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IN REVIEW

HOSPITAL PHARMACY IN ONTARIO

FALL ISSUE 2021

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Hospital Pharmacists



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Call for Articles



Olivia Ng

PRESIDENT'S ADDRESS & ADVOCACY CORNER

With our wonderful group of volunteer council members, pharmacists and students, we held many successful events over the last several months. This includes the regular journal clubs, annual residency nights and Ontario Hospital Pharmacy Management Seminar (OHPMS). This is the second year that our residency nights went virtual and the first year that OHPMS went virtual. A big thank you to all who volunteered their time over the many months in the planning of these events and thank you to all who were able to attend the events. Leading up to the start of the membership renewal year on July 1, our membership and communications co-chairs and committees were particularly active on social media, writing about reasons to be or stay involved as a member. These posts were

strategically timed with our renewal year and a friendly reminder of membership perks you may have forgotten or may not have been aware of, including the many educational events held over the year and our annual awards night. I had the pleasure of attending the first CSHP Branch Presidents' Meeting organized by CSHP National, bringing together the branch presidents and national delegates of all the branches to connect with each other. Important updates affecting branches were also provided by National, including the website updates that you are seeing. It is great to see the new functionalities that our new platform will bring and the modernization in the website visuals and navigation system, and we look forward to collaborating with National on this major

project. In the advocacy world, the Ontario College of Pharmacists (OCP) drafted multiple policies and we wrote to the College on behalf of our members during their open consultation. This includes policies on [Virtual Care](#) and [Cross-Jurisdictional Pharmacy Services](#). Thank you to members who provided their feedback. As the year draws to a close (already!), I want to thank you for everything you are doing for patients and families in our hospitals and collaborative care settings. It has been yet another challenging year for many and I commend each

one of you for your invaluable contributions. I also want to remind each of you to take time for yourself to rest and recharge. As the province starts opening, I look forward to seeing many of you take the opportunity to connect with family and friends. Personally, I look forward to connecting with many outside of simply the virtual world and having the opportunity to dine in at restaurants again!

If you have any questions, comments or would like to say hello, please don't hesitate to reach out to me at obpresident@cshp.ca.

Respectfully submitted,
Olivia Ng
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AN INTRODUCTION TO GERIMEDRISK AND THE PHARMACISTS' ROLE IN THIS MULTIDISCIPLINARY VIRTUAL CONSULTATION SERVICE

WRITTEN BY SANDRA PORTER, KAREN CAMERON

This article highlights GeriMedRisk, an Ontario Ministry of Health funded unique pharmacist practice in a collaborative team that provides valuable clinical support and resources for clinicians. GeriMedRisk is an interdisciplinary virtual consultation service, whose goal is to optimize physical and mental health conditions and medications in an older adult population. The team consists of pharmacists specializing in the care of older adults, a geriatrician, clinical pharmacologists, and geriatric psychiatrists.

What is GeriMedRisk?
Referrals are received at GeriMedRisk via fax, phone, or eConsult. They are reviewed by the pharmacist team, who contact the patient for a best possible medication history (BPMH) and identify the appropriate specialist team members to be involved. Each specialty completes their assessment and one integrated note is completed which outlines the patient-specific recommendations. As well as completing the BPMH and their own assessment, the pharmacist does a final review on the



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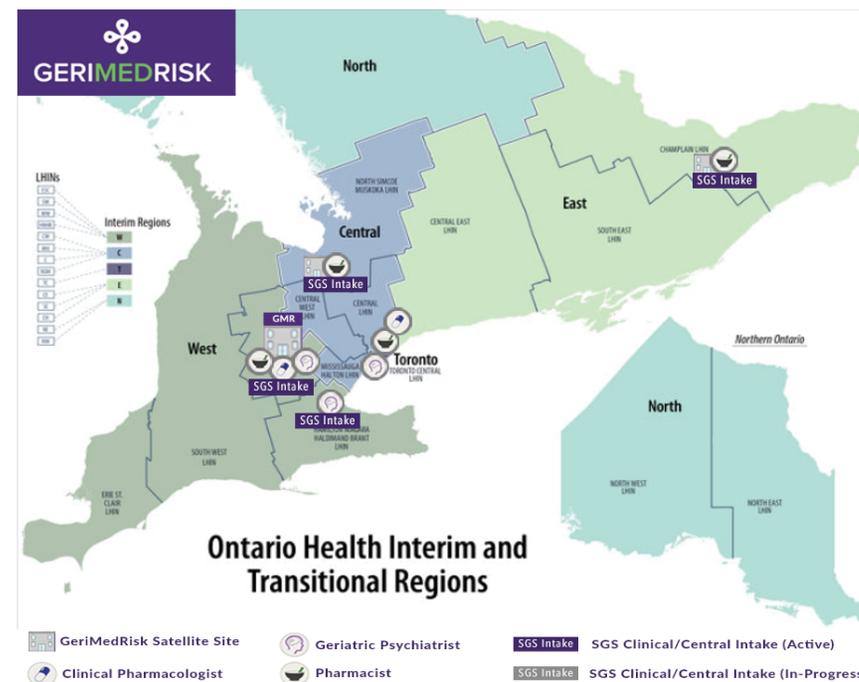


Figure 1. Location of GeriMedRisk clinicians across Ontario.

AN INTRODUCTION TO GERIMEDRISK AND PHARMACISTS ROLE... continued

creates geriatric drug information summaries and infographics, which are sent to referring clinicians along with their patient-specific consults. In addition, clinicians can access available drug summaries through the [website](#). These outline considerations for using a specific drug in an older population, such as suggestions for reduced dosing strategies, or changes in pharmacokinetic parameters. The monthly clinical pharmacology rounds, which focus on clinical situations relevant to older adults are attended by participants from across Canada. Pharmacists interested in registering for the free monthly rounds can do so [here](#).

Who is on the GeriMedRisk team?

The GeriMedRisk team includes pharmacists who were involved from

2017 when GeriMedRisk started as a feasibility project, and others who joined more recently when seeking a different career challenge. The pharmacists bring experience in community, long-term care, hospital, and industrial pharmacy practice, and have specialized knowledge in psychiatry, internal medicine, surgery, and geriatrics.

Team members enjoy the interdisciplinary and collaborative nature of the team. Every case that is referred to the team is unique and the level of complexity requires a team approach. Unique aspects of the practice are that the team supports the clinicians in the care of their patients so the number of care providers that the patients see are not increased, which helps to minimize confusion and number



of prescribers. In addition, referred patients come from a variety of practice settings including the community, long-term care, and hospitals, which the pharmacists on the team find to be interesting and rewarding.

To learn more about GeriMedRisk:

-  www.gerimedrisk.com
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IMPLEMENTATION OF EPIC EHR: LEARNINGS, SUCCESSES, AND OUTLOOK - CHAPTER CORNER (LAKE ONTARIO WEST)

WRITTEN BY MEIKO PENG, DAVID SAAD, ARPITA DESAI

Computerized physician order entry (CPOE) in electronic health records (EHR) is an important tool to provide integrated patient care, reduce medication errors, and improve efficiency. Trillium Health Partners (THP) is a community-based and academically affiliated organization comprising the Credit Valley Hospital, Mississauga Hospital, and Queensway Health Centre. THP implemented a cloud-based EHR solution, Epic, on October 10th, 2020, replacing the pre-existing system, Meditech.

Preparation
Prior to Epic implementation, detailed preparations and roll-out strategies were devised and implemented to ensure a smooth transition to the live system. The Epic project team led **working groups** with key pharmacy representatives to advise on operational builds and training. All pharmacy staff attended **training sessions** to familiarize with the new verification system. An **Epic Playground practice environment** was made available for staff to explore new screens and functions. In the week

prior to go-live, pharmacy staff streamlined clinical services and initiated **thorough reviews of Medication Administration Records (MARs)**. Pharmacists leveraged the Scope of Practice Policy at THP to discontinue as needed (PRN) medications not used in the previous 5 days, held medications, and multi-route medications with continuation of only the route used by the patient to consolidate MARs for easier transcription into Epic. An **Epic user guide** was compiled that documents all Epic workflows and tip sheets in a consolidated place for reference.

Go-live
The morning of October 7th, 2020, nurses, pharmacists, and physicians began manually transcribing active orders into Epic, also known as cut-over. **Cut-over was an essential step** for transferring all healthcare information from the current system to Epic. Physicians tailored prescribing in the days leading up to go-live to accommodate this transition. The cut-over process began with stable patients on non-critical floors, eventually moving to those with higher acuity, thus creating the least amount of rework due to changing orders based



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[IMPLEMENTATION OF EPIC EHR... continued]

on the patients' clinical status. Nurses transcribed printed MARs into Epic, and worked to confirm the right drug, dose, route, and frequency was entered. Once the transcribing process was complete, nurses signed off on the MAR and passed onto pharmacists for a second check. Pharmacists who had additional Epic training were designated as "super users" and were staffed on every shift to provide added support to the team. **Pharmacists, nurses, and physicians worked within a tight timeframe** of 72 hours to ensure all orders were accurately entered and verified in Epic prior go-live. On October 10th, 2020 at 0630h, THP officially retired Meditech and started using Epic.

Learnings

Like implementation of any change, there were growing pains. Some medications were not built in Epic and required improvising with generic non-formulary medication entries. Practitioners had **challenges adopting CPOE workflows** as they were now accountable for entering medication and procedural orders. Pharmacist clinical coverage was minimized to skeleton staff for a couple of weeks to focus on support for dispensing operations. As IS Service Desk tickets for issues were resolved and workflows improved, efficiency increased, and staff became more comfortable with the new system. Eight months post implementation,

volume of tickets is significantly less, but day-to-day issues are still flagged to medication management pharmacists and the Epic team for ongoing optimization. **Key takeaways for pharmacies implementing CPOE** is to ensure the Epic build is consistent with the current hospital formulary, paying attention to specific

concentrations, doses and package sizes currently carried by the hospital. For multi-sited hospitals, formulary differences between different sites should be identified and a standardized Epic build should be determined. Barcodes for each formulary item should be tested to ensure appropriate scanning prior to implementation.

Preparation

- Working groups
- Training sessions
- Playground environment
- Streamline patient MAR
- Epic User Guide

Go-Live

- Cut-over process
- New system and workflows go live!

Learning

- Support pharmacy staff and prescribers with new CPOE workflows
- Lots of support for troubleshooting



[IMPLEMENTATION OF EPIC EHR... continued]

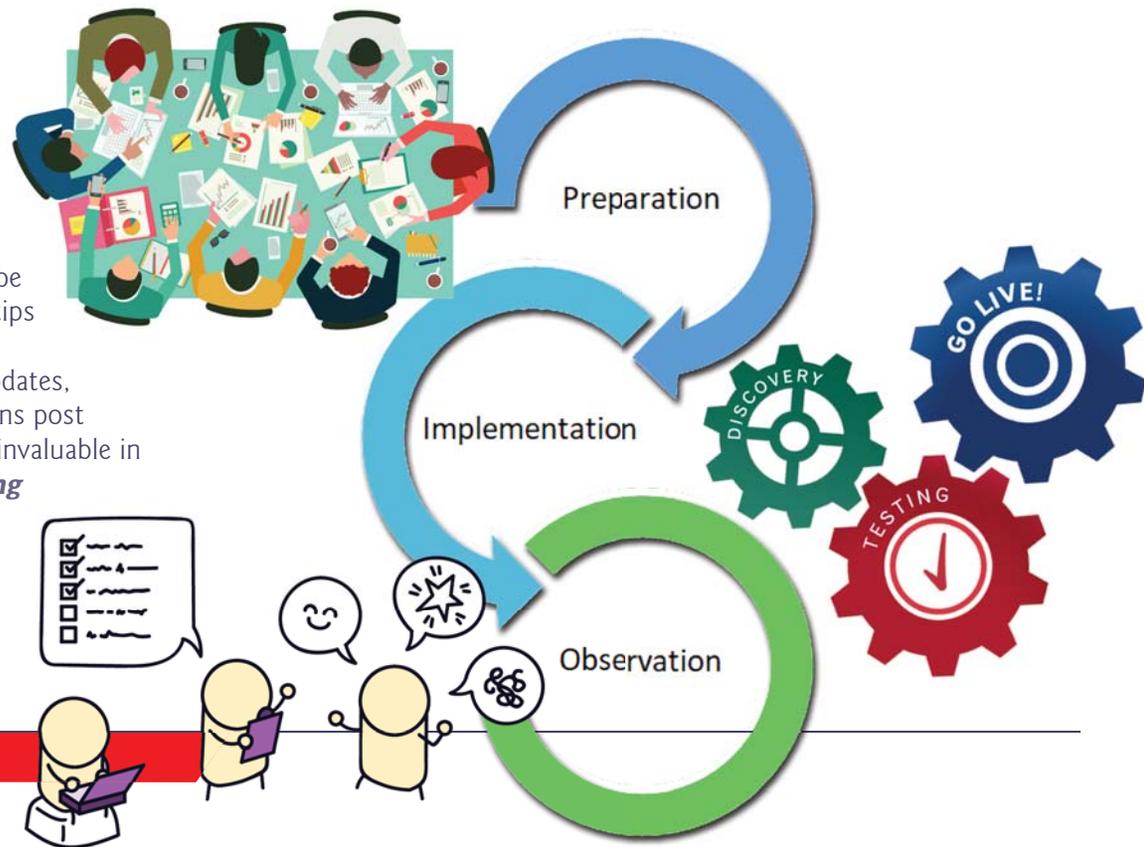
Successes

The shift from order entry to order verification has led to **optimization of pharmacist's distribution role**, resulting in opportunity for increased clinical coverage. With electronic charts, patient care has improved as staff have access to all information at the same time and handwriting legibility is no longer a concern. Epic's secure chat messaging option, while not an official or permanent chart record, provides easy access to the circle of care for non-urgent issues. Suggest orders can easily be saved electronically for 72 hours, enabling physicians to review as they see the patient and minimize pages for non-urgent

issues. Scheduling of super users and Resource Pharmacists post implementation, as extra support staff within the department to triage issues and report tickets to Epic was very effective. With approval of the Epic team, reaching out to hospitals with Epic is helpful to acquire information on workflows that can be adopted. Daily Epic tips at morning huddles, consistent e-mail updates, and Zoom tip sessions post implementation are invaluable in providing **continuing support**.

THP's Epic transition was a long road with months of preparation and was not without its challenges. However, this journey highlighted

the teamwork, care, and resilience the organization and its people had, and now being almost a year post go-live, the light at the end of the tunnel is definitely worth it.



[PNEUMOCYSTIS JIROVECI INFECTIONS: PATHOGENESIS AND THERAPEUTICS]

WRITTEN BY MIRA MAXIMOS

Introduction

Pneumocystis jirovecii (*P. jirovecii*), previously named *P. carinii*, is a fungus that is a leading cause of pneumonia in patients with immunocompromising conditions. *Pneumocystis* pneumonia (PJP) first became recognized following the end of World War II in infants with severe malnutrition.¹ PJP is associated with a mortality rate of between 30 to 60% in non-human immunodeficiency virus (HIV) patients with immunocompromising conditions and between 10 to 15% in those with HIV.^{2,3} The primary therapy and prophylaxis for PJP involves the use of trimethoprim-sulfamethoxazole (TMP/SMX), an antibacterial agent, but why not

an antifungal agent? What makes this pathogen unique? The aim of this summary is to describe the pathogenesis and therapeutics for PJP while focusing on mechanisms of action of the different therapies.

Pathogenesis

Pneumocystis spp. were first classified as parasites and in 1988 RNA sequencing helped to elucidate this species as a fungus.⁴ *Pneumocystis spp.* can be found in lungs of non-compromised hosts, however, when a host's immune system is compromised, the fungus grows to fill the alveolar lumen and blocks oxygenation.⁵ *Pneumocystis* attaches to the alveolar epithelium which allows for transition of this

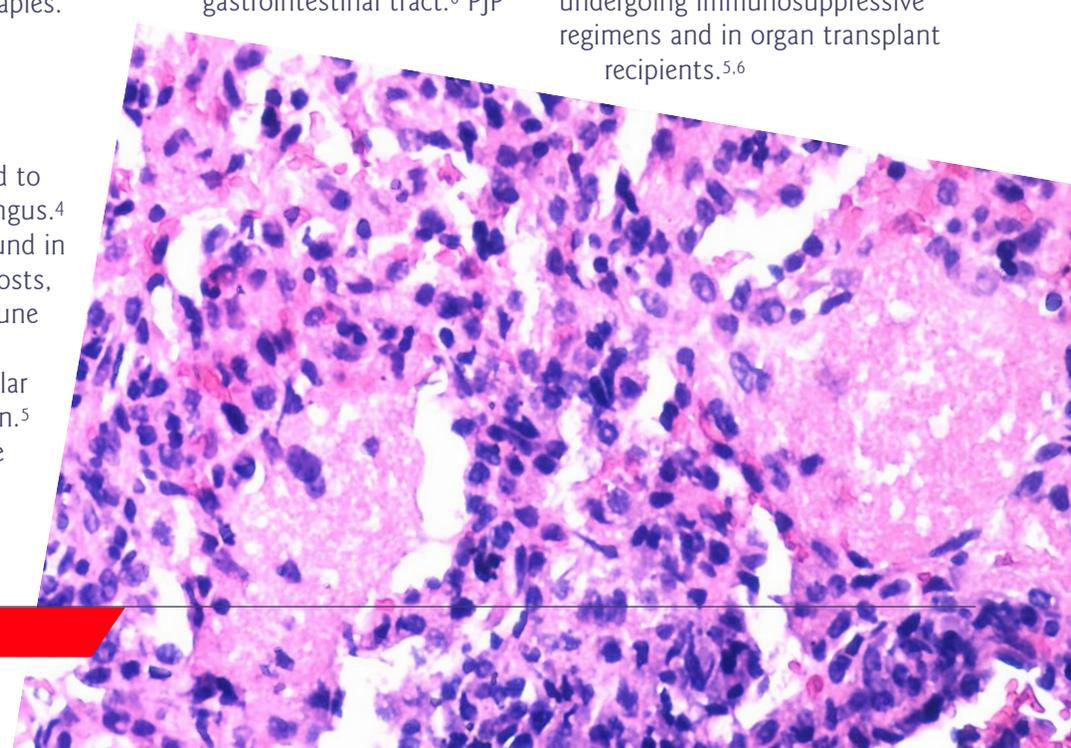
fungus from the trophic to cystic form.⁶ *Pneumocystis* primarily infects the lungs but may involve other regions such as the central nervous system, bone marrow or gastrointestinal tract.⁶ PJP

remains a cause of disease for those living with HIV even with available effective antiretroviral therapy (ART), and a growing concern in patients with cancer that are undergoing immunosuppressive regimens and in organ transplant recipients.^{5,6}



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[**PNEUMOCYSTIS JIROVECI** INFECTIONS... continued]

Therapeutics:

What Works

PJP prophylaxis and treatment can pose a challenge to clinicians due to *Pneumocystis spp.* containing cholesterol in the cell membrane rather than ergosterol which is often found in cell membranes of other commonly treated fungi.⁶

TMP/SMX

Considered first-line therapy for PJP in combination with corticosteroids and act to inhibit folic acid synthesis.⁵⁻⁷ The *P. jirovecii* dihydropteroate synthase (DHPS) and dihydrofolate reductase (DHFR) on which SMX functions; however, there have also been resistant mutations identified against DHPS and dihydrofolate reductase (DHFR) targets in *P. jirovecii* isolates.^{5,8}

Atovaquone

Inhibits mitochondrial cytochrome bc1 complex in parasites in a lower concentration than in mammals thus inhibits the mitochondrial respiratory chain.^{5,9} Atovaquone is poorly absorbed and requires larger doses while TMP/SMX is well absorbed and requires lower doses for therapeutic effect to be met.¹⁰

Pentamidine

An aromatic diamidine that competes with polyamines for nucleic acid binding thus affecting biosynthesis of DNA and in turn protein synthesis.¹¹ Pentamidine administered by inhalation is thought to improve delivery to the lungs while minimizing systemic absorption,¹² however, use of the intravenous (IV) formulation of pentamidine isethionate has been studied in clinical trials with notable efficacy.¹¹⁻¹³

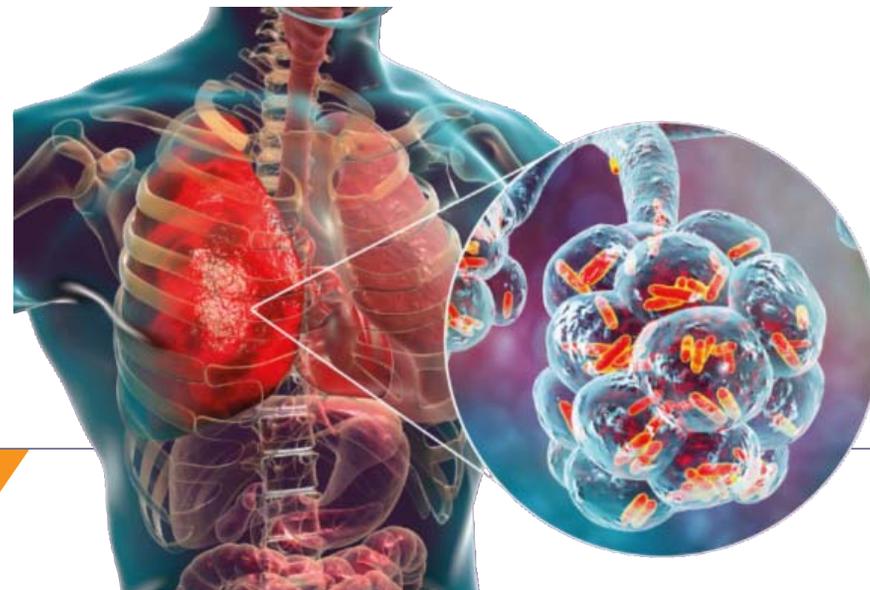
Clindamycin-primaquine

The mechanism(s) by which clindamycin-primaquine affects *Pneumocystis* are unclear; Clindamycin inhibits protein synthesis by binding to the 50s ribosomal subunit and primaquine is an antimalarial drug with mechanism of action against *Pneumocystis* being poorly understood.¹⁴ In those with true sulfa allergies that preclude use of TMP/SMX, the combination of

primaquine and clindamycin can be considered¹⁵ and has been shown to be effective in mild to moderate episodes of PJP.¹⁴

Dapsone

A diphenylsulfone thought to have a similar mechanism of action to sulfonamides and can be considered for prophylaxis of PCP.¹⁶ Dapsone includes an arylamine group that resembles the N4 substitution but lacks the sulfonamide moiety,



CLINICAL PEARLS

[***PNEUMOCYSTIS JIROVECI*** INFECTIONS... continued]

however, dapsons can still be associated with allergic reactions in those with true sulfonamide allergies.¹⁷

Dapsone-trimethoprim

First explored as an option for PJP as an alternative to TMP-SMX secondary to risk of toxicity of TMP/SMX in a trial of 60 patients with AIDS and mild to moderate first episode of PJP.¹⁴

Therapeutics: What Doesn't Work

Azole antifungals

Azole antifungals such as voriconazole and fluconazole target fungal CYP450 enzyme activity, 14 alpha-lanosterol demethylase or CYP51, inhibiting the first

step of conversion of ergosterol to sterol and impeding fungal cell growth.⁵ *Pneumocystis spp.* do not synthesize ergosterol but instead use cholesterol that is hypothesized to be scavenged from the mammalian host by the fungus and further modified by its own enzymes.⁵ This difference in sterol synthesis renders *Pneumocystis* intrinsically non-susceptible to azole antifungals.

Allylamine-based fungicides

Allylamine-based fungicides such as terbinafine target squalene 2,3-epoxidase, which is an enzyme upstream of sterol biosynthesis and these agents may bind a pocket that induces conformational change at the active site that inhibits substrate binding.⁵ An

in-vitro trial¹⁸ demonstrated that the IC50 of terbinafine required against *P. carinii* are not therapeutically achievable as treatment for PCP.

Polyene fungicides

Polyene fungicides, such as amphotericin B, create structures with multiple conjugated double bonds and a polyhydroxylated chain that bind to hydrophobic sterols in the lipid environment changing the cell membrane into a crystalline state forming porins that distort homeostasis and lead to cell death.⁵ As noted previous, *Pneumocystis* does not produce ergosterols in significant quantities, therefore this class of antifungals is not effective as a treatment option.⁵

In the Pipeline: Echinocandins

Echinocandins, such as caspofungin or micafungin, are cyclic polypeptides that inhibit the synthesis of 1,3-β-D-glucan, a component of the fungal cell wall.⁵ A factor that is speculated to impact efficacy of echinocandins against *Pneumocystis* appears to be whether the fungus is found in cyst or trophic form⁵ and a study using an animal model of PCP¹⁹ supports this hypothesis since treatment with an echinocandin resulted in depletion of cysts only. Therapeutic utility is still considered and has been for over a decade. A case of a 39-year-old male with new diagnosis of HIV and PJP was started on therapy including TMP-SMX with the addition of caspofungin due to progressive disease after trial of other therapies over a month.²⁰ Within 3 days of caspofungin

[PNEUMOCYSTIS JIROVECI INFECTIONS... continued]

- Porollo A, Meller J, Joshi Y, Jaiswal V, George Smulian A, T. Cushion M. Analysis of Current Antifungal Agents and Their Targets within the *Pneumocystis carinii* Genome. *Curr Drug Targets*. 2012;13(12):1575-1585. doi:10.2174/138945012803530107
- Gingerich AD, Norris KA, Mousa JJ. *Pneumocystis pneumonia*: Immunity, vaccines and treatments. *Pathogens*. 2021;10(2):1-15. doi:10.3390/pathogens10020236
- Martin SI, Fishman JA. Practice the ASTIDC of *Pneumocystis pneumonia* in Solid Organ Transplantation. *Am J Transplant*. 2013;13(4):272-279. doi:https://doi.org/10.1111/ajt.12119
- Suárez I, Roderus L, van Gumpel E, et al. Low prevalence of DHFR and DHPS mutations in *Pneumocystis jirovecii* strains obtained from a German cohort. *Infection*. 2017;45(3):341-347. doi:10.1007/s15010-017-1005-4
- Spencer CM, Goa KL. Atovaquone. A review of its pharmacological properties and therapeutic efficacy in opportunistic infections. *Drugs*. 1995;50(1):176-196. doi:10.2165/00003495-199550010-00011
- Hughes WT, Killmar JT, Oz HS. Relative potency of 10 drugs with anti-*Pneumocystis carinii* activity in an animal model. *J Infect Dis*. 1994;170(4):906-911. doi:10.1093/infdis/170.4.906
- Sands M, Kron MA, Brown RB. Pentamidine: a review. *Rev Infect Dis*. 1985;7(5):625-634. doi:10.1093/clinids/7.5.625
- Conte JE, Hollander H, Golden JA. Inhaled or reduced-dose intravenous pentamidine for *Pneumocystis carinii* pneumonia. A pilot study. *Ann Intern Med*. 1987;107(4):495-498. doi:10.7326/0003-4819-107-4-495
- Golden JA, Chernoff D, Hollander H, Feigal D, Conte JE. Prevention of *Pneumocystis carinii* pneumonia by inhaled pentamidine. *Lancet (London, England)*. 1989;1(8639):654-657. doi:10.1016/s0140-6736(89)92153-3
- Medina I, Mills J, Leoung G, et al. Oral therapy for *Pneumocystis carinii* pneumonia in the acquired immunodeficiency syndrome. A controlled trial of trimethoprim-sulfamethoxazole versus trimethoprim-dapsone. *N Engl J Med*. 1990;323(12):776-782. doi:10.1056/NEJM199009203231202
- Lu J-J, Lee C-H. *Pneumocystis pneumonia*. *J Formos Med Assoc*. 2008;107(11):830-842. doi:10.1016/S0929-6646(08)60199-0
- Korraa H, Saadeh C. Options in the management of pneumonia caused by *Pneumocystis carinii* in patients with acquired immune deficiency syndrome and intolerance to trimethoprim/sulfamethoxazole. *South Med J*. 1996;89(3):272-277. doi:10.1097/00007611-199603000-00003
- Giles A, Foushee J, Lantz E, Gumina G. Sulfonamide Allergies. *Pharm (Basel, Switzerland)*. 2019;7(3):132. doi:10.3390/pharmacy7030132
- Walzer PD, Ashbaugh A. Use of terbinafine in mouse and rat models of *Pneumocystis carinii* pneumonia. *Antimicrob Agents Chemother*. 2002;46(2):514-516. doi:10.1128/AAC.46.2.514-516.2002
- Cushion MT, Linke MJ, Ashbaugh A, et al. Echinocandin treatment of *Pneumocystis pneumonia* in rodent models depletes cysts leaving trophic burdens that cannot transmit the infection. *PLoS One*. 2010;5(1). doi:10.1371/journal.pone.0008524
- Ceballos ME, Ortega M, Andresen M, Wozniak A, García P, Balcells ME. Successful treatment with echinocandin in an HIV-infected individual failing first-line therapy for *Pneumocystis jirovecii* pneumonia. *AIDS*. 2011;25(17):2192-2193. doi:10.1097/QAD.0b013e32834c4c3c

Acknowledgements:

I'd like to acknowledge all who have contributed to the Twitter thread that launched this conversation, especially Dr. Meryl Sebbane Welp, PharmD, Dr. Deeksha Jandhyala, MD and Dr. Andrej Spec, MD.

Dr. Mira Maximos (she/her) is an inpatient and antimicrobial stewardship pharmacist specializing in infectious diseases at Woodstock Hospital. She is completing a PhD in pharmacoepidemiology at the University of Waterloo with topics of interest being in infectious disease and antimicrobial stewardship. Dr. Maximos also holds two other temporary roles; she is a research associate with the Centre of Excellence for Women's Health, studying sex and gender-based analyses in the lifecycle management of drugs and consults for Firstline (Spectrum) as a knowledge mobilization pharmacist.

Please remember that all content in this article is for information and educational purposes only. It is not intended to substitute professional medical advice. Also please note that opinions are those of Dr. Maximos and do not necessarily reflect those of her employer(s).

CLINICAL PEARLS

[LGBTQ+ CENTRED CARE IN PHARMACY]

WRITTEN BY AL-AMIN AHAMED

Contextualizing Disparities in LGBTQ+ Communities

For decades the LGBTQ+ community has faced outward discrimination and inequities within healthcare. According to a study by Lambda Legal (2010), 56% of 5,000 surveyed LGBTQ+ individuals reported at least one instance of discrimination from health professionals, including; refusal to provide service, refusal to touch patients, physically rough or abusive behaviour from a practitioner, use of harsh and abusive language, or being blamed for their health status. Through experiences like these, LGBTQ+ patients have historically distrusted the healthcare system which has prevented them from seeking

immediate medical attention. 24% of LGBTQ+ individuals are likely to report suicidal thoughts (Hafeez et al., 2017), more prominent in the trans community and 15% more likely to take part in self harm behaviours (Daniels & Butkus, 2015). This is significant compared to cis gendered heterosexual communities.

Why is it important for pharmacists to know about LGBTQ+ issues?

As the most trusted and accessible healthcare professionals, pharmacists play a significant role in representing the healthcare industry and **ensuring that LGBTQ+ patients feel included and respected.** For this reason pharmacists must be made aware of LGBTQ+ issues

and topics surrounding providing culturally competent care within the community to help tackle these disparities.



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CLINICAL PEARLS

[LGBTQ+ CENTRED CARE IN PHARMACY... continued]

Defining LGBTQ+

A major limitation in providing competent care is a lack of understanding of who is represented in the community. Knowing who constitutes the LGBTQ+ community makes professionals more aware of who they are serving and how they can serve them better. LGBTQ+ is a shortened acronym that comprises different sexual orientations, gender identities and gender expression. A more extensive acronym is LGBTTTQQIP2SAA, though many versions with slight changes do exist that consist of many other orientations, identities and expressions. This acronym in particular stands for; lesbian, gay, bisexual, transgender, transexual, queer, questioning, intersex, pansexual, 2-spirit, ally, and asexual. Admittedly, a majority of

these terms are unfamiliar to many healthcare professionals and cannot be assumed based on verbal or visual cues. **Understanding the terms, and more importantly their differences from one another, can allow pharmacists to identify unique barriers** faced by each individual to then provide a more informed level of care. The Human Rights Campaign provides a brief [glossary](#) on common terms used as identifiers in the LGBTQ+ community, please note that this is not a comprehensive list of all terms. **CSHP has also developed a list of key terms and LGBTQ+ organizations and resources** that can be accessed for more information.

While it may be impractical to recognize and identify all of them, **it is rather more important**

to actively listen and respect a person's self-identified terminology.

Allyship in Healthcare
Allyship refers to individuals who are actively supportive of the LGBTQ+ community.

Uncommon to mainstream knowledge is what allyship looks like in practice. Allyship is not limited to cisgender and heterosexual supporters of the LGBTQ+ community, rather it also extends to individuals within the community that are supportive of one another. An example of this would be a gay man who is an ally towards the trans community. In pharmacy practice, regardless

of your sexual orientation, gender identity and expression, everyone and anyone can be an ally to support the wellbeing of all members of the LGBTQ+ community. From donating to LGBTQ+ research and organizations to employing inclusive practices in the workplace, pharmacists can play a pivotal role in reshaping the LGBTQ+ healthcare experience towards a more progressive, inclusive, reliable and positive one.



CLINICAL PEARLS

[LGBTQ+ CENTRED CARE IN PHARMACY... continued]

Delivering More Inclusive Care In Pharmacy Practice

You may be asking what a pharmacist can do in practice to promote a LGBTQ+ safer space. It's quite simple, **educate yourself!** A wide range of resources and courses are a Google search away from making a huge difference in the way we support the LGBTQ+ community. The OPA provides a comprehensive introduction to LGBTQ+ health through their [virtual course](#). CSHP has also recorded a webinar that accurately addresses the stigma regarding LGBTQ+ care in pharmacy practice that can be accessed [here](#), a copy of the slide deck can be accessed [here](#). While these resources may be easily accessed, building a sense of urgency and open-mindedness to incorporate this way of thinking into pharmacy practice is wherein lies the challenges. Taking

accountability to enforce these inclusive practices and ensuring the rest of your team prioritize them as well can help make healthcare more reliable and accessible.

PharmaPride at the University of Toronto is a pharmacy student-run organization that works to promote BIPOC and LGBTQ+ visibility, education and activism. You can follow us @pharmapride on Instagram to view our platform and learn about general LGBTQ+ FAQs through our 'Let's Talk' campaign. For a general approach to delivering competent care, check out the '5 Tips to Deliver LGBTQ+ Centred Care' infographic. More actions to promote inclusive care as well as a

safer space poster can be viewed and downloaded [here](#). Let's continue to encourage a safer space and work to employ as many of these practices into mainstream pharmacy care!

References:

1. Hafeez, H., Zeshan, M., Tahir, M. A., Jahan, N., & Naveed, S. (2017). Health Care Disparities Among Lesbian, Gay, Bisexual, and Transgender Youth: A Literature Review. *Cureus*, 9(4), e1184. <https://doi.org/10.7759/cureus.1184>
2. Daniel, H., & Butkus, R. (2015). Lesbian, gay, bisexual, and transgender health disparities: Executive summary of a policy position from the American College of Physicians. *Annals of Internal Medicine*, 163, 135–137. doi:10.7326/M14-2482
3. Lambda Legal. (2010). *When health care isn't caring: Lambda Legal's survey of discrimination against LGBT people and people with HIV*. Retrieved from http://www.lambdalegal.org/sites/default/files/publications/downloads/whic-report_when-health-care-isnt-caring.pdf



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Andrea Beaman

CAREER CORNER: PERSONALIZED MEDICINE CLINIC PHARMACIST

WRITTEN BY ANDREA BEAMAN

This article series will explore the diversity of interesting practice areas of Pharmacists and Pharmacy Technician members across Ontario. Pharmacists and Pharmacy Technicians offer insight into their roles and advice to others interested in developing their careers. Send suggestions for a position you would like to see highlighted, or nominating a colleague for an interview, to cshp.ob.communications@gmail.com.

Denise was interviewed by

Andrea Beaman,
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CSHP Ontario Branch
Communications Committee Co-Chair
Hospital Pharmacy in Ontario
(HPO) Editor
DUE Pharmacist, Trillium Health
Partners, Mississauga

Name: Denise Keller

Training: PharmD, ACPR.
Denise gained experience in the Personalized Medicine Clinic during her residency at London Health Sciences Centre. Learning in personalized medicine is mainly self-guided.

CSHP membership:
Past member (2018)

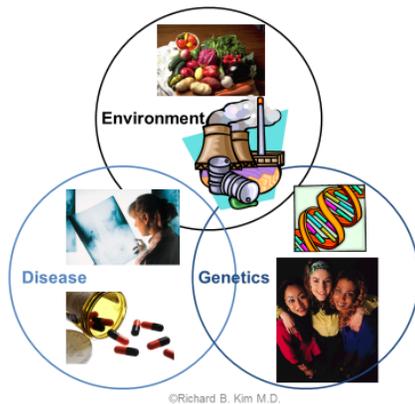


What is your current position and what are the highlights of your practice?

I am the Personalized Medicine Pharmacist at London Health Sciences Centre (LHSC). The Personalized Medicine Clinic is a **one of a kind clinic in Canada that uses pharmacogenomics-based technologies and patient care strategies** to provide guidance on drug therapy. Personalized Medicine (PM), falls under clinical pharmacology and toxicology at LHSC and we work closely with Dr. Richard Kim, a LHSC Clinical Pharmacologist with extensive training in Pharmacogenomics. Pharmacogenomics describes how genetic variations in drug metabolizing enzymes and drug transporters impact a drug's pharmacokinetics.



[CAREER CORNER... continued]



©Richard B. Kim M.D.

Figure 1. Variability in Response to Drug Therapy

The Personalized Medicine Clinic is a consult service available on referral for inpatients or outpatients from across Ontario, and we have consulted for patients from other provinces. Our Personalized Medicine-based approach represents the integration of a patient's genetics, dietary and environmental influences, as well

as clinical or disease conditions to identify more precise treatment options. The guiding principle of providing **“the right dose of the right drug, for the right patient, at the right time”** is used in this evidence-based approach to patient care. As the PMC Pharmacist, I participate in direct patient care, research, and academic teaching.

Patient care:

Our team in Personalized Medicine is led by Dr. Richard Kim with a large interprofessional team of physicians, researchers, learners, laboratory technicians, pharmacists, and nurses. Pharmacist consults are done in person, 3 days/week. At clinic visit, the patient sees members from the entire team. The appointment takes 30-60 minutes, approximately 15 minutes are spent with the Pharmacist, gathering

medication history and counselling on the role of pharmacogenetics in drug therapy management.

In a patient consult, our team incorporates a variety of patient factors including diagnoses, allergies, clinical factors, drug-drug interactions with our expertise in pharmacogenomics and specialized laboratory testing to identify more precise treatment options.

Our clinic provides a variety of specialized testing including, but not limited to:

DPYD (dihydropyrimidine dehydrogenase)

To determine the metabolism of fluoropyrimidine chemotherapy and the potential for life threatening adverse drug events

TPMT (thiopurine methyltransferase)

To determine the risk of myelosuppression with azathioprine

CYP2C19

To determine PPI and clopidogrel efficacy and safety

CYP2D6

Relevant to metabolism and safety with a number of medications including codeine, tramadol, tamoxifen, propafenone, metoprolol

SLCO1B1 and ABCG2

To assess risk for statin-related myopathy

Warfarin genomics

Relevant during initiation of therapy when the stable dose of warfarin is not known

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[CAREER CORNER... continued]

DOAC (direct oral anticoagulants) serum concentrations

Literature supports that dabigatran, rivaroxaban, apixaban, and edoxaban concentrations correlate to serum factor Xa levels and risk of bleeding, and can be used if Xa level measurement is not available or to confirm safety with drug interactions.

Research:

Approximately 30% of the Pharmacist's time is dedicated to research activities, including participation in clinical trials, so it doesn't have to be something that is fit in on the side. We follow international guidelines when deciding which clinically relevant tests to offer, but we also develop our own innovative research to find ways we can improve patient outcomes. Research in personalized medicine includes finding new

genetic variants that contribute to predicting drug response, but also research to move healthcare policy forward.

For example, while pre-emptive DPYD genetic testing for patients planned to receive fluoropyrimidine-based chemotherapy is widely recommended and accepted as standard of care in Europe, North America has been slow to move forward. We recently published a paper showing pre-emptive DPYD genotype testing reduces the increased risk of severe adverse drug events for fluoropyrimidine-based chemotherapy patients in a North American population. We had asked Health Quality Ontario (HQO), to consider province-wide implementation of DPYD genotype testing for the prevention of life-threatening toxicity during

fluoropyrimidine (5-FU and capecitabine) chemotherapy. In early August of this year, based on review of the literature as well as data submitted by our team, Ontario Health Technology Assessment Committee (OHTAC) recommended that DPYD testing be a publicly funded test available to all Ontarians ([www.hqontario.ca/Evidence-to-Improve-Care/Health-Technology-Assessment/](http://www.hqontario.ca/Evidence-to-Improve-Care/Health-Technology-Assessment/Reviews-And-Recommendations/DPYD-Genotyping-in-Patients-Who-Have-Planned-Cancer-Treatment-With-Fluoropyrimidines)

[Reviews-And-Recommendations/DPYD-Genotyping-in-Patients-Who-Have-Planned-Cancer-Treatment-With-Fluoropyrimidines](http://www.hqontario.ca/Evidence-to-Improve-Care/Health-Technology-Assessment/Reviews-And-Recommendations/DPYD-Genotyping-in-Patients-Who-Have-Planned-Cancer-Treatment-With-Fluoropyrimidines)).





[CAREER CORNER... continued]

Academics:

Mentoring pharmacy students and residents is also an important part of the position. Personalized medicine and pharmacogenomics are not always regularly discussed or taught in school. Therefore, providing opportunities for learners to be exposed to this clinical area is particularly important so our future pharmacists consider genetics as a factor in their future practice.

Is this where you saw yourself when you started your career? Any thoughts on your career journey, what led you to this role or interesting steps along the way?

Personalized medicine and pharmacogenomics were small parts of the curriculum so it was not an initial area I foresaw myself

in. I learned about LHSC's residency program and that Personalized Medicine was an elective rotation. I used opportunities during my residency at LHSC to gain exposure to the clinic through elective rotation and my research project.

Education provided me with a solid foundation in pharmacy; however, most of the clinical knowledge for this position has come from independent continuing education. This journey taught me ***that pharmacy school and residency provided the tools and skills needed to transition into any pharmacy career***, but by utilizing formal and informal continuing education, the career opportunities for pharmacists are endless.

What resources would you recommend to someone interested in increasing their knowledge in this area?

As pharmacogenomics becomes more common, it is important to add this consideration into your pharmaceutical care process.

- Many ***standard pharmacy resources*** discuss pharmacogenomics, for example, some Health Canada approved product monographs, Lexicomp, and RxFiles include information about genetics as factors to consider.

- The [Clinical Pharmacogenetics Implementation Consortium \(CPIC\) guideline](#) is an international consortium that reviews all available evidence to translate genetic laboratory results into clinical actionable decisions in guidelines.
- ***Connect with experts*** in the area if you are interested in knowing more.





[CAREER CORNER... continued]

What advice or tips do you have for others interested in a new role?

- Thinking about a new career, especially an unconventional role, can be intimidating. My advice is to remember that **school provides you with transferrable skills** to shift into any new role if you are engaged and interested in continuing education.
- Outside of our hospital-based clinic, there are also community pharmacies offering pharmacogenetic testing. **Reach out to anyone involved in these practice settings** if you are interested specifically in more information in this clinical area.
- **Think outside the box!** I watched a lot of documentaries during the pandemic, I particularly went through a space exploration phase, and discovered that there is a pharmacist working for NASA! She had a strong interest in space exploration, but also in pharmacy and she found a way to combine them into a unique practice setting.

think



REGISTRATION OPEN SOON FOR THE CSHP ONTARIO BRANCH ANNUAL EDUCATION CONFERENCE

**NOVEMBER
2021**

On behalf of the **CSHP Ontario Branch Education Committee**, we are excited to present you with the **73rd Annual Educational Sessions!**

The Education Committee is dedicated to developing a program with topics covering a range of specialties and issues relevant to pharmacy practitioners in hospitals, primary care, and leadership. We will have another exciting lineup of presentations and panels this year offering speakers with strong expertise in their areas. This event has historically been a full Saturday of education sessions and networking. Last year's online platform was a success. The 2021 Program, which will offer a wide range of topics, will remain virtual. These sessions will be held once weekly on Thursday evenings in November for a total of 4 sessions spanning all of

November 2021. Each weekly session will be approximately two hours and will consist of lectures, panels, and workshops. We hope that you are able to take full advantage of the educational value at our 2021 Conference! We look forward to welcoming you to another exciting event!

Thank you for your ongoing support of CSHP.

Information on how to register will be announced soon so stay tuned to the CSHP Ontario Branch website and emails from us!

Cheyenne Matinnia and Élise De Francesco
Co-Chairs, Education Committee
CSHP Ontario Branch





[CSHP Ontario Branch Volunteer Opportunities]

Are you interested in becoming involved in the Ontario Branch? Current Ontario Branch Volunteer Opportunities are available [here](#)

If you are interested in volunteering with the CSHP Ontario Branch please contact CSHP Ontario Branch President at obpresident@cshp.ca.

President Elect - External Portfolio (Term: Nov 2021 - Nov 2024)

This is a Branch Executive position.

The President stream is a **3 year commitment**:

- Year 1 serving as President Elect, the year of learning;
- Year 2 is the Presidential term;
- Year 3 is Past President.

This allows for continuity without significant multi-year workloads. Each presidential position comes with a portfolio that is overseen for the entire 3 years. This year, it will be the **External Portfolio** that the President Elect will oversee. The External Portfolio provides **leadership and linkage to council stakeholder liaisons** and acts as the external representative for the Branch. Ideal candidates would have interest or experience in matters of advocacy.

Term: 3 years

The full terms of reference are available [here](#).

Complete the [nomination form](#) and return to astacey@cshp.ca.

Other Available Positions

Awards Committee Co-Chairs (2 positions) (Term: Nov 2021-Nov 2024)

Primary Care Co-Chair (Term: Nov 2021-Nov 2023)

Sponsorship Committee Co-Chair (Term: Nov 2021-Nov 2024)

Education Committee Co-Chair (1 position) (Term: Nov 2021-Nov 2023)

Chapter Chairs (Term: Nov 2021-Nov 2023)

- Metro Toronto Co-Chairs (2 positions)
- Golden Horseshoe Co-Chair (2 positions)
- Lake Ontario West Co-Chair (1 position)



JOURNAL CLUB

[ONTARIO BRANCH JOURNAL CLUB]

We are happy to announce that the CSHP OB Journal Club [website](#) has been updated with all of the presentations since inception!

Journal club presentations are recorded and available to all CSHP members online CSHP Webinars - CSHP | Canadian Society of Hospital Pharmacists

We hope to see you at an upcoming session, watch your inbox or social media for registration details.

If you are interested in presenting at an upcoming Journal Club, please contact @marriamarchese. No experience is required! It's a great learning opportunity for everyone.

Recent Ontario Branch Journal Club sessions
(member login required):

OB Journal Club-Opioid agonist therapy

– what mu need to know

Nicole Seymour, PharmD, ACPR
Centre for Effective Practice
August 18, 2021

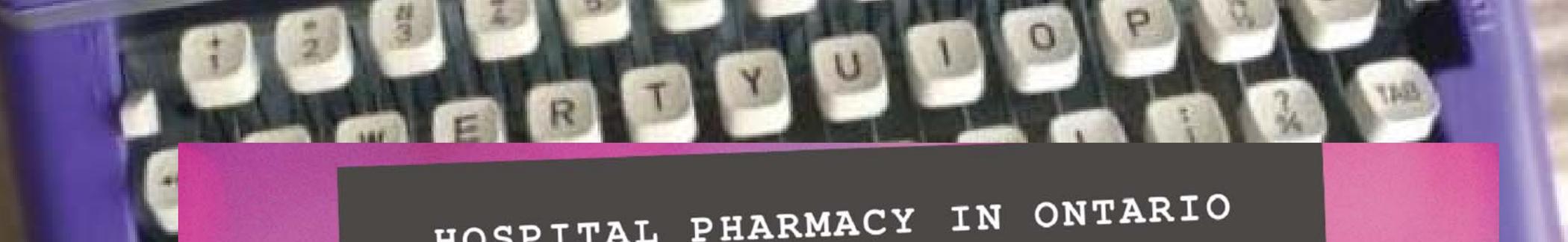
Colchicine the Chameleon: A Critical Appraisal of its Utility in Secondary Prevention of Coronary Artery Disease

Narthaanan Srimurugathan, PharmD,
Pharmacy Resident
Trillium Health Partners
July 13, 2021

A Clot Conundrum: A Pharmacist Approach to Vaccine-Induced Thrombotic Thrombocytopenia (VITT)

Jennifer Pitman, BSc Pharm, ACPR,
Sunnybrook Health Sciences Centre
PGY2 Thromboembolism Pharmacy Resident
June 16, 2021





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