IMS INSTITUTE FOR HEALTHCARE INFORMATICS

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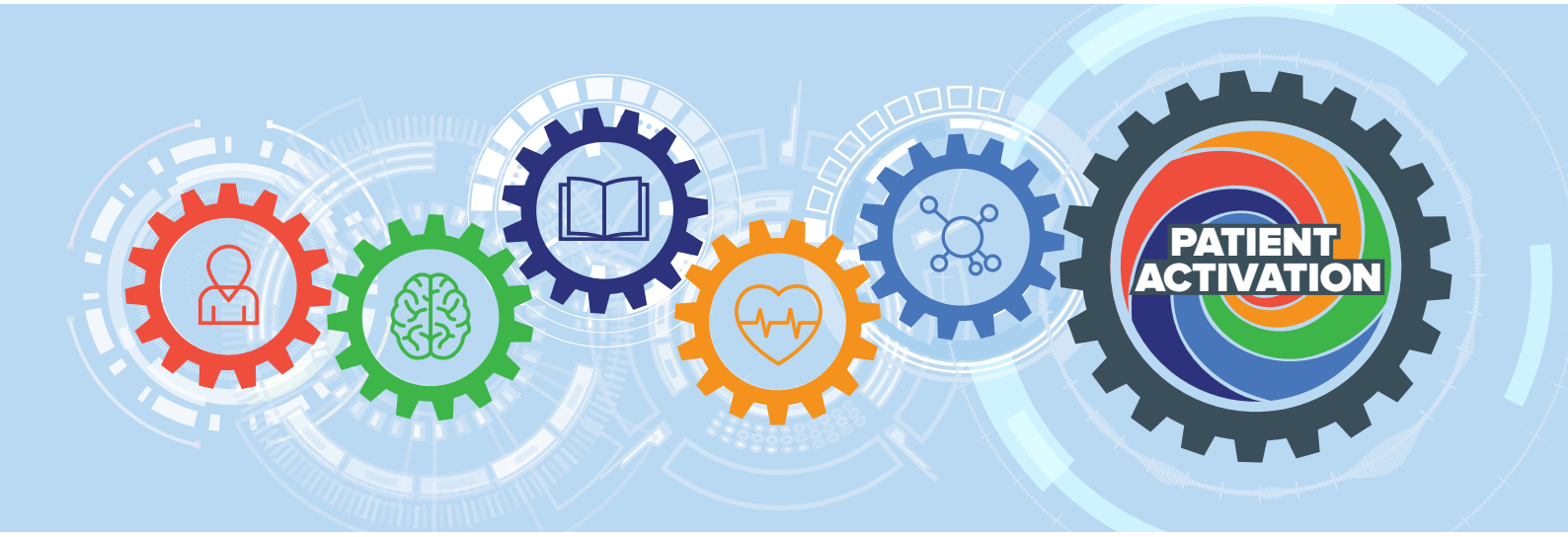
Improving Type 2 Diabetes Therapy Adherence and Persistence in Mexico

Appendix



Introduction

This Appendix document provides supporting material for the report entitled Improving Type 2 Diabetes Therapy Adherence and Persistence in Mexico, 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 Mexico. 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 PwD. After creating a holistic picture of therapy adherence in and persistence 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 the Secretaría de Salud.

The CDM was populated with a series of Mexico-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 Mexico (e.g. MI, stroke, amputation, blindness, renal disease, among others)
- The medical characteristics of the average PwD in Mexico (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 Mexico. The HbA1c of an adherent PwD and a non-adherent PwD was calculated by collecting the following information:

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

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 Mexico, respectively. The total of these two scaled-up scenarios represents the total cost burden of PwD in Mexico.

Finally, in order to determine the avoidable cost due to sub-optimal T2D therapy adherence, the adherent per-patient scenario was multiplied by the total number of PwD in Mexico (representing a hypothetical scenario where all PwD in Mexico have adequate adherence levels and therefore lower rates of complications and costs) before subtracting it from the actual cost burden of PwD in Mexico. This difference captures the total avoidable cost due to T2D therapy non-adherence in Mexico 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).

Characterizing 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 analyzing the current situation, 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 Mexico

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 having or at risk for having low adherence and persistence	Better prediction of patient activation degrees in public institutions, predict high risk patients	Private partners, pharmaceutical companies, MoH, providers of predictive analytics capabilities	Reliable, time- and cost-effective identification of individuals having or at risk for having low adherence and persistence; holistic and personalized care; lower and optimized healthcare service use
Develop a diabetes-specific tool for validating PwD activation degree	Develop a tool that assesses different aspects of PwD engagement and that allows to objectively measure PwD activation degrees	Tool uptake (number of questionnaires filled); changes in PwD activation degrees; fewer emergency admissions, medical visits or prescriptions	MoH, Payers, HCPs, pharmaceutical companies	Better T2D self-management; increased PwD engagement; better understanding of PwD activation degrees impact; tailoring of interventions
ACTIVATE				
Strengthen primary-care physician communication and advisory capabilities	Provide continued medical education to primary-care physicians on how to ensure achieving patient engagement	Knowledge retention through periodic check-ups; proportion of PwD in control	HCPs, Payers, pharmaceutical companies	Improvement in delivering personalized care; improved health literacy and health knowledge; better T2D self-management (including therapy adherence and persistence); lower and optimized healthcare service use; increased PwD adherence and persistence

Recommendation	Intervention description	Possible intervention assessment metrics	Key Partners / Target Audience	Outcomes
Expand number of HCPs for engaging PwD on importance of adherence and persistence	Expand role of diabetes educator. Train nurses, and social workers in educating PwD on self-care management and key changes needed in behavior and lifestyle	Measure each role disease and medication knowledge (e.g., teach-back method); increase in number of HCPs per PwD	Payers, HCPs, social workers, MoH, medical students, pharmaceutical companies	Personalized patient-centric care; improved health literacy and health knowledge; increased PwD engagement and adherence; better T2D self-management (including therapy adherence and persistence); reduction in T2D-related complications; lower and optimized healthcare service use; physician's time optimization
Tailor educational programs to PwD activation degrees	"Prescribe" educational interventions according to the PwD degree of health knowledge and aptitude to self-manage their condition. Provide a range of formats for courses adapted to the PwD preferences (in terms of pace of engagement and mix of human and technology interventions)	Measure disease and medication knowledge (e.g., teach-back method); improvements in PwD activation degrees	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
Develop a community and household-based support network	Involve people surrounding PwD in supporting day-to-day management of the condition, not limited to family but also considering members of the community and social groups	Improvements in PwD activation degrees; social groups attendance; PwD adherence levels; proportion of PwD in control	Payers, HCPs, PwD relatives, community leaders	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

Recommendation	Intervention description	Possible intervention assessment metrics	Key Partners / Target Audience	Outcomes
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
Leverage technology and digital offerings to maintain PwD activation	Develop reminder systems based on messaging (SMS/ online messaging) or phone calls to improve PwD monitoring	Number of messages sent / calls made; number of interventions caused by messages/calls reminders; PwD adherence levels	Payers	Sustained high activation degrees; better T2D self-management (including therapy adherence and persistence); increased PwD adherence and persistence levels
Leverage mass media to promote importance of adherence and persistence	Implement a radio and TV campaigns based on promoting short messages regarding diabetes self-management and the importance of treatment adherence and lifestyle changes	Number of consultations per PwD; proportion of PwD tested for HbA1c levels	HCPs, influencers	Increased health literacy; improved activation degrees; increased PwD adherence and persistence levels

Source: IMS Consulting Group research and analysis

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