
CONFERENCE ABSTRACT

Which patient characteristics are relevant in guiding tailored diabetes care? A systematic review

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Introduction: The management of patients with type 2 diabetes in primary care is often based on disease-specific guidelines. Recommendations given in these guidelines tend to be highly standardized and insensitive to individual patients' needs, abilities and preferences. Despite medical and non-medical differences between them, patients receive a similar amount and type of care for their diabetes. Recent studies show that this results in differential treatment effects across the diabetes population and over-, under- and misuse of health care services. In 2013, the European Association for the Study of Diabetes (EASD) and American Diabetes Association (ADA) recommended a more tailored approach for the management of type 2 diabetes in primary care (1). However, thus far, it remains unclear which patient characteristics should guide such an approach. The aim of this systematic review is therefore to assess which characteristics of patients have a modifying effect on the outcomes of integrated care programs for type 2 diabetes in primary care.

This study is the first part of the research project entitled 'PROFiling patients' healthcare needs to support Integrated, person centered models for Long-term disease management' (PROFLe). The project aims to develop, validate and test so called 'patient profiles' as an instrument to support tailored diabetes management in practice.

Methods: PubMed, CINAHL and EMBASE were searched for English- or Dutch-language empirical studies published after 1998 which: (1) included adult patients (≥ 18 years) with type 2 diabetes; (2) focused on integrated care (≥ 2 components of the Chronic Care Model (CCM)); (3) were set in primary care; (4) measured effects on HbA1c, LDL-cholesterol, systolic blood pressure and/or health care utilization; and (5) included sub analyses with patient characteristics as independent variables. Data from included studies were analyzed descriptively using a structured data extraction form. Quality of the included studies was assessed with The Effective Public Health Practice Project Quality Assessment Tool (EPHPP).

Results: The search strategy yielded 1,316 studies. After a title and abstract search, 275 full text articles were screened. Of these, 23 studies met the inclusion criteria. Study quality was

weak for 12, moderate for 8, and high for 3 studies. Eight studies included all four components of the CCM model. The CCM component 'delivery system design' was included in most studies (n=20), followed by 'self-management support' (n=18), clinical information systems (n=16), and decision support (n=14). Average age of the patients ranged from 50.5 to 69.9 years and length of follow-up ranged from 5 months to 5.5 years.

In total, 29 medical and 21 non-medical characteristics were assessed on modifying effects on the outcomes of integrated care. Characteristics differed considerably between studies, but most examined were age (n=15), gender (n=11), and diabetes duration (n=10). The efficacy of integrated care programs on HbA1c was different in patients of younger age. These patients had higher HbA1c concentrations compared to patients of older age in 6 studies. Eight studies assessing age found no significant effect. There was no difference in outcome between males and females in 9 out of 11 studies. Patients with longer diabetes duration and on insuline therapy were also found to have higher HbA1c concentrations at follow-up in 9 out of 10 and 7 out of 8 studies, respectively. Patients with higher baseline HbA1c concentrations were found to have higher HbA1c concentrations at follow-up in 6 out of 7 studies.

Only few studies assessed to which extent patient characteristics modify the effects of integrated care programs on LDL cholesterol (n=4), systolic blood pressure (n=3) and health care utilization (n=2).

Discussion: This review demonstrates that the magnitude of the effect of integrated primary care programs on HbA1c differs significantly according to a number of patient characteristics. Younger age, longer disease duration, insulin therapy and higher baseline HbA1c concentrations are associated with higher HbA1c levels after a median follow-up of 10 months. These characteristics can help to identify the care needs of individual patients.

Non-medical characteristics, like socioeconomic status, are also likely to be strong predictors of diabetes control. However, only few of these characteristics were assessed in the included studies.

Therefore, in the next phase of the PROFILE project, data rich in non-medical characteristics will be analyzed to assess which of these characteristics are predictors of measures of diabetes control as a first step towards people-centred diabetes care.

Reference:

1- Inzucchi SE, Bergenstal RM, Buse JB, Diamant M, Ferrannini E, Nauck M, et al. Management of hyperglycemia in type 2 diabetes: a patient-centered approach: position statement of the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). *Diabetes care*. 2012 Jun;35(6):1364-79.

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