

Sugar, Heart and Life

A Guide to Living with DiabetesSM

TECHNICAL REPORT

I. PROGRAM OVERVIEW

Sugar, Heart and Life (SHL) is a rich, culturally appropriate and entertaining web-based learning environment in English and Spanish designed to assist Hispanic patients and their families with decision-making and coping skills related to diabetes management. The main purpose of the SHL program is to help persons with type 2 diabetes and their families make the permanent lifestyle changes needed to control blood sugar and prevent complications. These lifestyle changes can also be broadly applied to prevent a number of chronic conditions including heart disease, high blood pressure, and other obesity-related illnesses.

The SHL web site may be accessed at www.bcm.edu/shl. A version for Health Professionals (HP) may be accessed at www.bcm.edu/shl/healthprofessionals. The HP version is designed to provide health professionals additional tools and viewing options suitable for working with individuals or groups.

The SHL program offers two primary learning vehicles: 1) an interactive telenovela; and, 2) an Info-Market which includes instructional games and activities. The SHL program educates viewers about the importance of adhering to diet, exercise, and medication guidelines in order to achieve glycemic control.

1. Interactive Telenovela

The first component is an interactive telenovela that uses a series of videos in English and Spanish. The storyline (English and Spanish versions) follows a family who is dealing with diabetes management over the course of 1 year. The story is divided into five episodes:

A. HEALTHY EATING

Episode 1: New Friends, New Recipes

Episode 4: Dinner at La Hacienda

B. TAKING MEDICATION

Episode 3: Managing Our Medication

C. BEING ACTIVE

Episode 2: At the Park with the Ortiz

Episode 5: Field Day at the Bazaar

After an introductory scene in each episode, viewers are asked to select either of two main characters: Victoria who was recently diagnosed with diabetes or Luis her husband who also has diabetes.



As the story develops, users are then presented with decision-points where they are asked to choose between an “appropriate” or “inappropriate” (these terms are used for evaluation purposes only) action for the character selected at the end of each episode. Selections made at each decision-point are unobtrusively tracked in the background and fed into an algorithm to provide feedback (results) to the users based on the choices made throughout the story.

- 0 – 1 Appropriate Choices = Undesirable outcome
- 2 – 3 Appropriate Choices = Neutral outcome
- 4 – 5 Appropriate Choices = Desirable outcome

These actions reflect how well the characters are able to apply diabetes management skills to their daily routine. Depending on the number of appropriate decisions chosen for the characters, viewers are presented with one of three “five years later” scenes depicting potential consequences to the Gonzales family. This way, users can vicariously experience the outcomes based on the choices made while viewing the storyline:

1. **Undesirable Outcome:** The Gonzalez family continue with their usual eating and exercise patterns
2. **Neutral Outcome:** The Gonzalez family change a few things in the way they eat and get exercise
3. **Desirable Outcome:** The Gonzalez carefully watch what they eat and get daily exercise



2. Educational Modules and Games

The second component consists of 3 diabetes educational modules and 4 interactive games accessible during the telenovela via an “Info-Market” on-screen icon. The learning modules are designed to instruct the users on critical issues related to diabetes management. Users can easily return to the telenovela portion of the program by selecting the “telenovela” icon at the bottom, left-hand corner of the screen. Users can save facts/tips while viewing the learning modules and choose to print them later on in the program. Presented below is a brief description of each of the interactive learning modules.

What Is Diabetes?: This module uses animation to depict what happens within the body when a person has diabetes. By rolling over objects on the screen, users can learn about the functions of various body organs pertinent to the diabetes disease process.

Checkout Your Choices: The Supermarket Game: The supermarket game is designed to encourage the user to shop for healthy foods, and provides tips on how to navigate aisles at the supermarket. It is an interactive game that has the user shop for food in a virtual supermarket. During checkout the user is provided with tailored feedback based on the choice of food selected.

Claudia’s Recipe Box: Based on a character in the story, Claudia’s Recipe Box presents recipes that appear in the telenovela, such as Fish Tacos with Mango Salsa and 20 additional diabetes-friendly recipes. In addition to recipes, tips for cooking healthy, healthy baking and tips for making Hispanic food healthy are also presented. The user is encouraged to browse through the recipe box and save recipes for printing.

Create-a-Plate: The Food Portions Game: The Create-a-Plate Game engages users into creating a properly portioned plate that is consistent with diabetes dietary guidelines. This game has been adapted from American Diabetes Association "Rate Your Plate Game." Users are asked to place each major food group (starches, vegetables, and meats) on the plate in the right proportions. This teaching tool provides users with an easy-to-remember visual aid to healthy food portions. Users' learning is supported if they run into difficulties of creating a properly proportioned plate.

What's In It?: This game engages users into what to look for in a food label and how to interpret different sections of the food label. Users are presented with food labels of popular food items and are asked to make choices. Users are provided with immediate feedback based on their responses.

Diabetes Care Toolbox: Using the metaphor of a mechanic's tool box, this interactive resource provides basic information and guidelines for diabetes management. The content is divided into 6 sections including:

1. Tips for Eating at Home
2. Tips for Eating Out
3. Tips for Daily Exercise
4. Tips for Taking Your Medication
5. Tips for Proper Foot Care
6. Tips for Preparing for a Health Care Visit

As users view these sections, they may save areas of interest for later printing.

Go for Your Goal: Setting up a Personal Plan for Physical Activity: This game engages users to incorporate exercise into their daily routine in order to stay healthy. Users are asked to select common light, moderate, and vigorous activities, which they could integrate into a personal seven-day calendar of activities.

All diabetes management recommendations presented in the SHL program, including educational content of the games and resources in the Info-Market follow standard practice guidelines of the American Diabetes Association (www.diabetes.org) and the American Dietetic Association (www.eatright.org).

II. EDUCATIONAL OBJECTIVES

The telenovela incorporates into the storyline key aspects of diabetes management (diet, exercise, medication, self-care behaviors), and also addresses the importance of family support in coping with the disease. At the conclusion of the program viewers should:

- Improve diabetes self-efficacy
- Improve adherence to diet, exercise, and medication
- Understand importance of engaging in diabetes self-care behaviors
- Understand that with good diabetes control one can postpone or prevent development of complication
- Understand importance of family support for diabetes management and prevention

III. TARGET AUDIENCE

The SHL program is designed to meet the educational needs of English- and Spanish speaking adult men and women who have been diagnosed with type 2 diabetes. It is very easy to use, particularly by those with limited computer or reading abilities.

IV. METHOD OF VIEWING

The SHL program content is presented using a combination of a series of interactive videos (soap opera) and games and activities. Minimal on-screen text is used, the program is fully narrated by professional voice-over talent, and navigation is very user-friendly not utilizing pull-down menus, page scrolling or other features used traditionally in web page design.

V. DEVELOPMENT

1. Content

The decision of what content to include in the SHL program was driven by the long term goal of helping persons with type 2 diabetes and their families make the permanent lifestyle changes needed to control blood sugar and prevent complications.

Content for development of the SHL telenovela storyline was informed by data obtained from six focus groups conducted with 72 primary care patients from three local community clinics. Results from focus group findings were published in Patient Preference and Adherence Journal (Rustveld L, et al, 2009). Content was also informed by a comprehensive review of the literature on diabetes care and self-management and consultation with faculty from Baylor College of Medicine, University of Texas at Houston and San Antonio, and primary care providers practicing at Harris County Hospital District's community clinics.

2. Development Process

As depicted in Figure 1 below, during development of the SHL we utilized a combination of conceptual models and frameworks to guide and organize the inclusion of content (What?) identified in the formative stage. Then, evidence-based instructional models (How?) were utilized to present the content in formats that facilitate learning and decision making (i.e. edutainment, interactive learning modules, games) for Hispanic individuals and their families. This process culminated in the translation of the content into the Telenovela and Info-Market sections of the SHL program.

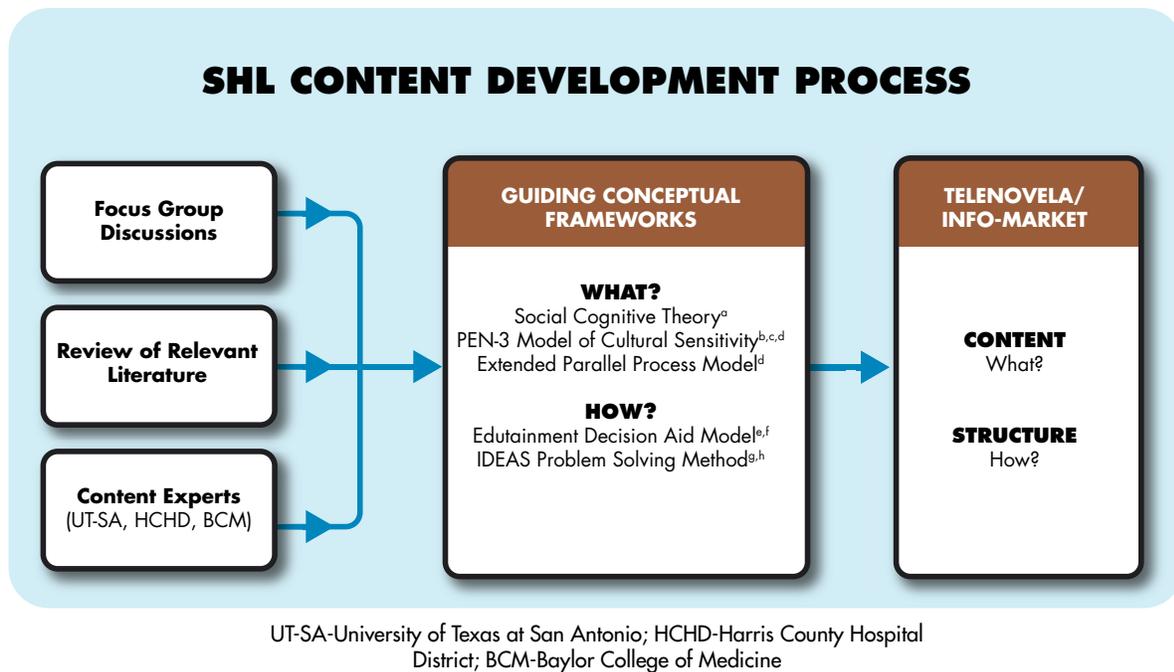


Fig. 1

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VI. PUBLICATIONS

Publications – Peer Reviewed

1. Rustveld L, Jibaja-Weiss ML, Johnson T. Sugar, Heart, and Life: A bilingual diabetes interactive telenovela. In: Proceedings from ED-MEDIA 2009–World Conference on Educational Multimedia, Hypermedia and Telecommunications.
2. Rustveld L, Pavlik N, Jibaja-Weiss ML, Kline KN, Gossey JT, Volk RJ. Adherence to diabetes self-care behaviors in English- and Spanish-speaking Hispanic men. *Patient Preference and Adherence* 2009;3:1-8.
3. Rustveld L, Jibaja-Weiss M, Pavlik V. Promoting Type 2 Diabetes Mellitus Self-Care Utilizing an Interactive Telenovela Targeted to Novice Computer Users. European Association for Communication in Healthcare (EACH), September 5-8, 2010, Verona Italy. (Oral Presentation)
4. Bradford A, Rustveld L, Jibaja-Weiss M. Sexual Problems described by Hispanic Women with Type 2 Diabetes. International Society for the Study of Women's Sexual Health Annual Meeting February 12-15, 2009. (Poster Presentation)
5. Jibaja-Weiss M, Rustveld L. Sugar, Heart, and Life: A bilingual interactive telenovela. Games for Health Annual Meeting June 9-12, 2009. (Poster Presentation)
6. Mansyur C, Rustveld L, Jibaja-Weiss M. Social factors and barriers to weight management in Hispanic patients with Type 2 Diabetes. Society of Behavioral Medicine 32nd Annual Meeting & Scientific Sessions April 27-30, 2011. (Poster Presentation)

Presentations - Invited

1. Rustveld L, Jibaja-Weiss M. Sugar, Heart, and Life: A Guide to Living with Diabetes. Grand Rounds Baylor College of Medicine, Houston Texas, September 14, 2010.
2. Jibaja-Weiss M, Rustveld L, Pavlik V. Sugar, Heart, and Life: A Guide to Living with Diabetes. Center for Diabetes Research Baylor College of Medicine, Houston Texas, November 6, 2010.
3. Jibaja-Weiss M, Rustveld L, Chauca G. Sugar, Heart, and Life: A Guide to Living with Diabetes. Baker Ripley Service Providers Meeting, Houston Texas, November 17, 2010.

CREDITS

PROJECT SPONSOR

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Jack Richmond Host of What's In It?
Gil Romero..... Male Narrator
Lidia Porto Female Narrator

Special Thanks to:

Javier Quezada Peña Painter

Diabetes Interactive Telenovela Characters

VICTORIA GONZALEZ Amparo Garcia-Crow
LUIS GONZALEZ..... Rene Munguia
LUCIA GONZALEZ Cynthia Lopez
LUCHO GONZALEZ..... Mateo Mpinduzi-Mott
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DON FERNANDO	Francisco Philibert
EDUARDO	Marcos Mena
PHARMACIST	Anthony Hernandez
SUBSTITUTE DOCTOR.....	Stephen Brogdon

Background Characters

PHARMACIST	Pravin D. Mehta
MUSICIAN AT BAZAAR.....	Gustavo Venegas
PEOPLE AT BAZAAR	Grace Muscarello
	Cindy Muscarello (mom)
	Christina Hernandez
	Katarina Hernandez
	Amy Hernandez (mom)
	Joseph Garcia
	Belinda M. Simpson (mom)
	Matthew Simpson
	Georgianna Simpson
	Zachary Colt Lacy
	Juan Soto

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RESOURCES

All diabetes management recommendations contained in this program, are consistent with clinical practice recommendations of the American Diabetes Association, American Dietetic Association and the National Institute of Diabetes and Digestive and Kidney Diseases. Recipes in Claudia's Recipe Box were adapted from heart healthy recipes from the National Heart, Lung, and Blood Institute (NHLBI). For more information please visit the following websites:

American Diabetes Association

www.diabetes.org

American Dietetic Association

www.eatright.org

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

www.diabetes.niddk.nih.gov

National Heart, Lung, and Blood Institute

www.nhlbi.nih.gov

The information provided in this program is not meant to replace medical advice. Please talk to your doctor before you take any action related to the management of your diabetes.

BCM

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URL: <http://www.bcm.edu/shl>

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