# OUTCOMES RESEARCH

# The Game of Health<sup>®</sup>: An innovative lifestyle change program implemented in a family practice

Maureen (Reni) Courtney, APRN, FNP-BC, PhD,<sup>1</sup> Scott E. Conard MD, DABFP, FAAFP,<sup>2</sup> Pat Dunn, MS, MBA,<sup>3</sup> & Kristen Scarborough, APRN, FNP-BC, MSN<sup>1</sup>

1 Associate Professor (Courtney) and Research Assistant (Scarborough), College of Nursing University of Texas at Arlington, Arlington, Texas 2 Chief Medical Officer, Medical Edge, Dallas, Texas

 ${\tt 3\,Director\,of\,Clinical\,Development\,for\,HealthCall,\,LLC,\,Keller,\,Texas}$ 

#### Keywords

Lifestyle; behavior; chronic illness; nurse practitioners.

#### Correspondence

Maureen (Reni) Courtney, APRN, FNP-BC, PhD, University of Texas at Arlington, P.O. Box 19407 Arlington, TX 76019. Tel: 817-845-6318; Fax: 817-272-5006; E-mail: maureen@uta.edu

Received: August 2009; accepted: November 2009

doi: 10.1111/j.1745-7599.2011.00604.x

#### Abstract

**Purpose:** The purpose of this clinical pilot project was to evaluate the effectiveness of a 12 week lifestyle change program targeted to patients with chronic disease.

**Data sources:** Data were collected weekly from participants using individual and group feedback and body composition analysis.

**Conclusions:** The Game of Health was well received by patients and was effective in modifying behaviors to achieve a healthier lifestyle and to improve body composition. Primary care providers need to consider how to make lifestyle change programs available to their patients to complement clinical interventions.

The Unites States is being rapidly overwhelmed by chronic diseases and their associated costs. Chronic diseases are the leading cause of death in the United States and account for 70% of all deaths (Centers for Disease Control and Prevention [CDC], 2009). More than 75% of the nation's two trillion dollars in medical costs are as a result of chronic diseases (CDC, 2009). Examples of these diseases include coronary heart disease, type 2 diabetes, hypertension, dyslipidemia, stroke, obesity, hepatic disease, and respiratory illnesses. Chronic diseases are of urgent concern because they have advanced to the point they are no longer limited to the adult population; approximately two million U.S. children have impaired fasting glucose that can develop into cardiovascular problems and type 2 diabetes (Williams et al., 2005).

Prevention of chronic diseases is the most critical strategy to reduce morbidity and mortality and, ultimately, bankruptcy of the U.S. healthcare system. Society relies upon various resources, such as healthcare providers, for assistance to prevent chronic diseases. Primary care providers (PCPs), in particular, must assume key roles to help decrease the incidence of chronic conditions and their complications through education and support of healthy lifestyles. If all individuals older than 30 years old could receive adequate prevention interventions, their life expectancies could be increased. With adequate prevention, myocardial infarctions could be reduced more than 60%, and strokes could be reduced approximately 30% (Kahn, Robertson, Smith, & Eddy, 2008). The challenge is to find the most effective lifestyle modification strategies that will enable individuals to successfully prevent, modify, or control risk factors and/or chronic disease.

## Background

While primary care clinicians do provide significant clinical interventions aimed at prevention, assisting patients with successful lifestyle modifications remains a formidable challenge. There are many effective health programs that focus on lifestyle modification to improve activity level, dietary habits, quality of life, and disease management in overweight and sedentary individuals and those with chronic diseases. What these programs generally provide in comparison to clinical care are more intense educational efforts and support

Table 1	Lifestyle impact re	lated to educational	interventions
---------	---------------------	----------------------	---------------

Lifestyle impact	Citation		
Weight loss	Aoun & Rosenberg, 2004; Bowles, Picano, Epperly, & Myer, 2006; Davis et al., 2004; Elmer et al., 2006; Gieck & Olsen, 2007; Jackson, Coe, Cheater, & Wroe, 2007; Pagoto, Kantor, Bodenlos, Gitkind, & Ma. 2008; Salver, Elattery, Joyner, Friend, & Elswick, 2007		
Decreased BMI	Bowles, Picano, Epperly, & Myer, 2006; Jackson, Coe, Cheater, & Wroe, 2007; Liebman, 2005		
Increased activity	Babazono, Kame, Ishihara, Yamamoto, & Hillman, 2007; Barrera, MacKinnon, Strycker, & Toobert, 2008; Bowles, Picano, Epperly, & Myer, 2006; Gieck & Olsen, 2007; Jacobs et al., 2004; Kutzleb & Reiner, 2006: Northrup, Cottrell, & Wittberg., 2008		
Decreased BP	Elmer et al., 2006; Jackson, Coe, Cheater, & Wroe, 2007; Sakamaki, Ikeda, Ikegami, Norimoto, & Moriwaki, 2006		
Decreased fat intake	Aoun & Rosenberg, 2004; Barrera, MacKinnon, Strycker, & Toobert, 2008; Clark, Hampson, Avery, & Simpson, 2004; Elmer et al., 2006; Gieck & Olsen, 2007; Jacobs et al., 2004; Jackson, Coe, Cheater, & Wroe, 2007: Pischke, Scherwitz, Weidner, & Ornish, 2008		
Increased vegetable intake	Babazono, Kame, Ishihara, Yamamoto, & Hillman, 2007; Elmer et al., 2006; Gieck & Olsen, 2007; Jackson, Coe, Cheater, & Wroe, 2007; Two Feathers et al., 2005		
Increased fruit intake	Elmer et al., 2006; Gieck & Olsen, 2007; Jackson, Coe, Cheater, & Wroe, 2007		
Increased HDL-cholesterol	Salyer, Flattery, Joyner, Friend, & Elswick, 2007		
Decreased cholesterol	Aoun & Rosenberg, 2004		
Decreased triglycerides	Sakamaki, Ikeda, Ikegami, Norimoto, & Moriwaki, 2006		
Decreased HgbA1c	Davis et al., 2004; Graue, Wentzel-Larsen, Hanestad, & Sovik, 2005; Sakamaki, Ikeda, Ikegami, Norimoto, & Moriwaki, 2006; Two Feathers et al., 2005		
Improved quality of life	Aoun & Rosenberg, 2004; Bowles, Picano, Epperly, & Myer, 2006; Graue, Wentzel-Larsen, Hanestad, & Sovik, 2005; Kutzleb & Reiner, 2006; Sakamaki, Ikeda, Ikegami, Norimoto, & Moriwaki, 2006		
Improved stress management	Pischke, Scherwitz, Weidner, & Ornish, 2008		
Increased knowledge	Aoun & Rosenberg, 2004; Bowles, Picano, Epperly, & Myer, 2006; Gieck & Olsen, 2007; Jackson, Coe, Cheater, & Wroe, 2007; Pagoto, Kantor, Bodenlos, Gitkind, & Ma, 2008; Sakamaki, Ikeda, Ikegami, Norimoto, & Moriwaki, 2006; Two Feathers et al., 2005		

over time for behavior change. Common interventions in these health programs include group educational classes, individual consultation, telephone coaching, online support, live support groups, and journaling. The number of live/person-to-person interventions, the amount of time spent during each session, and the follow-up frequency vary significantly among programs, but most have a higher intensity than clinical care. Research studies regarding the effectiveness of these programs and their contribution to prevention are found in Table 1. It is clear from these studies that a variety of behaviors are positively affected by lifestyle interventions.

In the majority of the studies in Table 1, the intervention groups had more contact with the facilitator compared to the control groups. Participant accountability in meeting with a coach or facilitator may have been a significant motivational factor that helps individuals succeed. Other interventions that have been effective in positive lifestyle modification include celebrating when goals are accomplished (Besculides et al., 2008), offering incentives that encourage self-monitoring (Besculides et al., 2008; Butterworth, Linden, & McClay, 2007; Northrup, Cottrell, & Wittberg, 2008), providing free resources that support lifestyle change (Barrera, MacKinnon, Strycker, & Toobert, 2008; Besculides et al., 2008), offering a support group (Besculides et al., 2008; Cobb, Brown, & Davis, 2006; Graue, Wentzel-Larsen, Hanestad, & Sovik, 2005), writing down realistic goals (Cobb et al., 2006; Jackson, Coe, Cheater, & Wroe, 2007; Liebman, 2005), and communicating regularly through various means with the participants (Besculides et al., 2008; Butterworth et al., 2007; Cobb et al.; Vale, Jelinek, & Best, 2005). Lifestyle change programs should also include stress management and coping strategies because high stress has been associated with unhealthy lifestyle behaviors (Roohafza et al., 2007).

A new type of patient education program that attempts to involve patients through their direct interaction is the conversation map as used in Merck's Journey for Control Program in association with the American Diabetes Association (ADA) (2009). Patients seated around a tabletop visual are asked by a facilitator to comment on their experience with the topic and the patient conversation evolves. Patients are actively engaged around a healthcare topic such as diabetes, or heart health and this novel approach is more patient driven. Patients become active participants and are expected to learn more effective selfcare. Research outcomes are scant, however, although health professionals are enthusiastic about this new approach.

While most lifestyle change programs are provided outside the confines of clinical care, one reviewed study provided a lifestyle change program implemented in a family practice clinical setting for their patients (Turner, Thomas, Wagner, & Moseley, 2008). Like these clinicians, the intervention in this pilot study evolved from the challenge of trying to provide effective education and support to patients to modify unhealthy lifestyles.

#### Purpose

This pilot study evaluated the impact of a 12-week risk reduction course called The Game of Health<sup>©</sup> (GOH<sup>©</sup>) on weight, body fat, and free fat mass conducted by a multidisciplinary team of healthcare professionals at TienaHealth in Irving, Texas.

#### **Program overview**

In the family practice clinic, a team of PCPs (i.e., nurse practitioners [NPs], physicians, and physician assistants [PAs]) became frustrated with the limited time available in clinic visits to assist chronic disease patients to achieve effective lifestyle change. The physician owner of the practice proposed the idea of developing a lifestyle change program using a small group approach that would be available to clinic patients. The team discussed this possibility and agreed that a structured group program with intensive strategies could assist patients to create a healthier lifestyle and they were interested to try this new approach. It took approximately 3 months for the team to design the program.

From the beginning, the team wanted to create an innovative and entertaining program and not a more typical presentation of health education facts. Although the literature was searched for existing program examples, none was considered satisfactory for implementation in this particular setting. The notion of being involved in and *playing a game of health* to achieve behavior change was conceived, and this framework was used for program development. The GOH<sup>©</sup> was designed to be a fun, engaging, and entertaining lifestyle program that taught patients how to live and enjoy a healthier lifestyle and focused heavily on benefits of new behaviors. Although threats to health were examined in the classes, these were not the exclusive focus as found in many behavior change programs.

The team aimed to create an effective, novel learning experience for patients who were developed with solid learning principles. The GOH<sup>©</sup> was based on social cognitive theory with emphasis on enhancing a patient's

behavioral capability and self-efficacy through the use of goal setting, monitoring, and personalized feedback (Bandura, 1999). In addition, the  $\text{GOH}^{\mathbb{C}}$  used theorydriven instructional strategies as detailed in an instructional design framework provided by Gagne (1985) and now updated by Kinzie (2005). The social cognitive theory and instructional strategies were incorporated into the overall program design and individual classes. Selected cognitive and behavioral change strategies, such as consciousness raising, helping relationships, and selfliberation as identified in the transtheoretical change model were also incorporated into the design of the  $\text{GOH}^{\mathbb{C}}$  program to help patients become more actively engaged (Miller & Rollnick, 2002).

The  $\text{GOH}^{\textcircled{C}}$  used an organizing metaphor of a baseball game in which the patient "joined" the team to play against and overcome the many "opponents" in life that can impair health, such as reduced sleep, stress, poor social relationships, poor food choices, and lack of exercise (Table 2). The 12 "games" played against designated opponents were designed to provide knowledge and skills in promoting an overall healthier lifestyle that also included a special emphasis on weight loss.

In addition to key information about the opponents played in the  $\text{GOH}^{\mathbb{C}}$ , patients were also introduced in the program to the Seven Healers<sup>®</sup> that are specific behavioral areas in which to improve health (Figure 1) and include practices in air, water, sleep, food, play (exercise), relationships, and purpose or meaning in life. As opposed to more typical behavior change programs that focus on avoiding unhealthy behaviors, the Seven Healers<sup>®</sup> are positive behavior areas with healthy living principles that patients are encouraged to implement on a daily basis. The Seven Healers<sup>®</sup> served as an easy, effective organizing framework for many important health behaviors. Patients were encouraged to set behavioral goals weekly, using one or more of the Seven Healers<sup>®</sup>.

Depending on the topic, the appropriate expert on the healthcare team at TienaHealth facilitated individual class sessions or games. Each session was standardized using a consistent methodology and class approach. Patients checked in weekly for class and then measured their body composition using a Tanita scale (Tanita Corporation of America, Inc., Arlington Heights, IL). The session then opened by having each patient share progress on the goal they had set the week before, such as the daily number of steps, hours of sleep, or success in reading food labels. Then, the topic or the "opponent" being played that day was examined. Finally, to conclude the group session, each person verbally set a personal goal for the next week. Patient accountability for making behavior changes was believed to be fostered by this public sharing of goal setting and goal progress within the group. The

ТОРІС	GOAL to achieve
Introduction class	Training session to learn about the Seven Healers $^{\mathbb{C},}$ the six numbers that will save your life, weekly monitoring procedures, and program overview
Wk 1: Hopeless whosiers	Setting reasonable goals to get into the game and playing to win your health
Wk 2: Portly trailblazers	Understand appropriate portion sizes of common foods with practice
Wk 3: Couch potatoes	Importance of exercise and three ways to increase your activity
Wk 4: Sleepless sloths	Understand the importance of sleep in weight gain and overall health
Wk 5: Road rage renegades	Identify and control situations where food was used for mood
Wk 6: Hamburger helpers	Identify sources of saturated fats and trans fats and their influence on health
Wk 7: Toledo toners	Identify ways to incorporate a strength-training program into your exercise routine
Wk 8: Emotional vampires	Manage your emotions to be healthier and to lose weight
Wk 9: Colorado carbs	Reading food labels and learning healthy alternatives to sweets
Wk 10: Hammerhead shakers	Identifying hidden sodium in your diet and the role of blood pressure control
Wk 11: Delung tighters	Understand the role of air, deep breathing, and stress reduction
Wk 12: Plaquesburgh pirates	Determine your risk for developing and preventing heart disease

facilitator would often assist a patient to modify a goal so that it was more feasible and/or state it in a manner that permitted its measurement. All patients reported learning valuable information from hearing the goals of teammates. Patients quickly became supportive of each other and frequently shared suggestions and resources for attaining goals.

A "rounding the bases" format (Figure 2) was used in presenting each topic (i.e., playing an opponent) in the  $\text{GOH}^{\mathbb{C}}$ . To get to first base, a player had to get out of the dugout, step up to the plate, and take action by beginning to understand the problem (i.e., a disease process or risk factor). In doing this, players moved away the inaction of the "Not Yet Mets" to begin to take on issues or problems in their personal lifestyles. Players were helped to understand their individual risks for heart disease, stroke, diabetes, and cancer. They developed a clear picture of the problem and possible solutions. Mastering this knowledge allowed a player to move to first base.

Advancing to second base involved learning how to apply this knowledge to the player's life by developing unique, personal answers. Helping players to learn what behavioral strategies would reduce their personal risks and improve their health were key foci for each class topic. Use of the Seven Healers<sup>©</sup> was encouraged, and the healer relationship to successful outcomes was emphasized.

Players got to third base when they were willing to try new behaviors (i.e., desire). They selected a specific goal to practice in the coming week. The facilitator monitored their weekly behavior assessments and goals at each class. Feedback, encouragement, and helpful information to achieve success were provided to individuals and the group. A player made it all the way to home plate when he/she shared the experience and lessons learned with others (i.e., success). This included sharing with the  $\text{GOH}^{\textcircled{C}}$  teammates and also teaching friends and family about the goals they were pursuing. Players recruited the support they needed for successful change while they educated others about the topic. Sharing and teaching others promoted growth and solidified personal success. Many patients shared their delight about helping loved ones to make the same behavior changes they were making. These patients were becoming their own coaches by participating in the  $\text{GOH}^{\textcircled{C}}$  and beginning to coach others to success.

Patient evaluation of the GOH<sup>©</sup> was very positive. They enjoyed the baseball metaphor and the teams they played, stating that it was easier and more fun to learn new information about health using this creative approach. They quickly got into the "swing" of the class and benefited from the consistent approach each week.

# **Outcome evaluation of pilot project**

## Design

A nonrandomized group using a prepost repeated measures design was used to evaluate the 12-week course, which was repeated for a second round. The  $\text{GOH}^{\mathbb{C}}$  content and approaches continued to evolve over the course of the pilot project.

## Sample and setting

TienaHealth is a large private family medicine practice in a southwest urban center that is dedicated to M. (Reni) Courtney et al.



Figure 1. The Seven Healers<sup>©</sup>.

disease prevention and excellence in the care of those with chronic disease. The team that developed and implemented the GOH<sup>©</sup> included a physician, NP, dietitian, PA, naturopathic physician, and an exercise physiologist.

A total of 144 patients attended some classes over a 6month period (two rounds of the 12 week  $\text{GOH}^{(\mathbb{C})}$ ) at the TienaHealth Lifestyle Center. PCPs who practiced in the clinic referred patients with significant risk factors or diseases such as obesity, hypertension, and/or hypercholesterolemia to the  $\text{GOH}^{(\mathbb{C})}$ . Data for analysis were limited to 104 clients who submitted data for at least two classes. Patients signed a consent that any program data would be presented or published only as aggregated data.

Patients paid \$120 for the 12-week program. Almost all patients who were referred to the GOH<sup>©</sup> enrolled, and many stated they were glad their provider had recommended the program. Following an introductory session, a patient joined the next group session regardless of the topic. In this way, patients were able to join the GOH<sup>©</sup> when they were referred rather than waiting up to



Figure 2. Rounding the bases in the Game of Health<sup>©</sup>.

12 weeks for the next course sequence to begin. Classes were held in a large education room in the clinic, and the weekly topic was repeated three times on the class day with approximately 15–18 patients in each class. The clinician who developed the topic was the facilitator for the day's classes.

#### Methods of measurement

Body composition was the primary outcome measurement using a Tanita bioelectric impedance scale. This scale reported weight in pounds, fat percentage, body mass index (BMI), basal metabolic rate, fat mass, free fat mass, and total body water. In previous studies, results from the Tanita scale compared favorably to underwater weighing (Cable, Nieman, Austin, Hogen, & Utter, 2001), but less precise than dual-energy x-ray absorpiometry (Andreoli et al., 2002).

Clients recorded the data from the Tanita scale onto a report sheet at each class they attended. This sheet also contained subjective questions not analyzed in this study. This self-reported data described how well they thought they were doing in applying the principles learned, their major accomplishments, goals met, new goals set, and those areas they wanted to be held accountable for. However, many of these sections were often left blank.

AnalysisStatistical analyses were conducted using the SAS analysis software program (SAS Institute, Inc., Carym, NC). A mixed model analysis was done to address the fact that subjects attended varying numbers of classes and in different order of presentation. The test for fixed effects was used with the *F*- statistic.

#### **Program demographics**

One hundred and forty-four patients began the GOH<sup>©</sup> program. Ages ranged from 22 to 72 years with an average age of 52. Seventy-six percent of patients were female and over 80% were Caucasian with 14% African American and the remainder Hispanic. No additional demographic data were collected in this pilot study. Over 90% of patients who started the program had a BMI of > 30. All patients were referred by their PCP to the program. Program staff were not aware of any patients who were concurrently enrolled in another formal weight loss program.

# Results

Descriptive statistics indicated that up to 76.9% of patients (n = 80) lost weight, with a maximum weight loss of 29.2 lbs. BMI was reduced in 78.8% of patients (n =82) as much as 5.7 mg/kg<sup>2</sup>. Fat mass was reduced by 76% of patients (n = 79) up to 31.2 lbs. Free fat mass or muscle increased in 39.4% of patients (n = 41) by up to 34 lbs. Finally, 37.5% of patients (n = 39) also increased total body water up to 14.4 lbs.

The number of classes attended by those who lost weight varied from 4 to 23. Ten percent of these participants attended more than six classes. Interestingly, the number of classes attended did not seem to influence the degree of weight loss. The mean weight loss was 5.5 pounds, 2% of the mean beginning weight. The ADA recommends weight loss of 5% of baseline to see health benefits and 10% to improve health risks (Cummings, Parham, & Strain, 2002). Eighteen participants met the 5% or greater recommended weight loss, and four of these accomplished a 10%–14% weight loss.

Mean fat percentage lost was 1.5 pounds. BMI was reduced by  $0.89 \text{ mg/kg}^2$ . Fat mass was reduced by 6.36pounds, and free fat mass declined 2.44 pounds. On average, 76.9% of patients in the program lost weight, with a maximum weight loss of 29 pounds. The average weight loss was 5.5 pounds.

Data on Table 3 indicate that there were significant changes in weight when all weight changes during the

Table 3 Weight loss across all weight measures

Effect	Numerator DF	Denominator DF	F-value	Pr>F	Estimate/lb
Weigh	t				
Time	1	619	25.13	< .0001	-0.5680
Fat ma	ass				
Time	1	605	3.69	0.0551	3347
Free fa	at mass (muscle	)			
Time	1	611	3.24	0.0725	0989

 Table 4
 Weight change from time one to time last

Effect	Numerator DF	Denominator DF	F-value	Pr>F	Estimate/lbs
Weigh	t				
Time	1	103	13.35	0.0004	-4.6154
Fat ma	ISS				
Time	1	103	4.27	0.0414	-2.85
Free fa	t mass (muscle)	)			
Time	1	102	0.06	0.8050	0.2910

course of the program were considered. On average, a patient lost on 0.56 pound per class attended. There was also a significant loss of fat, with an average of 0.33 pound per class attended. Free fat mass yielded no significant differences over time.

Table 4 depicts the weight parameters from the analysis of the sample from the first through the last class attended. Patients attended a variable total number of classes; however, when analyzed overall, there was a significant weight loss of 4.6 pounds of body weight for the sample.

On average then, a patient lost 0.56 pounds for every class attended (i.e., unit), or approximately two pounds per month, which is a healthy weight loss (F < .0001). Fat mass loss was 0.33 pound per unit or class attended. During the program, patients lost an average of 4.6 pounds.

#### Discussion

Most of the participants in this study experienced improvements in body composition during their involvement in the  $\text{GOH}^{\textcircled{C}}$ . A healthy weight loss of approximately one half pound occurred for those who attended a class with an average of two pounds per month. Patients also lost fat mass. It is important to note that while the  $\text{GOH}^{\textcircled{C}}$  is not exclusively a weight loss program, it does recognize that being overweight is significantly related to major chronic diseases.

Although we did not have consistent data for all patients who participated in the  $\text{GOH}^{\mathbb{C}}$ , except for weight data, it was evident that patients were able to incorporate new health behaviors into their lives and most were able to achieve many weekly goals. Patient evaluations of each class indicated that the content was easy to understand and useful to them. They particularly enjoyed learning and implementing the Seven Healers<sup>©</sup> to create new, healthy behaviors in their lives. Several patient evaluations stated they liked having positive things to do instead of only warnings about what not to do. Patients set weekly goals for themselves selecting from all of the Seven Healers<sup>©</sup>, although the most frequently used were water, sleep, play, and food. Of interest, a few

The game of health

patients decided to seek counseling after they learned more about the possible effect of stressful relationships on their health.

Patients and clinicians enjoyed working with each other in both clinic visits and the  $\text{GOH}^{\mathbb{C}}$ . There was a natural synergy between both interventions and it was powerful when the clinician could use the language of the  $\text{GOH}^{\mathbb{C}}$  and vice versa. With patient consent, clinicians received summary reports of which patients were attending the  $\text{GOH}^{\mathbb{C}}$  and how they were progressing.

The pilot provided the important opportunity for team members to gain experience in facilitating a group and implementing behavior change strategies. None of the clinicians had worked consistently with patients in a group format before, and this was a rewarding and stimulating experience. The clinicians felt very positive about the opportunity to explore greater depth of health information with patients and to assist them to apply this to their lives through specific goal setting, behavior change, and careful follow-up in a group setting. The GOH<sup>©</sup> approach proved to be fun for both patients and clinicians.

The overall experience in the GOH<sup>©</sup> reinforced the initial clinician assumption that the traditional clinic visit provided a limited opportunity to assist patients to make significant behavioral changes. The information, monitoring, and personalized support required for behavior change does not fit well within an office visit, often leaving patients and clinicians frustrated. Although the small group approach embodied in the GOH<sup>©</sup> was judged to be effective, the delivery method of live classes was a challenge for the clinician facilitators and it was agreed by all that the time commitment could not be sustained as originally implemented. However, the team was now committed to the GOH<sup>©</sup> and motivated to determine what new, more efficient group strategies could be used to help patients achieve positive lifestyle changes.

Following completion of the initial offering of the live version of the  $\text{GOH}^{\mathbb{C}}$  reported in this study, the decision was made to modify the course format so that it could be sustainable in the future. Funding was obtained to make professional quality videos of each of the 12  $\text{GOH}^{\mathbb{C}}$  sessions so that the clinician expert did not need to be present for the topic. A decision was made that one health professional could facilitate the  $\text{GOH}^{\mathbb{C}}$  program using the videos for the delivery of expert content while implementing the other components of each session. This clinician could be a dietitian, a nurse, or a health educator. Also, a 95 page  $\text{GOH}^{\mathbb{C}}$  participant workbook was developed to provide essential content for each topic and weekly data forms. These new strategies were to be im-

plemented at the clinic and at worksites and will be examined in a future article.

# Limitations

Several study limitations exist. There was no set entry/exit point into the classes, so all participants did not attend all of the same classes. There was no comparison group in this study, as it was a pilot clinical intervention available to all interested patients. Data collection evolved over the course of the program making it difficult to compile a complete dataset for all patients. The charge to enter the program may have had a self-selection bias regarding the participants. Finally, as with all lifestyle change programs, early results as reported in this study may not be sustained.

## Conclusions

The TienaHealth GOH<sup>©</sup> lifestyle change program was effective in modifying behaviors to achieve a healthier lifestyle and to improve body composition. Weight loss was not related to the number of classes a participant attended. We found that patients will pay a program fee and participate in a lifestyle change program particularly if referred by their PCP. Patients enjoyed the group experience and were open to a more creative approach to learning about their health and making desired changes. The opportunity to set weekly personal goals and the accountability to report progress back to the group was evaluated as important to personal motivation.

There is an increasing need for healthcare professionals to find innovative ways to motivate and encourage their patients to achieve healthier lifestyles. It is important for clinicians to closely cooperate with lifestyle change programs for their patients. Although the  $\text{GOH}^{\mathbb{C}}$  was a popular program in the clinic and well received by patients, it was clear that the clinicians could not sustain the live programs on a weekly basis. More cost-effective strategies are required to reach patients and are being developed by the TienaHealth team.

It would be very helpful for the costs of an effective lifestyle change program to be covered as an insurance benefit for patients. Some patients did question the need to pay out-of-pocket for the  $\text{GOH}^{\mathbb{C}}$  when they were covered by insurance. The team has been exploring the possibility of creating a partnership with a health insurance plan to offer an insurance-funded pilot project using the  $\text{GOH}^{\mathbb{C}}$ . The team is also exploring how to implement the  $\text{GOH}^{\mathbb{C}}$  at local worksites.

Clinics are ideal settings for group approaches to lifestyle change. If resources are not available to develop a comprehensive program like the GOH<sup>©</sup>, small steps can

be taken. Providers could begin a small program for patients such as a monthly presentation on a healthy eating or exercise topic. An NP or physician team member can present the topic, thus reinforcing the importance of lifestyle change to prevent or manage chronic disease. In addition, referring patients to community- or web-based programs can provide them with necessary resources for behavior change to complement clinical approaches.

#### References

- Andreoli, A., Melchiorri, G., DeLorenzo, A., Caruso, I., Sinibaldi, P., & Guerrisi, M. (2002). Bioelectrical impedance in different position and vs dual-energy x-ray absorptiometry (DXA). *Journal of Sports Medicine and Physical Fitness*, 42(2), 186–189.
- Aoun, S., & Rosenberg, M. (2004). Are rural people getting heartsmart? Australian Journal of Rural Health, 12(2), 81–88. Retrieved January 13, 2009, from the CINAHL database.
- Babazono, A., Kame, C., Ishihara, R., Yamamoto, E., & Hillman, A. L. (2007). Patient-motivated prevention of lifestyle-related disease in Japan. *Disease Management & Health Outcomes*, 15(2), 119–126. Retrieved January 13, 2009, from the CINAHL database.
- Barrera, M., MacKinnon, D. P., Strycker, L. A., & Toobert, D. J. (2008). Social-ecological resources as mediators of two-year diet and physical activity outcomes in type 2 diabetes patients. *Health Psychology*, 27(2), S118–S125. Retrieved January 13, 2009, from the CINAHL database.
- Besculides, M., Zaveri, H., Hanson, C., Farris, R., Gregory-Mercado, K., & Will, J. (2008). Best practices in implementing lifestyle interventions in the WISEWOMAN program: Adaptable strategies for public health programs. *American Journal of Health Promotion*, 22(5), 322–328. Retrieved January 13, 2009, from the CINAHL database.
- Bowles, S. V., Picano, J., Epperly, T., & Myer, S. (2006). The LIFE program: A wellness approach to weight loss. *Military Medicine*, 171(11), 1089–1094. Retrieved January 13, 2009, from the CINAHL database.
- Butterworth, S. W., Linden, A., & McClay, W. (2007). Health coaching as an intervention in health management programs. *Disease Management & Health Outcomes*, **15**(5), 299–307. Retrieved January 13, 2009, from the CINAHL database.
- Cable, A., Nieman, D. C., Austin, M., Hogen, E., & Utter, A. C. (2001). Validity of leg-to-leg bioelectrical impedance measurement in males. *Journal of Sports Medicine and Physical Fitness*, 41(3), 411–414.
- Centers for Disease Control. *Chronic disease prevention and health promotion* (2009, April 8). Retrieved May 2, 2009, from http://www.cdc.gov/nccdphp/
- Clark, M., Hampson, S. E., Avery, L., & Simpson, R. (2004). Effects of a brief tailored intervention on the process and predictors of lifestyle behaviour change in patients with type 2 diabetes. *Psychology, Health & Medicine*, 9(4), 440–449. Retrieved January 13, 2009, from the CINAHL database.
- Cobb, S. L., Brown, D. J., & Davis, L. L. (2006). Effective interventions for lifestyle change after myocardial infarction or coronary artery revascularization. *Journal of the American Academy of Nurse Practitioners*, 18(1), 31–39. Retrieved January 13, 2009, from the CINAHL database.
- Davis, E. J., Antonio, A. M., Smith, S. M., Kirkner, G., Martin, S. L.,
  Parra-Medina, D., & Schultz, R. (2004). Pounds off with empowerment (POWER): A clinical trial of weight management strategies for black and white adults with diabetes who live in medically underserved rural communities. *American Journal of Public Health*, 94(10), 1736–1742.
  Retrieved January 13, 2009, from the CINAHL database.
- Elmer, P. J., Obarzanek, E., Vollmer, W. M., Simons-Morton, D., Stevens, V. J., Young, D. R., ... Appel, L. J. (2006). Effects of comprehensive lifestyle modification on diet, weight, physical fitness, and blood pressure control: 18-Month results of a randomized trial. *Annals of Internal Medicine*, 144(7), 485–494. Retrieved January 13, 2009, from the CINAHL database.

- Gagne R. (1985) *The conditions of learning*. 4th ed. New York: Holt, Rinehart, Winston.
- Gieck, D. J., & Olsen, S. (2007). Holistic wellness as a means to developing a lifestyle approach to health behavior among college students. *Journal of American College Health*, 56(1). 29–35. Retrieved January 13, 2009, from the CINAHL database.
- Graue, M., Wentzel-Larsen, T., Hanestad, B. R., & Sovik, O. (2005).
  Evaluation of a programme of group visits and computer-assisted consultations in the treatment of adolescents with type 1 diabetes. *Diabetic Medicine*, 22(11), 1522–1529. Retrieved January 13, 2009, from the CINAHL database.
- Jackson, C., Coe, A., Cheater, F. M., & Wroe, S. (2007). Specialist health visitor-led weight management intervention in primary care: Exploratory evaluation. *Journal of Advanced Nursing*, 58(1), 23–34. Retrieved January 13, 2009, from the CINAHL database.
- Jacobs, A. D., Ammerman, A. S., Ennett, S. T., Campbell, M. K., Tawney, K. W., Aytur, S. A., . . . Rosamond, W. D. (2004). Effects of a tailored follow-up intervention on health behaviors, beliefs, and attitudes. *Journal* of Women's Health, 13(5), 557–568. Retrieved January 13, 2009, from the CINAHL database.
- Kahn, R., Robertson, R. M., Smith, R., & Eddy, D. (2008). The impact of prevention on reducing the burden of cardiovascular disease. *Diabetes Care*, 31(8), 1686–1697.
- Kinzie, M. (2005) Instructional design strategies for health behavior change. Patient Education and Counseling 56, 3–15.
- Kutzleb, J. & Reiner, D. (2006). The impact of nurse-directed patient education on quality of life and functional capacity in people with heart failure. *Journal of the American Academy of Nurse Practitioners*, 18(3), 116–123. Retrieved January 13, 2009, from the CINAHL database.
- Liebman, M. (2005). Promoting healthy weight: Lessons learned from WIN the rockies and other key studies. *Journal of Nutrition Education & Behavior*, 37, S95–S100. Retrieved January 13, 2009, from the CINAHL database.
- Merck & Co. (2009). Journey for control program. Retrieved October 27, 2009 http://www.journeyforcontrol.com/journey\_for\_control/journeyforcontrol/ index.jsp.
- Miller, W.R., & Rollnick, S. (2002). *Motivational interviewing* (2nd ed). New York: Guilford Press.
- Northrup, K. L., Cottrell, L. A., & Wittberg, R. A. (2008). L.I.F.E.: A school-based heart-health screening and intervention program. *Journal of School Nursing*, 24(1), 28–35. Retrieved January 13, 2009, from the CINAHL database.
- Pagoto, S. L., Kantor, L., Bodenlos, J. S., Gitkind, M., & Ma, Y. (2008). Translating the diabetes prevention program into a hospital-based weight loss program. *Health Psychology*, 27(1). Retrieved January 13, 2009, from the CINAHL database.
- Pischke, C. R., Scherwitz, L., Weidner, G., & Ornish, D. (2008). Long-term effects of lifestyle changes on well-being and cardiac variables among coronary heart disease patients. *Health Psychology*, 27(5), 584–592. Retrieved January 13, 2009, from the CINAHL database.
- Roohafza, H., Sadeghi, M., Sarraf-Zadegan, N., Baghaei, A., Kelishadi, R., Mahvash, M., ... Talaei, M. (2007). Short communication: Relation between stress and other life style factors. *Stress and Health*, 23(1), 23–29. Retrieved January 13, 2009, from the CINAHL database.
- Sakamaki, H., Ikeda, S., Ikegami, M., Norimoto, M., & Moriwaki, S. (2006). Clinical and behavioral impact of implementing community-based diabetes disease management in Japan. *Disease Management & Health Outcomes*, 14(1), 45–54. Retrieved January 13, 2009, from the CINAHL database.
- Salyer, J., Flattery, M., Joyner, P., Friend, J., & Elswick, R. K. (2007). Community-based weight management in long-term heart transplant recipients: A pilot study. *Progress in Transplantation*, 17(4), 315–323. Retrieved January 13, 2009, from the CINAHL database.
- Turner, S. L., Thomas, A. M., Wagner, P. J., & Moseley, G. C. (2008). A collaborative approach to wellness: Diet, exercise, and education to impact behavior change. *Journal of the American Academy of Nurse Practitioners*, 20(6), 339–344. Retrieved January 13, 2009, from the CINAHL database.

Two Feathers, J., Kieffer, E. C., Palmisano, G., Anderson, M., Sinco, B., Janz, N., ... James, S. A. (2005). Racial and ethnic approaches to community health (REACH) Detroit partnership: Improving diabetes-related outcomes among African American and Latino adults. *American Journal of Public Health*, **95**(9), 1552–1560. Retrieved January 13, 2009, from the CINAHL database.

Vale, M. J., Jelinek, M. V., & Best, J. D. (2005). Impact of coaching patients on

coronary risk factors: Lessons from the COACH program. *Disease Management e<sup>3</sup> Health Outcomes*, **13**(4), 225–244. Retrieved January 13, 2009, from the CINAHL database.

Williams, D. E., Cadwell, B. L., Cheng, Y. J., Cowie, C. C., Gregg, E. W., Geiss, L. S., . . . Imperatore, G. (2005). Prevalence of impaired fasting glucose and its relationship with cardiovascular disease risk factors in US adolescents, 1999–2000. *Pediatrics*, 116(5), 1122–1126.