Sugar, Heart and Life
A Guide to Living with Diabetes℠

HEALTH PROFESSIONALS GUIDE

_____

OVERVIEW

The Sugar, Heart, and Life (SHL) Health Professionals (HP) Guide outlines development and content of the SHL program and provides a guide for health professionals on diabetes management information presented in the web-based version of the program. The SHL program does not supplant usual diabetes education in the clinics, but the main purpose 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.

In the Health Professionals version of the program, content is structured for ease of presentation suitable for working with individuals or groups. Users can easily access diabetes management topics from several menu options, and easily navigate through the various decision points and consequence scenes the characters are confronted within the telenovela portion of the program.

The primary objective of the HP version is to help health professionals make the most of all the resources available throughout the different components of the SHL program.

The SHL Health Professionals Guide includes five topic areas:

1. Development
2. Core Concepts
3. Educational Objectives
4. SHL Components
5. Resources

I. DEVELOPMENT

1. Content

The SHL program is a rich, culturally appropriate and entertaining web-based learning environment in English and Spanish designed to assist patients and their families with decision-making and coping skills related to diabetes management. It was designed making special consideration for novice computer users and individuals with low health literacy. For example, 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 or other features used traditionally in web page design.

Content for development of the SHL 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 (Rustveld, 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 local community clinics.

All diabetes management recommendations and educational content presented in the games and activities of the Info-Market follow standard practice guidelines of the American Diabetes Association and the American Dietetic Association.

2. Development Process

As depicted in figure 1, 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.
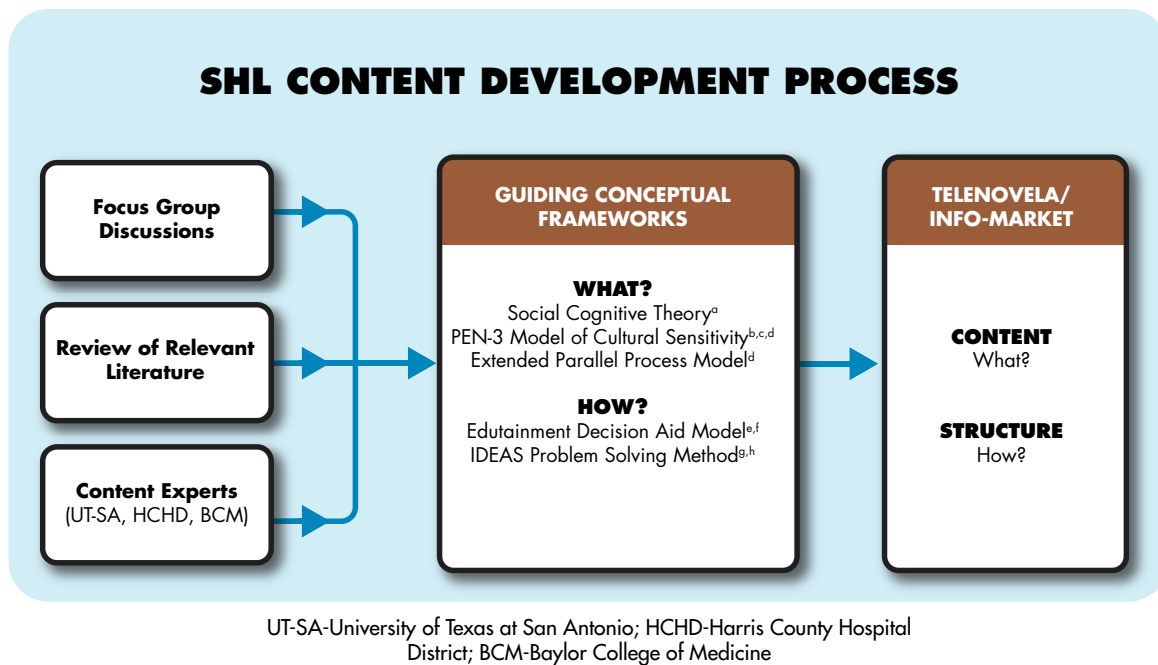
SHL CONTENT DEVELOPMENT PROCESS

Focus Group Discussions	GUIDING CONCEPTUAL FRAMEWORKS	TELENOVELA/ INFO-MARKET
Review of Relevant Literature	**WHAT?** Social Cognitive Theory[a] PEN-3 Model of Cultural Sensitivity[b,c,d] Extended Parallel Process Model[d]	**CONTENT** What?
Content Experts (UT-SA, HCHD, BCM)	**HOW?** Edutainment Decision Aid Model[e,f] IDEAS Problem Solving Method[g,h]	**STRUCTURE** How?

UT-SA-University of Texas at San Antonio; HCHD-Harris County Hospital District; BCM-Baylor College of Medicine

Fig. 1

References

a) Bandura A. (2004) Health Promotion by Social Cognitive Means. Health Education & Behavior, 31(2):143-164.
b) Airhihenbuwa CO. Health and culture: Beyong the Western paradigm. Thousand Oaks, CA: SAGE; 1995.
c) Airhihenbuwa CO, Webster JD. Culture and African contexts of HIV/AIDS prevention, care and support. J of Social Aspects of HIV/AIDS Research Alliance. 2004;1:4-13.
d) Witte, K. Fear control and danger control: A test of the extended parallel process model. Communications Monographs 1994;61:2, 113-134.
e) Singhal A & Rogers EM. A theoretical agenda for entertainment-education. Communication Tehory 2002;12:117-135.
f) Jibja-Weiss ML, Volk RJ. Utilizing computerized entertainment education in the development of decision aids. J Health Comm. 2007;12:681-697.

g) Marsella SC, Johnson WL, LaBore C. Interactive Pedagogical Drama. 4th International Conference on Autonomous Agents; 2000 June 3-7; Barcelona, Spain: ACM Press; 2000. P. 301-308.

h) Marsella SC, Johnson WL. LaBore CM. Interactive pedagogical drama for health interventions. 11th International Conference on Artificial Intelligence in Education; 2003 July 20-24; Sydney, Australia; 2003.

i) Lieberman DA. Interactive video games for health promotion: Effects on knowledge, self-efficacy, social support, and health. In RL Street, WR Gold, T Manning (Eds.), Health promotion and interactive technology: Theoretical applications and future directions (pp. 103-120). Mahwah, NJ: Lawrence Erlbaum Associates.

j) 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.

II.   CORE CONCEPTS

Figure 2 depicts the conceptual model at the core of the SHL program. This model is derived from Bandura's social cognitive theory, which links the environment, personal factors, and individual behavior to self-efficacy. Self-efficacy is belief about how well one can bring about specific desirable events and avoid undesirable ones.[a] People who have high self-efficacy, a strong belief that they are capable, in relation to carrying out specific positive health behaviors are more likely to have a healthy lifestyle, to seek and follow medical advice when ill, to avoid life crises, to cope with crises that do occur, and to establish closer social ties so that social support is available to buffer against illness.[i] Conversely, those with low self-efficacy for carrying out health behaviors are less likely to cope effectively when health problems occur.
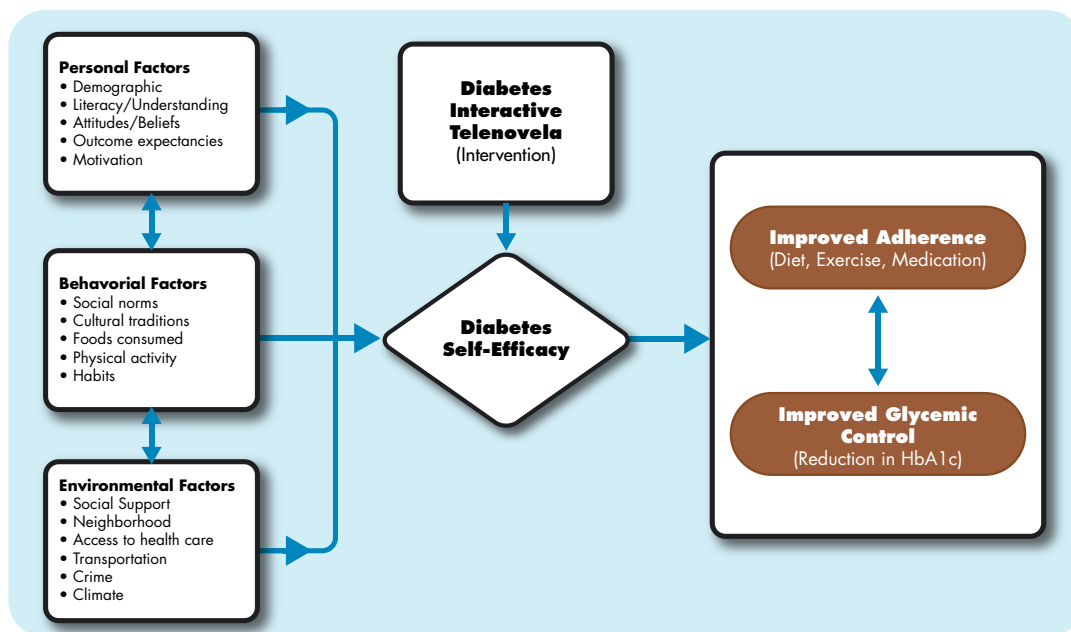

Fig. 2

The conceptual model figure makes explicit the interactions between personal, behavioral and environmental factors that influence health outcomes. Under the program's conceptual model, personal factors are those individual characteristics such as literacy, attitudes, beliefs, and motivations. Behavioral factors are activities, and conduct learned through observation that are reinforced or rewarded through repetition (i.e., social norms and cultural traditions, including foods consumed and level of physical activity). Environmental factors include the physical environment and social relationships (i.e., social support, including family, friends and health care providers). All of these can have an effect on individual self-efficacy. The arrows show the main associations, with diabetes self-management adherence and glycemic control being the ultimate goals of the program. For example, improved diabetes self-efficacy as a result of interacting with the SHL program could lead to improvement in diabetes self-care management, which in turn can influence improvements in HbA1c levels. Alternatively, personal, behavioral, and environmental factors could have an impact on how participants process the information they receive from interacting with the SHL program.

III.   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. The following are specific educational objectives:

Diet

- Understand that eating healthy is an important aspect of a diabetes treatment plan.
- Understand that amount of food eaten affects blood glucose levels.
- Understand that Hispanic foods are allowed, but may require changing preparation method.
- Understand that a healthy diet can postpone or prevent the development of diabetes-related complications.
- Understand that maintaining a healthy weight can prevent diabetes-related complications.
- Be more confident in applying food portion control at each meal.

Physical Activity

- Understand that regular exercise can lower blood glucose levels.
- Understand that regular exercise can help in weight management.
- Understand that regular exercise can help postpone or prevent development of diabetes-related complications.
- Believe that it is possible to fit 30 minutes of regular physical activity in one's daily routine most days of the week.

Medication Adherence

- Understand that adherence to prescribed diabetes medications can help postpone or prevent development of diabetes-related complications.
- Feel more comfortable in talking to a healthcare provider when experiencing medication-related complications.
- Understand that taking insulin is effective in managing blood glucose levels, and is not necessarily a sign of disease severity.

Self-Care

- Understand that visiting a health care provider on a regular basis is important for effective diabetes management.
- Be prepared beforehand with questions to ask the doctor.
- Understand the importance of foot self-care in managing diabetes.
- Be more willing to ask for prescription refills and schedule next appointment before leaving doctor's office.

Family

- Understand that family's lifestyle (diet, exercise) can have an effect on a family member's ability to stick to diabetes management guidelines.
- Improve family's knowledge of dietary, exercise and medical regimen needs of a person with diabetes.

IV.   SHL COMPONENTS

1. Interactive Telenovela

The first component is an interactive telenovela that uses a series of videos in English and Spanish designed to educate viewers about the importance of adhering to diet, exercise, and medication guidelines in order to achieve glycemic control. The interactive telenovela (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.
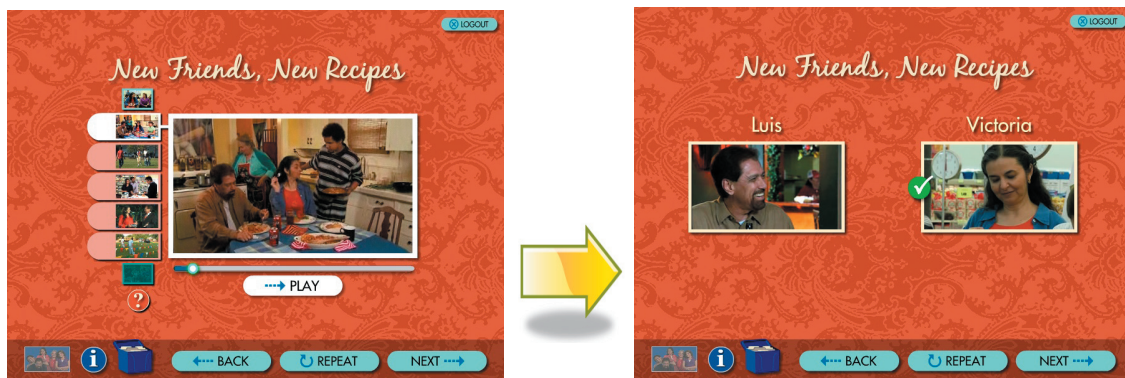
As the story develops, users are presented with decision-points where they are asked to choose between an "appropriate" or "inappropriate" (these terms are used for evaluation purposes only) action for the character selected at the end of each episode. Selections made at each decision-point are unobtrusively tracked in the background and fed into an algorithm to provide feedback (results) to the users based on the choices made throughout the story.

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

The general viewing public is able to access the SHL program at www.bcm.edu/shl and view all five episodes in linear fashion.

2. Episode Topics

To view the episodes by topic, "Episode Topics" buttons can be selected on the top menu bar (Fig. 3). The "Episode Topics" feature allows health professionals to structure their viewing to best support their educational objectives.

Fig. 3

3. Set up

To view episodes by the action taken by each character, select the Set up button on the top menu. Under "Play Mode" select from five options (Fig. 4). The first option "Making choices along the way" is the standard play mode where each character and action is selected by episode. The other four options present the story by main character as described below. Viewers are subsequently presented with one of three "five years later" scenes depicting potential consequences to the Gonzalez family (Fig. 5).

A. DESIRABLE OUTCOME

1. **Victoria Makes Mostly Healthy Choices**: The story follows Victoria as she makes mostly healthy choices in the management of her diabetes. The story ends five years later, as the family enjoys the health benefits of her choices.
2. **Luis Makes Mostly Healthy Choices**: The story follows Luis as he makes mostly healthy choices in the management of his diabetes. The story ends five years later, as the family enjoys the health benefits of his choices.

B. UNDESIRABLE OUTCOME

1. **Victoria Makes Few Healthy Choices**: The story follows Victoria as she makes mostly unhealthy choices in the management of her diabetes. The story ends five years later, as the family deals with the impact of her choices.
2. **Luis Makes Few Healthy Choices**: The story follows Luis as he makes mostly unhealthy choices in the management of his diabetes. The story ends five years later, as the family deals the impact of his choices.
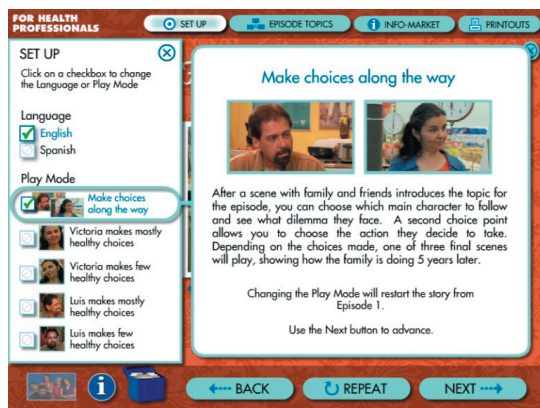

Fig. 4

Fig. 5

4. 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 Info-Market panel allows the user to go to and open a game directly. On rollover of each game title, the user sees a popup window with a brief description of the game. When the user clicks on the game title or image in the panel the game loads in the main screen area immediately (Fig. 6).

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.

Fig. 6

What Is Diabetes?: What is diabetes uses flash 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 diabetes disease process.

Check Out 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 prior to logging out.

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: The Food Label Game: 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 Winning 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).

5. Print Outs

The "Printouts" button on the top menu bar allows users to open the regular printing interface (Fig. 7). When the user clicks on "Saved Items" in the side panel, the program loads the printing interface in the main screen area immediately. Additionally, users can click on the Health Professionals Guide option to display a screen to view, download or print the guide.

Fig 7

V. 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.

BCM
Baylor College of Medicine

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

Privacy Notices

© 2011- Baylor College of Medicine