

Complexity in Canadian Healthcare Project:

Part II Complexity Café Script

Sarah Flynn, Erin Goode, Audra Kozun & Jamie Steele

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Department of Nursing, Thompson Rivers University

HLTH 5200: Canadian Healthcare System

Dr. A. Virani

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Moderator: Welcome to this complexity cafe discussion tackling a complex issue in healthcare: obstetric care access for pregnant persons. My name is Audra Kozun and I will be your moderator for this presentation.

Before introducing the topic, I would like to take a moment and center this discussion by humbly acknowledging the land and history we stand upon today. In our group, we all come to you from different areas of what is now known as British Columbia. I personally reside on the ancestral lands of the Teechamista and the Lekwungen-speaking people of the Songhees and Esquimalt Nations. Sarah Flynn and Jamie Steele reside on the traditional territory of the Sto:lo people. Erin Goode comes to us from the same area as Thompson Rivers University, Tk'emlups to Secwepmc territory, situated within the unceded ancestral lands of the Secwepemc Nation.

To begin, we will start with viewing our Complexity Project to set the stage for the discussion ahead.

-----Play Complexity Video-----

Introduction & Background

Mod.: Now that we have explored the context of the issue at hand, we now invite you into a discussion about practical solutions. I have here online with us three professionals in the healthcare field that have been selected as representatives. Thank you to the three of you for joining us! By way of introduction, could you tell us your role and name?

Registered Nurse (RN): I can start us off: My name is Sarah and I am a Registered Nurse in public health.

Nurse Practitioner (NP): I am a local nurse practitioner, and my name is Erin.

General Practitioner (GP): And I am Dr. Steele, but you can call me Jamie. I am a family practice physician with obstetric privileges.

Moderator: After seeing that video and reflecting on your own practice areas, what are current solutions and why do you think they are not working?

GP: Typically, this demographic has been cared for by GP's with obstetric privileges, registered midwives, and even some areas have Obstetricians taking on a patient load. However, the GP's typically take on the lion-share of the responsibility. What we are dealing with now is the same amount of pregnant people needing care, but far less GP's doing family practice or taking obstetric patient loads.

NP: In combination with the decreasing numbers of GP's, the midwives are branching out with their contract's allowance for consultations. There are more options for midwives than just doing full-course midwifery care. They can provide other services such as lactation consultations, conception counselling, or strictly antepartum or postpartum care. This decreases the caseloads of obstetric patients that can be cared for by midwives leading to more unattached patients.

RN: Access is also a growing problem. With less GP's doing obstetrics as part of their family practice due to contract restrictions on their compensation and a historical push for specialization in universities, rural areas are feeling the strain. If a provider cannot be found, patients are resorting to using walk-in clinics or the emergency room for a cobbled-together version of in-person prenatal care.

First Solution

Mod.: What I am hearing is that the key players that have historically provided care for this population are dwindling impacting the pregnant population. If this is the case what are some other solutions? (Description)

RN: That's a great question Audra; one solution that comes to mind is at-home perinatal monitoring, which involves assessing maternal and fetal well-being in the comfort of one's own home. Perinatal monitoring includes assessment data such as non-stress tests (NST), designed to help identify pregnancy complications and prevent adverse outcomes (Miller, 2023). Patients collecting perinatal assessment data independently improves access to perinatal care and decreases barriers to care (Nelson & Holschuh, 2021). Perinatal care providers reported that at-home monitoring reduced their clinic schedule, allowing more time for complex, high-risk pregnancies and effectively maintaining a higher caseload (Atkinson et al., 2023). This could give perinatal patients easier access to a primary care provider much earlier in their gestation.

Mod.: Would this be the first time this solution has been used? Or has it been trialled elsewhere? (Description)

RN: As of the available evidence in BC, there is no indication of an existing at-home NST monitoring program. Current practice guidelines and scholarly sources state that all NSTs are conducted in a medical facility (Health Link BC, 2022; Miller, 2023). Therefore, the implementation of at-home monitoring for fetal and maternal health, as evidenced in studies conducted in Europe and the United States, would represent an entirely new solution for the province of BC (Hackeloer et al., 2023; Hamm et al., 2022; Zizzo et al., 2021). There is an at-home antepartum program through BC

Women's Hospital, however; the nurse completes home visits rather than virtual, independent patient monitoring (Provincial Health Authority, 2024).

Mod.: Can you please provide more information on what at-home monitoring involves and how it will benefit the complexity of perinatal provider shortage? (Description, Strengths and Rationale)

RN: During an NST, fetal heart rate is measured in response to fetal movement without external stressors placed on the fetus, such as contractions or maternal movement (American College of Obstetricians and Gynecologists, 2023). This test is particularly recommended for high-risk pregnancies, including those with gestational diabetes, gestational hypertension, fetal growth restriction, post-term pregnancies, pregnancies with multiple fetuses or other pregnancy abnormalities (American College of Obstetricians and Gynecologists, 2023). Based on the NST interpretation or specific indications, some pregnancies may require patient admissions for days to weeks (Vermeulen-Giovagnoli, 2015).

In British Columbia (BC), fetal monitoring is performed in hospitals or clinics (Health Link BC, 2022); however, fetal monitoring can be facilitated electronically in the community (Zizzo et al., 2021). A nurse can educate patients on conducting their assessments, and the data would be transmitted to a computer for a healthcare professional to interpret (Zizzo et al., 2021). This allows patients to be brought into hospitals only if anomalies exist or the patient advocates for an assessment. Monitoring patients virtually can potentially increase perinatal care provider availability by decreasing the number of in-person medical visits, creating more time in their schedule (Zizzo et al., 2021). Having a registered nurse complete patient

education and interpret assessments would also decrease the time physicians spend on delegable tasks.

Mod.: How effective do you see this solution in combating the perinatal provider shortage?

(Strengths & Rationale)

RN: At-home fetal monitoring presents a shift from the traditional location of perinatal monitoring, which offers many advantages for patients and the healthcare system. The testing frequency varies but could be daily, weekly or as-needed (Vermeulen-Giovagnoli et al., 2015). With NSTs being completed in medical settings in BC, patients are required to travel to the nearest center, creating a disparity in access for some (Atkinson et al., 2023).

Implementing at-home monitoring has been shown to improve maternal and fetal outcomes due to the enhanced quality of care (Zizzo et al., 2021). Patients reported experiencing an increased involvement in their care and cost savings associated with travel and childcare expenses (Hackeloer et al., 2023). Patients engaging in at-home monitoring reported feeling greater support from healthcare providers due to having direct contact day or night and the ability to visit in person without feeling like a burden (Zizzo et al., 2021). This autonomy and involvement in care not only reduces maternal anxiety, but also provides increased freedom for high-risk patients (Zizzo et al., 2021). The data received is also viewed and interpreted in real-time, which furthers the precision and quality of care delivered (Hamm et al., 2023).

From the healthcare system's perspective, at-home fetal monitoring provides many benefits. It could decrease hospital admissions and outpatient visits, a cost-

saving for the overall healthcare system (Zizzi et al., 2021). A study completed in Denmark demonstrated significant cost savings, reporting 18 million in 5 years saved due to at-home monitoring for high-risk pregnant patients (Zizzo et al., 2021). The study included 400 pregnant patients, and the implementation of the at-home monitoring program saved over 4200 days of hospitalization (Zizzo et al., 2021). Of note, despite the pregnancy complications, only 18% of patients required admission, upholding the program's safety and success (Zizzo et al., 2023). By decreasing admission rates, this program can help mitigate the impact of provider shortages, allowing healthcare providers to manage a larger caseload with less burden (Nelson, & Holschuh, 2021).

Mod.: This sounds promising! However, any new endeavor can have its drawbacks. What do you foresee being an issue for this solution's implementation? (Challenges of Implementation and Implementation Feasibility)

RN: You are correct, even successful solutions have challenges. Geographical location plays a significant role, as patients living in areas that lack technology and poor network connections may face barriers to accessing monitoring systems (Sabetrohani et al., 2023). The patient's financial status and educational level also create disparities due to the need for smartphones to upload data and the necessity of education on conducting autonomous assessments (Sabetrohani et al., 2023).

There are also challenges for the healthcare system to implement at-home monitoring programs. Financial barriers such as lack of funding for technology, training and increased staff to monitor the program pose significant challenges (Sabetrohani et al., 2023). Studies have recommended using decision support algorithms to enhance the precision of clinical decision-making; unfortunately, using

such systems comes with added training and technology costs (Hackeloer et al., 2023).

Another potential limitation is the exclusion criteria; pregnancies complicated by uncontrolled hypertension or diabetes, significant fetal anomaly, implanted electronic devices, or lack of access to required resources were excluded from the program (Hamm et al., 2023). These exclusions will still require hospital setting monitoring. This might also double as a benefit because the decreased workload with the pregnancies included in at-home monitoring creates more provider time for high-risk patients (Atkinson et al., 2023). Addressing these limitations creates the potential for effective and equitable implementation of at-home monitoring solutions for pregnant patients. This would help create more capacity for providers to take clients. It could also work exceptionally well if started in a multidisciplinary clinic with different providers in house.

Second Solution

Mod.: Thank you Sarah, well said! Now that we've heard from our public health RN, let's turn to another of our panelists. Jaime, as a physician, where do you see a solution for this current provider shortage? (Description)

GP: Thank you, Audra. I believe a solution to our current provider shortage lies in exploring how we can better align our existing resources with the needs of the pregnant population that we serve. The concept of a multidisciplinary clinic is not a new entity, and, in fact, is considered a key component of patient-centered care and an essential element in enhancing care delivery (Mulvale et al., 2016). A multidisciplinary clinic offers pregnant patients the convenience of accessing various health services in a single location. This not only makes it easier for them to receive care but also has the

potential to improve compliance, since they don't need to travel to multiple clinics for different aspects of their care.

In a multidisciplinary clinic, the principle of 'shared care' is central (Boesveld et al., 2017). This involves interdisciplinary team members working together in collaboration with the patient to ensure the provision of optimal care (Boesveld et al., 2017). Interdisciplinary team members in a multidisciplinary clinic could include a variety of healthcare professionals, such as obstetricians, general practice physicians like myself, midwives, doulas, certified lactation consultants, and clinical counsellors. By drawing upon both their personal expertise and the collective knowledge of their colleagues within the same office, healthcare providers can effectively address the healthcare needs of pregnant patients throughout pregnancy, delivery, and postpartum (Horan et al., 2023).

Mod.: Now is this a solution that is already happening, or would it be a brand-new concept in BC? (Description)

GP: -While this concept is already established in a few locations across the province, such as the newly opened clinic on Vancouver Island (West Coast Gynecology and Perinatal Care and Full Circle Family Practice), as well as in Abbotsford (Fraser Birth Collaborative), and the Surrey area (Community Birth Program), I believe there is significant potential for more multidisciplinary clinics, especially in rural communities. It's no secret that patients in rural areas often lack access to adequate healthcare services. Expanding these clinics can help address this gap, providing essential support to pregnant patients as they embark on their new journey in life.

Mod.: These clinics are intriguing. What about them lends itself to succinctly solving part of the crisis? (Strengths & Rationale; Implementation Feasibility)

GP: A shared care model enables each member of the interdisciplinary team to utilize their specific skills more effectively and efficiently in providing patient care (Boesveld et al., 2017). For example, a pregnant patient seeks care at a multidisciplinary pregnancy clinic. Initially, they may have an appointment with a general practice physician like myself, or a midwife who also works at the clinic. Depending on availability, subsequent appointments might be with the same provider or another midwife or family practice physician. Appointments are often scheduled in a way that allows the patient to meet various team members, as the on-call rotation typically rotates among them—similar to other clinics.

Now let's say around 34 weeks this patient develops symptoms of early pre-eclampsia, such as a persistent headache, blurred vision, and their blood pressure is quite elevated in the office. Rather than sending this patient to another clinic to see an obstetrician for a consult, the obstetrician working at the multidisciplinary clinic can see the patient in the following days to plan for further follow up and monitoring. The patient continues to attend appointments at the multidisciplinary clinic, sometimes seeing the obstetrician, or general practice physician or midwife. The continuity of care is maintained, and the patient feels comfortable with any of the providers attending the labour and birth (Murdock et al., 2018). From the perspective of the healthcare provider, collaborating and interacting with colleagues can influence the outcomes of patient health positively (Horan et al., 2023). When the healthcare system cooperates with patients rather than working against them, it reduces the likelihood of patients 'falling through the cracks' and experiencing gaps in their care (Horan et al., 2023).

Another important aspect to consider is healthcare provider burnout. From a physician's perspective, this phenomenon is not thoroughly researched, and there is a common belief that greater autonomy might reduce burnout rates. However, this correlation lacks definitive evidence (Dow et al., 2019). A multidisciplinary clinic provides opportunities for interdisciplinary members to take much-needed days off, allowing them to recharge and prioritize self care while maintaining the high standard of patient care. The clinic's structure also facilitates easier provider coverage, thanks to a rotating call schedule that ensures rest days between office shifts and on call duties. By promoting ongoing interprofessional collaboration, such clinics can potentially decrease practitioner burnout by promoting teamwork as a key strategy (Dow et al., 2019; Murdoch et al., 2018).

Mod.: Do you foresee any challenges that might cause this solution to lose traction or not get off the ground? (Challenges to Implementation)

GP: -The main challenge lies in promoting effective interpersonal communication within the multidisciplinary clinic (Murdoch et al., 2018). Are healthcare providers adequately trained to engage with members of interdisciplinary teams? And more importantly, are they willing to do so? The tendency to exclusively train individuals within similar qualifications creates a 'siloed' effect that hampers collaboration (Baecher-Lind et al., 2022). Effective interprofessional collaboration is essential for the clinic to function as intended. Yet, the reluctance of practitioners to engage with colleagues that have differing qualifications can lead to poor communication, limited understanding of the professional roles, and a lack of trust among team members (Murdoch et al., 2018). True collaboration requires recognizing and valuing the unique contributions of each team member, transforming individual expertise into a collective and

collaborative practice that enhances patient care (Murdoch et al., 2018). Coordinated care among health care professionals during pregnancy, labour, and birth not only saves lives but also helps prevent birth trauma (Horan et al., 2022). Studies have identified the lack of interaction between patients and providers as a significant risk factor for traumatic birth and the resurgence of post-traumatic stress disorder (PTSD) related to previous birth trauma (Horan et al., 2022). Thus, promoting meaningful communication and collaboration among healthcare professionals is crucial for improving patient outcomes in the multidisciplinary clinic (Horan et al., 2022).

Mod.: What about actual, local implementation? For clinics of this scope and size, with a diverse group of providers, what issues might crop up slowing implementation? (Implementation Feasibility)

GP: -Well clearly, this solution doesn't directly tackle the problem of the provider shortage-I can't fix that, nor is it my goal here. Instead, I propose we make the most of what we have: general practice physicians, midwives, obstetricians, and bring them together to utilize our resources more effectively. The shortage of providers isn't going away, and it can be daunting for new care providers to navigate the field with minimal experience out of school. So, let's facilitate a team atmosphere where we recognize and combine different, yet complementary, skill sets to reach more patients that we would have been able to see independently (Murdoch et al., 2018). Let's collaborate to provide the best possible patient care, and at the same time promote retention of our colleagues and help alleviate burnout among practitioners (Horan et al., 2022; Dow et al., 2019).

Undoubtedly, funding poses a significant challenge to the implementation of a multidisciplinary clinic. Without adequate financial resources from key stakeholders, the clinic may struggle to fulfill its intended purpose. Addressing the elephant in the room, it is critical to examine the provider pay-scale to ensure fair compensation for their invaluable work (Murdoch et al., 2018). Additionally, funding for interpersonal communication training is essential to equip multidisciplinary team members with the necessary skills for effective teamwork and collaboration (Baecher-Lind et al., 2022). While it is recognized that this style of working and clinic may not suit all practitioners, it represents a positive step forward in addressing the complexities of women's health and meeting the increasing demands placed on perinatal care providers (Baecher-Lind et al., 2022).

Third Solution

Mod.: Jamie, that was fantastic! Thank you for explaining how this type of clinic could really help the provider shortage. You've given us a lot to think about!

Now last, but certainly not least, Erin: as a Nurse Practitioner, what solution are you hoping to bring to the conversation? (Description)

NP: Nurse practitioners (NP) are advanced practice nurses (APN) who integrate clinical skills associated with nursing and medicine. NPs have a broad and autonomous scope of practice with the ability to provide a full range of comprehensive health services to individuals across their life span (Staples et al., 2021). In Canada, NPs continue to be underutilized and their scope is often limited due to lagging policy, not education or knowledge. As far as contributing to our complexity issue, increasing access to prenatal care, NPs can play a significant role in increasing accessible and equitable healthcare for this population of patients (Kneller et al., 2023). Currently, in BC, NPs

are limited in their scope to provide prenatal care to complex maternal patients or to provide labour and delivery services, including non-complicated births (BCCNM, 2023). One of our solutions is around expanding the NP's scope to include delivering babies as well as bridging education to include specialized prenatal care to complex obstetrical patients.

Currently, NPs have the education and skills to provide perinatal and postpartum services to uncomplicated obstetrical patients and have been doing so with great maternal and neonate outcomes (Kneller et al., 2023). Our solution would be to increase access for even complex obstetrical patients through increased education and certification for NPs who want to increase their scope of practice, especially NPs currently working in rural and remote areas of BC. An example of NPs that can care for high-risk obstetrical patients are certified Women's health nurse practitioners (WHNP). WHNPs are the only nurse practitioner population to hold enumerated competencies in providing high-risk pregnancy and postpartum care (NPWH, 2022). WHNPs are NPs who take extra education and are then certified by the National Association of Nurse Practitioners in Women's Health (NPWH). WHNPs have been proven to enhance the health outcomes of maternal patients and their babies when there are identified morbidity and mortality risks (NPWH, 2022). WHNPs are currently practicing in the United States, and although there are NPs that specialize in women health in Canada, legislation continues to limit their scope of practice to uncomplicated pregnancies only.

Mod.: This is fascinating! Are there any NP's in Canada that have set the precedent and are delivering babies? Or would such a policy shift be completely novel for the country?
(Description)

NP: Well in BC, the only authorized roles to provide labor and delivery services are physicians and midwives. Furthermore, if you are considered a high-risk pregnancy, you are not able to see a NP for prenatal or postpartum care. This undoubtedly decreases access to services for our pregnant population of patients, especially those living in rural or remote areas around BC. Now, interestingly enough, in Manitoba, the scope of practice includes managing the labour and delivery of a baby in a health care facility where labour and delivery services are provided (College of Registered Nurses of Manitoba, 2022). It seems as though this is meant to cover the liability of a NP when there is no physician or midwife available. In saying that, it is also important to mention that nurses and NPs have been supporting deliveries in rural communities due to a lack of the proper “licenced” provider for many years when a birth is imminent and there is no time to be transferred. And it is no secret that labour and delivery nurses all over the world deliver babies when physicians don’t make it in time. So our solution is not trying to do anything new, it is more about removing the limitations.

Mod.: How do you see carving out a spot for NP’s at the table positively fighting the provider shortage we are seeing in the obstetric population? (Strengths & Rationale; Implementation Feasibility)

NP: NPs can play a crucial role in obstetrical care through innovative NP-led prenatal clinics (PNC). NPs can run dedicated clinics for routine prenatal checkups, monitor pregnancies and provide education on healthy pregnancy practices. Furthermore, NPs can offer education for childbirth preparation empowering patients to make informed decisions (Kneller et al., 2023). A program in the United States evaluated the effects of a PNC model for high-risk pregnancies in rural communities and found

that there were improved rates of appointment attendance and decreased adverse effects of pregnancy (Kneller et al., 2023). Our solution includes using NPs at their full scope and implementing similar programs and prenatal clinics in rural BC contexts.

Mod.: With such a novel concept for BC, I wonder: what are some challenges that might create a roadblock for this to come about? (Challenges of Implementation)

NP: Regulatory Barriers will be the biggest hurdle and although NPs are making big progress in our current province, that progress can be slow-moving. In saying that, increasing the NPs scope is not asking for anything new. Within the last 10 years the gap between the scope of practice of physicians and NPs is closing. Besides labour and delivery services, NPs and family practitioners have a very similar scope of practice in BC. Just recently, the NP scope of practice expanded to include more pharmacotherapy and admitting privileges of involuntary mental health patients (BCCNM, 2023). And if we compare to Manitoba, we aren't asking for something that isn't already happening, if you get what I mean?

Another hurdle may be the collaboration between physicians, OBs and midwives. Our solution would need to be sold in a non-threatening way to ensure that removing restrictions would not interfere with the already in-place roles of the other providers. Buy-in from these partners is imperative for the successful implementation of our solution.

Mod.: Well that's very interesting to hear. Besides those bigger challenges you mentioned, do you foresee any smaller issues in the community posing a problem? (Implementation Feasibility)

NP: Yes, public awareness!! Right now, if you go to any health authority website and look for information on choosing a provider for prenatal care, a NP is not even an option. There continues to be a lack of awareness and confusion of what a NP does and the role they play in the healthcare system. Traditional healthcare models continue to prioritize physician-led care, which often overshadows the contributions of the NP. The public, for the most part, continues to be unaware of the capabilities of NPs in providing primary care or specialty services, such as prenatal care. Furthermore, the scope of practice for NPs can vary between provinces due to different regulations and healthcare policies. This variability can lead to confusion among the public about the NP roles and responsibilities. To improve this, healthcare organizations, professional associations and policy makers need to promote the NP role and educate the public about their capabilities and highlight the value they bring to the healthcare system (Staples et al., 2021).

Mod.: Thank you, Erin, for explaining that so well for us. Looking to a future with advanced care NP's expanding their scope is exciting to say the least!

Summary

Mod.: As we close, I want to thank all our participants for the excellent solutions from the different disciplines.

Sarah, I appreciated how you showed the value of at-home NST's and the versatility of flexible, online or telehealth delivery of specialty services. The cost-effective implementation suits it for rapid use by existing public health clinics.

Jamie, from our physicians point of view, it was refreshing to hear of such a shared-care and patient-centred approach to using the resources we have. It reminded me of

the old saying, “work smarter, not harder”. By using the skills of many disciplines, the clinics will have more bandwidth to help more of our pregnant population.

And Erin, getting to hear about how NP’s can be brought into the circle of care for this population was fascinating! I’m excited to see how promoting and educating the general public on the scope of NP’s can help increase the awareness and acceptance of such a valuable asset in combating the provider shortage.

As we close, do any of you have closing thoughts regarding the solutions you offered?

RN: Thank you, Audra. The evidence screams the potential benefits of at-home monitoring management for pregnant patients, specifically for non-stress testing. This new approach improves patient empowerment and demonstrates long-term cost-effectiveness for patients and the healthcare system (Zizzo et al., 2023).

Implementing at-home perinatal monitoring demonstrates a feasible approach to the perinatal care provider shortage. The consideration of implementation in BC could lead to advancements in maternal and fetal care, potentially reshaping the broken perinatal care system.

GP: Too long has the medical field been hierarchical and siloed. With the breadth and depth of knowledge needed to care for people holistically, it is arrogant to think that one discipline can offer this alone. By using multidisciplinary clinics, patients can get a truly holistic care experience while benefiting greatly from the expertise of different professionals. The patients would not be the only ones to benefit. Interdisciplinary communication, collaboration, and comradery can help stave off burnout in the providers themselves (Horan et al., 2022; Dow et al., 2019).

NP: Lagging public perception and professional acceptance of NP’s scope has hampered a valuable player in the fight against primary provider shortage. Our pregnant

population is feeling the strain and abandonment from not having a maternity provider. Small policy changes are all that stands between NP's and answering the call to join providers in offering high-quality pregnancy care and support. Let's push for full acceptance and inclusion of NPs as the excellent primary providers they are in all areas of healthcare.

Mod.: Thank you all for this insightful discussion. Given the complexity of this issue surrounding health inequities for the pregnant population of BC, it is encouraging to know that such innovative solutions are being discussed and--hopefully--implemented soon. I would also like to thank the class and our teachers for your attention during this discussion. We now welcome your questions during this next Q&A session.

-----Q&A-----

References

- American College of Obstetricians and Gynecologists (2023). *Special test of monitoring fetal well-being*. <https://www.acog.org/womens-health/faqs/special-tests-for-monitoring-fetal-well-being>
- Atkinson, J., Hastie, R., Walker, S., Lindquist, A., & Tong, S. (2023). Telehealth in antenatal care: recent insights and advances. *BMC Medicine*, 21(1), 1–17. <https://doi-org.ezproxy.tru.ca/10.1186/s12916-023-03042-y>
- Baecher-Lind, L., Fleming, A. C., Bhargava, R., Cox, S. M., Everett, E. N., Forstein, D. A., Madani Sims, S., Morgan, H. K., Morosky, C. M., Royce, C. S., Sonn, T. S., Sutton, J. M., & Graziano, S. C. (2022). Enhancing interprofessional collaboration and interprofessional education in women's health. *Medical Education Online*, 27(1), 1–5. <https://doi-org.ezproxy.tru.ca/10.1080/10872981.2022.2107419>
- British Columbia College of Nurses & Midwives. (2023). *Scope of practice for nurse practitioners*. <https://www.bccnm.ca/NP/ScopePractice/Pages/Default.aspx>
- Boesveld, I. C., Valentijn, P. P., Hitzert, M., Hermus, M. A. A., Franx, A., de Vries, R. G., Wiegers, T. A., & Bruijnzeels, M. A. (2017). An Approach to measuring Integrated Care within a Maternity Care System: Experiences from the Maternity Care Network Study and the Dutch Birth Centre Study. *International Journal of Integrated Care (IJIC)*, 17(2), 1–13. <https://doi-org.ezproxy.tru.ca/10.5334/ijic.2522>
- College of Registered Nurses of Manitoba. (2023). *Scope of Practice for RN(NP)s*. https://crnm.mb.ca/wp-content/uploads/2022/01/RNNP-Scope-of-Practice_Jan22.pdf [NP-Scope-of-Practice_Jan22.pdf](https://crnm.mb.ca/wp-content/uploads/2022/01/RNNP-Scope-of-Practice_Jan22.pdf) (crnm.mb.ca)
- Dow, A. W., Baernholdt, M., Santen, S. A., Baker, K., & Sessler, C. N. (2019). Practitioner wellbeing as an interprofessional imperative. *Journal of Interprofessional Care*, 33(6), 603–607. <https://doi-org.ezproxy.tru.ca/10.1080/13561820.2019.1673705>

- Hackeloer, M., Schmidt, L., & Verlohren, S. (2023). New advances in prediction and surveillance of preeclampsia: role of machine learning approached and remote monitoring. *Archives of Gynecology and Obstetrics*, 308, 166d3-1677. <https://doi.org/10.1007/s00404-022-06864-y>
- Hamm, R., Shkolnik, K., Keren, N., Zahar, Y., Laish, B., Cavaleiro, G. A., Reches, A., & Schwartz, N. (2022). Experience with home-based, remote non-stress tests, including automatic decision support for interpretation of reactivity. *American Journal of Obstetrics and Gynecology*, 226(1), 96-96. <https://doi.org/10.1016/j.ajog.2021.11.175>
- Health Link BC (2022). *Fetal Heart Monitoring*.
<https://www.healthlinkbc.ca/pregnancyparenting/pregnancy/your-health-during-pregnancy/electronic-fetal-heart-monitoring>
- Horan, H., Ryu, J., Stone, J., & Thurston, L. (2023). Healing trauma with interprofessional collaboration and trauma-informed perinatal care: A qualitative case study. *Birth (Berkeley, Calif.)*, 50(3), 525–534. <https://doi-org.ezproxy.tru.ca/10.1111/birt.12672>
- Kneller, M., Pituskin, E., Tegg, N., & Norris, C. (2023). Rural prenatal care by nurse practitioners: A narrative review. *Women's Health Reports*. 262-270.
<https://doi.org/10.1089/whr.2023.0011>
- Miller, D. A. (2023). *Nonstress test and contraction stress test*.
https://www.uptodate.com/contents/nonstress-test-and-contraction-stress-test?search=nonstress%20test&source=search_result&selectedTitle=1%7E88&usage_type=default&display_rank=1
- Mulvale, G., Embrett, M., & Razavi, S. D. (2016). “Gearing Up” to improve interprofessional collaboration in primary care: a systematic review and conceptual framework. *BMC Family Practice*, 17, 83. <https://doi-org.ezproxy.tru.ca/10.1186/s12875-016-0492-1>
- Murdoch, J., Tomblin Murphy, G., Alder, R., Gilbert, J., Fierlbeck, K., & Steenbeek, A. (2018). Readiness to Collaborate Scale: How ready are obstetrical practitioners to participate in

- an interprofessional healthcare team? *Journal of Interprofessional Education & Practice*, 13, 73–80. <https://doi-org.ezproxy.tru.ca/10.1016/j.xjep.2018.09.004>
- Nelson, G. A., & Holschuh, C. (2021). Evaluation of Telehealth Use in Prenatal Care for Patient and Provider Satisfaction: A Step Toward Reducing Barriers to Care. *The Journal for Nurse Practitioners*, 17(4), 481–484.
<https://doi.org.ezproxy.tru.ca/10.1016/j.nurpra.2020.12.026>
- Nurse Practitioners in Women's Health. (2022). WHNPs as Partners in Addressing the Maternal Health Crisis. *Women's Healthcare: A Clinical Journal for NPs*, 10(4), 15–19.
- Provincial Health Authority. (2024). *Antepartum Care*. <http://www.bcwomens.ca/our-services/pregnancy-prenatal-care/antepartum-care#At--Home>
- Sabetrohani, H., Koohpayehzadeh, J., Sheikhtaheri, A., Goli, S., & Keramat, A. (2023). Perspectives of mothers and providers regarding virtual care approaches during pregnancy in high and low-income countries: A meta-synthesis on qualitative studies. *Health & Social Care in the Community*, 1–16. <https://doi-org.ezproxy.tru.ca/10.1155/2023/4131618>
- Staples, E., Pilon, R., Hannon, R.A. (Eds.). (2021). *Canadian perspectives on advanced practice nursing* (2nd ed.). Canadian Scholar.
- Vermeulen-Giovagnoli, B., Peters, C., van der Hout-van der Jagt, M. B., Mischi, M., van Pul, C., Cottaar, E. J. E., & Oei, S. G. (2015). The development of an obstetric tele-monitoring system. 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Engineering in Medicine and Biology Society (EMBC), 2015 37th Annual International Conference of the IEEE, 177–180. <https://doi-org.ezproxy.tru.ca/10.1109/EMBC.2015.7318329>
- Zizzo, A. R., Hvidman, L., Salvig, J. D., Holst, L., Kyng, M., & Petersen, O. B. (2021). Home management by remote self-monitoring in intermediate- and high-risk pregnancies: A

retrospective study of 400 consecutive women. *Acta Obstetrica et Gynecologica Scandinavica*, 101(1), 135–144. <https://doi-org.ezproxy.tru.ca/10.1111/aogs.14294>