was held as a means for students to meet with employers to see what they are looking for in potential candidates and to network with others in the field of pharmacy. Being the first year that Pharmacy hosted a large scale recruitment event, we were unsure what the turnout would be, from both employers and students. I'm happy to say the event was a great success!

In advance of the event, students from Rx2012 were prepared to make the most of their experience. Katie Schafer from the Centre for Career Action was invited to present in their seminars class on how to make the most of a recruitment event such as this, and to give tips for their job search. Guidebooks were also created and distributed, containing information provided from employers who would be attending the event.

The career fair was held at The Tannery on Wednesday March 28th from 5-8pm. We had 19 employers in attendance from all different practice settings and from locations across the country. Attendees included: rxBriefCase, Pharmasave Ontario, Shoppers Drug Mart/MediSystem, London Health Sciences Centre, Agro Health Associates Inc., Remedy Drug Store Company Inc., Canadian Forces, Lovell Drugs, Rexall, Winnipeg Regional Health Authority, Drug Trading Company Ltd., Pharmacists Without Borders (PSF) – Canada, Trillium Health Centre, Hoffman-La Roche Ltd., Loblaw, Ontario Public Service, Kingston general Hospital, Costco, and PCCA. Dr. David Edwards and SOPhS president Saleema Bhaidani kicked off the evening by welcoming employers and students.

Surveys were disseminated after the event to both Rx2012 and employers. Students weighed in on the event with both positive and constructive feedback to help improve the event in subsequent years. Here are some quotes from the student survey:

"I was impressed with the variety of employers present. Very well organized and professionally run."

"I gained a lot of insight into how to become an associate or an owner of some of the pharmacy stores that came here."

"I do have a job, but it was great to see other options out there for the future!"

"I liked the guidebooks - helpful in deciding which booths to attend."

As for the employer survey, we got the impression that they were impressed with our students! Here are a few stats:

- 100% of respondents rated quality of students who visited booth as "excellent" or "above average"
- When asked if they would be interviewing students as a result of the fair: ~45% said "Yes", ~33% said "Maybe", ~22% said "Unsure at this time". None of the respondents answered that they would not be interviewing students.
- When asked how they would rate the overall experience at the career fair, 45% of respondents answered "excellent" and 55% answered "good"

I want to take this opportunity to thank those involved with the planning of the event: Lorna Kelly, Anson Tang, Carol-Ann Olheiser, Nicole Seymour, Marisa Ramandt, Riam Jamil, Lucy Feng, Danielle Paes, Saleema Bhaidani, and Kim Adamczyk. I hope the event grows each year, and continues to help students and employers fill job positions!

Pharmacy Phair 2012!

On April 3, 2012, for the first time ever, SOPhS held its very own Pharmacy Phair right outside of our school! Social Reps Aman Hansra (Rx2012) and Jackie Diebold (Rx2014) pulled off a fantastic afternoon full of ridiculously fun inflatable games, coupled with carnival classics like cotton candy and popcorn! The following are just a few of the photos taken that day; we hope to have a full album up on the SOPhS website photo gallery soon!

RUN FOR THE CURE 2012

The **Canadian Breast Cancer Foundation CIBC Run for the Cure** is Canada's largest single day, volunteer-led fundraising event dedicated to raising funds for breast cancer. Last year, Canadians united to raise over $30 million in the 2011 Canadian Breast Cancer Foundation CIBC Run for the Cure. The fundraising efforts and volunteer support of over 170,000 annual participants allows the Foundation to continue funding groundbreaking research, education, awareness and advocacy initiatives.

For the past few years, UW School of Pharmacy has been a part of this initiative. Last year, CAPSI National Council embraced the initiative, and a fundraising competition between pharmacy schools across Canada was born. In the first year of competition, University of Waterloo came out on top raising $6800! Collaboratively, pharmacy schools raised $25,000 dollars for the Canadian Breast Cancer Foundation.

This year, UW pharmacy is participating in the run **on Sunday September 30th at Bingeman's Park in Kitchener**. Our school goal this year is $7500.Throughout the summer term, watch for these Run for the Cure fundraising events:

- **Welcome Back Pot Luck**
- **May long weekend bottle drive**
- **Bobby's Summer Beach Party - June 23rd.** This is a relaxing summer event with volleyball tournament at Bobby Obrien's Pub. Lots of prizes to be won! Watch out for tickets and team registration in the coming weeks!
- **Car Wash** in July
- **50/50 Draws**

If you know you will be in the area this fall for Co-op, or you are in school term (Rx 2014), and you would like to participate in the run, register now!

1) Go to www.runforthecure.com.
2) Click on locations, and select Kitchener-Waterloo.
3) Click on "I want to join or re-start a team".
4) Our team name is "UW School of Pharmacy".
5) You have 2 registration options: 1) Pay the $40 registration fee, or 2) Fundraise $150 and have the registration fee waived.

Everyone knows someone who has been affected by breast cancer. Join UW pharmacy's initiative to fight back. If you would like to help out with any of these events, contact any UW CAPSI council member or Run for the Cure committee member. If you would like to share your story on what motivates you participate in Canadian Breast Cancer Foundation CIBC Run for the Cure, email your story to waterloosr@capsi.ca. We will be showcasing these stories in future Pharm Philes to raise awareness of breast cancer and the Run for the Cure here at UW.

- Sarah Johnson, Jr CAPSI Rep.

TRILLIUM HEALTH CENRE STAYS AFLOAT AMIDST A NATIONAL DRUG SHORTAGE

Written by: Lilly Yonadam, Rx2014

A national drug shortage continues to put Canadian patients at risk. The absence of government regulation and involvement has permitted an imbalance in drug supply and demand. The issue was recently raised in the House of Commons by the New Democrat Party in a motion that would require drug companies to report drug shortages and/or supply disruptions to Health Canada[1]. Manufacturer monopolies together with the absence of any meaningful reporting of production delays, have contributed to an unprecedented drug shortage. This drug shortage has left primary care facilities to scramble for alternatives. Some hospitals have even had to cancel or reschedule elective surgeries as a result[1,2]. Most hospitals have felt the strain of this pan-Canadian drug shortage including, Trillium Health Centre ("Trillium").

Trillium is a community hospital located in Mississauga, Ontario that serves a population of over one million residents in the Peel and West Toronto area[3]. Trillium is one of Canada's largest academic hospitals with specialized services in cardiac surgery, cancer treatment, sexual assault and domestic violence, palliative care and geriatric care[3]. I have had the pleasure of completing my first and second co-op terms at Trillium. When I returned to the hospital in May 2012, it was apparent that the workload for the pharmacy staff had significantly increased. The reason for the dramatic change is that Trillium, as with most hospitals, relies primarily on Sandoz Canada ("Sandoz"), the sole supplier of 90% of generic injectables for Canadian hospitals, to supply generic medications, particularly injectables. These include narcotics, antibiotics, anesthetics, cancer and cardiac medications necessary for the provision of patient centered care[2].

In mid-February 2012, Sandoz announced that it would be slowing down its production following the implementation of more stringent FDA regulations[4]. These regulations were enacted following the contamination of heparin products that resulted in patient deaths in 2008[4]. Consequently, Sandoz cut back on production in an effort to upgrade operations[4]. To further delay the process, on March 4th 2012, the broiler room in the Sandoz's Boucherville plant was severely damaged by a fire[5]. The culmination of these events resulted in an alarming reduction of production of various pharmaceuticals.

During the course of the Sandoz crisis, the pharmacy staff at Trillium implemented an effective inventory management strategy to ensure the preservation of patient care and safety.

The following steps were performed by Trillium to help mitigate the current drug shortage:

- Storeroom purchasers recognized that Sandoz started supplying fewer medications than the hospital was ordering before the shortage was announced. As a result, they started to stock and conserve their supply for over 10 months now;
- Staff began to record their supply stock. They continue to monitor their stock list and perform "counts" every Thursday to keep their inventory up-to-date;
- Purchasing staff, operation manager, medication management pharmacist and director meet every weekday to discuss possible products that could go on backorder;
- A minimum supply of 5 weeks for all medications and a short list is created for medications that cannot meet this criterion;
- For medications on this short list, they source alternatives from different manufacturers. When a suitable equivalent cannot be found, the pharmacy staff order medications in different dosage strengths. At times, staff must reconstitute these products to doses commonly used by the hospital;
- When a substitution is implemented, all health care providers in the hospital are notified of this change. Stickers are placed on all substitutions indicating a change in dosage strength. These stickers are meant to draw the attention of nurses who administer the medication, in an effort to prevent a medication error;

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Fresh from the Pharm

A Culinary Blog by Chelsea Barr, Rx2013

There might not be anything better in the world than wandering through the aisle's at the St. Jacob's Farmers Market in the summer. Something about the mass amounts of people (many of which are "city folk" who have made the trek from the GTA), combined with the Portuguese man yelling at you about how wonderful his strudel is and how his kids never call him any more, the ridiculously long apple fritter line that you are willing to waste 45 minutes in just for a deliciously unhealthy fried apple pastry, and the rows upon rows of fresh fruits and vegetables makes me feel the need to visit at least once every few weeks (even if it means sacrificing valuable study time!). This recipe takes advantage of the all the wonderful vegetables (and fruits, if you consider tomatoes to be them) that I love so much!

Fresh Summer Bruschetta

4-6 ripe tomatoes
1/4 cup chopped red onion
1 clove garlic, peeled and chopped
2 tablespoons olive oil
1/4 teaspoon salt
1/4 teaspoon pepper
2 tablespoons minced fresh basil
1 french baguette
Optional: Fresh crumbled goat cheese

1.Dice the tomatoes into small pieces. Place into bowl.

2.Rinse the chopped red onion in water to remove any harsh or strong flavours. Place into bowl.

3.Combine garlic, olive oil, salt, pepper and basil to the bowl. Let flavours marinade together in the bowl for at least 30 minutes (up to overnight).

4.When ready to serve, cut french baguette on diagonal and top with bruschetta mixture. If using goat cheese, top each slice with a small amount.

5.Enjoy!

This meal is most definitely best enjoyed with a glass (or two....) of wine and some friends!

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- In the event of an emergency, Trillium carries a pandemic supply of medications at all times to help mitigate the strain and consequences of a possible long-term drug shortage. At this stage, they have not needed to use of this supply;
- Trillium also has a contract with Health Pro, which guarantees the provision of any medication on backorder in the event of an emergency. Fortunately, there has been no need to rely on this contract as Trillium has effectively managed their current supply

Currently, Trillium is no longer re-ordering additional stock unless there is a clinical reason to do so. They have such an impressive reserve of medications that they have begun supplying neighbouring hospitals and community pharmacies, particularly those with a 5-day or 14-day shortage list. There has been minimal clinical adjustment to patient care, where the majority of changes were simple dosage form conversions from parenteral to oral route. No elective surgeries have been cancelled or rescheduled to-date.

Despite Trillium's tremendous efforts to conserve patient care, there is only a limited time until it becomes increasing difficult for the hospital to continue to supply essential medications for their patients. Thus, the need for a political intervention is necessary to prevent the drug shortage from worsening or reoccurring. The call for political involvement stems from the root cause of the current drug shortage, a halt in production and a lack of timely reporting by Sandoz Canada. Both the Canadian Pharmacist Association and the Canadian Medical Association suggest a national reporting system, which requires pharmaceutical manufacturers to report a potential shortage or delay in production[6]. Additionally, it has been suggested that consequences are implemented when a manufacturer fails to report a drug shortage[6]. Currently, there are no existing federal regulations, which mandate manufacturers to report low supply of products, and only a voluntary reporting process exists[4,6]. The impact that one manufacturer has over a country's drug supply demonstrates the fragility of the healthcare system, and the dangers in a drug manufacturing monopoly. Monopoly should only be played with a pair of dice, houses, hotels, paper money and metal tokens such as a thimble or iron; not with the drug supply for an entire country.

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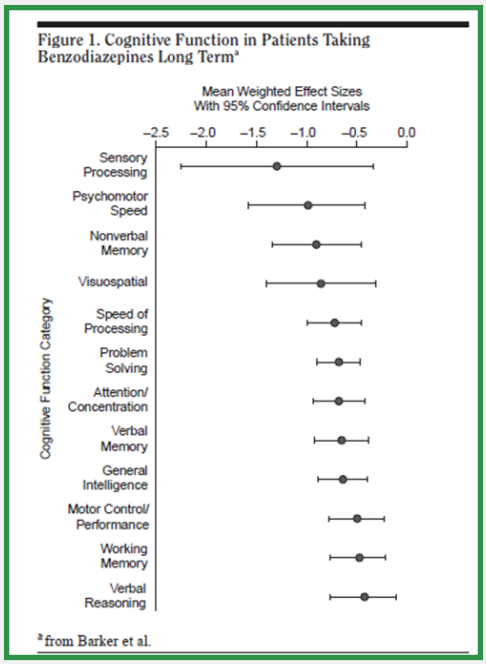
LONG TERM BENZODIAZEPINE USE AND COGNITION

Written by: Alam Hallan, Rx2013

Over the last few placements I have seen many patients use benzodiazepines for anxiety and an equal number of healthcare professionals who question the long term usage. The biggest concern is the effect on cognition. After having a few conversations with some patients regarding these side effects I have come to the conclusion that many are not aware of this effect. The second conclusion I reached was that I am not really sure about the relationship between long term usage of benzos and impaired cognition. So I decided to do some research.

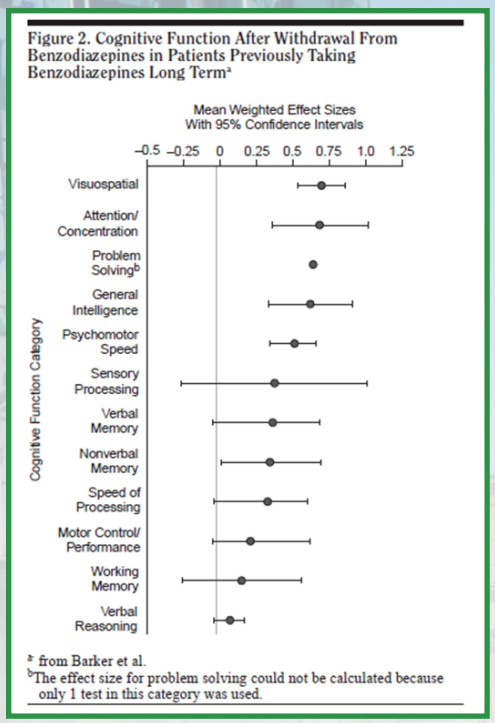
Benzodiazepines became widely available in the 1960s and their prescribing increased over next 4 decades. Their rapid onset with low toxicity makes them an agent of choice and offer symptomatic relief for many distressing conditions. Common side effects include sedation and ataxia, which are usually not sustained. Even though these agents are highly efficacious, historically they have been under prescribed due to various reasons. In the 1980s anxiety was not viewed as a biological illness which, along with the perception that people seeking treatment for their anxiety are drug seekers, explained this underutilization. These views changed quite significantly in the 1990s when evidence showed that people receiving treatment are genuinely ill with high level of psychic distress and meet the criteria for anxiety disorders. Severe anxiety was also linked with a higher rate of suicide which also contributed to this change in attitude.



As the utilization of benzos increased so did the concerns about the chronic use and potential abuse. Even though studies have shown that abuse is rare in people who have no pre-existing chemical dependency, the concerns about abuse are still highly prevalent. The New York State triplicate program was introduced in 1989. The implementation saw a large decrease in benzodiazepine prescriptions but followed by a large increase in prescriptions for older, less safe agents. An analysis later showed that the program resulted in fewer total benzodiazepines overdoses and a significant increase in nonbenzo sedative-hypnotic overdoses (strikingly similar to the oxycodone story that is unravelling in the province). By 1999, experts were recommending the long term use of benzodiazepines for anxiety disorders.

Coming back to the effect on cognition, I came across two meta-analysis published in 2004 that looked to answer this very question. The rest of the article would be a brief summary of these analyses. Before I start I would like to mention that these analyses had quite a few limitations, particularly the small number and sample size of the studies, heterogeneity of psychiatric diagnosis, inconsistency between the last dose of medication and cognitive functioning assessments. The first analysis determined if the long term use results in cognitive decline while the second one looked at if this decline was reversible after the withdrawal. The analyses included 13 studies with a mean duration of use being 9.9 years (1-34 years) and an average dose equivalent to 17.2mg/day of diazepam. Cognitive function measurements were divided into 12 domains (see figures).

The results showed that cognitive decline in all 12 measurements (see figure 1). The authors advised using caution while interpreting these results due to the limitations of the analysis. Once they established that the long term use does result in cognitive decline, they looked at the nature of this decline, specifically if it is reversible. Looking at the same set of studies, the data suggested an improvement in all areas of cognitive function after withdrawal although the improvement never rose to the level of non-benzo using controls. The main limitations of the analysis was the length of post withdrawal assessment (average was 3 months) as some cognitive



effects may take longer to improve. Of note, these cognitive changes were not associated with any abnormalities in the brain although transient changes in the brain following administration were observed in neuroimaging studies.

So how does this help us provide better care for our patients? I think even though it is necessary to inform the patients of the potential for cognitive decline with long term usage one needs to assess this side effect in light of other factors. In many cases the clinical impact of these cognitive changes is insignificant since what the trials actually measured did not reflect the actual cognition needed for daily living. If the patient is anxiety free and able to function well and manage routine daily tasks maybe we should not ask them to switch to other agents (SSRIs have not been shown to be more efficacious than benzos for anxiety). Also the average dose in the meta-analysis is considered high and most patients can be symptom free on a much smaller dose. A better approach would be to start on the lowest possible dose and ask the patient and/or family members to monitor for cognitive changes, since these changes are reversible for some degree. A switch to other agents can be considered if these changes are observed.

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CSHP COMES TO WATERLOO

Written by: Niki Bajic, Rx2014

In its short existence, the UW School of Pharmacy has already established itself as a campus that is enthusiastic and eager to change the scope of pharmacy practice. From our unique experiences on our co-op rotations, to our involvement on the national spectrum, Waterloo students are paving the way in which the profession is headed. I am excited to introduce the newest such initiative on our campus, the Canadian Society of Hospital Pharmacists (CSHP) student council. Such a council, spearheaded by Leonard Chan, the CSHP representative on SOPhS, is the first of its kind in Canadian pharmacy education. Along with Leonard, CSHP committee representatives have been selected for Membership (Shekhar Mehta), Education (Karishma Kak), Awards (Evan Steed) and Communications (myself, Niki Bajic). We are going to be working together with our respective CSHP committee representatives to keep Waterloo students informed on issues in hospital pharmacy practice, and to provide resources which will enable opportunities in hospital pharmacy experience.

The advent of a CSHP student council on our campus is important for several reasons. Firstly, given the distinct culture of hospital pharmacy, a representative council can focus uniquely on the issues specific to hospital pharmacy. An example of this is through the promotion of CSHP 2015, an initiative similar to the Blueprint for Pharmacy, whose mandate is to improve patients' medication-related outcomes by advancing pharmacy practice excellence. In addition, given the competitive nature of hospital pharmacy, our council is in the position to provide information specific to students interested in pursuing a career in hospital pharmacy. In the coming months, students can expect the chance to meet practicing hospital pharmacists, talk to current pharmacy residents, and have the chance to apply for awards which will recognize their enthusiasm and give them an advantage when it comes to applying for residency positions post-graduation.

The creation of the CSHP student council on campus gives a chance for UW students to get involved in CSHP in a way that no other pharmacy students can, and those of us on council are extremely excited to be pioneering this initiative. For those interested in getting involved, become a CSHP member by applying online at: http://www.cshp.ca/membership/IndivMem_e.asp. In addition, students can look for current ways to get involved with CSHP by looking at the Students' Corner portion of their website: http://www.cshp.ca/students/index_e.asp. Stay tuned for more updates!

Canadian Society of Hospital Pharmacists
Société canadienne des pharmaciens d'hôpitaux

Journal Club Summary

Noreen Jamal, Rx2014
Mustafa Kurdi, Rx2014

The journal club held on March 28, 2012 looked at the paper by Omar M. Mahmood et al. titled *Learning and memory* performances *in adolescent users of alcohol and marijuana: interactive effects*. A summary of the paper and its critical appraisal follows:

Justification for the Study

- Previous findings from other studies have found an interaction between marijuana consumption and brain activity (memory and learning) as well as alcohol consumption and brain activity.
- The vulnerability of the developing adolescent brain to alcohol and marijuana and the increase of substance use between the ages of 12 and 17 has been shown to affect brain function
- *Hypothesis:* Adolescents with more lifetime hangover and alcohol withdrawal symptoms would demonstrate poorer verbal and visual memory measures; Marijuana use would moderate the negative effects (withdrawal) of alcohol.

Methods

- Participants were recruited via flyers in schools the San Diego area
- Exclusion criteria: prenatal alcohol/drug exposure, complications of birth, traumatic brain injury, neurologic conditions, serious medical illness, learning disorder, left-handedness, major psychiatric disorder, >810 lifetime drinking occasions, other drug history, not abstinent during study
- Interviews were conducted to collect demographic information, assess psychological functioning, establish alcohol and drug use history (via *The Customary Drinking and Drug Use Record)*
- 130 adolescents aged 15.7 to 19.1 years were split into a marijuana use group (n=65) and a non-marijuana use group (n=65) based on their lifetime marijuana use; They were matched for demographic variables
- The California Verbal Learning Test (CVLT) Trials 1-5 was conducted to measure overall verbal learning and the CVLT Long-Delay Free Recall was conducted to measure delayed verbal memory
- The Rey-Osterrieth Complex (ROCF) Copy was conducted to measure visual memory, and the ROCF Copy under a 30 minute delay was conducted to measure delayed visual memory

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MY PHARMACY PATIENT

On April 5, 2012, the UW School of Pharmacy held its first Business Awards Ceremony. The Scotiabank Pharmacy Entrepreneurship Competition had students creating blueprints for new business start-ups; MyPharmacyPatient was the winning venture, and Peter Pagacz received the grant prize, valued at $15,000.

MyPharmacyPatient is an innovative educational company which provides pharmacy students, access to interactive, accessible, and easy-to-use virtual patient cases. The virtual patient cases allow pharmacy students to practice and improve their clinical skills, in a safe environment.

Nick Malian (NM): How did you come up with this idea?

Peter Pagacz (PP): The idea of developing Virtual Patients (VPs) arose when I spent a coop term working with Lisa Craig reviewing the literature behind Virtual Patients as well as developing a prototype VP.

NM: What are Virtual Patients?

PP: Virtual Patients are interactive computer simulations that model real patient interactions, and require clinical assessment, evaluation and a care plan. Virtual Patients have been around for a while, and they are currently a part of the U.S. medical licensing exam, but are not being utilized in pharmacy education.

NM: Why are Virtual Patients important

PP: Literature shows that 1. VPS help students develop their clinical skills, 2. VPs are an interactive and affordable teaching tool, and 3. Students enjoy interacting with Virtual Patients.

NM: What led you to pursue the development of virtual patients as a business idea?

PP: I remember in second year of pharmacy school we didn't have much exposure to standardized patients in the professional practice lab. At that point I really wanted to develop my clinical skills, and I thought that virtual patients would be a great tool for learning how to work-up a patient.

Also, at one point during my co-op term, I sat beside and watched how first year students interacted with virtual patients in the Professional Practice Lab and later filled out a survey. The clear consensus from the students was "yes, we like working through VP cases" and "yes, we want more". This experience drove home the point that it was not only me that liked the tool.

NM: How do MyPharmacyPatient's VPs compare to those currently used in lab?

PP: One of the strengths of MyPharmacyPatient's VPs is that they use the newest in e-learning technology. Whereas traditional e-learning provided a linear experience for its users, MyPharmacyPatient's VPs are responsive to the student user and they allow for branched pathway travel through the cases. This means that 2 different users can interact with one VP case, and have completely different learning experiences. MyPharmacyPatient's VPs also have more advanced learning interactions like drag and drop, matching interactions, and now are fully functional on the iPad.

NM: What happens when a student choses an incorrect pathway?

PP: The Virtual Patients provide direct feedback to student users, based on their decisions, which means that students are informed why their therapeutic decision may not be optimal.

NM: What is the future for MyPharmacyPatient?

PP: Right now MyPharmacyPatient is looking for clinical pharmacists to author the virtual patient cases, in a variety of different disease states. Hopefully, if things go well, MyPharmacyPatient's VPs will be used in pharmacy education across Canada.

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- Stepwise regression was used to determine the interactive effects of alcohol and marijuana on verbal learning and memory and visual learning and memory

Outcomes

- Marijuana vs. non-marijuana users: There was no difference in scoring for verbal learning, verbal memory and visual memory. Marijuana users scored better on visual learning tests.
- Alcohol vs. non-alcohol users: There was no difference in any of the learning or memory tests.
- When the interactive effects between marijuana-use and alcohol-use were considered, it was found that **marijuana use** modulated **any inhibitory effects of alcohol on verbal learning and memory.**

Pros

- The marijuana and non-marijuana groups were matched for demographics and in-depth exclusion criteria potentially reduced confounding effects of variables
- There was no statistical significance between intelligence, socioeconomic factors and mood factors allowing substance use to be the dominating variables

Cons

- Alcohol-use was measured by "lifetime hangover and alcohol withdrawal symptoms". This may be a flawed indicator of alcohol-use since some individuals may have higher tolerance and exhibit less hangover and withdrawal.
- The recruiting methods via flyers in schools was questionable. This required disclosure of the student and volunteering to participate in the study. The format also required involvement of parents in the study. This suggests that only well-supported and secure individuals were included in the study. The data may not have external validity since much of the substance-using population may not fit this profile.
- Alcohol-use was statistically higher in marijuana-users which suggests this may have a contributing effect.
- Much of the data was collected via interviewing, suggesting recall bias may underestimate or overestimate factors such as lifetime alcohol use.

Reference: Mahmood, OM, Jacobus, J, Bava, S, Scarlett, A and Tapert, SF. Learning and memory performances in adolescent users of alcohol and marijuana: interactive effects. J Stud Alcohol Drugs. 2010 November; 71(6): 885-894.

PHARMACY ABROAD – MAJ-BRITT ELMVIK

Interviewed by: Chelsea Barr, Rx2013

Can you name the country, officially known as a Kingdom, where King Carl XVI Gustaf from the House of Bernadotte has a passion for Porsche 911's and is probably best known as the presenter of Nobel Prizes each year? If you're still not sure, it is the home of Ikea furniture, the setting for the book *The Girl with the Dragon Tattoo* and proudly exports tons of Swedish meatballs every year.

This is Sweden, a country that is well known for it's hockey stars (Canadian team favourites Mats Sundin and Daniel Alfredsson) and easy-to-assemble furniture more so than it's innovative pharmacy practice. However, I recently had the opportunity to learn about pharmacy practice in Sweden from Maj-Britt Elmvik, a pharmacist who spent 2 weeks in Ottawa learning about clinical pharmacy practice.

After hearing her speak at CPhA over an informal lunch, she graciously agreed to an interview with me so that I could share more about the practice of pharmacy in Sweden.

CB: Can you please describe what you do as a pharmacist in Sweden?

Mainly I work with Pharmaceutical care. Sometimes I give lectures to support the care.

To minimize the cost of the pharmaceutical care that we provide, we have an internet page where nurses assistants can fill in what medications, lab results, diagnosis, and any other symptoms a patient is experiencing. I do the analysis on-line and my pharmacy assistant will write it out and give it to the nurse. The nurse discusses the proposed changes with the doctor. The nurse also does the follow up and reports back to me. Most of my patients are those in special homes for old people.

I also track the progress of patients who received pharmaceutical care, including if their conditions have become better or worse, and have presented the report to politicians, nursing staff and doctors.

When I have time, I present lectures to health professions, such as nurses. At our office, nurses who want to take part in the lectures will tell us what they are interested in. We charge each participant 850 Swedish crowns (C$120) for a 3 hour lecture, with a minimum of 15 participants at each lecture.

I have just started to ask all 80 years old people, in the city of Uddevalla just 30 km away, if they would like to have their medications optimized. We have received funding from the local authority for the project. We did a pilot project last year, and it was successful. I analyze the situation by using the medication list and a symptom assessment. The patient gets a letter if I find important changes, and they are advised to book time with his/her doctor. The doctor gets my recommendations in advance. I plan to meet the patient after some time to follow up the results and write a report. I have to report to the local authorities.

Can you please describe what hospital pharmacists typically do?

Most hospitals have their own pharmacists today, and they work for a medical department. It differs a lot throughout the country what their duties are. Some work with pharmaceutical care and some with distribution. In my area of Sweden, the hospital

pharmacies dispense pre-made medication packages from the pharmaceutical factory to the wards. The nurses than dispense and administer the medications to the patient. About five years ago, the pharmacists in my area offered the region a total solution for patient doses from a computerized system, but they said no. I felt like the nurses didn´t like changing their way of working. I don't like it from a pharmaceutical view and not either as a taxpayer.

How many pharmacists would there be in a typical hospital?

In my area there are two hospitals that serve about 130 000 people. In each pharmacy there are 3-4 pharmacists employed.

Can you please describe what a community pharmacist would do?

There are two different categories of pharmacists. Most pharmacists work with independently filling prescriptions and have a three year education from university. Their job is similar to a pharmacy technician in Canada. Just a few have the longer exam after five years of university education and most of them have management positions or work with education.

How many pharmacists are in Sweden?

I haven't found any figure but I think there is about one thousand.

What types of challenges do pharmacists in Sweden currently face? Are you doing anything to try to solve these problems?

I am convinced that the pharmacist should be one in the team to optimize the use of medicines, I also think that a pharmacist must be able to fulfill this role for optimizing independently. I have tried to persuade colleges, authorities, politicians the last years. We are advancing a little bit, there is a new legislation that propose that pharmacists could be asked if there are DRPs among people over 65. I just also heard that our local authority has decided that doctors must take help from pharmacist. When this question was raised a few years ago, doctors said no. Anyhow, I have worked with doctors who think it is a good idea to cooperate. There is high costs for elderly people who could use the services of a pharmacist.

Do you like Ikea's Swedish meatballs?

Of course we eat a lot of meatballs in Sweden. It is fun to go to IKEA, something interesting to buy we find every time.

Comments or Questions?

Do you have feedback for us about the new newsletter layout? Interested in joining the Communications committee? Please email us at pharmsoc@uwaterloo.ca!

Articles to be included in subsequent newsletters are due on the 21st of every month; they can be sent to pharmsoc@uwaterloo.ca, or directly to your Communications Directors, Jaskiran Otal or Trina McFarlane.

Pharmacy Phile
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Upcoming Events:

OPA Conference 2012

Have you registered for the annual Ontario Pharmacists' Association Conference, taking place at the London Convention Centre from June 14-16th? Visit http://www.opatoday.com/ for more information! Just a reminder to those attending - let's make the UW presence known at Friday night's Olympic-themed social by wearing your Team Canada/red and white gear!

CAPSI's Run for the Cure Beach Volleyball Party!

Join us at Bobby O'Brien's Pub on June 23th for a repeat of last year's beach volleyball tournament! Tickets will be $5 for admission, or $10 if you're interested in playing volleyball (sign up in teams of 6). See Facebook and future SOPhS updates for more information!

1st Annual UW Pharmacy Professor Auction!

On Wednesday, June 20th, the Rx2012 Grad Committee is hosting the first ever Prof Auction at McCabe's Pub! See Facebook and future SOPhS Updates for info on the Professors and their excursions; all proceeds will go to the Rx2012 graduation!

Please check out the calendar on the next page, or check out the weekly SOPhS Updates for information about all of our events. If you have an event coming up that you would like to inform students about, please submit an article for a SOPhS Update to pharmsoc@uwaterloo.ca using the guidelines available on the SOPhS website.

Society of Pharmacy Students (SOPhS)
University of Waterloo School of Pharmacy

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SOPhS 6 WEEK CALENDAR

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Week 6	3	4	5	6	7	8	9
Week 7	10	11 Journal Club 12:30-1:30pm	12	13 Co-op Round 2 Postings Open	14 OPA Conference in London, ON	15 OPA Conference in London, ON Co-op Round 2 Postings Close	16 OPA Conference in London, ON
Week 8	17 Father's Day	18 CAN - Food Drive Competition (18th-22nd)	19	20 1st Annual UW Pharmacy Professor Auction	21	22	23 Run for the Cure Beach Volleyball Party, Bobby O'Brien's Pub, 4-10pm
Week 9	24	25 Journal Club 12:30-1:30pm	26	27 Co-op Round 2 Rankings Open	28	29 Co-op Round 2 Rankings Close	30
Week 10	July 1 Canada Day	2 Canada Day Holiday	3	4	5	6 CAN - Soup Kitchen	7
Week 11	8	9	10	11	12	13	14

SOPhS Calendar Notes

Please note that event dates may be subject to change. Contact SOPhS if you are unsure of an event date.

We are currently in the process of adding class calendars to the website and it is our hope that these calendars will provide you will all of the event and deadline information you need during each term.

If you would like to add an event to the SOPhS calendar please email Rusana at rusana.m@gmail.com