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CORONAVIRUS (COVID-19) and UBC's response: Information and FAQs [here](#).

Launch of *Our Practice* podcast

This year the UBC Pharmacists Clinic launched a new podcast series. The *Our Practice* podcast was created to talk about the evolving pharmacy profession and the challenges and rewards of providing innovative patient care. The first two episodes are now available for streaming on the Faculty [website](#), [Apple Podcasts](#) and [Spotify](#).

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FEATURE ARTICLE

Learning by doing: A student's perspective

BY: LAUREN SIEMERS, 3RD-YEAR ENTRY-TO-PRACTICE PHARMD STUDENT



Experiential learning or “learning by doing” is a way for students to gain valuable skills and practical insights through hands-on, real-world work experiences and connect their learning to possible future work environments.¹ This hands-on approach to learning has become a fundamental element in Canadian pharmacy school curricula.² Studies have demonstrated the value of experiential learning and suggest that without hands-on practice, individuals could be ill-prepared to perform their required professional activities in the real world.^{3,4}

What does this mean for students, in practical terms? As a student pharmacist at UBC, I am living proof that some of my most impactful training has occurred outside of the lecture hall.

The Value of Learning by Doing

Formal experiential learning opportunities can take several forms, as outpatient, inpatient, and non-direct patient care course rotations. Experiential learning and professional development also happen with student employment, directed studies, and volunteering. Some meaningful skills that I acquired and practiced through experiential learning include:

- **Taking ownership for my work.** In the past, I lacked the confidence to critique and revise my own work within a project team. With more practice and

experiential learning, I became more comfortable being part of a team, contributing my ideas and working collaboratively with others.

- **Understanding the big picture.** I recognized that being detail-oriented is only worthwhile if I understand the large-scale value of what I am doing. With practical experience, I've learned how to ask the right questions when I start to engage with people or projects.
- **Time management and professional communication.** I have learned that success in any project begins with properly scheduling tasks and effective communication. While many students understand the importance of these skills in the classroom, the only way to really improve is to utilize them in a real-world environment.
- **Receiving and implementing constructive feedback.** Feedback from educators, preceptors, and patients have resulted in some of my most rapid and purposeful development.

Learning by Doing in Action

In the summer of 2019, I was hired by the Pharmacist's Clinic as a student employee. Over the past two years I participated in a variety of research-based and practice-based projects in collaboration with clinic team and other student pharmacists.

A stand-out project was establishing and helping to lead a Patient Advisory Group (PAG). The purpose of a PAG is to seek patient and caregiver feedback to ensure that the patient voice is adequately represented and prioritized.⁵ Feedback from the PAG is integrated into the Clinic's initiatives and operations.

Initially, this seemed like a relatively straightforward project and I assumed it would have no effect on my growth as a student pharmacist. To my surprise, my attendance in the first PAG meeting turned out completely different than expected and opened my eyes to how patients perceive the work pharmacists do. The group members discussed the positive impacts pharmacists have had on their lives, particularly the pharmacists' ability to connect, build rapport and create a safe space for them to speak candidly. Comments included:

- "[My appointment was a] launching pad to take control over my health."
- "[I] felt supported, heard, and empowered."
- "[My pharmacist] made me comfortable and willing to cross the barrier and seek advice."

I had assumed that the pharmacists' clinical knowledge was what would matter most, and I was wrong. Clinical knowledge matters, but how we treat patients matters more.

After the meeting, I felt completely inspired. Not only did this project help me learn how to organize and run virtual group meetings, it reignited my passion for pharmacy. This is why I am pursuing a career in pharmacy and I want to do everything I can to make my own patients feel empowered, heard, and safe. I also

became aware that what I learned and how I felt is not something that can be taught in the classroom, it must be experienced!

Continuing to Learn by Doing

As a student pharmacist, I quickly appreciated the impact of learning by doing. Now, I actively seek and engage in experiential learning wherever I can. I want to continue to gain unique skills that are only available through real-world experiences. I am grateful to the incredible preceptors and supervisors who offer these learning opportunities for student pharmacists. They are truly shaping the future of our profession, one student pharmacist at a time.

References

1. Bruce BC, Bloch N. Encyclopedia of the sciences of learning [book on the Internet]. Boston (MA): Springer; 2012 [cited 2021 April 24]. Available from: https://doi.org/10.1007/978-1-4419-1428-6_544
2. The Canadian Council for Accreditation of Pharmacy Programs. Accreditation Standards for the First Professional Degree in Pharmacy Programs. Toronto: Leslie Dan Faculty of Pharmacy, University of Toronto; 2014 [2014 July; 2021 April 24]. Available from: <https://ccapp.ca/wp-content/uploads/2020/10/July7-CCAPP-Professional-Standards-ENG.pdf>
3. Rathbun RC, Hester EK, Arnold LM, Chung AM, Dunn SP, Harinstein LM, et al. Importance of Direct Patient Care in Advanced Pharmacy Practice Experiences. *Pharmacother J Hum Pharmacol Drug Ther*. 2012;32(4):e88–97.
4. Hall K, Musing E, Miller DA, Tisdale JE. Experiential Training for Pharmacy Students: Time for a New Approach. *Can J Hosp Pharm*. 2012;65(4):285–93.
5. Sharma A, Angel L, Bui Q. Patient Advisory Councils: Giving Patients a Seat at the Table. *Fam Pract Manag*. 2015 Aug;22(4):22–7. Available from: <https://www.aafp.org/fpm/2015/0700/p22.html>

CASE STUDY

Antibiotic prophylaxis for recurrent UTIs: Resolution or Resistance?

BY: NICOLE (NIKKI) DOMANSKI, BSC, PHARMD, RPH, ACPR AND LAUREN LEHMAN, 4TH-YEAR ENTRY-TO-PRACTICE PHARMD STUDENT



RB is a 59-year-old female who self-referred to the Pharmacists Clinic to discuss the risks and benefits of antibiotic prophylaxis for recurrent urinary tract infections (rUTIs). During the initial telehealth appointment, RB shared that her mobility is limited due to a neurogenerative disorder, currently treated with non-pharmacologic methods. She has been mobilizing with a wheelchair for the past 2 years. In terms of past medical history, RB has asthma, which is well controlled with a maintenance inhaler. She reports a severe allergy to sulfa medications (anaphylaxis). She denied any anatomical issues affecting the structure or function of her bladder.

RB reports that her UTIs began occurring subsequent to her wheelchair use, and the frequency has increased since. Her symptoms include abdominal pain, cramping and discolored, foul-smelling urine. She received a prescription for nitrofurantoin 100 mg once daily but is concerned about taking an antibiotic prophylactically due to its potential for causing antimicrobial resistance. Her previous antibiotic history includes nitrofurantoin 100 mg twice daily for seven days (two months ago) and cefixime 400 mg once daily for seven days (one month ago); both of which were well tolerated and resolved her symptoms.

Complications from UTIs, including pyelonephritis and hospitalization, are more common in patients who have limited mobility and become more prevalent with age.^{1, 2} Although asymptomatic bacteriuria is not usually treated, RB is symptomatic and antibiotic therapy can be considered. Chronic prophylaxis is recommended in patients who experience two or more culture proven episodes in six months or three or more infections in one year, to decrease the frequency and prevent complications.^{3,4} Given that RB has had two UTIs within the last three months, antibiotic prophylaxis is indicated.

To address our patient's concerns about resistance, a literature search was conducted to determine the rates of resistance associated with long-term antibiotic use for rUTIs. Unfortunately, extrapolating resistance rates from studies conducted in different geographical communities is not ideal, as resistance patterns can differ. There is also limited evidence discussing resistance rates of antibiotics when used prophylactically.

One study compared nitrofurantoin, sulfamethoxazole/trimethoprim (SMX/TMP), trimethoprim and placebo in patients who used intermittent self-catheterisation to empty their bladder.⁵ The results showed a reduced frequency of UTIs and indicated a 24% resistant rate in the nitrofurantoin group, as compared to 53% resistance rates with SMX/TMP after 1 year of use.⁵ Although we cannot extrapolate these numbers to our patient as she is not catheterized and local antibiograms differ in every region, the data suggests that nitrofurantoin has lower resistance rates when used prophylactically as compared to SMX/TMP and trimethoprim. There also appears to be a consensus that nitrofurantoin has lower rates of resistance when used for acute treatment of UTIs compared to other antibiotics and has shown minimal effects on the normal fecal microbiome.⁶ Because our patient has an allergy to sulfa, options are limited. Regardless, nitrofurantoin appears to be the most appropriate option for RB.

Lastly, adverse drug reactions associated with long-term antibiotic use were discussed. Gastrointestinal side effects are a predominant concern, but toxicity such as pulmonary fibrosis, hepatitis and neuropathy have also been reported with long-term use of nitrofurantoin.⁵ Caution should be taken in patients with decreased renal function as pulmonary toxicities are more likely to occur.⁷ A 3-month trial is recommended to determine tolerability and safety of the prophylactic therapy.⁸ We will continue to follow RB as she starts treatment for 3 months and monitor for adverse reactions or recurrence.

Antibiotics have a role in preventing rUTIs and associated complications, such as pyelonephritis and hospitalization.⁴ However, for every patient, it is important to consider risks and benefits of prophylactic therapy as resistance or adverse effects may outweigh the benefits. In this case, nitrofurantoin 100 mg once daily for 3 months was a reasonable option for our patient and appear to be associated with lower rates of resistance.

References

1. DiPiro J, Talbert R, Yee G. Pharmacotherapy. New York: McGraw-Hill Professional Publishing; 2008.
2. Rogers M, Fries B, Kaufman S, Mody L, McMahon L, Saint S. Mobility and other predictors of hospitalization for urinary tract infection: a retrospective cohort study. *BMC Geriatrics*. 2008;8(1).
3. Anger J, Lee U, Ackerman A, Chou R, Chughtai B, Clemens J et al. Recurrent Uncomplicated Urinary Tract Infections in Women: AUA/CUA/SUFU Guideline. *Journal of Urology*. 2019;202(2):282-289.
4. Cortes-Penfield N, Trautner B, Jump R. Urinary Tract Infection and Asymptomatic Bacteriuria in Older Adults. *Infectious Disease Clinics of North America*. 2017;31(4):673-688.
5. Fisher H, Oluboyede Y, Chadwick T, Abdel-Fattah M, Brennand C, Fader M et al. Continuous low-dose antibiotic prophylaxis for adults with repeated urinary tract infections (AnTIC): a randomised, open-label trial. *The Lancet Infectious Diseases*. 2018;18(9):957-968.
6. Price J, Guran L, Gregory W, McDonagh M. Nitrofurantoin vs other prophylactic agents in reducing recurrent urinary tract infections in adult women: a systematic review and meta-analysis. *American Journal of Obstetrics and Gynecology*. 2016;215(5):548-560.
7. Geerts A, Eppenga W, Heerdink R, Derijks H, Wensing M, Egberts T et al. Ineffectiveness and adverse events of nitrofurantoin in women with urinary tract infection and renal impairment in primary care. *European Journal of Clinical Pharmacology*. 2013;69(9):1701-1707.

8. Smith A, Brown J, Wyman J, Berry A, Newman D, Stapleton A. Treatment and Prevention of Recurrent Lower Urinary Tract Infections in Women: A Rapid Review with Practice Recommendations. Journal of Urology. 2018;200(6):1174-1191.

Note

Each case study has been peer reviewed and qualifies as a non-accredited learning activity (CE-Plus) within the annual professional development requirement for licensure by the College of Pharmacists of British Columbia.

Your Responsibility

The recommendations in this case are based on the views of our clinicians after careful consideration of the best available evidence and needs of a specific patient. As a health care professional, you will assess each of your cases based on the patient's unique circumstances and in consultation with the patient and their care team.

If you would like to discuss one of your patients with us please [contact](#) the Clinic team.

Images: Justin Lee Ohata, UBC Pharm Sci



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