


# Establishing the Medication Therapy Services Clinic: Goals, challenges and future directions

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## Background

The Medication Therapy Services (MTS) Clinic at Memorial University in St. John's, Newfoundland and Labrador (NL), is 1 of 3 university-affiliated pharmacist clinics in Canada, including the University of British Columbia (UBC) Pharmacists Clinic and University of Saskatchewan's Medication Assessment Clinic (MAC).<sup>1,2</sup> Owned and operated by the School of Pharmacy, the MTS Clinic is licensed as a nondispensing pharmacy and, similar to the MAC and UBC clinics, offers appointment-based consultations for patients in a clinic setting. Located off the main campus, the clinic offers privacy, ample parking and is easily accessible for patients. Established in March 2016, the MTS Clinic fosters student attainment of educational outcomes of the new entry-to-practice PharmD (EPPD) program by providing student opportunities to observe and practice comprehensive patient-focused care in a consultation-based pharmacy service. The clinic's goals and activities align with the 3 strategic pillars of the School of Pharmacy and Memorial University: public engagement; teaching and learning; and research and innovation.

As the province's only university, Memorial University holds a special obligation to the residents of NL,<sup>3</sup> including the public and pharmacy community. In addition to educating the next generation of pharmacists, the MTS Clinic provides a unique patient care service in NL, designed to optimize medication use by working collaboratively with patients and their health providers and aiming to affect population health through practice-based research that informs policy. This article describes how the MTS Clinic is achieving these goals, challenges with establishing this university-based clinic and future directions.

## Public engagement pillar: A patient care service

The clinic provides comprehensive medication assessment services to the public at no charge and aims to be a provincial service, although currently, most patients come from the Eastern Health region where the clinic is located. Initially, health provider referrals were required, but commencing in fall 2017, patient self-referrals were also accepted. Reasons for referral include any medication-related issue: symptom/disease management, adverse reaction and drug interaction management, adherence support and deprescribing assessment. In addition to medication assessment services and education, the MTS Clinic offers a comprehensive smoking cessation program. For most services, patients are booked for an initial 1-hour assessment with the pharmacist via in-person clinic appointment, virtual visit through Cisco Jabber or home visit. To allow sufficient time to debrief with learners involved in delivering care, clinic capacity is approximately 12 initial appointments per week (not including the smoking cessation program). Clinic hours of operation and staffing are described in Box 1.

Clinic pharmacists access patients' medical information through electronic health records and the provincial pharmacy network. Before an appointment, the pharmacist reviews the patient's pertinent medical history, medications, laboratory and other diagnostic test results, in addition to hospital discharge summaries and consultation notes from health providers within regional health authorities (excludes practitioners in private practice) as appropriate. Patients are asked to bring their medications, supplements and reminder devices to the appointment and are encouraged to bring a family member if involved in their care. During the appointment, the pharmacist determines the patient's goals and obtains a detailed medical,

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DOI:10.1177/17151635211004643

**BOX 1** MTS Clinic at a glance

The MTS Clinic is open 9 am to 5 pm, Monday to Friday. Located off campus, our space consists of 3 consultation rooms, a reception/waiting area, administration office, pharmacist office space and a conference room. The clinic is staffed by approximately 1.4 pharmacist FTEs (including 1 full-time pharmacist and several part-time pharmacist faculty), administrative assistant (1.0 FTE), research assistant (1.0 FTE), and clinic director. The clinic director is a senior faculty member who holds an administrative appointment as Special Advisor on Practice Innovation, which includes responsibility for the clinic establishment and strategic direction, oversight of operations and budget, as well as liaising with external partners, including the provincial government, health providers and the community.

lifestyle, family, medication and adherence history. Consideration is given to how the patient is tolerating their medications, if they feel they are working optimally and identifying barriers to taking medications as prescribed (e.g., financial, cognitive or functional challenges).

The pharmacist then determines whether the patient's medical conditions/issues are optimally managed and health goals achieved and identifies any actual or potential problems with current drug therapy, including adverse effects and appropriate dosing. Because many patients referred to the clinic are medically complex and/or elderly, identifying potentially inappropriate or unnecessary medications,<sup>4,5</sup> with the goal to deprescribe or switch to safer alternatives, is a priority. Deprescribing assessments are now the most common reason for referral to the MTS Clinic, along with comprehensive medication assessments.

Once the assessment is complete, the pharmacist develops a plan to address the identified issues and calls the patient to discuss their recommendations. The recommendation letter is faxed to the primary care physician (and other health providers, as appropriate), and the patient is encouraged to make an appointment with their physician to discuss the recommendations and finalize the care plan. Pharmacists follow up with patients by phone or in-person visits to oversee medication changes and monitor outcomes. Physicians are requested to respond to the pharmacist's letter to indicate whether recommendations are accepted or if an alternate plan will be implemented. In practice, a physician response is received about half the time; however, the review of pharmacy network profiles and patient follow-up indicates that the acceptance rate of recommendations is approximately 79%. Table 1 describes a snapshot of referral and patient demographics and clinic recommendations. Patient satisfaction with clinic services is very high, as assessed by a telephone survey conducted from August 2018 to January 2019 (Table 2). Evaluation of clinic services and patient outcomes is ongoing.

In addition to individualized patient assessments, clinic pharmacists and students provide education sessions for the public. We have provided approximately 50 presentations to community groups, seniors' conferences and public engagement events around the province. In fall 2018, we launched a public lecture series on deprescribing featuring nationally recognized researchers who present evidence in an accessible way, which included live and online streamed events.

**Teaching and learning pillar: Pharmacy students and the pharmacy profession**

The MTS Clinic supports a variety of learners, including undergraduate pharmacy students, postgraduate hospital pharmacy residents and PharmD students as well as clerks and psychiatry residents from the Faculty of Medicine. Depending on learner needs, the clinic can provide opportunities for skills development, clinical practice and research. Recognized for our expertise in deprescribing and managing polypharmacy, clinic pharmacists provide lectures and clinical half-day sessions to pharmacy and medical students and residents, and we are working toward integrating this important topic into the formal curriculum of both disciplines.

The MTS Clinic is a popular site in which to complete clinical rotations—students participate in providing comprehensive medication reviews alongside clinic pharmacists, using a scaffolding approach to take more responsibility as their skills and confidence develop until they perform the complete assessment under pharmacist supervision. Students also participate in deprescribing initiatives in both the clinic and long-term care settings (as part of a research project) and delivery of a comprehensive smoking cessation program. Students are exposed to management and logistical decision-making around service delivery to encourage thinking about best-practice models and how to implement expanded scope activities in other pharmacy practice environments upon graduation.

Student participation in clinic activities is integrated into each year of the EPPD program to complement pharmacy practice didactic learning and lab-based skills and create hands-on learning opportunities. Activities are created based on actual clinic services, which support development and application of skills in communication, documentation, collaboration and patient-centred practice and allow students to further develop their skills with each visit. To date, more than 200 students have participated in clinic activities as part of their pharmacy practice courses, 19 pharmacy learners have completed clinical rotations and 19 interdisciplinary student learners have participated in delivery of the smoking cessation program.

Pharmacy graduates pursuing a hospital pharmacy residency or postbaccalaureate PharmD degree can complete an elective rotation and/or conduct research projects at the MTS Clinic. Support is provided to community pharmacists interested in delivering similar services in their own pharmacies through training, mentorship and sharing of MTS Clinic tools and work

**TABLE 1** MTS Clinic metrics (March 2016 to December 2019)

Parameter	Count
Medication assessment service ( <i>n</i> = 424)	
Age, mean ± SD (range)	66.0 ± 16.3 years (13–97)
Males	55.8%
Females	44.2%
Number of medications, mean (range)	10.4 (0–32)
Number of comorbidities, mean (range)	5.5 (1–14)
Visit outcomes	
DRP identified per patient, mean (range)	3.7 (0–12)
Implementation of recommendations*	78.6%
Proportion of patients with deprescribing recommendations	71.7%
Referral source	
Physician	230 (54.2%)
Self <sup>†</sup>	161 (40.0%)
Other health care provider <sup>‡</sup>	33 (7.8%)
Visit type	
In clinic	372 (87.7%)
Virtual visit (FaceTime)	16 (3.8%)
Home visit	36 (8.5%)
Smoking cessation program ( <i>n</i> = 196)	
Age, mean (range)	47 y (20–71)
Females	54.6%
Males	45.4%

\*Based on documented physician response or pharmacist follow-up notes.

<sup>†</sup>Self-referrals introduced in fall 2017.

<sup>‡</sup>Includes nurse practitioners, pharmacists, social workers/case managers.

DRP = drug-related problems.

processes. In the future, continuing professional development opportunities will be offered for pharmacists who wish to participate in a more immersive experience in the MTS Clinic.

### Research pillar: Health outcomes research and policy influence

The MTS Clinic is committed to generating evidence to inform policy and best practice. Research activities are supported by funds obtained through competitive, peer-reviewed grant competitions, contracts with partner organizations and provincial funds. The clinic employs a full-time research assistant who supports clinic evaluation activities and research projects. Additional research assistants and part-time pharmacists are hired as needed to support externally funded research projects.

Pharmacy and medical students participate in research projects in the clinic as part of elective summer research placements, core curricular requirements (for Medicine) and paid research positions. Research topics have included health outcomes evaluations, transition of care delivery models (supporting patients discharged from acute care back to community),

collaborative deprescribing models in long-term care, qualitative assessments of patient/family and health provider experiences with participation in deprescribing initiatives. Students participate in the ethics application process as part of their research experience and are supported to present their research findings at conferences and publish their results.

Research priorities are determined based on evidence in gaps of care as well as institutional and provincial strategic directions. Projects in the MTS Clinic cover a range of topics related to pharmacy practice, optimizing medication use and health outcomes research. A list of research projects is posted on the MTS Clinic website ([www.MTSclinic.ca](http://www.MTSclinic.ca)). The Special Advisor on Practice Innovation (who acts as the clinic director) is a member of the provincial government's advisory committee on appropriateness of care and co-chairs the subcommittee on pharmaceuticals and pharmacy services and is responsible for identifying gaps in care and improvement opportunities and monitoring implementation of specific improvement opportunities related to pharmacy practice within the province.

**TABLE 2** Patient satisfaction with services ( $n = 61$ )

Question	Response	Response rate, No (%)
Age, mean $\pm$ SD (range)		67.6 $\pm$ 14.0 years (27–93)
Male		40 (65.6%)
Female		21 (34.4%)
How did you become aware of the MTS Clinic?	Doctor/health provider	33 (54.1%)
	Friend or family member	12 (19.7%)
	Media/social media	13 (21.3%)
	Poster or brochure	2 (3.3%)
	Not sure	1 (1.6%)
I would describe my overall experience at the MTS Clinic as:	Very satisfied	38 (62.3%)
	Satisfied	22 (36.1%)
	Unsatisfied/very unsatisfied	1 (1.6%)
My health and well-being have improved as a result of the services I received at the MTS Clinic	Yes	23 (37.7%)
	No	11 (18.0%)
	Not sure	27 (44.2%)
Did the doctor make any changes to your medicines as a result of coming to the MTS Clinic?	Yes	54 (88.5%)
	No	1 (1.6%)
	Not sure	6 (9.8%)
Would you recommend the MTS Clinic to your friends or family?	Yes	60 (98.4%)
	No	1 (1.6%)
	Not sure	0%

### Challenges and future directions

There were a number of challenges in implementing the clinic and generating a steady patient referral base. The NL Pharmacy Board was very supportive in adapting standards of practice for a nondispensing pharmacy license, which was the first of its kind in NL. The decision to pursue a pharmacy licence for the clinic was 2-fold: to establish precedent for a nondispensing pharmacy license so other pharmacists who pursue a nondispensing practice would have a path to follow and to allow for eventual billing of services should this become the remuneration model for the clinic. Start-up funding for the MTS Clinic was provided through reallocation of existing funds to support expansion and development of the School of Pharmacy program. Clinic sustainability will depend on securing a permanent funding source and the attainment of a cost-affordable location within the university infrastructure or supported through community partnerships.

It has taken 3 years to establish a steady influx of patient referrals. Significant efforts went into promoting clinic services to physicians, other health providers and the community. Media, social media, community presentations and information packages delivered to physician offices were some of the promotional strategies employed. Expansion to self-referrals increased demand for services considerably, and now little promotion is required to maintain referral numbers. The clinic has a partnership with the Geriatric Medicine Assessment Team at Eastern Health to conduct medication assessments and provide recommendations to optimize medication therapy to inform the geriatricians' Comprehensive Geriatric Assessment for high-risk older patients referred to their program. MTS Clinic services are being considered for integration into an interdisciplinary team providing health care services to a community centre, which offers housing, food bank and community outreach to vulnerable populations in downtown St. John's.

Our goal is to provide services to patients provincewide and to explore efficient ways of collaborating with health providers. We recently joined the provincial electronic medical record (eMR) to facilitate referrals, communication and documentation of care with the Geriatric Medicine Program, and now this eMR is being used for all MTS Clinic patient care activities. In 2020, we began using the provincial telehealth videoconferencing technology (Cisco Jabber) to conduct virtual appointments with patients across the province, which has increased the accessibility of our services. Previously we used FaceTime, which was of limited usefulness, as it is available only on Apple devices.

The timeliness of this transition to the provincial telehealth system was particularly helpful in allowing us to adapt our service delivery during the COVID-19 pandemic. The clinic closed in March 2020 as result of the pandemic and reopened with virtual and telephone visits in July 2020. Because of the low prevalence of COVID-19 infection in NL, we were able to reopen to resume limited in-person clinic visits in September 2020, with physical distancing and use of masks for patients and pharmacists in accordance with public health guidance. We continue to preferentially offer virtual visits where feasible and in some cases have conducted telephone visits, although this is not ideal for the lengthy initial patient assessments. In response to the public health call to optimize population vaccination rates for influenza, the MTS Clinic began offering flu shot clinics for the first time in fall 2020. Student activities have

been adapted to support their virtual participation in patient assessments for the fall and winter semesters, and we are currently considering how clinical placements may be offered in the spring semester. Research projects have been adapted to incorporate assessment of the patient and health care provider experience in delivering care using virtual delivery and through adapted in-person visits. These data will be used to inform refinements in our clinic processes to optimize patient outcomes and virtual visit service delivery for both patients and the health care providers.

## Conclusion

The MTS Clinic provides a unique patient care service, allowing the next generation of pharmacists to develop their patient care skills in a nondispensing environment and serves as an incubation centre for pharmacy practice and health outcomes research to inform policy in NL. Establishing the clinic was not without challenge but has resulted in a service valued by patients, health providers, students and policy-makers. Future plans include securing a sustainable funding model, developing novel teaching experiences for pharmacy and other learners and expanding research activity. A pharmacist clinic is a feasible service delivery model to support EPPD programs and complement patient care in the community. Sharing the experience of establishing new pharmacy services can benefit pharmacists and pharmacy programs considering establishing similar clinics. ■

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**Author Contributions:** D. Kelly and N. Pittman wrote the initial draft of the article. All authors reviewed and revised the article and approved the final version.

**Statement of Conflicting Interests:** The authors have no conflicts of interest regarding this article.

**Funding:** The authors received no financial support for the preparation of this article.

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