Dulce Wireless Tijuana

Promoting the prevention and treatment of diabetes through mobile technologies

The current global diabetes epidemic calls for innovative, efficient and technology-based interventions for disease prevention and control. In collaboration with the International Community Foundation, Dulce Wireless Tijuana (DWT) was a binational, multisector study that looked at how the chronic care model, coupled with 3G wireless Internet access via cell phones, can improve the health of diabetes patients in marginalized communities. The main study was carried out in the Family Medicine Unit # 27 (UMF 27) of the Mexican Social Security Institute (IMSS), located in Tijuana, B.C., Mexico. The final results were published in 2016 in the Diabetes Technology & Therapeutics journal.[1]

MEXICO

2018 Statistics*

Population (2017 est.)	124 million
Life Expectancy	76.1 years
GDP Per Capita (2017 est.)	US$19,900
Mobile Penetration	85.6%

Challenge

- According to the World Health Organization, noncommunicable diseases, including diabetes, are the leading cause of death worldwide.
- According to the International Diabetes Federation, it is estimated that type 2 diabetes will impact almost 20% of the Mexican adult population in 2035.
- Mexico has the highest percentage of the population between 20 and 79 years of age with diabetes according to the Organisation for Economic Co-operation and Development.
- As part of Mexico's National Development Plan 2013-2018, the Ministry of Health launched the National Strategy for Prevention and Control of Overweight, Obesity and Diabetes.

Solution

- The DWT study, through an educational intervention (Diabetes Among Friends™) and the use of 3G wireless technology, contributed to the improvement of the metabolic control of patients with type 2 diabetes.
- 297 patients were recruited and randomly assigned to three groups: 99 patients received standard IMSS treatment as the control group (CG), 99 received the clinical and educational intervention of the Dulce Project (DP), and 99 received the clinical and educational intervention of the DP, in addition to glucometers and 3G-enabled mobile technology (DP-MT).
- Patients, doctors, nurses, and health promoters (Promotoras) in the DP-MT treatment group were in constant contact with one another thanks to their 3G-enabled phones and the diabetes mobile application created for the project.
- Through the mobile app, patients were able to respond to interactive surveys, receive notifications and reminders, and view short videos and brochures related to better managing their medical condition.

*Sources: CIA World Factbook (https://www.cia.gov/library/publications/the-world-factbook); US Census Bureau (https://www.census.gov/popclock/); Mobile penetration data provided by Ovum World Cellular Information Service and based on market intelligence.

Impact

Reduction in Blood Glucose Levels

Patients who participated in the DP-MT group, using mobile tools, showed a greater reduction in absolute levels of blood glucose (HbA1c) over time than the other two groups.

Improved Metabolic Control

Integrating peer education (through Promotoras), nursing service coordination and use of mobile technology can improve metabolic control of patients with type 2 diabetes.

Increased Diabetes Knowledge

Patients who participated in the intervention groups also reported greater improvement in quality of life and diabetes knowledge compared to the control group.

Online DWT Replication Toolkit

A universal guide for other health care institutions that are interested in adopting the DWT model with mobile technology is available online.

Program Stakeholders

DULCE wireless Tijuana

ICF International Community Foundation

Scripps

Qualcomm wireless reach

IMSS

PROSALUD

[1]María Cecilia Anzaldo-Campos, MD, et al. "Dulce Wireles s Tijuana: A Randomized Control Trial Evaluating the Impact of Project Dulce and Short-Term Mobile Technology on Glycemic Control in a Family Medicine Clinic in Northern Mexico." Diabetes Technology & Therapeutics. 2016 Apr 1; 18(4): 240–251. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4827300/#B8

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