Report

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Summary of Evaluation Findings: Collaborative Care Demonstration Project (CCDP)

Submitted to:
Pharmacy Association of Nova Scotia

Date: September 16, 2019
Draft 1

Summary

Introduction

The Collaborative Care Demonstration Project (CCDP) was intended to test a new model of collaborative care between family physicians and community pharmacists focused on supporting patients with chronic conditions. The project was developed and implemented by the Pharmacy Association of Nova Scotia (PANS), Doctors Nova Scotia (DNS), and the Nova Scotia Department of Health and Wellness (DHW) from 2017 to 2019. The work involved pharmacists and physicians working together to provide collaborative care to their shared patients, including regular face to face meetings and communication by other means (email, fax, phone, etc.). Participating pharmacists also met regularly with patients (every two months) to provide patient care (e.g., patient education, addressing health concerns, providing accountability and motivation to meet their health goals, etc.). At the end of the project, a formal evaluation and assessment of the economic benefits of the project was conducted. This document summarizes the findings from both of these pieces of work. More detail can be found in the individual evaluation reports.

Twenty-three teams of physicians and pharmacists were selected to participate in the CCDP and a total of 448 patients were recruited. To be enrolled in the CCDP, patients had to be registered with Nova Scotia Pharmacare and have either two specified chronic diseases (diabetes, ischemic heart disease (IHD), chronic obstructive pulmonary disease (COPD), hypertension) or one of the specified chronic diseases and one identified risk factor (obesity, smoking, or non-adherence to medication). Over the course of the project, six physicians and sixteen pharmacists left the project, and after attrition, 317 patients completed the full 12 months of the CCDP intervention. Almost all participating patients (90%) had hypertension and half (52%) had diabetes, while only 35% of patients had IHD and 17% COPD. Half of patients were identified as being obese (50%), but only 16% of patients had the risk factors of smoking and 14% non-adherence to medication.

Patient Health Outcomes

- Patients participating in the CCDP showed **statistically significant improvement** on average between the beginning and end of the CCDP **in almost all measured clinical indicators** (hemoglobin A1c, blood pressure, cholesterol (low-density lipoprotein or LDL only), risk of cardiovascular disease, packs per day (PPD) smoked), medication adherence measures, and the Clinical COPD Questionnaire (CCQ), a measure of COPD symptom control).
- The **proportion of CCDP patients with clinical values in control** (i.e., within recommended clinical guidelines for their condition(s)) also **showed statistically significant improvements**.
- In **high risk groups** (i.e., patients that had baseline measures showing that their condition was not well-controlled), the **improvements in outcomes were larger**.
- **Patients also established and met their health goals**: a little over half of patients met their goals to improve their physical activity, and over half met their goals to lose weight, while over 80% met goals to improve their eating habits. Almost three quarters of patients indicated that they felt their health had improved.

Other Project Outcomes

- **Patients** improved their understanding/knowledge of and comfort with their medications.
- 884 Drug Related Problems (DRPs) for **patients** were identified during the project, and many of these DRPs (68%) were resolved, improved, or partially improved.
- **Patients** improved their engagement in their own care and their ability to understand and self-manage their health.
- Most **patient** survey respondents indicated that they prefer the CCDP model to usual care (86%).
- Access to care was improved for **patients** participating in CCDP.
- Patient-reported health care utilization data suggests that **patients** reduced their use of other health care resources (emergency rooms and walk-in clinics): the proportion of patients reporting that they used an ER or walk-in clinic at least once decreased during the CCDP compared to before.
- Collaboration and communication between participating **physicians** and **pharmacists** improved.
- **Pharmacists** increased their knowledge, skills and confidence in working collaboratively with physicians and managing patients with complex needs.
- **Pharmacists** strengthened their relationships with participating patients.
- The clinical work involved in the CCDP was very personally and professionally rewarding for **pharmacists**.
- Physicians and patients reported an improved understanding of the value of **pharmacists** and the care they can provide.

Economic Evaluation and Cost-Effectiveness

- **Average total costs were estimated to be $694/patient enrolled in CCDP** ($895/patient considering only patients that completed the project). While these costs are above the estimated cost for usual care ($208 per patient), these costs include both training for pharmacists in chronic disease management, and the time involved in face-to-face meetings between the physician and pharmacist. Based on the results of the CCDP evaluation, both of these aspects of the project are expected to be adapted going forward: training will be the responsibility of the pharmacist and not a cost to the system; and pharmacists and physicians will conduct most communication using more efficient mechanisms (e.g., phone, email, etc.) to reduce the time required for face-to-face meetings. Therefore, average costs for the project are expected to be lower going forward. **Excluding both training costs and face-to-face meetings reduced costs by 46% across all patients (average cost per patient of $375)**.
- The **average cost per change in the clinical outcome ranged between $136 and $4,460** for the outcomes that saw significant changes in patients that completed the full 12 months of the CCDP, and about half of these costs are less than $500. **Costs were even lower in the high risk patient group**, ranging from $2 to $538 per change in outcome.
- The **incremental cost-effectiveness ratio** (ICER, incremental cost/incremental outcome) shows **ranges between $105 to $3,424** and is **under $500 for most outcomes**. The ratios are lower in the high risk group, and the **incremental costs of lowering very high blood pressure is only a few dollars**.
- The quality-adjusted life year (QALY) is a measure of disease burden that incorporates both the length and the quality of time lived. One QALY is equal to one year of life in perfect health. The economic

analysis found that **CCDP patients accumulate more QALYs at a lower cost compared to usual care over their lifespan**, indicating that the CCDP model is dominant over usual care. The CCDP model was also dominant in 16 of the 17 sensitivity analyses conducted.

- The **costs saved per QALY in the CCDP are estimated at approximately $56,000**, which **increases slightly to $58,420-$60,604** if the costs for pharmacist training and pharmacist-physician face-to-face meetings are removed.
- The small sample size of some types of patients (i.e., smokers, those with low adherence and those with COPD) limited the economic analysis of related outcomes for these patients that showed promising results (e.g., stopping or reducing smoking, improvements in adherence, improvements in COPD symptom control). These outcomes are not included in the QALY results described above.
- The economic analysis finds that the **CCDP model is effective and cost-effective in reducing cardiovascular disease risk**.

Conclusion

The CCDP achieved positive outcomes for patients, health care providers, and the health system including improved clinical outcomes, improved patient self-management, better medication management, enhanced access to care, improved pharmacist-physician collaboration, and increased awareness of the value that pharmacists can provide in patient care. The model was found to be a cost-effective method of improving patient health outcomes compared to usual care, and supports the Nova Scotia Department of Health and Wellness's goals of shifting towards more collaborative models of care.