

Adoption of the reference framework for diabetes care by primary care physicians

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KEY MESSAGES

1. The level of adoption of the Hong Kong Reference Framework for Diabetes Care was high among primary care physicians who responded to the survey.
2. Improvements should be made in the patient version to enhance patient knowledge on diabetes and promote self-management.
3. Insufficient resources, time, and support, as well as perceived influence on clinical autonomy and patient selection of services were major barriers among primary care physicians to adopt the framework.
4. Additional user-friendly versions of the reference framework should be provided.

5. Strengthening of healthcare provision and financing as well as continuing professional education are needed to improve cooperation among stakeholders in delivering high-quality, patient-centred, multidisciplinary diabetes care.

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Introduction

Diabetes is a leading disease burden in Hong Kong. In the early 1990s, its prevalence based on the oral glucose tolerance test was approximately 10%, affecting 2% of those aged <35 years and 20% of those aged >65 years, with a large proportion being undiagnosed.¹ By 2025, it is estimated that 12.8% of the Hong Kong population, or 1 million people, will have diabetes.² The quality of diabetes management has been suboptimal including that of primary care physicians (PCPs).³ In 2010, the Reference Framework for Diabetes Care was introduced by the Primary Care Office of the Food and Health Bureau. It adopts a life-course, comprehensive, continuous, and patient-centred approach. The framework covers primary prevention through lifestyle changes, assessment in high-risk groups for early detection, and multidisciplinary management of diabetes patients.⁴ The present study evaluated the awareness and adoption level of this framework by PCPs and determined the factors influencing its adoption.

Methods

This study used a mixed-method design and comprised both qualitative (focus group interview, study 1) and quantitative (cross-sectional survey, study 2) methodology.

Focus group interviews were conducted with PCPs who worked in (1) group practice in private health maintenance organisations, (2) solo practice in the private sector, (3) general out-patient clinics,

(4) family medicine specialist clinics, and (5) those who were fellows of family medicine and involved in teaching medical students at a university. Based on the study by Gagliardi et al,⁵ a pilot-tested moderator manual with open-ended questions was developed to provide an outline for the interview. This manual comprised eight key domains on the feasibility of implementing guidelines in clinical practice: usability, adaptability, validity, applicability, communicability, accommodation, implementation, and evaluation. The interviews were transcribed verbatim. Data were coded, managed, and analysed using the grounded theory and the NVivo 10 software.

For the cross-sectional survey, a tailor-made questionnaire was designed based on the findings obtained from the focus group interviews, and then sent to 3184 PCPs. The adoption level of each recommendation included in the framework was studied, and the overall adoption score calculated. The major outcome variable was the adoption level of the framework (in proportion). Multivariate logistic regression analyses were conducted to determine the enhancing and hindering factors of adoption of the framework after controlling for age, gender, practice experience, and practice type.

Results

Study 1

Ten focus group interviews were conducted with a total of 60 Cantonese-speaking PCPs. The mean age

of the PCPs was 45.7 (standard deviation [SD], 13.6) years; 91.7% were male. Most (28.3%) had practised for 11 to 15 years, and most (55.0%) worked in the public sector.

Some PCPs indicated that the framework was practical and was in line with their current practice. Others did not actively adopt the framework in their general practice, although part of the framework accorded with their practice. Some considered that there was a gap between the framework and the current healthcare policies on diabetes. Some PCPs pointed out that the feasibility of the framework was high in the public sector, as their practice in the Hospital Authority was very similar to that recommended by the framework. Others believed that inadequate allied healthcare support reduced the feasibility. Some PCPs considered that the framework was not user-friendly, and the layout was unclear, whereas others considered the layout to be detailed and well-organised with a variety of illustrations. Most PCPs agreed that the recommendations of the framework were supported by a large body of high-level evidence.

Limited consultation time, long waiting time for referral, fragmented care services, and lack of promotion of diabetes screening in the public sector may hinder adoption of the framework, as may patient affordability and educational level. Other barriers included clinician inertia to change their existing practice and inadequate support from allied health providers.

Regarding motivations to adopt the framework, resources such as doctors and allied health providers were regarded as a key factor affecting PCPs to adopt the framework in the public sector. Increasing availability of blood glucose-lowering drugs in the Hospital Authority Drug Formulary (eg DPP-4 inhibitor as a self-financed drug) would help PCPs adhere to the pharmacological recommendations of the framework. In the private sector, financial remuneration and support (such as nurses and other allied health providers) were the main resources required to promote adoption of the framework. This may be due to the huge difference in acquisition costs between the private and public sectors.

Patient-related issues were other key factors that influenced adoption of the framework. The silent nature of diabetes contributes to poor patient compliance. To promote patient knowledge on diabetes and its complications, respondents suggested the use of mass media and patient empowerment programmes. A sustainable and integrated healthcare system such as the launch of the Risk Assessment Management Programme may also improve patient compliance, as may adequate consultation time.

Successful adoption of the framework should help improve both clinician and patient knowledge

on diabetes and facilitate the effective use of consultation time. It could also improve patient compliance and achieve better diabetes control, and enable patients in the private sector to receive appropriate treatments. Some respondents expressed concern that adoption of the framework might prolong their consultation time. In the private sector, this may reduce their flexibility in care practice and drug selection in personalised treatment. Further support and adequate compensation are needed for a doctor-nurse team to adopt the framework.

Integrating the framework into the Clinical Management System of Hospital Authority clinics and enhancement of the public-private-partnership scheme using incentives were additional suggestions.

Respondents suggested that the patient version should be simplified by adding more diagrams. A multilingual version of the core document including a pocket version and mobile phone app version would be useful. Information about diet, exercise, oral health, insulin, and serum potassium level should be written in a clear and detailed manner.

Study 2

Of the 3184 questionnaires sent, 414 completed surveys were received (via fax, e-mail, postal return, an electronic web-based answering system, and on-site collection in seminar venues), giving a response rate of 13.0%. The mean age of the PCPs was 53.1 (SD, 13.6) years; 71.8% were male. Most (35.9%) had clinical experience of >30 years and 83.1% practised in the private sector. Most (48.0%) were in solo practice, and 11.8% were family physicians.

The mean adoption score of the framework was 3.29 (SD, 0.51) out of 4.00. Overall, 72.2% of respondents strongly adhered to this framework in their routine practice of diabetes management. There was no significant difference in the characteristics between PCPs with a high adoption rate and those with a low adoption rate.

Measuring blood pressure at every routine visit for diabetes patients was the most frequent recommendation adopted (70.5%), followed by advice on smoking cessation (70.5%) and increased physical activity and regular exercise (62.7%). Only 32.9% performed an eye examination after the diagnosis of diabetes and re-assessed annually; only 27.4% performed eye examination when glycaemic and blood pressure control was suboptimal; and only 29.3% recommended education about foot care as part of multidisciplinary care.

Overall, 93.2% of the respondents agreed or strongly agreed to initiate drug treatment when the haemoglobin A1c level exceeded 7.5% after lifestyle modification. And 93.4% considered the addition of insulin or other oral glucose-lowering drugs as appropriate if the haemoglobin A1c level reached >9%, or if the patient became symptomatic. This

tendency to delay treatment intensification reflects a knowledge gap when early intervention to reduce glycaemic burden is widely recommended.⁶

In the multivariate logistic regression model, age, gender, practice experience, clinical practice setting, and training status were not associated with adoption of the framework. Factors associated with adoption included the availability of essential clinical information to facilitate diabetes management ($P < 0.001$) and support to improve patient knowledge on diabetes and self-care ($P = 0.012$). The hindering factors included perceived restrictions on patient autonomy of choices of medical services ($P < 0.001$), low motivation of patients to change their lifestyle ($P = 0.015$), and barriers in the clinical setting ($P = 0.017$).

To enhance adoption of the framework, 91.9% of PCPs suggested inclusion of a referral system with contact information of other healthcare providers (eg nurses, dietitians, podiatrists). Other suggestions included simplifying the whole framework into flowcharts or short messages (90.7%) and providing a multilingual patient version or pocket version (88.9%) as well as a mobile phone app version of the core document (88.0%). Many PCPs also recommended strengthening the current healthcare system with better integration and communication among different healthcare providers to increase the adoption level of the framework (88.3%).

Discussion

Despite a relatively low response rate, the adoption level of the framework among respondents was generally high. Many suggested providing information about other healthcare providers to achieve multidisciplinary care. They also suggested provision of multilingual versions and a mobile phone app of the core document to improve user-friendliness. Insufficient allied health support and limited consultation time were major barriers to adoption of the framework. There is an urgent need to improve our current healthcare and health-financing systems in order to expand adoption of the framework in both private and public sectors.

Given the importance of patient education, there is a need to simplify the patient version of the framework and use more figures to improve patient knowledge on diabetes and promote self-management.

Practical measures such as support of allied health professionals to improve clinical assessment

and patient education as well as increased availability and affordability of treatment help enable PCPs to improve diabetes care. Multiple stakeholders should be involved in order to broaden the acceptability and usability of the framework in the primary care setting.

This study had some limitations. Due to our tight working schedule, we did not divide PCPs from public and private sectors into separate focus groups. As a result, we might not have addressed adequately the different barriers faced by PCPs in different sectors. In study 2, the response rate was only 13% and this greatly limited the representativeness of our sample. Incentive could have been provided to improve the response rate.

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