University of waterloo Society of Pharmacy students Issue 16

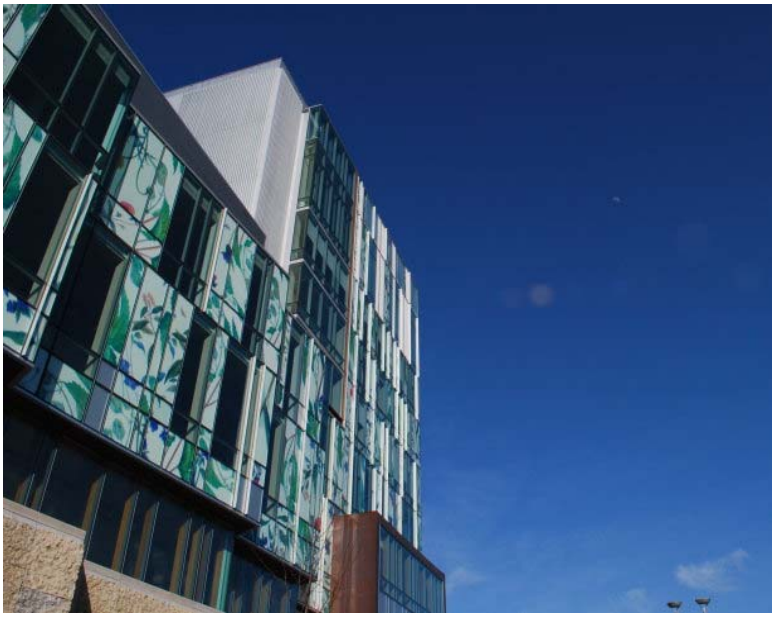
PHARMACY PHILE

a NEW beginning

The newsletter is finally out! I was literally hammered with technical difficulties every step of the way but it's out now and I hope you enjoy it.

We saw a lot of new things last term: the new class of 2013, a new Communication Director, new student counsel, new look for the pharmacy phile, new ping pong table, new TV, new basketball net. All of which were accompanied by new assignments, new exams, new interviews and many different changes. Oh yeah, there's also the new Ontario drug reform.

There were also many memorable events last semester such as phrosh week, where everyone had fun but one group got food poisoning (I'm sure they had fun too, maybe just not the poisoning part); Professional Development Week (PDW), where UW winning the compounding competition; hearts for Haiti campaign, where we raised over $2000 and made professors dressed as cupids; OPA cup, where over 100 student showed up to cheer our team on; and the End of Term event, where we finally get an excuse to draw on people's shirt. Don't worry, we will cover everything in this issue but first some housekeeping.



Picture taken by Calvin Poon (Rx2013) of the sweet blue sky after the exam

Here, I would like to reassure everyone that the Pharmacy Phile as well as the housing edition of pharmacy phile will be a monthly newsletter and the deadline for all submission will be the last Friday of the month.
We are always trying to make the Pharmacy phile better so if you have any comments or questions please don't hesitate to email me at pharmsoc@uwaterloo.ca.

Enjoy!

Boris Tong
Communication Director
Society Of Pharmacy Students
University of Waterloo

ISSUE 16

Message from the President

2010 Winter wrap up

The term started with familiar faces leading the incoming class through unique and entertaining orientation activities. Everyone came together to make each and every event an overall, great success despite a few hiccups - renting a barbeque from Chem Stores and realizing on the way there that Chem Stores is closed on weekends. Saurabh deserves a special thanks for organizing the entire event and keeping on top of everyone. Everyone who was a part of this also deserves a special thanks and there are just too many names to list. Phenomenal effort guys!

As the term unfolded there was a general sense that pharmacy school was a lot more manageable than first year. However, no one could really tell if there were less assignments or if everyone was just better adapted to the workload. I'm still not sure. All I know is that was probably the quickest four months of my life.

The course load became a lot more relevant to the field of pharmacy and although the work may have been tougher at times, students were less apt to complain since everyone knew this stuff is important. Personally, a part of me hopes I encounter an asthmatic, anaemic patient that has pneumonia like symptoms. If anyone needs a recommendation on iron therapy, its going to be 15 mg daily and if they ask why I'll just say “Professor Nagge said so.” Hahaha, just kidding.

The OPA Cup was run as if it was a Stanley Cup Final thanks in part to Stacey and the minions she put together to organize the event. UofT won the game, but in a shootout. I still think that shootouts are a random and irrelevant way to determine the winner of a hockey game. It's comparable to having players shoot as many pucks from center ice into a net to decide the game. And hey, if that happened Dr. Jamie Joseph would've sealed the win for UW! Even though UofT won the game on the ice, we definitely put on a show that will be tough to live up to next year. Our fans were also full of energy, taunting the UofT fans by chanting things such as “put on a shirt” and “go to the gym.” Way to go UW Pharmacy!

The semester finished with tumultuous times in the political world causing students to rethink their occupation choices. As some people put it, this is just a “blip” in pharmacy history and the profession is just in a time of evolution laced with uncertainty. Even if the funding model for pharmacists completely changes in the future, pharmacists will still be providing patient care and pharmacy will ***always*** be a great career choice.

Have a good co-op or academic semester everyone,

Brad Linton

President - Society of Pharmacy Students (SOPhS)

University of Waterloo - School of Pharmacy

PHROSH WEEK 2010

Welcome Rx 2013

Phrosh week was an all around success this year, a time when 2013 students met and became engaged with other members in their class and upper year classes. The welcoming meeting hosted on Sunday night set the stage for a great week to come. Dividing students into teams and having them get to know some of there team members set a higher level of comfort amongst the students when attending class on Monday morning.

All of the various lunch and learns throughout the week kept the students well fed while educating them on various opportunities within this profession. The team dinner was a success (for most) and gave the students an idea of the various local restaurants present in the area.

From talking to various students, it seems that the Shoppers Night was one of the most enjoyable nights of Phrosh Week. Shoppers went above and beyond what they did in the previous year by interacting more with students, having more give-aways, and even providing an extra drink ticket to students.

The man that coordinated all this

Although the turnout on Saturday was far less than expected, anyone who did attend this event said it was a lot of fun. Kim and Calvin ran some competitive, fun events in the gym, while Ryan and I were trying to cook some meat on the undersized BBQ we had to work with! Saturday night was also a hit as everyone at The Vault was having a ball.

A special thanks is given to all of the Phrosh Leaders and the Event Co-ordinators for making Phrosh Week possible. We couldn't have done it without the immense help we received from the class of 2012. Thank you.

I look forward to seeing where Phrosh Week will go in future years.

Brad Linton
President - Society of Pharmacy Students (SOPhS)
University of Waterloo - School of Pharmacy

From The Bench: 2009 Roundup Edition

UW Pharmacy Athletics Top Team of 2009: All-Star Flag Football "Deep Ins"

Top Row: Greg Becotte, Matt DiGiovanni, Jeff Trinh, Noah Bates, Anthony Amadio, Josh Brady, Pawel Przeracki.
Bottom Row: Jason Amadio, Jay Muscat, John Britton
Not pictured: Matt Woolsey, Loren Sexton, Claude Charbonneau, Derek Antwi

If you have played any intramural sports at the University of Waterloo, you are likely well aware of the different divisions: Beginner, Intermediate, Advanced, and All-Star. Due to the large number of teams in the Beginner, Intermediate, and Advanced divisions, the playoffs have to be broken up into brackets depending on how each team did during the regular season. Therefore, there is no OVERALL intramural champion for these divisions. The All-Star division, however, works differently. These teams comprise high caliber athletes who will compete to the death in order to be called the best. Therefore, the playoff bracket is not separated by record. There is one that stands above the rest when the playoffs are said and done.

This past fall, UW Pharmacy Athletics hit an intramural milestone when the "Deep Ins" competed hard all season to Continue Page 6 →

From The Bench: 2009 Roundup Edition

win the overall Flag Football championship in the All-Star Division. Led by quarterbacking team-leaders Noah Bates and Anthony Amadio, and defensive stoppers Matt DiGiovanni and Jason Amadio, the Deep Ins finished the regular season with only one loss. The gridiron boys swept their way through the playoffs towards the finals, where they met up with the same team that beat them in the regular season.

Congratulations, boys!

The Championship Game was played on Warrior Field, the same pitch where the varsity football team plays their regular season games. For a late afternoon in November, it was an unseasonal 15 degrees and sunny outside, which was quite different than the sloppy rainy conditions the team was used to. From the opening play, the Deep Ins controlled the game. Lanky receiver Greg Becotte had his best game of the season, where he used his large frame and leaping skills to catch two touchdowns and snag a red zone interception, while leading the team in receptions and all-purpose yards. Jeff Trinh, Jay Muscat, and Anthony Amadio also scored to bring the final score to 35-0.

For the first time in UW Pharmacy Athletics short history, we boast a team of individuals worthy of being mentioned as some of the best intramural athletes on campus. Congratulations, boys!

Athletic Awards 2009 Summary

Hockey:

All Swedish and No Finnish Award: Mat DeMarco

Bobby Baun Playing-through-the-Pain Award: Mike "Birrrdman" Collins

Soccer (Intermediate):

Most Improved Player: Chris Braxmier

Playoff Most Valuable Player: Claude Charbonneau

Football (All-Star)

Opposing Quarterback Division "Nightmare" Award: Matt DiGiovanni

Crossing Routes Division "Nightmare" Award: Jeff

Basketball (Advanced)

Most Improved Player: Josh Brady

The "Almost Alonzo Mourning Award" (for the player who was so sick he had to sit out the season…and never returned to play): Gabe Geurts

From The Bench: 2009 Roundup Edition

Presenting the Male and female athlete of the year

Male Athlete of the Year:
Anthony Amadio
Female Athlete of the Year:
Heather Foley

Special Mentions:
A very special congratulation goes out to our varsity athletes: Chris Hartman (XC Track and Field), Heather Foley (Nordic Skiing), Angela Puim (Women's Basketball), and Gina Hummel (Women's Basketball)

Goodbye from Your Former Athletic Reps

The last two years have gone by rather quickly, and as UW SOPHs athletic reps we have seen our share of victories and losses. We hope that the pharmacy student body has enjoyed our monthly "From The Bench" column, as well as athletes of the month. We also would like to thank everyone who participated in various sports or social events. Without interest from our students, UW Pharmacy Athletics would not be possible.

Although our time as SOPHs members has come to an end, we both will continue to play intramural sports regularly and look forward to competing alongside new pharmacy athletes.

We wish the new SOPHS athletic reps, Calvin Poon and Kim Adamczyk, the best of luck for the future two terms. All athletic inquiries can be directed to them at athletics@uwaterloo.ca

One last time, keep swinging for the fences.

-Greg Becotte and Angela Puim

Athletics this term …

In order to celebrate the Vancouver Olympics, SOPhS decided to host its first ever Pharmacy Phrosh Olympics during Orientation Week. The mini Pharmacy Phrosh Olympics had the Rx2013 Pharmacy Phrosh teams competing for top place. There were four events in total: an obstacle course, basketball shoot-out, balloon stomping, and the classic: tug-o-war. The Pharmacy Phrosh Olympics was a huge success, despite the shortage of participants. Prizes were given out, creative cheers were made, but most importantly, new memories were made as SOPhS kindly welcomed Rx2013.

Students representing pharmacy on the intramural teams displayed lots of enthusiasm and pride! Pharmacy athletes can now be recognized on main campus with their black and brilliant green jerseys with personalized numbers and names. Putting on our pharmacy jersey not only symbolize that we represent pharmacy, but it also means putting aside our egos and playing as a unified team. Moreover, it strikes a sense of intimidation into the opponents.

We were proud to have nine intramural teams representing us this term, including: 3 volleyball teams (beginner, intermediate and advanced), 2 intermediate indoor soccer teams, 2 beginner dodgeball teams, 1 intermediate basketball team and 1 intermediate hockey team. Unfortunately, none of the pharmacy intramural sports teams were able to capture a division championship this term. They will however try again next term in the Spring intramural leagues, and hopefully bring glory to pharmacy athletics.

Last, but not least, we would once again like to congratulate Derek Lam, David Clark and Marvin Caluag on their second place finish in the March Madness tournament held on main campus. We want to wish all our athletes the best of luck in the upcoming term!

And announcing…

Female Athlete of the Winter 2010 Term: Katie Poredos

Katie played a vital role on both the advanced volleyball and intermediate soccer teams this term. Her positive attitude and athleticism helped make her a strong asset to any sports team. A fierce competitor, Katie is definitely a force to be reckoned with. Congratulations, Katie on your second win as female athlete of the term!

Male Athlete of the Winter 2010 Term: Ryan Vrancea

Did you come out and watch the OPA Cup? Did you see any of the Remedy's strong showings in the intramural league? Then you've seen this boy in action! Also on the advanced volleyball team, Ryan contributes positively to every team that he plays on. He always brings his "A" game and puts forth his best effort in every game. Congratulations, Ryan for being this term's male athlete!

OPA STUDENT CUP

UW pharmacy students hosted the second annual OPA Student Cup March 20th in Kitchener. From the pre-/post-parties to the venue to the unprecedented display of school spirit, the event surely laid the groundwork for a legacy of hockey tournaments to come.

The event was kicked off on Friday, March 19th with a Pep Rally held in the student lounge at the pharmacy building. Close to 50 students came throughout the night as we decorated black and gold T-shirts and made signs to support our team. Music played as we mingled, munched on pizza and snacks, and got excited about the game.

The hockey game was held at the Kitchener Auditorium on Saturday from 3-5pm. Students and faculty from UW and UofT, sponsors, family, and friends came out to support our pharmacy students. It was speculated that we had over 400 fans in attendance. The crowd enjoyed entertainment throughout the game, including a puck toss and 50/50 draw, which raised $275 for the Grand River Cancer Centre. Faculty representatives from both schools (Dean Henry Mann from UofT, and our own Professor Jamie Joseph) participated in a shootout during the second intermission. Professor Joseph beat him by one goal as UW crowds cheered from the stands.

The game had everyone on the edge of their seats. UW was kept a strong lead until well into the third period when UofT swept in tying up the game and pushing it into overtime. In the 5 minute 5-on-5 overtime no goals were scored. The nail-biting game ended in a shootout as a UofT player scored a goal leading Toronto to the win. While UW may have been defeated in the game again this year, the level of play was stepped up tremendously. A big shout out goes to our players: Josh Brady, Matt Demarco, Mandy Harrop, Dan Chenier, Claude Charbonneau, Cindy Jones, Scott Campbell, Mike Collins, Heather Foley, Anthony Amadio, Matt Woolsey, Ryan Vrancea, Kiel Cattle, Ben Austin and Steve Celetti. You made us proud!

Following the game, a social event was held at the Bombshelter Pub on the UW campus. Thanks to our sponsors, a variety of appetizers were supplied. This was a great time for students to mix and mingle with their peers, cultivating camaraderie between pharmacy students across the province. Acclaim was given to both schools for putting on the event – thanks to the UW OPA Events Committee and Taj Dhinsa and Paul Bazin for helping out from the UofT end.

A big thank you goes out to our sponsors, without whom none of this would have been possible: Ontario Pharmacists' Association, Shoppers Drug Mart, RemedyRx, KW Gaurdian, Royal Pharmacies, National Pharmacy

Next year's tournament will be held in TORONTO. We hope to see you all again next year!

Ontario Government vs. Community Pharmacy
Basics of the Battle

Over the past several months most of us have been exposed to reports of the pending "Drug Reform" by the Ministry of Health in Ontario. News reports are growing in number and frequency, highlighting the government's proposition to reform health care spending and pharmacy's retort. Without a full background of the issue, it is hard to grasp what is fact and what is fiction; what are we fighting for anyways?

History

As laid out in their first proposal "A Case for Change" on July 10, 2009, the government's most controversial suggestion was to eliminate professional allowances (PAs). At that meeting, they also resolved to continue the discussion on drug reform with 'pharmacy' – i.e. Ontario Pharmacists' Association (OPA), Canadian Association of Chain Drug Stores (CACDS), Independent Pharmacists of Ontario (IPO), and Ontario Chain Drug Association (OCDA) which have now banded together under the name Ontario's Community Pharmacies (OCPh). Initially, talks progressed. In August pharmacy presented a detailed proposal on how to modernize the pharmacy funding and services model in a way that would meet the needs of patients, community pharmacies and the government – including *lowering* drug costs!

"*Ontarians in all parts of the province deserve access to affordable medicine*." - MOHLTC

However, five months later, the government has still not responded to the pharmacy proposal, nor has it presented its own plan to pharmacy. In fact, it has *cancelled* the last 5 scheduled meetings between the ministry and OCPh. The lack of communication is what stemmed the "Call to Action" by OCPh. A series of rallies over the past month has gathered pharmacists across the province to update them on the status of the government's potential funding cuts, have an open discussion including Q&A, and provide materials to help get the message out to patients and the general public. So far, there has been great success with around 3000 pharmacists in attendance.

The Facts about PAs

Currently, generic drug manufacturers compete by paying pharmacies PAs (used to be called rebates) of up to 20% for stocking their product. This money is to be used for professional activities, i.e. to put on clinic days or to put in a private counselling room. The Ontario government has said that pharmacies have stable and predictable revenues, and that PAs are used inappropriately.

In reality, there is valid reason for PAs. A large funding gap exists between the difference between the cost to dispense medications to ODB patients and the direct compensation by the government. This has forced pharmacies to rely on PAs to cover rising cost.

Over the years, costs to operate pharmacies, as any business, have risen substantially including wages, occupancy costs, computer technology, etc. For the typical pharmacy, the government funding gap means they now have to depend on indirect funding via PAs for 15% of revenues of ODB patients.

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What does this mean for Community Pharmacies?

Without PAs, each pharmacy will lose an average of $200 000. Think about the implications of losing this amount of money from any business. Undoubtedly, it will lead to cutting staff and/or hours, and an even MORE busy community pharmacy than exists today. Those of us who have worked in community pharmacies on work terms know how busy it can be now. If the proposed changes go through, patients may even have to make an appointment to ask their pharmacist a question or get proper counselling. The pharmaceutical care model we are being trained to practice will certainly be difficult to carry out.

Furthermore, there is the misconception that taking away PAs will mostly go after the profits of the big drugstore chains. On the contrary, it will likely greater affect the independent pharmacies, which make up more than 50% of pharmacies in Ontario. In general, independents rely much more on patients covered by ODB which, at $7, pays pharmacies less than the cost of operation to dispense medicines. Without PA funding, pharmacies actually lose money every time a prescription is dispensed under ODB. If the government goes ahead with funding cuts, it won't be the big chain stores that close, but the independents.

Put on your 'manager's cap' and take into account the following facts:

ON pays pharmacies the *LOWEST* dispensing fee in Canada – $7

The fee has *increased only $0.54 since 1989* but the actual cost to dispense and provide counselling on its appropriate use was calculated at $10.24 in 2002 and **$13.77** in 2008

Inflation has increased more than 50% since 1989 but dispensing fees under ODB have increased only 66 cents (*less than 10%*) in that time

Our Two Cents

As students, it may be hard for us to see the full implications of the Drug Reform process as it rolls out over the coming months. I urge you to keep in mind not the money, but the practice you want to have. In order to ensure access and quality of patient care, the Ontario government must create a stable and predictable compensation system that pays pharmacists fairly for the care and services they provide. Be able to talk to your friends, family and the general public about the impact potential government funding cuts would have on patient care and health care services in pharmacies. OCPh will be coming to UW to give a Town Hall to students on this issue – date and time TBA. Be sure to come with questions and comments.

I'd like to note that all data and information in this article was gathered from http://ontario.communitypharmacies.ca/ and http://opatoday.com and linked articles. Please visit the websites to gain a better understanding of the issues.

Current Situation in Ontario and Future of Pharmacy Profession:

Pharmacists have awakened!

By: Saurabh Patel

Almost a month ago, the Liberal government announced massive cuts to the pharmacy profession. The proposal includes reducing generic prices to 25% of the brand name prices and elimination of professional allowances immediately for Ontario Drug Benefits claims and gradually over period of three years for the private payers. In return, the government has agreed to pay $250 million for the patient-care activities pharmacists provide, as well as increasing the dispensing fee to $8 - $11 depending on the geographical location of the pharmacy. The proposed changes seem beneficial to the general public; however, the consequences will have a negative impact on patients. According to the government, high drug prices and added professional allowance or "kick-backs" are one of the few key reasons for the amplified expenditure within the healthcare sector. Ontario's aging population will further inflate the situation as more health care services and drugs will be required to maintain and improve their health. Therefore, the government's short-sighted, immediate solution is to lower drug prices and remove the professional allowance to save approximately $1 billion in a year. This means pharmacy health care will be facing a deficit of $750 million almost immediately after the bill passes.

So what is the fuss about the funding cuts? Currently, the majority of pharmacies operate on the professional allowances. We have learned that professional allowances are strictly to be used to deliver "direct patient-care" activities. These activities range from holding education days, clinic days, attending continuous education programs, compliance packaging, and expenditure on private counseling rooms. In addition, a pharmacy can pay a pharmacist, nurse, pharmacy technician, and other personnel to deliver various patient-care activities. This is where the crux of the whole situation lies: without a proper funding model implemented, immediate removal of professional allowances will severely hamper patient care, period. We are not against the reduction of generic prices or removal of professional allowances; however, one cannot assume survival of the pharmacy business if an equally funded reimbursement model is not put forward. As you all may have read, the threat is paramount to the independent pharmacies and eventually "big chain pharma" will suffer too.

Pharmacy students from the two schools in Ontario have joined the battle against the government but with a slightly different agenda. We spend anywhere from two to four years of pre-pharmacy and four years of pharmacy education to become exemplary health care professionals that deliver patient-centred care. We continue to learn that patients' needs and well-being are at the centre of our practice. Therefore, we are advocating for those patients who will rely on us to deliver the patient-care they deserve. Ever since the announced cuts, individual pharmacy students and the student bodies at UofT and UW have been educating the public and pa-

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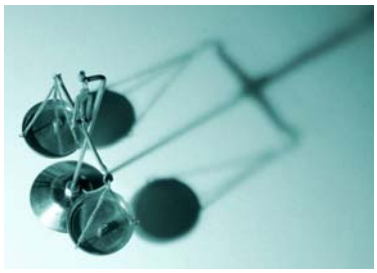

tients; writing letters to MPPs; and touring various cities to stop the cuts. We have also crafted a letter with the help of faculty and other stakeholders to the government and received a very positive response. In addition, along with CAPSI, we have created a **national** online petition for all the pharmacy students in Canada (http://tinyurl.com/pharmpetition). We continue to work diligently on your behalf, and any concerns you have can be brought to either myself, Brad Linton, Stacey D'Angelo, or Claude Charbonneau.

I would like to leave you with some positive outcomes from the situation. Firstly, the pharmacy profession no longer stands fragmented as everyone is fighting for a common cause and for patient-care. We have to support and stand by each other to uphold the values of the pharmacy profession and fulfill our oath as health care professionals. Secondly, this situation may catalyze the movement of pharmacy practice from product-focused to patient-focused care. Finally, if the government and pharmacy can collaborate and put aside their differences, we may have a pharmacy model that will surpass any existing model. Let us stay united, positive and hopeful, and try to learn as much as we can from the situation.

Saurabh Patel (Special thanks to Brad Linton for his inputs)

and a lot of Colour

End of Term Winter 2010

March 26th, 2010 marked the date of the winter 2010 end of term party. This year's Graffiti themed event was held at Bobby O'Brien's Pub in Kitchener. The event had great turn out as over 100 students from Rx's 2011, 2012, and 2013 attended. Each attendee received a plain white t-shirt and coloured marker at the beginning of the evening. By the end of the night the white shirts were transformed into vibrant "graffiti-like" images as students signed each other's shirts with messages and drawings. In addition to the t-shirt signing, the evening also consisted of a pop-culture trivia competition and contest for the most artistic t-shirt. All in all, the event was a huge success and I would like to take this opportunity to thank all that attended.

Kindest Regards,
Aman Hansra
Social Coordinator

PDW 2010 - Meeting in The Middle

Every year, 500-800 CAPSI students from the 10 schools of pharmacy across the country get together for Professional Development Week (PDW). This year the honor of hosting a week of inspiring speakers, national CAPSI competitions, amazing galas, and outings in the city fell on the University of Toronto. The event was largely housed in the grand Sheraton Hotel of downtown Toronto, and with a lot of student involvement U of T pulled off the most amazing PDWs to date!

Have you heard? This PDW the University of Waterloo took home the CAPSI national compounding trophy, and each of the team members got $400! That means Saurab Patel, Catherine Prochazka, Jenny Seguin, and Will Shannon are Canada's best students at compounding. This was a big honor for the University of Waterloo, since we are fairly new in the national scene. In future years, I'm sure we all hope to beat the fourth year students from the other schools who took home to prize for the patient interview competition, over the counter counselling competition, and the Pharm-a-facts bowl.

The social events at PDW were amazing. From the opening gala themed "A World Within a City", to the closing ball that was themed like an 80s prom night I can safely say that everyone who attended had a great time. After all, where else can you party with 800 other pharmacy students from across the country? There was also an awesome Lacrosse game, where Wyeth sponsored our tickets. Within the first few minutes five guys started fighting, and for the rest of the game the Toronto Rock was neck to neck with their opponents! After an action packed game Toronto won in overtime.

For the rest of the time PDWers enjoyed inspiring speakers such as Dr. James Orbinski, an unbelievable doctor who was the president of Doctors Without Borders, Leslie Dan, the founder of Novopharm, and Dr. Pierre Moureau, who helped create the entry-level Pharm D. program at the University of Montreal. In the free time between speakers students toured the campus at U of T, and went out for a bit of sigh seeing or shopping in downtown Toronto.

Looking forward, CAPSI members should expect to see more of the same from PDW 2011 in Saskatchewan.

By Victor Baron

UW: National Compounding Champs

By: Jenny Seguin

On January 14th-17th, several students ventured to Toronto to attend CAPSI's Professional Development Week—a week of education and networking with students from all ten pharmacy schools across Canada. While other conference events included various speakers, a Toronto Rock lacrosse game, a health fair and PDW retro prom night, the main event for four of our students was the national compounding competition, sponsored by Medisca.

The winners of Waterloo's regional competition—Jenny Seguin, Catherine Prochazka, Will Shannon and Saurabh Patel—advanced to the national level to compete against the finest student compounders in Canada. The task was to compound three products, and to address one theoretical case involving pharmaceutical theory in one hour. It was held at the University of Toronto Leslie L. Dan Faculty of Pharmacy building in their pharmaceutical sciences lab.
The three prescriptions we received were for suppositories, capsules and a cream. We took to the cases quickly, using minimal resources, creating formulations in order to prepare elegant products. With plenty of time, we finished up and prepared them for dispensing (including writing up the labels by hand!) and evaluation.

The winner of the competition wasn't announced until the closing ceremonies, three days later. The wait was killer. Fourth place in the competition went to the University of Alberta, third place went to the University of Manitoba and second to UBC. Unsure of how we did in comparison to the other schools, we were ecstatic when UW was announced as the national champions, and went to the stage to accept our awards in 80's prom attire.

PDW 2010 was a great experience, as was the compounding competition. The CAPSI local council runs regionals each Fall term, which also include writing, OTC and patient interview competitions. The local winners receive a subsidy to attend the national conference, and an excellent bullet point on their resume. I highly suggest you get involved with PDW and the CAPSI competitions, to meet new people and keep up with your skills. Also, thank Josephine next time you see her for giving us the best pharmaceutics practical instruction in Canada!

PUMPKIN'S COOKING CORNER GOES TO EASTERN EUROPE

Visit of Kapusta

It's me again. As usual, I bring you gifts. And by gifts I mean recipes. This time I've got a quick and easy recipe that may not be the most nutritious but it's delicious and can be eaten for days.
To me, cabbage is the least nutritious food in the world, even less than iceberg lettuce or turpentine. Regardless of that fact it seems that the peoples of Eastern Europe have put this bizarre-smelling, dense, green, leafy ball into everything and I love it! If you like sauerkraut in any way you will probably like this casserole slop.

Ingredients:
½ jar sauerkraut, strained and rinsed with cold water
¼ to ½ cabbage, grated
1 chopped onion, fried (optional: green pepper)
½ lb of bacon, fried
Mix all of the above in small/medium size roast pan.

Add:
1 cup water
¼ tsp black pepper
Bavarian sausage or Kielbasa, cut into pieces

Bake 2 hours at 350º F.

Community Action Now

At the dawn of January 2010, a catastrophic earthquake ravaged across Haiti. The earthquake claimed over 230,000 lives and affected over 3 million residents. Many infrastructures were damaged, homes were lost, and families were torn apart. Many survivors struggled to attain basic necessities such as food, water, shelter, and first aid.

While humanitarian efforts were initiated by many countries around the world, the UW School of Pharmacy responded on a more local level. A fundraiser was carried out by Community Action Now (CAN) to raise money for the Haiti earthquake relief and donated its charitable cause to World Vision. CAN was founded by Laura Gorman in January 2009 and is now a student-initiative organization dedicated to community service. Some of the past activities carried out by CAN included a clothing drive and garbage pick-up day.

A fundraiser for the Haiti earthquake would be the greatest challenge and largest-scale project for CAN thus far. Adding to the challenge, there was tremendous time pressure to execute the fundraiser as fast as possible to provide immediate relief. Combining passionate hearts and creative minds, CAN decided to run a "Hearts for Haiti" fundraiser selling candy grams for Valentine's Day. The collected funds would be directed to both immediate medical relief and rebuilding efforts in Haiti.

CAN also decided to add an additional incentive to the "Hearts for Haiti" fundraiser by making it a competition between both classes with the winning class voting one of their favourite professor/ instructor to dress up as a cupid.

The initial goal for the "Hearts for Haiti" fundraiser was to raise over $1000. However, pharmacy students, faculty, teaching and administrative staff, and even security guards truly showed how big their hearts are and how much they care by shattering that goal and raising over $2000 in a mere time span of 1 week, following 2 weeks of efficient planning. Although the winning class for the cupid competition was Rx2012, CAN was able to convince the favorite professors from both Rx2013 and Rx2012 to dress up as a cupid since the fundraiser was such as success. Dr. Palmer and Dr. Nagge showed tremendous dedication and courage to dress up as a cupid and gave what must have been the "most entertaining" lecture of the whole term for their respective classes.

Thank you very much to all CAN members and donors. Your efforts have provided up to 5 mobile medical clinics, 22 emergency shelters for children and emergency water and sanitation for 9 families in Haiti!!

Next, CAN will be working with Sheri Howard from Rx2011 to plan the CIBC fundraiser run for breast cancer. Sign up online at http://www.runforthecure.com/site/PageServer?pagename=run_home&cvridirect=true and represent the UW School of Pharmacy in October 2010!

You CAN make a difference simply with passion and dedication. If you have any questions or ideas for future CAN events, please feel free to share them with us at can.uwpharmacy@gmail.com.

Cheers,
CAN

Special Issue 10:

An Interview with Michelle Boudreau, Director General of the Natural Health Products Directorate

As many of you know, prior to starting my pharmacy studies at UW, I worked for Health Canada at the Natural Health Products Directorate (NHPD). The NHPD is responsible for regulating the natural health products (NHPs) marketed and sold in Canada, ensuring that they are safe, efficacious, and of high quality. Working there was a great experience for me, and contributed greatly to shaping my career path and desire to become a pharmacist. While at NHPD, I learned a great deal about all of the medicinal herbs I've been writing about and more! I also had the opportunity to work with many talented and knowledgeable people from a variety of cultural backgrounds and disciplines, including biology, chemistry, Traditional Chinese Medicine, naturopathy, homeopathy, botany, anthropology, to name a few. It was certainly an experience that I will draw on for the rest of my life and it will definitely influence my future practice as a pharmacist.

But as much as my NHPD experience prepared me for a future career in pharmacy, so too does pharmacy prepare one for a career in Health Canada. Just ask Michelle Boudreau, pharmacist, lawyer, and Director General of the NHPD since September, 2008. I had the opportunity to sit down one-on-one with Michelle on Tuesday, September 1, 2009 at the end of the last co-op work term, to chat about herbs, the NHPD, and the role pharmacists are playing in Health Canada. Here is some of our conversation:

JB: *Tell me a little about yourself, I know that you are a lawyer and a pharmacist by training, but I'm specifically interested in your pharmacy career. Where did you train and practice as a pharmacist?*

MB: *Sure, right… so I did my pharmacy degree at Dalhousie. I graduated in 1988. At that time it was a 4 year Bachelor of Science in Pharmacy, I think the program has changed slightly since then. And then I worked as a pharmacist, both in the hospital pharmacy setting and in the community setting… I worked about 2 years and then I went off to university for a law degree but worked all through my law degree as well. So I've worked in community pharmacy and hospital pharmacy… I don't practice anymore. That's one thing that, unfortunately, I find I don't have time for [*laughs*], but I still keep up a little bit by reading some of the journals and things like that.*

JB: *So, how did you become interested in working with NHPs? And I guess a follow up question: How did your training and practice as a pharmacist prepare you for your current position as Director General?*

MB: *Right… how did I first become interested in working with NHP's? I think I would give that credit way back to Dr. Frank Chandler, who was a professor of mine at Dalhousie, and in those days, again keeping in mind I graduated in 1988, Dr. Chandler had, I believe it might have been a day or two days at the most, that he would come in and speak to us about herbs and vitamins and minerals. And, you know, they weren't called NHPs back then… I remember him telling the Linus Pauling story, [about] how much vitamin C [he] used to take… so it was partly, really, just way back from that*

lecture... And then, when I started to work as a community pharmacist, particularly here in Ottawa; I'm from a very small town so you don't see the same sort of products out there on a typical pharmacy shelf, at least not back then as you do now in larger city settings. And there were just so many of these things on the market. Even years ago, right?

JB: *Right.*

MB: *Lots of vitamins and minerals, lots of herbs, a fair bit of the homeopathic products - they've been around for some time. Umm, and that was just all an area of interest for me. You know, people coming in and asking [about herbs]... "I find I have cold hands and cold feet"... or "my mother/father had Alzheimer's and I read about something that maybe I could take so that 'maybe' I won't have Alzheimer's one day". Things like that. And so it was, just from working in the pharmacies where we sold these products, finding that I didn't, you know, didn't know enough. I actually at one time even contemplated, before I went off to law school... doing a study of naturopathic medicine... it's just kind of always [been an] area of interest...*

MB: *... Just to comment on your question about 'prepare you for your current position, the practice': I think one of the things I find really helpful and continue to find helpful is that when you are working as a pharmacist, especially, well in both areas, community or hospital... you are kind of on the front lines... you do become quite aware that you're part of the health care system, more broadly speaking. And so you become quite knowledgeable about how it works and how medicine actually goes from being in the manufacturer's warehouse to being in the bottle that the consumer then takes home. Right? So that whole distribution system is something that, when you're at Health Canada, because we regulate part of that distribution system, it's actually really helpful to know [how] that distribution system works. And the second part of that I think I would add is that you, working as a pharmacist, you also get the opportunity to speak one-on-one with lots and lots of people of all different types of populations and sub-populations that take these products... you get a real feel for people's perceptions, and assumptions, and knowledge, and in some instances perhaps lack of knowledge in certain areas...*

JB: *...What other opportunities are available for pharmacists in the government that you would see in terms of positions that they would hold?*

MB: *...Speaking for Health Canada... I haven't myself worked in other departments, other than Canadian Heritage; I don't know that there are a whole lot of opportunities there for pharmacists... certainly at Health Canada we have pharmacists that are reviewers...*

JB: *Right.*

MB: *... reviewing actual products. They have, you know, the science background to be able to do that. Again on the sort of licensing side... I know there's a number of pharmacists who work as inspectors, going in and inspecting actual facilities.*

JB: *So that'd be...*

MB: *Drug manufacturing facilities.*

JB: Okay, so we're not just talking about herbals here. We're also talking about...

MB: *...therapeutic products... there's really quite a bit of opportunity from that perspective. And*

then... there's the whole area of Adverse Reaction Reporting... where I think pharmacists are beginning to play an active role outside of government but also within government, so Marketed Health Products Directorate is an area where we've got a mandate. 'We' the department that is, not this directorate, but the department has a mandate with respect to post-market reporting, and so I think there's a role there as well...

JB: ... *what ideas [do] you have about the roles pharmacists are going to be playing with respect to herbs in general?*

MB: ... *Well certainly I talked about Adverse Reaction Reporting, and I think that's probably one of the key areas... statistically, there are still many people who buy these products at pharmacies, and I think the role there on [is] being able to council patients on which product to take for which type of concern they may have, but also products that might possibly interact with prescription medications that they're already taking, or that they should not take because of a condition they may have... I think pharmacists are very well placed to be able to do that. And even if you look at... your standard label out there on some of these herbal products, quite frankly, I think you almost [laughter in voice] have to be a really educated person to be able to understand some of the warnings and cautions. So I think pharmacists can really help people do that.*

JB: *Especially when you see some of the labels from other markets which have not yet gone through the regulatory process...*

MB: *That's right.*

JB: ... *you see some of them are... listed as a NHP and they don't have an NPN, or they're listed as a dietary supplement and they have diet information in terms of serving sizes...*

MB: *That's right. That's right.*

JB:... *it's* very confusing.

MB: *Yes.*

Our conversation then went on to discuss the mandate of the NHPD, the typical licensing process, standards of evidence required to support a product and its stated health claims, and the type of dialogue that occurs between the applicant for an NPN (Natural Product Number) and the NHPD once an application has been submitted. We ended our discussion by talking about the importance of NHP education for current and future pharmacists.

MB:... *We're trying to educate pharmacists and people who sell these types of products, that there is a value, both to them as a health care practitioner and to the consumer, to look for that licence, you know the number that is on the label which is the NPN or the DIN-HN for a Homeopathic product. But to look for that so that they... have the assurances [that] the product has actually been assessed for the health claim, safety, quality... [hopefully] new pharmacists would look for that on the label before they would recommend a product for their patients... Uh, and then on the adverse reaction reporting side, to really look and be aware of um, the fact that many people take these products...* Pharmacists are actually very good at reporting adverse reactions. We have...

JB: *That's good to know.*

MB: *...we have quite good compliance from pharmacists...*

JB: *Should NHP training be a mandatory component of current pharmacy education?*

MB: *Oh, I think absolutely... and I think [laughs] when I said early that I think we had 2 days in my day from Dr. Frank Chandler, that clearly wasn't enough. I am by no means an expert in NHPs although I may be the DG of the Directorate... as I mentioned, more and more Canadians [are] taking these products... alongside with their therapeutic medication, so as the person who is meeting patients most regularly, and having probably more of a detailed dialogue [with them] than even the medical doctor in some instances, I think it would be hugely valuable for pharmacists to have a good amount of training in these types of products...*

JB: *... is there anything you would like the pharmacy students at the University of Waterloo to know?*

MB: *I would like them to know that these products are regulated... there is a bit of a myth, I think, in some areas, that these products are less regulated than, for example, an over-the-counter drug, if I can call it that, and that's simply not true. In some instances, the regulatory bar is higher than it is for some of the over-the-counter drugs; it's not true across the board... I'd [also] like them to know that there is a Licensed Product Database where they can go and look and see which products have been licensed, and we've licensed over 15,000, well 15,000 licences [have been issued] which transfers into approximately 20,000 products. So there's a lot of licensed products currently...*

JB: *And all those products can be found on the NHPD website?*

MB: *... yeah, on our Licensed Product Database. And again... where the monographs are posted as well, I think it would be a helpful resource. I don't have it off of the top of my head, but...*

JB: *It's okay, don't worry, we'll find it.*
[Check out the NHPD website at: http://www.hc-sc.gc.ca/dhp-mps/prodnatur/index-eng.php]

And there you have it. An interview with Michelle Boudreau: pharmacist, lawyer, and Director General of the NHPD.

Jason Budzinski (Pharm 2011)

Special Thanks: to my wife Caroline for her wonderful transcription skills; to Nana Bafi-Yeboa, Head of the Traditional Medicines Unit at NHPD, for liaising; to Michelle Boudreau, Director General of the NHPD, for making time in her crazy schedule to chat with a pharmacy student.

Multivitamins & Multiminerals Supplement Selection

Let's face it, selecting multivitamins & multiminerals supplement (MMS) for yourself or recommending one to your patient is not a simple task. There are so many MMS brands in a pharmacy that it creates confusion for you and your patients. There are no solid guidelines to recommend MMS either; hence, we have to assess the patient on an individual basis. This article will outline three steps for recommending MMS; supplemented by ***top five*** *MMS products and major drug-vitamin or drug-mineral interactions for a quick reference.*

Requirement of MMS:

1. It should have thirteen vitamins and ten minerals (others: Lutein and Lycopene)
2. Must be balanced and meet the DIR (Daily intake requirement)
3. Should not contain any pharmacologically active ingredient, herbal, or other

Reasons to take MMS:

1. To promote health – prevent chronic diseases; growth and development
2. People who have special dietary requirements (e.g. vegetarians)
3. For psychological and emotional health
4. People with unbalanced diet (high/low calorie intake)

Step 1: Safety

The first step to consider before recommending a MMS product is the safety. First, assess the patient's needs and find out the reasons to take the MMS. Secondly, ask about their dietary intake, social history, medical history, allergies, pregnancy/lactation, and most importantly, up-to-date medication list. After thoroughly assessing the patient, you will be able to recommend a MMS product. As a pharmacist, look out for any major interactions between the vitamins or minerals with the medications they are taking. Table 1 lists selected major interactions, however, print out **reference article 3** for detailed drug-vitamin or drug-mineral interactions.

Step 2: Efficacy

The second step is to determine whether the MMS product will actually provide the benefits and meet patient needs. For example, expectations and reasons of taking MMS for an athlete might be different from that of a pregnant woman. You can use the information such as dietary intake, work history, and patients' believes in selecting a proper MMS product.

Step 3: Product Quality Assessment (USP-verified mark)

Once it is determined that the MMS supplement will be safe and effective for the patient then you can go ahead and choose a MMS product. The question is which one, there are so many. One easy way to pick out a product is to look for the USP-verified mark. The USP mark ensures that the product has gone under the most rigorous and comprehensive testing to meet highest standards of integrity, purity, and potency.

For your quick reference, here are the five MMS products you can recommend (chosen after thorough literature search, however, the final decision will depend on your professional judgment and patients' convenience):

1. Centrum Supplementation by Wyeth Consumer Healthcare Inc.
2. One A Day Advance Adults by Bayer Inc.
3. Basic Vita-Vim by Jamieson Laboratories
4. Exact by Loblaws Inc

Multivitamins and Multiminerals with Lutein and Lycopein by Kirkland Signature

Table 1: List of vitamins and minerals with their daily intake requirement, functions/ benefits, and major drug-vitamin or drug-mineral interactions

Vitamins / Minerals / Others	Daily Intake Requirement[1,4]	Function/potential benefits at recommended levels[1]	Drug Interactions[3,4] Major (Avoid)
Vitamin A	3000 IU (men) 2333 IU (Women)	Helps form and maintain healthy skin, eyes, teeth, gums, hair, mucous membranes and glands Necessary for night and color vision Important for resisting infectious diseases	Retinoids
Vitamin D	400 IU (<50) 800 IU (51-70) 1200 IU (>70)	Helps prevent and cure Rickets in children Necessary for strong bones and normal growth in children Helps the body use calcium and phosphorus properly Necessary for calcium absorption	-

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Vitamins / Minerals / Others	Daily Intake Requirement[1,4]	Function/potential benefits at recommended levels[1]	Drug Interactions [3,4] Major (Avoid)
Vitamin E	15 mg = 22 IU	□ Necessary for the formation of normal red blood cells, muscle, and tissue □ Protects fat in tissues from oxidation □ Helps protect cells from free radical damage	-
Vitamin K	120 ug (men) 90 ug (women)	□ Necessary for normal blood clotting □ Important for bone health	Warfarin
Vitamin B1	1.2 mg (men) 1.1 mg (women)	□ Aids in energy utilization from food by promoting proper carbohydrate metabolism □ Necessary for proper functioning of the nervous system and muscles, including the heart muscles	-
Vitamin B2	2.4 ug	□ Needed for vision □ Helps in red blood cell formation and nervous system functioning □ Essential for the metabolism of vitamin B6, niacin, folic acid and vitamin K	-
Vitamin B6	1.3-1.7 mg	□ Important in protein in metabolism □ Necessary for proper function of the nervous and immune systems □ Necessary for red blood cell formation □ Necessary for hormone synthesis	-

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Vitamin B12	2.4 ug	Helps form red blood cells and build vital genetic material (nucleic acids) for the cell nucleus Necessary for reducing the risk of certain forms of anemia Aids in the function of all body cells, especially nerve, red blood and brain cells	-
Vitamin C	90 mg (men) 75 mg (women)	Strengthens blood vessel walls Essential for healthy teeth, gums and bones Important in the formation of the protein collagen, which helps support the body structures such as skin, bones and tendons Helps in the absorption of iron from supplements and vegetables Necessary for wound repair	-
Beta-Carotene	6-15 mg	Converted by the body to vitamin A Serves as an antioxidant	-
Folic Acid	0.4 mg	Adequate amounts of this B Vitamin (folic acid) as part of a healthy diet, can help reduce the risk of birth defects of the brain and spine Helps maintain normal, healthy function of the intestinal tract Necessary for amino acid metabolism and the formation of nucleic acids that form DNA Necessary for normal growth and development Necessary for red blood cell formation	-

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Vitamins / Minerals / Others	Daily Intake Requirement[1,4]	Function/potential benefits at recommended levels[1]	Drug Interactions [3,4] Major (Avoid)
Niacin	16 mg (men) 14 mg (women)	Present in all cells in the body helps convert food into energy; involved in fat, protein, and carbohydrate metabolism Aids in nervous system function	-
Biotin	30ug	Necessary for formation of fatty acids Necessary for production of energy from glucose Assists in utilization of B-vitamins such as niacin	
Pantothenic Acid	5mg	Involved in converting carbohydrates, fats and proteins into energy Necessary for the formation of nerve-regulating substances and hormones Helps in normal growth and development	-
Calcium	1000-1200 mg	Helps build and maintain strong teeth and bones Helps to reduce risk of osteoporesis Aids in clotting of blood Functions in normal muscle contraction and helps nerves work normally Regulates heartbeat	Ceftriaxone, azithromycin, quinolones, bisphosphonates, levothyroxine, iron, penicillamine, H2 antagonists, others
Iodine	150ug	Essential for formation of thyroid hormone thyroxin which governs metabolism and growth Involved in conversion of beta carotene to Vitamin A Involved in synthesis of protein and cholesterol and in the absorption of carbohydrates	Antithyroid drugs

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Iron	8 mg for men and postmenopausal women; 18mg premenopausal; 27 mg pregnant women	Essential part of hemoglobin Vitamin C enhances Iron absorption	Tetracycline. Bisphosphonates, quinolones, antacids, levodopa, iron, penicillamine , others
Magnesium	400-420 mg (men) 310-320 mg (women)	Maintains proper levels of calcium and potassium Regulates heartbeat, muscle contractions and nerve transmissions Essential component of soft tissues, body fluid and bones	Similar to calcium and iron
Copper	0.9 mg	Part of proteins and enzymes involved in brain and red cell function Involved in iron metabolism, bone health and protein synthesis Plays a role in skin, hair and eye pigmentation	-
Manganese	2.3 mg (men) 1.8 mg (women)	Necessary for normal growth and development, reproduction and cell function Involved in metabolism of carbohydrates	-
Potassium	-	It is part of a number of metabolic actions, especially those that involve release of energy Needed for muscle growth Regulates heartbeat and muscle contraction Helps regulate blood pressure	Potassium sparing diuretics, ACE inhibitors
Chromium	30-35ug (men) 20-25ug (women)	Necessary for normal carbohydrate, protein and fat metabolism	-
Molybdenum	45 ug	important for normal cell function Important to maintain normal growth	-

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Vitamins / Minerals / Others	Daily Intake Requirement[1,4]	Function/potential benefits at recommended levels[1]	Drug Interactions[3,4] Major (Avoid)
Selenium	55 ug	Complements vitamin E to help fight cell damage from oxidation Plays a role in many antioxidant enzymes Helps prevent Keshan disease Necessary for use of iodine in metabolism of thyroid hormones	-
Zinc	11 mg (men) 8 mg (women)	Zinc may be an important factor in helping to maintain a healthy immune system Critical component of enzymes involved in most major metabolic pathways Part of several vital hormones including insulin Aids in wound repair Important for night vision	-
Lutein	3mg – 6mg	Lutein (and zeaxanthin) are the dominant carotenoids present in the macular region of the retina and are linked to normal function of the retina, which is responsible for sharp and detailed vision Helps support healthy eyesight Helps filter out the sun's harmful rays	-
Lycopene	6 mg – 12 mg	may help reduce the risk of prostate cancer Lycopene is associated with the maintenance of cardiovascular health May reduce the risk of cardiovascular disease May help reduce high cholesterol levels	-

Selected References:

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By: Saurabh Patel (Edited by: Lisa Craig)

Big deals in therapeutics

Welcome to Big deal in therapeutics! The purpose of this column is to keep everyone up to date with current drug research and hopefully give some introduction to evidence based medicine (EBM). Now, let's get moving on to the topic of the month: Dabigatran, warfarin, atrial fibrillation and the Randomized Evaluation of Long term anti-coagulation therapY (RE-LY) trial

RELY®
Study of stroke prevention in atrial fibrillation

Let's start with some background information about the conditions in the study. Atrial Fibrillation (AF) is a condition where the atria quiver instead of beating in sync with the ventricles. As a result, the blood in these patients' hearts become stagnant and blood clots is allowed to form. It is no surprise that patients with AF have a five-fold increase in the incidence of stroke. But there is hope, if used properly anti-thrombotic agents such as warfarin have been shown to reduce the incidence of stroke by as much as 68% in AF patients. The catch here is "if used properly". Warfarin inhibits blood clot formation but leads to haemorrhages if dosed improperly. Adding to the problem, individual response to warfarin is highly variable therefore individualized dosing is required (usually normalized to an INR of 2-3). Furthermore, warfarin is primarily metabolized by hepatic CYP 2C9 resulting in many drug interaction problems. For years researchers have been trying to find a replacement for warfarin. Dabigatran, a direct thrombin inhibitor, may be the answer. Dabigatran inhibits blood clot formation, does not require individualized dosing and is not metabolized by hepatic enzymes. But is it as good as warfarin?

The RE-LY trial is designed to compare the efficacy of dabigatran vs. warfarin at preventing stroke and systemic embolism in patients with AF. The researchers took over 18, 000 patients with AF and treated them with either warfarin, Dabigatran 110 mg BID or Dabigatran 150 mg BID over 3-5 years. They found that Dabigatran 110 mg is as good as warfarin in preventing stroke and systemic embolism, while having reduced risk of internal bleeding. Dabigatran 150 mg was found to be slightly better than warfarin in preventing stroke and systemic embolism, while having similar risks of internal bleeding. Pretty promising so far, but is this trial "Rely"able?

For the most part, this trial is pretty solid. Patient population seems to be well randomized. Patient selection, recruitment, monitoring and outcomes measured are also comparable to past clinical trials. Dropout rates are higher in the dabigatran groups but intent to treat analysis was used and dropout rate is relatively low (~2%) so the problem is not too substantial. One caveat of this study may be the external validity of the results. The success of warfarin therapy depends highly on the ability of doctors to keep the drug level in therapeutic range (INR 2-3). If INR is too low, the risk of stroke increases. If INR is too high, the risk of internal bleeding increases. The time in therapeutic range (TTR) for this study is around 64% that is on average patients are in the therapeutic range 64% of the time. This is actually pretty good when compared to general practice. But when pitted against pa-

tients monitored by anticoagulation clinics, which boasts a TTR of >80%, the study's TTR seems a little low. This may underestimate the effectiveness of warfarin. So are there any problems with this drug??

Of course, the answer is yes. In terms of side effects, the study found that patients on dabigatran have a higher rate of heart attacks as well as GI bleeding when compared to warfarin. In terms of pharmacology, dabigatran have a longer half life and currently have no antidote, which means in the case of overdose or the need of emergency surgery, dabigatran is a lot harder to reverse. Finally, dabigatran is a substrate of p-glycoprotein therefore may interact with other substrates of p-glycoprotein (ex. amiodarone).

Bottom line:

Dabigatran exhibits similar efficacy and safety profile as warfarin, with the additional benefit of no INR monitoring. However, it is a very new drug and we are very inexperienced in using it. Compounded with the expensive price tag and drug interaction problem, don't get TOO excited about it so soon.

Thank you for reading