IMS INSTITUTE FOR HEALTHCARE INFORMATICS

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Improving Type 2 Diabetes Therapy Adherence and Persistence in the United Kingdom

Appendix

Introduction

This Appendix document provides supporting material for the report entitled Improving Type 2 Diabetes Therapy Adherence and Persistence in the United Kingdom, How to Address Avoidable Economic and Societal Burden.

Research and analysis for this report was undertaken by the IMS Consulting Group with support from Lilly Diabetes.

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Appendix

Overview of methods

A number of key areas were addressed to understand how to improve T2D therapy adherence and persistence in the U.K. First of all, the current social, economic and political context surrounding T2D therapy adherence and persistence was analysed. The different reasons and motivations for being adherent or non-adherent were then explored before understanding the challenges facing PwD. After creating a holistic picture of therapy adherence in T2D, a number of key recommendations to improve the current situation were then developed.

In order to build up this holistic viewpoint and subsequent recommendations, a multifaceted approach was taken. This comprised extensive literature and desk-based research, stakeholder interviews, online quantitative surveys and, the use of the IMS CORE Diabetes Model (CDM) – an economic model validated in peer-reviewed journal articles.

Assessing the current situation

The epidemiology of T2D, current strategies for treating and preventing T2D as well as the political context surrounding T2D and therapy adherence were investigated through stakeholder interviews and surveys, literature reviews and desk-based research of a variety of sources including scientific, governmental and charity publications. Complications and costs linked to T2D and sub-optimal adherence were then quantified using the CDM, based on data inputs gathered from a variety of sources, including data from The Health Improvement Network (THIN) database.

The CDM was populated with a series of U.K.-specific inputs to build an average PwD risk profile for various diabetes-related complications, notably:

- The direct healthcare costs of various diabetes-related complications in the U.K. (e.g. MI, stroke, amputation, blindness, renal disease, among others)
- The medical characteristics of the average PwD in the U.K. (e.g. HbA1c levels, blood pressure, body mass index, age, duration of diabetes, co-morbidities, among others)

These risk profiles were built for three different age cohorts (35-49, 50-64, 65+ years old), while the 50-64 age profile was applied to newly diagnosed PwD.

However, one variable, HbA1c levels, of each PwD risk profile was left open to change in order to differentiate between adherent and non-adherent PwD in the U.K. The HbA1c of an adherent PwD and a non-adherent PwD was calculated by collecting the following information:

- The proportion of PwD in the U.K. who are adherent and non-adherent, respectively
- The average HbA1c levels of all PwD in the U.K.
- The relationship between T2D therapy adherence and HbA1c among PwD in the U.K.

With all of this information, the model was then run twice on a per-patient basis:

- Once in a scenario for adherent PwD, where HbA1c levels are lower and therefore the risk of complications is lower
- Once in a scenario for non-adherent PwD, where HbA1c levels are higher and therefore the risk of complications is higher

Each scenario results in a per-patient cost, which was multiplied by the number of PwD who are adherent or non-adherent in the U.K., respectively. The total of these two scaled-up scenarios represents the total cost burden of PwD in the U.K.

Finally, in order to determine the avoidable cost due to low T2D therapy adherence, the adherent per-patient scenario was multiplied by the total number of PwD in the U.K. (representing a hypothetical scenario where all PwD in the U.K. have adequate adherence levels and therefore lower rates of complications and costs) before subtracting it from the actual cost burden of PwD in the U.K. This difference captures the total avoidable cost due to T2D therapy non-adherence in the U.K. and therefore the estimated cost saving were all PwD to reach an adequate level of adherence (generally defined in these papers as the PwD picking up 80% or more of their T2D medication as prescribed by the physician or, the PwD reaching a threshold level of adherence as scored in a self-reported adherence survey).

Characterising PwD

PwD face a number of challenges, which can act as a barrier to adherence and persistence. The main barriers to T2D therapy adherence were identified through extensive literature searches before being validated in discussions with healthcare professionals and policy makers.

Creating the Recommendations

By analysing the current situation, PwD behaviours and challenges facing them at the level of desk research, a number of recommendations to improve adherence and persistence in T2D were developed. These recommendations were then reviewed and optimised during qualitative interviews with healthcare professionals, payers, policy makers and patient association representatives thus ruling out all but the most important, effective and easily implementable solutions.

Recommendations

Exhibit A: Recommendations and Associated Interventions to Improve T2D Therapy Adherence and Persistence (AP) in the U.K.

Recommendation	Intervention description	Possible intervention assessment metrics	Key Partners / Target Audience	Outcomes
IDENTIFY AND PROFILE				
Use predictive analytics to identify PwD at risk of low adherence and persistence	Gathering of EPR to be used to perform "predictive analytics", a process whereby software algorithms mine compiled data based on set criteria to identify non-AP PwD or PwD who are risk of non-AP	Review quality of data by keeping a record of successful/ unsuccessful predictions	Payers, HCPs, policy makers, manufacturers	Rapid, reliable and low-cost identification of non-AP PwD or PwD who are at risk of non-AP
Use validated psychometric assessment models to evaluate identified PwD activation as related to their diabetes care	Implement psychometric measurement tools, such as the Patient Activation Measure (PAM), to profile PwD, thus providing insights into a range of health-related attributes (attitudes, motivators, behaviours, or logistical challenges) and measure degree of PwD activation	Tool uptake in clinical practice (number of questionnaires sent); questionnaire completion rates; record PwD activation trends; fewer emergency admissions, medical visits or prescriptions	Payers, HCPs, policy makers, manufacturers	Holistic and personalised care; better T2D self-management (including therapy A&P); lower and optimised healthcare service use
ACTIVATE				
Secure HCP buy-in by demonstrating the importance and content of T2D structured group education to HCPs	Feature modules on T2D structured group education in widely-attended HCP courses/conferences; CCGs to offer more encouragement for HCPs to attend a T2D structured group education modules	Record attendance of HCPs at courses, feedback surveys from HCPs; record PwD activation trends, adherence and medical statistics	Payers, HCPs, policy makers, manufacturers, patient advocacy groups	Increased understanding of T2D structured group education courses and their benefits; improved attendance at T2D group education courses; increased PwD engagement; better T2D self-management (including therapy A&P); reduction in T2D-related complications; lower and optimised healthcare service use in the long-term

Recommendation	Intervention description	Possible intervention assessment metrics	Key Partners / Target Audience	Outcomes
Offer T2D structured group education courses at a broader range of times	CCGs to commission more courses at the weekend or evenings; could involve hiring some nurses to exclusively facilitate courses within a certain area	Record attendance at courses; measure changes in PwD activation degrees; record PwD activation trends, adherence and medical statistics	Payers, HCPs, policy makers, manufacturers	Improved attendance at T2D group education courses; increased PwD engagement; better T2D self-management (including therapy A&P); reduction in T2D-related complications; lower and optimised healthcare service use in the long-term
Increase number of HCPs trained in behavioural change	Include modules on behavioural change in courses widely attended by HCPs; CCGs to offer more encouragement for HCPs to attend these modules so that they can further develop these skills in order to influence and persuade PwD to change their behaviour	Record attendance of HCPs at courses; record attendance of PwD at T2D structured education courses; record PwD activation trends, adherence and medical statistics	Payers, HCPs, policy makers, manufacturers, patient advocacy groups	Improved PwD attendance at T2D group education courses; increased PwD engagement; better T2D self-management (including therapy A&P); reduction in T2D-related complications; lower and optimised healthcare service use
Capitalise on clinical pharmacists in general practice	Expand number and role of clinical pharmacists in primary care programmes and develop the role of these pharmacists (e.g. psychometric measurement tool); utilise retail pharmacists (e.g. medicine beliefs surveys and pharmacy-based SMS services)	Primary care GP and nurse satisfaction surveys; medicine costs; medicine wastage statistics; record PwD activation trends, adherence and medical statistics	Payers, HCPs, policy makers, manufacturers	Extra information from pharmacists benefits PwD as they have more time with other HCPs (reduced burden for HCP as well); other HCPs receive expert information on drug regimens thus reducing pill burden and optimising medication for PwD; increased adherence from better-suited medication; optimised healthcare service use

Recommendation	Intervention description	Possible intervention assessment metrics	Key Partners / Target Audience	Outcomes
Adapt appointment plans depending on PwD activation	Prioritise PwD with low activation or adherence for extra appointments or specialist appointments within integrated/intermediate care models	Record PwD activation trends, adherence and medical statistics before and after referrals	Payers, HCPs, policy makers	Increased number of PwD with low activation to receive the extra care they need; reduction in T2D-related complications; lower and optimised healthcare service use
SUSTAIN				
Monitor high PwD activation and repeat or adapt activation strategy for PwD with dropping activation or diabetes control	Once optimally activated, PwD can be monitored to check if activation or control drops, thus allowing HCPs to understand when further or different strategies are needed to increase activation or improve control	Record PwD activation trends, adherence and medical statistics	Payers, HCPs, policy makers	Holistic and personalised care; improved PwD engagement; improved health status; lower and optimised healthcare service use
Leverage technology and digital offerings to maintain PwD activation	Leverage technology for T2D therapy tracking, T2D management support, refresher education and reminders to reduce need for human intervention; diabetes specialist nurses to conduct Tweet chats or 'prescribe' online health platforms such as Puffell to PwD	Measure disease and medication knowledge (e.g., teach-back method); record PwD activation trends and adherence	Payers, HCPs, policy makers, manufacturers, patient advocacy groups	Proficient T2D self-management, reduced costs to healthcare system, alternative and easy access to peer support, HCPs and educational materials

Source: IMS Consulting Group research and analysis

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