The New Brunswick Pharmacy Assessment Clinic: A Novel, Pharmacist-Led, Virtual Collaborative Practice Hub for the Assessment and Prescribing of Nirmatrelvir/Ritonavir for Patients with COVID-19

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INTRODUCTION

Collaborative practice agreements (CPAs) are formal regulatory agreements, differing in scope, area, and format from one jurisdiction or institution to another, between pharmacists and physicians.[1] CPAs outline roles and responsibilities that may be delegated to a pharmacist in addition to what is identified as the baseline scope of practice, such as therapeutic drug monitoring and concurrent medication modification.[2] These agreements have resulted in improved pharmacist job satisfaction, overall patient satisfaction, and positive economic impacts.[3-10] Despite these benefits, the CPA model continues to be underutilized in Canada. For example, in the province of New Brunswick, only 22 (2.3%) of 943 licensed pharmacists held an active CPA in mid-2022. This situation represents a missed opportunity in a strained health care system.[11,12]

The authorization of nirmatrelvir/ritonavir by Health Canada on January 17, 2022, led to the establishment of a regional CPA for assessment and prescribing of this medication for New Brunswickers with COVID-19. Nirmatrelvir/ritonavir is an orally administered antiviral for the treatment of mild to moderate COVID-19 infections, in those at high risk for progression to severe disease.[13] A limited initial supply of the drug required careful triage to ensure that those who would benefit most from this treatment were given access.[14,15] At the outset, provincial and territorial governments were tasked with developing individualized nirmatrelvir/ritonavir distribution plans.[16] In most jurisdictions, assessment and prescribing of nirmatrelvir/ritonavir was initially performed by primary care providers.[17,18] New Brunswick opted to establish a CPA that allowed a selected group of hospital pharmacists to perform patient triage and to be the initial sole prescribers for nirmatrelvir/ritonavir therapy.

In consultation with the Horizon and Vitalité Health Networks (New Brunswick's 2 regional health authorities [RHAs]), and with assistance from the New Brunswick College of Pharmacists, a pharmacist-led CPA permitting nirmatrelvir/ritonavir prescribing was developed. This novel approach to nirmatrelvir/ritonavir assessment and prescribing was undertaken by the Office of the Chief Medical Officer of Health because of an already-increasing burden on primary care providers, with pharmacists being considered well suited to take on this new and important role.[19-22] Development of this CPA model took into consideration the requirement for bilingual service and the need for equitable, widespread access across rural and urban communities.[18] To meet care needs, a virtual pharmacist-run nirmatrelvir/ritonavir assessment clinic, named the Pharmacy Assessment Clinic (PAC), was created in less than a week. The PAC operated 7 days per week from January 24 to April 11, 2022. After the PAC closing date, assessment and prescribing duties were extended to all primary care providers within New Brunswick, in addition to the PAC pharmacists.

To the authors' knowledge, at the time of clinic development, the PAC was a first-of-its-kind pharmacist-led model of care for the assessment and prescribing of nirmatrelvir/ritonavir, with pharmacists as the sole prescribers in the province. In subsequent months, similar models would be employed in other provinces, such as Nova Scotia, where its use continues.

DESCRIPTION OF THE PROGRAM

Clinic Structure

Between the time of clinic development and the date of clinic dissolution, 16 hospital pharmacists staffed within both RHAs were reassigned from regular patient care duties

or were temporarily hired to work in the PAC. Pharmacists undertook self-guided training and applied for a CPA for the assessment and prescribing of nirmatrelvir/ritonavir with the New Brunswick College of Pharmacists. As part of this agreement, 13 physicians were available as prescribing collaborators to provide guidance on a rotating on-call basis. Brief virtual team huddles, held on weekday mornings, involved the PAC pharmacists, administrative assistants, and RHA pharmacy managers. These meetings facilitated real-time review of evidence, discussion of complicated drug therapy problems, operational changes, and staff concerns. Regular discussions between clinic staff and pharmacy managers enabled streamlining of processes and continuing education for pharmacists. Additionally, a clinical guideline with assessment tools, recommendations, and resources was developed and added to the RHAs' antimicrobial stewardship application.

Clinic Format

A virtual clinic model was established for the PAC with support from provincial information technology services (Figure 1). This model allowed pharmacists to work remotely and to provide care from any location in the province. Each PAC pharmacist was provided with a mobile telephone and a laptop computer with software and virtual private network access, which were necessary to provide the services in a paperless environment. The PAC members had access to a shared Microsoft Outlook inbox, which was set up to accept email-to-email and fax-to-email transmissions. A toll-free clinic phone number was also created for referral and drug information purposes, with voicemail messages sent to the shared Outlook inbox as voice files.

Patient referrals were submitted by designated public health nurses, extra-mural nurses, First Nations health centres, and long-term care facilities once a positive result on polymerase chain reaction testing was confirmed and the patient agreed to be assessed further for the opportunity to receive a prescription for nirmatrelvir/ritonavir. Nurse screeners used a standardized assessment form to gather information on patient demographic characteristics, date of symptom onset, date of COVID-19 diagnosis, and vaccination status. Assessment forms were subsequently faxed or emailed to the shared PAC inbox.

Role of the Pharmacist

The PAC pharmacists triaged referrals by urgency, according to the time since symptom onset, with patients on day 5 of symptoms being prioritized in light of evidence-based initiation time sensitivity.[23] Upon receipt of referrals, the PAC pharmacists completed virtual assessments through direct consultation of electronic health records. Assessment components included, but were not limited to, pharmacokinetic and pharmacodynamic drug interactions, date of symptom onset, laboratory values (notably renal and hepatic function),

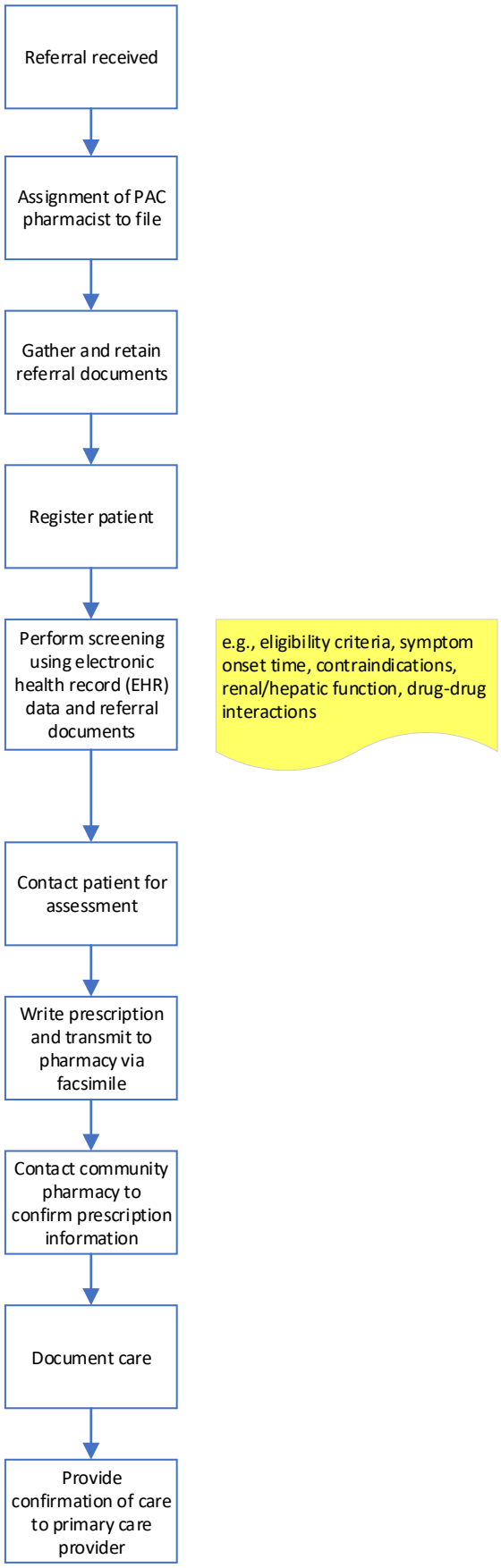

FIGURE 1. Workflow process map for the Pharmacy Assessment Clinic.

and patient preference. Explicit consent for care was obtained by telephone, with the PAC pharmacists providing patient-centred and evidence-informed education about the risks and benefits of therapy. Substitute decision-makers provided consent when the patient was unable to do so.

The PAC pharmacists had 3 options upon completion of each patient assessment: to prescribe a full dose of nirmatrelvir/ritonavir, to prescribe a half dose of the medication (if estimated glomerular filtration rate was 30–60 mL/min), or to not authorize a prescription. A standardized template was used for all prescriptions. This template contained a section for additional medication changes made to address concomitant drug–drug interactions. The PAC pharmacist then faxed the prescription to one of several designated community pharmacies across the province, for further assessment and dispensing. The community pharmacists were able to reach the PAC by phone if they had any questions about the prescription. In addition, PAC pharmacists confirmed all issued prescriptions with patients' primary care providers. All follow-up care was performed in collaboration with dispensing community pharmacies or the patient's primary care provider.

EVALUATION OF THE PROGRAM

Preliminary data for the period January 24 to April 11, 2022, showed a total of 1112 referrals for nirmatrelvir/ritonavir received by the PAC. Of these, more than two-thirds (n = 413, 37.1%) resulted in prescriptions being sent to community pharmacies; for the remaining 699 referrals (62.9%), no prescription was sent. An initial roster of 17 community pharmacies in New Brunswick, selected by the provincial Department of Health, dispensed nirmatrelvir/ritonavir to patients. The number of community pharmacies gradually increased as the inventory of medication allowed, with all community pharmacies granted ordering and dispensing privileges by April 11, 2022.

Subjective and objective data analysis of the virtual pharmacist-led hub clinic and its impact on the health care of New Brunswickers is ongoing, with research and ethics board approvals obtained. Several modes of data collection and analysis may be used in these evaluations, including surveys of stakeholders, interviews with clinic management figures, and intervention-specific analyses of the care provided.

IMPLICATIONS AND SIGNIFICANCE FOR PRACTICE

The involvement of clinical pharmacists in the care of patients with diagnoses of infectious diseases is not a novel concept, nor is pharmacist assessment and prescribing in this realm. What is unique, however, is the accessibility of this clinical model, which provided virtual pharmacologic assessment and clinical interventions to patients in New Brunswick, regardless of location, mobility, or necessity for isolation due to illness. Given the complicated drug interaction profile of nirmatrelvir/ritonavir, in addition to the need to ensure equitable distribution of limited resources, hospital pharmacists provided a crucial service to residents of New Brunswick.

This innovative clinical model of assessment and prescribing could be carried forward into other areas of clinical pharmacy practice. Notably, it could work particularly well when access to medication and care is limited, when clinical assessment is complex, or when specialized medication-related expertise is required. This model offers an innovative method to utilize both CPAs and the extensive knowledge of pharmacists. Several subareas within the health care domain that could be considered for this centralized, referral-based clinical model include HIV pre-exposure prophylaxis, antimicrobial stewardship, symptomatic management during oncology treatments, and management of chronic disease states such as hypertension and diabetes mellitus.

CONCLUSION

Pharmacists have been, and continue to be, regarded as the medication experts within the broader health care team. The authors believe this concept was proven and exceeded through the New Brunswick PAC. Through technology, collaboration, clinical expertise, and the ability to provide care in both official languages, the PAC provided timely and judicious care to patients in the entire province at a time when such care was needed most.

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