

July 2016

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

Appendix



Introduction

This Appendix document provides supporting material for the report entitled Improving Type 2 Diabetes Therapy Adherence and Persistence in the United States, 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.

Murray Aitken

Executive Director

IMS Institute for Healthcare Informatics

IMS Institute for Healthcare Informatics
100 IMS Drive, Parsippany, NJ 07054, USA
info@theimsinstitute.org
www.theimsinstitute.org

 Find out more

If you wish to receive future reports from the IMS Institute or join our mailing list, please [click here](#)

©2016 IMS Health Incorporated and its affiliates. All reproduction rights, quotations, broadcasting, publications reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without express written consent of IMS Health and the IMS Institute for Healthcare Informatics

Appendix

Overview of methods

A number of key areas were addressed to understand how to improve T2D therapy adherence and persistence in the U.S. Medicare population. First of all, the current social, economic and political context surrounding T2D therapy adherence and persistence was analyzed. The different reasons and motivations for being adherent or non-adherent were then explored before understanding the challenges facing Medicare individuals with diabetes. After creating a holistic picture of therapy adherence and persistence 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 in the Medicare population 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 in the Medicare population were then quantified using the CDM, based on data inputs gathered from a variety of sources, including data from the National Health and Nutrition Examination Survey (NHANES) and a study by Jason Yeaw in Applied Health Economics and Health Policy (2014).

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

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

This profile was also applied to newly diagnosed Medicare PwD or current PwD moving into Medicare.

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.S. Medicare population. 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.S. Medicare population who are adherent and non-adherent, respectively
- The average HbA1c levels of all PwD in the U.S. Medicare population

- The relationship between T2D therapy adherence and HbA1c among PwD in the U.S. Medicare population

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.S. Medicare population, respectively. The total of these two scaled-up scenarios represents the total cost burden of PwD in the U.S. Medicare population.

Finally, in order to determine the avoidable cost due to sub-optimal T2D therapy adherence in the U.S. Medicare population, the adherent per-patient scenario was multiplied by the total number of PwD (representing a hypothetical scenario where all PwD 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.S. Medicare population. This difference captures the total avoidable cost due to T2D therapy non-adherence in the U.S. Medicare population and therefore the estimated cost saving were all Medicare 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).

Characterizing PwD

Medicare 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 analyzing the current situation, Medicare PwD behaviors 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 optimized 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 in the U.S. Medicare Population

Recommendation	Intervention description	Possible intervention assessment metrics	Key Partners / Target Audience	Outcomes
IDENTIFY AND PROFILE				
Use predictive analytics to identify PwD at risk for low adherence and persistence	Collection of health data to be used to perform “predictive analytics”, a process whereby software algorithms mine compiled data based on set criteria to identify PwD with or at risk for poor adherence and persistence	Review quality of data by keeping a record of successful/ unsuccessful predictions	Payers, HCPs, manufacturers	Reliable, time- and cost-effective identification of individuals with or at risk for low adherence and persistence
Use validated psychometric assessment models to evaluate identified PwD activation as related to their diabetes care	Psychometric questionnaire to provide insights into a range of health-related attributes (attitudes, motivators, behaviors, outcomes or logistical/financial challenges) and measure PwD activation	Tool uptake in clinical practice (number of questionnaires sent); questionnaire completion rates; changes in PwD activation; fewer emergency admissions, medical visits or prescriptions	Payers, HCPs, manufacturers	Holistic and personalized care; better T2D self-management (including therapy adherence and persistence); lower and optimized healthcare service use
Sponsor further research to improve understanding of Medicare PwD primary life barriers	Leverage approaches such as ethnographic studies, behavioral economics and six sigma methodology to understand underlying reason(s) for low activation, and customize interventions		Academics, payers, HCPs, government, manufacturers	

Recommendation	Intervention description	Possible intervention assessment metrics	Key Partners / Target Audience	Outcomes
ACTIVATE				
Offer convenient and easy-to-access educational content tailored upon PwD activation	Customize educational interventions according to the PwD degree of health knowledge and aptitude to self-manage their condition. Provide a range of formats for content adapted to the PwD preferences (in terms of pace of engagement, location and mix of human and technology interventions). Eliminate physician preauthorization requirements to attend T2D education	Measure disease and medication knowledge (e.g., teach-back method); changes in PwD activation	Payers, HCPs	Improved health literacy and health knowledge; increased PwD engagement; better T2D self-management (including therapy adherence and persistence); reduction in T2D-related complications; lower and optimized healthcare service use
For PwD with low activation, expand use of care team and educators to provide support to improve health literacy	Customize engagement by nurses, social workers, pharmacists, and CDEs in terms of pace of engagement, educational content, logistical support and time allocation	Measure disease and medication knowledge (e.g., teach-back method); changes in PwD activation; increased medication possession ratio	Payers, HCPs	Personalized patient-centric care; improved health literacy and health knowledge; increased PwD engagement; better T2D self-management (including therapy adherence and persistence); reduction in T2D-related complications; lower and optimized healthcare service use
Incorporate healthcare plan counseling as part of medical appointments	Clear confusion regarding differences between healthcare plans. Help PwD select optimal plan for their treatment and navigate formulary changes	Increased medication possession ratio	Payers, HCPs	Eliminate financial barrier for adherence and persistence; increased PwD engagement; better T2D self-management (including therapy adherence and persistence); reduction in T2D-related complications; lower and optimized healthcare service use

Recommendation	Intervention description	Possible intervention assessment metrics	Key Partners / Target Audience	Outcomes
Promote innovative ways to reduce financial burden for Medicare PwD with financial constraints	Design innovative partnerships between payers and manufacturers, such as including adherence metrics into contracting deals, to alleviate financial burden	Increased medication possession ratio	Payers, manufacturers	Eliminate financial barrier for adherence and persistence; increased PwD engagement; better T2D self-management (including therapy adherence and persistence); reduction in T2D-related complications; lower and optimized 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 personalized care; improved PwD engagement; improved health status; lower and optimized healthcare service use
Better leverage technology and digital offerings to maintain PwD activation	Better leverage technology for T2D therapy tracking, T2D management support, refresher education and reminders to reduce need for human intervention	Measure disease and medication knowledge (e.g., teach-back method); lack of changes in PwD activation	Payers, HCPs, policy makers, manufacturers, pharmacies	Proficient T2D self-management; Reduced healthcare system costs

Source: IMS Consulting Group research and analysis

IMS INSTITUTE

FOR

HEALTHCARE INFORMATICS

IMS Institute for Healthcare Informatics

100 IMS Drive, Parsippany, NJ 07054, USA

info@theimsinstitute.org

www.theimsinstitute.org

We invite you to download
IMS Institute reports in iTunes

