

Contents lists available at [ScienceDirect](#)

Canadian Journal of Diabetes

journal homepage:
www.canadianjournalofdiabetes.com

Original Research

The Relationship between Primary Care Models and Processes of Diabetes Care in Ontario



Tara Kiran MD, MSc^{a,b,c,*}, J. Charles Victor MSc, PStat^{d,e}, Alexander Kopp BA^d, Baiju R. Shah MD, PhD^{d,f}, Richard H. Glazier MD, MPH^{a,b,c,d,e}

^a Keenan Research Centre in the Li Ka Shing Knowledge Institute of St. Michael's Hospital, Toronto, Ontario, Canada

^b Department of Family and Community Medicine, St. Michael's Hospital, Toronto, Ontario, Canada

^c Department of Family and Community Medicine, University of Toronto, Toronto, Ontario, Canada

^d Institute for Clinical Evaluative Sciences, Toronto, Ontario, Canada

^e Institute of Health Policy Management and Evaluation, Toronto, Ontario, Canada

^f Department of Medicine, University of Toronto, Toronto, Ontario, Canada

ARTICLE INFO

Article history:

Received 26 September 2013

Accepted 28 January 2014

Keywords:

diabetes
physician payment
primary care
quality of care

ABSTRACT

This study examined the association between Ontario's differing primary care models and receipt of recommended testing for people with diabetes. We analyzed available administrative data for 757 928 people with diabetes aged 40 years and older. We assigned them to a primary care physician and assessed whether they had received 3 key monitoring tests between 2006 and 2008. We used multi-variable generalized estimating equation models to test the associations among various primary care models and receipt of recommended testing.

Ontarians with diabetes who were enrolled in a non-team blended capitation model (OR 1.18, 95% CI 1.09 to 1.27) and those enrolled in a team-based blended capitation model (OR 1.20, 95% CI 1.13 to 1.28) were more likely than those enrolled in a blended fee-for-service model to receive the optimal number of 3 recommended monitoring tests. Patients who were not enrolled in any model and who were assigned to a traditional fee-for-service physician were least likely to receive optimal monitoring compared to those enrolled in a blended fee-for-service model (OR 0.60, 95% CI 0.57 to 0.62).

The biggest gap in diabetes care was for patients not enrolled in any primary care model. Research and policy work is needed to understand and reduce this care gap, especially which provider and patient-level factors are involved. Options may include intensive outreach to patients, knowledge translation to physicians, encouraging enrollment and efforts to remove barriers to care.

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R É S U M É

Cette étude a examiné le lien entre les différents modèles de soins primaires et l'obtention des tests recommandés aux personnes souffrant du diabète de l'Ontario. Nous avons analysé les données administratives disponibles de 757 928 personnes de 40 ans et plus souffrant du diabète. Nous leur avons attribué un médecin de premier recours et évalué s'ils avaient reçu les 3 principaux tests pour la surveillance de la maladie de 2006 à 2008. Nous avons utilisé le modèle multivariable des équations d'estimation généralisée pour vérifier les liens entre les différents modèles de soins primaires et l'obtention des tests recommandés.

Les Ontariens souffrant du diabète qui étaient inscrits dans un modèle de rémunération par capitation combiné non accessible aux groupes (RIA 1,18, IC à 95 % 1,09 à 1,27) et ceux inscrits dans un modèle de rémunération par capitation combiné accessible aux groupes (RIA 1,20, IC à 95 % 1,13 à 1,28) étaient plus susceptibles que ceux inscrits dans un modèle de rémunération à l'acte combiné d'obtenir les 3 tests recommandés pour la surveillance de la maladie. Les patients qui n'étaient inscrits à aucun modèle et pour lesquels un médecin traditionnellement rémunéré à l'acte leur avait été attribué étaient parmi les moins susceptibles de bénéficier d'une surveillance optimale comparativement à ceux inscrits à un modèle de rémunération à l'acte combiné (RIA 0,60, IC à 95 % 0,57, 0,62).

Mots clés :

diabète
rémunération des médecins
soins primaires
qualité des soins

* Address for correspondence: Dr. Tara Kiran, 30 Bond Street, Toronto, Ontario M5B 1W8, Canada.

E-mail address: tara.kiran@utoronto.ca

Les lacunes les plus importantes en matière de soins aux diabétiques se trouvaient chez les patients qui n'étaient inscrits à aucun modèle de soins primaires. La recherche et le travail d'élaboration des politiques sont nécessaires pour comprendre et réduire les lacunes en matière de soins, particulièrement celles où les facteurs liés aux prestataires et aux patients interviennent. Les options comprennent la sensibilisation intensive des patients, la transmission des connaissances aux médecins, l'incitation à la participation et les efforts pour éliminer les obstacles à la prestation des soins.

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Introduction

Diabetes mellitus is responsible for a large and rapidly growing burden of morbidity and mortality in Canada and globally.(1–3) The prevalence of diabetes in Ontario is rising much more rapidly than expected, with the greatest increases occurring in women and young adults (2). Diabetes complications, including cardiovascular disease, kidney failure, amputations and vision loss, compose a large healthcare burden that is at least partially avoidable through diabetes prevention and treatment. Control of blood sugar, blood pressure and lipids and routine retinal screening are part of current guidelines for diabetes care.

A robust primary care sector is now widely recognized to be associated with better health outcomes, greater satisfaction and lower costs (4). Canadian provinces and territories and countries around the world have been engaged for at least a decade in transforming primary care so that it can help to accomplish these goals. Recent reviews suggest that reforms across Canadian jurisdictions have been quite different and that all continue to face ongoing challenges (5,6). Many jurisdictions have implemented after-hours coverage requirements, interprofessional teams, payment reforms and electronic health records. Ontario has arguably gone the furthest in making structural changes, introducing several new physician reimbursement and organizational models over the past decade.

Currently, almost three-quarters of Ontario's population are formally enrolled with a physician practising in a new primary care model, with close to one-fifth being served by an interprofessional team (6). Of Ontario's comprehensive primary care physicians, 40% are now being paid through blended capitation.

Although there is evidence that these types of reforms can be associated with improved care, little is known about their impact in Ontario; only a handful of studies have examined differences in access or quality of care between Ontario's primary care models and those in or not in a model (7–11). In particular, Ontario's Auditor General has asked for evidence of value in the substantial expenditures on primary care transformation in recent years (12). The purpose of this study was to examine the relationship between Ontario primary care models and processes of diabetes care.

Methods

Ontario's models of primary care have been summarized in a recent publication (6). In brief, the 2 major payment models include blended fee-for-service and blended capitation. Both types of models require evening and weekend clinics and both have incentive payments for immunizations, cancer screening, smoking cessation and chronic disease management, including diabetes care. Patients are formally enrolled in both models; both the patients and the physicians sign a Ministry of Health and Long-Term Care document. Physician membership in these models is voluntary, and enrollment is voluntary for patients. The largest blended fee-for-service model is the family health group; the blended capitation models are the family health organization and the family health network, which are similar and which are included together in this article as blended capitation models. These models compose the main comparisons in this study, along with the family health

team, an interprofessional model composed of blended capitation practices (family health organizations and family health networks).

We accessed administrative healthcare data through a comprehensive research agreement between Ontario's Ministry of Health and Long-Term Care and the Institute for Clinical Evaluative Sciences. All patient identifiers were stripped from the data prior to analysis, and linkage among databases was accomplished using an encrypted identifier. This study was approved by the Research Ethics Board of Sunnybrook Health Sciences Centre in Toronto.

Many of the methods used in this study have been described elsewhere (13). We identified people 40 years of age and older who had diabetes mellitus through a validated algorithm with high sensitivity (86%) and specificity (97%). The algorithm requires a single hospitalization or 2 physician claims within 2 years with a diagnosis of diabetes. It excludes gestational diabetes and does not distinguish between type 1 and type 2 diabetes, although the large majority of people identified would be expected to have type 2 diabetes. The resulting database is cumulative, such that people remain in the database once identified. We limited our study population to those in the database on or prior to August 31, 2006, and we excluded people who resided in long-term care facilities and who first became eligible for healthcare after March 31, 2006, or who died before March 31, 2008. Primary care physicians in active practice in August 2008 were included.

The outcome measures used in this study were based on the availability of data in administrative databases and in the Canadian Diabetes Association 2003 clinical practice guidelines. The main outcome measures were: testing of hemoglobin A1C 4 times within 2 years (at least once every 6 months); testing of lipids twice within 2 years (at least once annually) and a retinal examination by an optometrist or ophthalmologist once within 2 years (at least every 2 years). We considered optimal monitoring to include completion of all 3 types of testing at the intervals specified. The time period examined was between April 1, 2006, and March 31, 2008.

We attributed patients to enrollment models using client agency program enrollment tables and physicians to models using the corporate provider database. Physician specialties and characteristics were also derived from the corporate provider database. We included comparisons for people with diabetes who were not formally enrolled in any primary care model. We matched these patients to a primary care physician using a virtual rostering method whereby a patient is attributed to the primary care physician who performed the majority of their primary care services (13). Non-enrolled patients were treated separately in the analysis and were matched to a primary care physician who practised in an enrollment model or to a physician who did not. Physicians practising outside of an enrollment are reimbursed through traditional fee-for-service; approximately half of these physicians are in specialized practice such as emergency or sports medicine (6).

We determined healthcare eligibility, age, sex, residential postal code and timing of first eligibility for healthcare from the Registered Persons' Database. Statistics Canada's Postal Code Conversion File (PCCF+) was used to assign postal codes of residence to 2006 census subdivisions, which were used to determine the urban-rural status of patients using the Rurality Index of Ontario (21). Neighbourhood household income was derived using the PCCF+ by

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