



A Remote Pharmacist Medication Management Program in Collaboration with Patients, Prescribers and Community Pharmacists to Support the Care of People with Diabetes in an Indigenous Community

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Background

- Diabetes** is a **leading cause of morbidity and mortality** in Canada, affecting approximately **17% of First Nations** adults; nearly **3 times the national average** of 6.1%.
- Indigenous communities in Northern and remote regions face systemic barriers to chronic disease management, including **limited access to healthcare professionals**
- Medication-related problems** in patients with diabetes are common, particularly when follow-up is inconsistent and pharmacists are not actively involved in their care.
- Pharmacists** are well-positioned to identify and resolve drug-related problems (DRP) and optimize therapy, but are often **underutilized in Indigenous health systems**, especially in rural and remote areas.

Methods

Study Aim

To determine patient satisfaction with a remote pharmacist-led medication management program for patients diagnosed with diabetes in a Northern Canadian Indigenous community.

Objectives

- To describe DRPs using the Pharmaceutical Care Network Europe (PCNE) classification system.
- To characterize pharmacist interventions and evaluate the acceptance and implementation rate of pharmacist recommendations to prescribers and patients.

Intervention Details

- Eligible patients were adult patients prescribed at least one medication for diabetes and had an upcoming prescriber appointment.
- Community pharmacists contacted patients by phone to obtain consent for a structured medication review. The remote pharmacist reviewed lab results and dispensing history, conducted patient medication reviews by phone, and provided patient education and counseling.
- Pharmacist-identified DRPs were documented, and recommendations were sent to local prescribers for follow-up. Patients were offered the opportunity to complete a satisfaction survey post-intervention.

Measurements Used

PCNE DRP classification system, pharmacist documentation of recommendations, laboratory values (HbA1c, eGFR), and anonymous patient satisfaction questionnaires.

Study Population

- Adults with diabetes **AND** an upcoming physician appointment **AND** at least one active prescription for diabetes management filled at Northmart Community Pharmacy. Eligible patients were identified using pharmacy dispensing records and referrals from the Indigenous Services Canada Cross Lake clinical team.

Results

Figure 1:
Study Flowchart

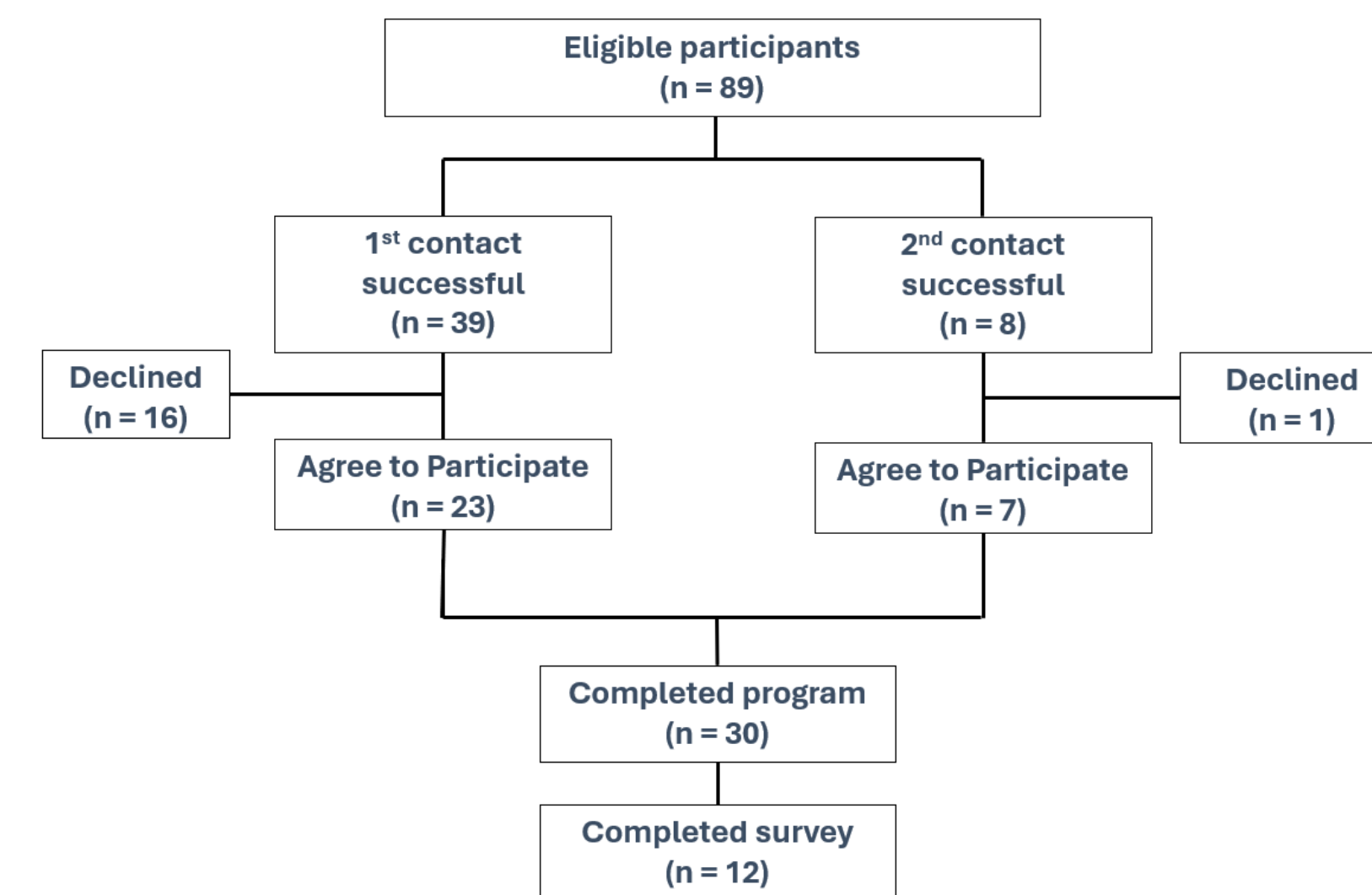
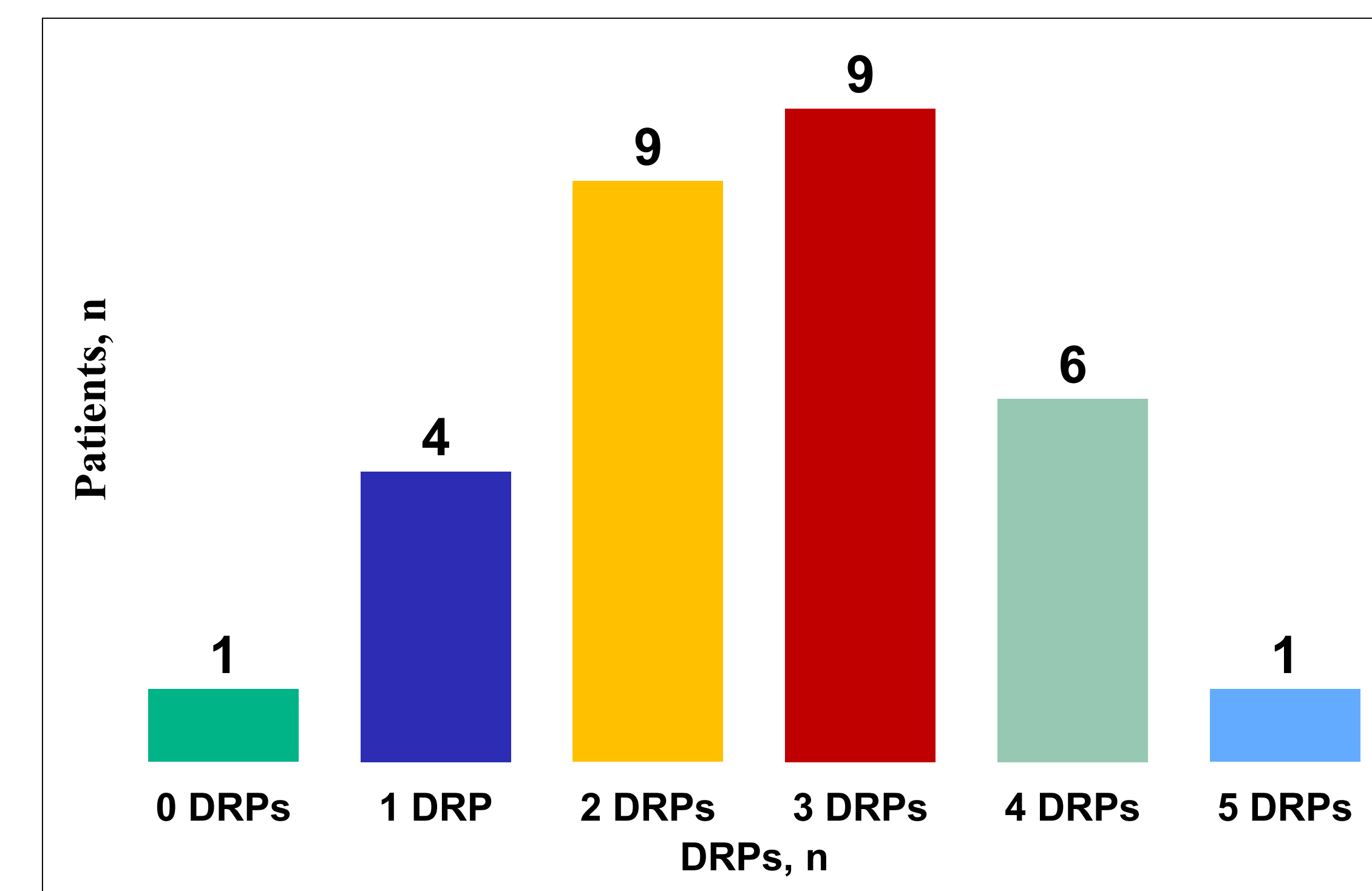


Table 2: Categories of drug-related problems (DRP) n=78

Primary Domain, n (%)	Cause	n (%)
Drug selection, 44 (56)	Inappropriate drug by guidelines/formulary	6 (7.6)
	No indication for drug	7 (9)
	Inappropriate combination of drugs	3 (3.)
	Inappropriate duplication	1 (1)
	No/incomplete drug treatment in despite indication	27 (34.6)
Drug form, 2 (3)	Inappropriate drug form/formulation	2 (2.6)
Dose selection, 11 (14)	Drug dose too low	4 (5.1)
	Drug dose of a single active ingredient too high	5 (6.4)
	Dosage regimen not frequent enough	1 (1.3)
	Dosage regimen too frequent	1 (1.3)
Dispensing, 3 (4)	Wrong drug, strength or dosage advised	3 (3.9)
Drug use process, 1 (1)	Inappropriate timing or dosing intervals by prescriber	1 (1.3)
Patient related, 10 (13)	Patient intentionally takes no/less drug	10 (12.8)
Other, 7 (9)	No /inappropriate monitoring	3 (3.9)
	Other cause	4 (5.1)

Figure 3: Frequency of drug-related problems (DRP) n=30



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Results

Table 4: Nature of drug-related problems (DRP) n=78

Category (total %)	Subcategory	% of Total DRPs
Treatment effectiveness (64)	Untreated symptoms	33
	Effect not optimal	31
Treatment safety (22)	Adverse reaction (possibly occurring)	22
Other (14)	Unnecessary drug/ treatment	11
	Other causes	3

Main Findings

- 78 drug-related problems (DRPs)** were identified in 29 patients, the majority related to **inappropriate drug or dose selection that were preventable** events that could **actually interfere with desired outcomes**.
- The most commonly prescribed diabetes medications were **biguanides, SGLT2 inhibitors, and insulin**, reflecting a range of oral and injectable therapies prescribed
- 40% of pharmacist interventions were accepted, 31% fully implemented by prescribers**; several other interventions were partially accepted or pending implementation.
- Common DRP** causes included incomplete treatment despite indication, inappropriate medication by guidelines, and incorrect dosing frequency.
- All surveyed participants reported positive experiences, improved understanding of their diabetes medications, & increased confidence in managing their health.**

Conclusions

- This pilot program demonstrated the feasibility of delivering a pharmacist-led medication optimization service remotely in a Northern Indigenous community.
- The program filled a critical gap in care by proactively identifying DRPs and enhancing communication between patients, pharmacists, and prescribers.
- Findings support broader implementation of pharmacist-driven models to improve chronic disease management and medication safety in Indigenous and remote populations across Canada to address healthcare disparities

Disclosures

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Table 1: Baseline Demographics (n = 30)

Variable	Value
Age, median (range)	59.5 (55-68)
Female, n (%)	22 (73%)
Current Smokers, n (%)	11 (37%)
Cardiovascular conditions, n (%) (hypertension, dyslipidemia, atrial fibrillation, stroke)	13 (43%)
Neurologic conditions, n (%) (neuropathy, neuralgia, Parkinson's disease)	9 (30%)
Psychiatric conditions, n (%) (anxiety, grief, borderline personality disorder)	3 (10%)
Respiratory conditions, n (%) (asthma, COPD, smoker's cough)	4 (13%)
Other chronic conditions, n (%) (hematologic, GI, dermatologic, urologic, infectious, rheumatologic)	7 (23%)
HbA1c, median (range), mmol/mol (n = 7)	9.5 (6.8–13)
eGFR, median (range), ml/min/1.73m ² (n = 5)	>60
Median number of non-diabetes medications, n (range)	7 (1–15)
Median number of medications for diabetes per patient, n (range)	2 (1–6)
Total number of medications per patient, n (range)	11 (3-20)

Table 3: Summary of hypoglycemic medications n=30

Drug Class	Value n (% patients)
Biguanides	22 (73)
SGLT2 inhibitors	13 (43)
DPP-4 inhibitors	1 (3)
GLP-1 receptor agonists	7 (23)
Sulfonylureas	2 (7)
Rapid-acting insulins	4 (13)
Long-acting insulins	8 (27)

Figure 2: Summary of Patient Survey Results (n = 12)*

