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Research Brief: Food Prescriptions

Clinical health interventions that improve access to nutritious food to manage and prevent diet-related chronic diseases are increasingly being referred to as Food Is Medicine (FIM). FIM is an umbrella term referring to a broad range of interventions, including medically tailored meals, medically tailored groceries, and food prescriptions, that are integrated with and paid for by the healthcare system.

The following brief describes food prescriptions, summarizes recent peer-reviewed research on the outcomes associated with food prescribing programs in Canada and the U.S., and explores future research directions in Canada.

Food prescriptions can be redeemed for food or money for food.

Food prescriptions help patients who are at risk for or are managing diet-related chronic diseases to afford nutritious foods. Prescriptions can be physical vouchers or electronic cards that can be redeemed at food retailers for food or discounts on food. Food prescriptions are typically redeemable for whole foods or raw ingredients rather than prepared meals. Some food prescriptions provide food that is pre-selected or pre-packaged, like a food box. The monetary value of food prescriptions can vary widely but are usually intended to supplement a patient's food budget.

Those who are diagnosed with or at risk for type 2 diabetes or cardiovascular conditions are often the intended patient population for food prescriptions. These patients are usually identified by healthcare practitioners such as physicians, nurses, or other allied health professionals like dietitians.

The duration of food prescription programs depends on the medical needs of the patient and funding limitations. Programs sometimes include educational components like nutrition counselling or cooking classes that aim to improve the food literacy of the participants and contribute to health-related outcomes.

Food prescriptions alleviate food insecurity, improve dietary and health outcomes, could contribute to reduced healthcare costs, and drive economic outcomes.

Food Insecurity

Mixed methods and observational studies broadly demonstrate associations between food prescription interventions and reduced food insecurity (1; 2; 3). A 2021 scoping review of food prescription programs found that 3/5 studies that used a validated pre-post measure demonstrated statistically significant improvements in food insecurity among participants after receiving a food prescription, and a fourth study saw improvements in food insecurity but did not test for statistical significance (1). A recent multi-site evaluation of nine produce prescription programs across the U.S. found that the odds of food insecurity among participants dropped by one-third over six months, on average (odds ratio, 0.63 [0.52–0.76]) (2). Though randomized controlled trials are limited in quantity, there are several recent studies with promising results. A 2019 randomized controlled trial (RCT) provided produce prescriptions to 122 patients at a Community Health Centre in Massachusetts, with an intervention group receiving a CSA

membership and a control group receiving an equivalent cash amount. The intervention group experienced a greater reduction in food insecurity compared to the control group (RR=0.68, 95% CI=0.48, 0.96) (3). A 2021 RCT in North Carolina tested the impact of food subsidies, home-delivered food boxes, and/or lifestyle counseling for 6 or 12 months among 458 hypertensive and food-insecure participants. The mean food security score for those receiving a food subsidy or a food box decreased from 5 to 2.6 after 6 months; there were no meaningful differences in food security between groups receiving the food subsidy or food box (4).

Those facing food insecurity may be forced into coping strategies that compromise chronic disease management, including using less medication and eating low-cost, low-nutrient foods. Food prescription programs may also reduce the stress associated with managing health conditions as they help free up household funds for other important expenditures, including medication (5). In addition, some patients experiencing food insecurity find that food prescription programs provide greater food choice and variety and are less stigmatizing compared to food bank and hamper programs (1).

Fruit and Vegetable Intake

Several review articles and meta-analyses on food prescriptions demonstrates a strong linkage with improved dietary outcomes like fruit and vegetable intake (6; 7) [1]. The same multi-site evaluation noted above found that fruit and vegetable intake increased by nearly 1 cup (95% CI, 0.68–1.02) and nearly 1/3 cup (95% CI, 0.06–0.45) per day among adults and children participating in produce programs, respectively (3). A third of studies in the Little et al. (2022)'s scoping review reported statistically significant improvements in fruit and vegetable consumption following the receipt of a food prescription and a 2022 meta-analysis of US food prescription programs showed similar results (1; 8). A 2021 meta-analysis found a pooled 22% increase in fruit and vegetable consumption among food prescription participants across 13 studies (9). Finally, an American Heart Association synthesis of 12 studies on produce prescriptions published in 2024 and 2025 found that fruit and vegetable intake increased between half to 1 serving per day across the studies (10).

Food prescriptions reduce barriers to healthy eating and empower patients to adhere to dietary recommendations from healthcare practitioners. Depending on the program, food literacy education may be an enabling factor, resulting in changes to food preferences (10).

Clinical Health Outcomes

Research on the relationship between food prescriptions and health outcomes is still nascent, yet recent studies have shown some promising findings related to hemoglobin A1c levels among diabetic patients and blood pressure among patients experiencing hypertension.

Hemoglobin A1c (HbA1c) is a blood test measuring blood sugar levels and is usually used to diagnose or monitor diabetes management. A 2025 review article reported on initial results from a randomized trial of a produce prescription program (delivered fruits, vegetables, beans, nuts, and plant oils to diabetic patients at home) which reduced HbA1c by 0.37 points compared to the control group (P = 0.028) (11). A 2021 pilot RCT of a fruit and vegetable prescription program in Michigan found that there were significant reductions in HbA1c levels in the experimental group, but no changes to blood pressure and BMI (12). A 2021 meta-analysis of U.S. produce prescription programs showed a clinically significant decline in HbA1c levels by

0.3 percentage points (95% CI, −0.42 to −0.16) among those with HbA1c ≥6.5% and by 0.6 percentage points (−0.78 to −0.38) among those with HbA1c ≥8.0% (2).

Blood pressure is another clinical marker observed in food prescription programs that target people with hypertension or other cardiovascular diseases. The same 2021 meta-analysis noted above showed a clinically significant decline systolic and diastolic blood pressure; 8 mm Hg (−10.13 to −6.62) and 5 mm Hg (−5.96 to −3.92) among those with stage I and II hypertension at baseline and by 11 mm Hg (−13.84 to −8.37) and 9 mm Hg (−11.70 to −7.16) among those with stage II hypertension (2). Similarly, a 2021 RCT in North Carolina tested the impact of food subsidies, home-delivered food boxes, and/or lifestyle counseling for 6 or 12 months among 458 hypertensive and food-insecure participants, and found that a food subsidy led to lower blood pressure scores compared to a home-delivered food box (difference in means for systolic blood pressure: 2.5 mm Hg; 95% CI, 0.9-4.1; P = .003, and difference in means for diastolic blood pressure: 1.6 mm Hg; 95% CI, 0.62.5) (4).

Recent qualitative research from Canada shows that food prescription programs enhance participant self-efficacy to manage chronic conditions including diabetes by allowing them to purchase nutritious foods and experience less stress (13). This study found that food prescription programs may be part of an effective values-based care strategy, as healthcare providers have positive perceptions of these programs (13). Food prescribing may offer a tool to empower healthcare providers to address underlying social determinants of health (14).

Healthcare Costs

In Canada, annual health expenditures were just under $400-billion in 2025, which amounts to $15.8-billion or 4.2% more than was spent in 2024 (15). FIM interventions can be cost effective, and there is a growing body of evidence that demonstrates that food prescriptions are a mechanism to reduce healthcare costs, particularly among patients with diabetes.

A 2020 analysis of ~77,000 U.S. patients with type 2 diabetes estimated that each 1% reduction in HbA1c levels was associated with 2% reduction in total healthcare costs and 13% reduction in diabetes-related costs (both p<.0001) (16). Another U.S. study showed that FIM programs administered to approximately 20,000 patients resulted in decreased hospital visits and decreased healthcare spending ranging from $1000 to $2500 per patient per year, producing a net savings of $210 per person and approximately $1.8 million for the group (17) . Finally, a 2023 microsimulation study using five years of data from the National Health and Nutrition Examination Survey suggests that lifetime produce prescriptions for 6.5 million US adults with diabetes and food insecurity would prevent 292,000 cardiovascular disease events, generate 260,000 quality-adjusted life-years, cost $44.3 billion in implementation costs, and save $39.6 billion in health care costs and $4.8 billion in productivity costs over a 25-year span (18).

Economic Outcomes

Depending on their design, food prescription programs can contribute to economic development and support stronger local food systems. One example is the U.S. Gus-Schmacher Nutrition Incentive Program, which provides recipients of the Supplemental Nutrition Assistance Program (SNAP) matched incentives for purchasing fruits and vegetables, as well as produce prescriptions administered through healthcare organizations for those living on a low-income

and at risk for diet-related chronic disease. In year five of the program, $54 million worth of fruit and vegetables were purchased by 200,000 SNAP recipients, generating more than $112 million in local economic impact for farms, farmers markets, and various grocery retailers (19). A recent analysis from the Rockefeller Foundation has estimated that FIM programs in the U.S. could contribute $45 billion in annual GDP growth, $5.6 billion in annual revenue to local farms and food businesses, and support over 300,000 new jobs, if states mandate or encourage local sourcing (20).

Limitations & future research directions.

Variations in the relationship between food prescription programs and health and other outcomes are influenced by a variety of factors that deserve study, including prescription amount or “dose”, which foods qualify or are provided, how food is sourced, where it can be redeemed, redemption rate, and program duration. There are also important questions regarding choice, dignity, cultural appropriateness, and sustainability of food prescription programs that need to be explored to ensure the best possible outcomes for food-insecure patients (21).

Scoping and systematic reviews of food prescribing literature highlight some methodological limitations, including small sample sizes, short intervention duration, non-validated measures and single-arm or non-randomized study designs (14; 8). Rigorous research is needed to determine best practices for food prescribing among Canadian patient populations, in particular. Little et al. (2024) note that future research in Canada on food prescription programs should include larger sample sizes, control groups, and validated measurement tools, as well as discernment between the factors of prescription programs that drive patient outcomes (14). The design and evaluation of food prescription programs among racial groups most impacted by food insecurity, including Black, First Nations, Metis, and Inuit communities in Canada, merits particular attention to ensure programs are achieving community health equity and food security goals. For example, scoping reviews of nutrition and food security interventions among Indigenous communities in high-income countries have identified common success enablers, including community co-design and the integration of traditional foods (22; 23). Finally, research is needed to examine the cost-effectiveness of these programs in Canada compared to other approaches, a question that has been raised by Canadian researchers (14).

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