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Membership in a diabetes-care network and adherence to clinical practice guidelines for treating type 2 diabetes among general practitioners: A four-year follow-up

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ABSTRACT

Objectives: To assess whether private general practitioners (GPs) belonging to a diabetes-care network adhered more closely to clinical practice guidelines for diabetes care than GPs not in such a network, for all their patients with type 2 diabetes treated with medication (patients with diabetes), regardless of whether they received care through a network (that is, whether a halo effect occurred).

Research design and measures: The study, based on health insurance reimbursement databases in southeastern France, included 468 GPs in two networks and 468 non-network GPs in the same geographical area, matched one-to-one by propensity scores. We followed up their patients with diabetes ($n = 22{,}808$) from 2008 through 2011, conducting multivariate time-to-event analyses (Cox models) that took the matching design into account to evaluate time from inclusion until performance of the given number of each of six recommended examinations/tests.

Results: GPs belonging to a diabetes-care network adhered more closely to clinical practice guidelines but our result were slightly pronounced. Hazard ratios (HR) were significantly higher for patients of network GPs for the implementation of 3 HbA1C assays (HRa = 1.13; [95%CI = 1.10–1.16]), or 1 microalbuminuria assay (1.4 [1.35–1.45]); they were lower for LDL-cholesterol assays (1.04 [1.01–1.07]) and ophthalmological checkups (1.07 [1.04–1.10]), and not significant for creatinemia or cardiac monitoring.

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Conclusions: Network GPs had better diabetes monitoring practices for all their patients with diabetes than the other GPs, especially for the most diabetes-specific tests. Further research is needed in other settings to confirm the existence of this halo effect.

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1. Introduction

Type 2 diabetes is an important cause of morbidity and mortality and is very costly for most healthcare systems [1–3]. Various countries have drawn up clinical practice guidelines (CPGs) with precise objectives to improve care of people with diabetes [4,5]. As part of screening for complications, all these guidelines recommend specific frequencies of clinical, laboratory, and other checkups (process measures) as well as targets for glycemic control and related risk factors. Yet in the US as in Europe, including France, the quality of care is nowhere near the targets set [6,7]. This failure to meet the goals set is associated with a complex series of factors related to patients, physicians, and the various healthcare systems [8]. Organizational factors involved in diabetes monitoring can influence the quality of care, glycemic control [9], unscheduled use of hospital services [10], and patient survival [9,11].

The Chronic Care Model [12] arose from a desire to improve care of chronic diseases by improving these organizational factors; disease management programs (DMPs) are one practical application [13]. In France, local DMPs for diabetes began in 2001 in the form of diabetes-care networks (DCNs) grouping general practitioners (GPs) and specialists and supported by the national health insurance fund. The aim of these DMPs is to improve diabetes care by supporting and facilitating specific acts by patients and physicians. Patients participate in educational programs intended to teach them diabetes self-management and monitoring. Physicians are encouraged to: (1) coordinate care (multidisciplinary meetings, healthcare protocols, and sharing medical records); (2) continuing medical education on targeted themes (e.g., focusing on patient communication and motivational counseling); (3) and payment for performance, to encourage appropriate monitoring of patients with diabetes. Patients in France are free to choose their primary care physician (mainly general practitioners), who can then refer patients to specialists if needed. Patients who consult specialists directly are reimbursed by the national health insurance fund (NHIF) for their consultation at a lower level than those consulting their treating doctor first. Both endocrinologists and GPs can apply to join a DCN, and only members of a DCN can enroll some of their patients, usually those with severe diabetes, in this program [14].

A recent review evaluating interventions in type 2 diabetes care in the US stressed that most studies found some significant improvement for at least one process measure [15]. Nonetheless, it covered a wide range of interventions (e.g., office-based, web-based, and telephone-based, and patient education), and the authors finally concluded that further research focusing more specifically on the Chronic Care Model (e.g., including care coordination) is needed [16]. DMPs for diabetes have proved effective in improving process measures in several countries, including France, for patients registered in these programs [17–21]. A recent Italian study of a large sample of patients with diabetes suggests that adhering to guidelines for process measures improves all-cause mortality and cardiovascular morbidity [22]. Evidence as to whether DMPs improve process measures in the long term is still lacking. Although the percentage of patients with diabetes registered in these programs is relatively low (<5%) [18], these interventions focusing on physicians within the framework of these networks might also benefit patients outside them.

The overall aim of this study was to assess whether the diabetes-care practices of private GPs belonging to a DCN, observed among all their patients (inside or outside the network), adhered more closely to guidelines for diabetes monitoring than those of GPs not belonging to a DCN looking at all their patients with diabetes. The specific aim was to study whether any such effect was stable over time several years after the DCNs were set up.

2. Methods

We set up a cohort study of patients treated with oral hypoglycemic agents (OHAs) and followed up from the beginning of 2008 to the end of 2011 and compared the frequencies of the recommended diabetes monitoring tests among patients of GPs belonging to a DCN and of GPs not in such as network. We used the databases of the French national health insurance fund (NHIF) in southeastern France — which covers 87% of the general population (www.ecosante.fr) — to select the GPs, identify their patients, and collect data on the diabetes monitoring tests performed and the characteristics of both GPs and patients. In particular, these databases record all the drugs and laboratory tests prescribed by physicians in private practice or in hospitals and dispensed in local pharmacies or performed in local laboratories. They do not include prescriptions written during overnight admissions to public or private hospitals. For each prescription (drug, test) the databases contain the date of prescription, date of purchase (or performance), and prescriber and patient identifiers.

2.1. *Physician inclusion criteria and matching method*

The study included all private GPs belonging to two DCNs in southeastern France (Diabetes Association of Marseille and Diabaix, both established in 2001) (hereafter network GPs) on January 1, 2008. GPs not belonging to a DCN (hereafter non-network GPs) were selected in the study area (i.e., all municipalities where at least one network GP practiced). Each network GP was matched with the most similar non-network GP by the propensity score matching method (one-to-one matching with the nearest neighbor without restriction) [23].

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