Using the Internet to promote evidence-based obesity counseling in the primary care setting

Kathleen M. McTigue, MD MS MPH
Assistant Professor of Medicine & Epidemiology
University of Pittsburgh
June 3, 2010
USPSTF 2003 Obesity Screening & Treatment Recommendations:

Recommends that clinicians screen all adult patients for obesity & offer intensive counseling and behavioral interventions to promote sustained weight loss for obese adults (Grade B)

Concludes that the evidence is insufficient to recommend for or against the use of lower-intensity counseling together with behavioral interventions to promote sustained weight loss in obese adults (Grade I)
The Translation of Efficacious Lifestyle Interventions into Clinical Practice is Needed

Preventive counseling is lacking in routine primary care practice

<20% adherence for quality indicators involving counseling or education

Less than half of obese adults report that their physician has recommended weight loss

A number of recent studies implementing non-intensive counseling for obesity have been ineffective
Goal: Use the Internet to translate a proven lifestyle intervention into practice, to enable better implementation of USPSTF recommendations
Basis of Our Intervention: the Diabetes Prevention Program Lifestyle Intervention

58% reduction in Type 2 DM incidence over 2.8 yr
Moderate physical activity & relatively low fat diet, consistent with broad recommendations for cardiovascular health
Goal weight loss: > 7%
In efficacy trial, delivered via 1:1 counseling
Cost-effective for preventing DM (~$8800 per QALY), but expensive
The key challenge in translating the DPP lifestyle intervention into community settings: Maintain intervention integrity while reducing cost
Clinical barriers to lifestyle counseling

Physician Barriers
Need to prioritize acute care
Lack of time (1-minute)
Inadequate Training

Patient Barriers
Financial concerns
Busy schedules
Travel constraints

System Barriers
Lack of reimbursement
Inadequate staff/management support
A variety of strategies have been used to translate the DPP to community settings

<table>
<thead>
<tr>
<th></th>
<th>Translational Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Shifting counseling to group-based approach</td>
<td>Yes</td>
</tr>
<tr>
<td>Reducing counseling contact after core curriculum</td>
<td>Yes</td>
</tr>
<tr>
<td>Decreasing freq or number of core counseling sessions</td>
<td>No</td>
</tr>
<tr>
<td>Reducing “toolkit”</td>
<td>No</td>
</tr>
<tr>
<td>Including non-health-professional counselors</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Our Solution: Adapt the intervention for online delivery

Maintain full curriculum
Capitalize on the authority of PCP advice and longevity of the 1º care relationship
Expand health-care team to include a virtually-accessed lifestyle expert
Focus the lifestyle coach’s time on tailored advice & support
Enable participation at the time & Internet location of choice
Allows for technological innovations
Online counseling can be smoothly integrated with routine primary care

Clinical Process & Resources

Pt views waiting room posters

MD advises weight loss & makes referral

Routine referral processing
Online Counseling Resources

- Automated online curriculum
- Online lifestyle coach
- Electronic self-monitoring tools
- Links to community resources

Clinical Process & Resources

- Pt views waiting room posters
- MD advises weight loss & makes referral
- Routine referral processing
Online Counseling Resources

- Automated online curriculum
- Online lifestyle coach
- Electronic self-monitoring tools
- Links to community resources

Clinical Process & Resources

- Pt views waiting room posters
- MD advises weight loss & makes referral
- Routine referral processing
- Feedback & support at F/U appointment
At the home page, a clipboard displays all pending tasks. Key program components are displayed across the top of the screen.
Audio: “Welcome to the first lesson of the Virtual Lifestyle Management Program. The program is designed to help you establish a healthier eating and physical activity routine, to lose weight, and to help you prevent or better manage diabetes. We hope you enjoy the course, and that participating in the program helps you improve your health.”

Virtual Lifestyle Management (VLM) Lesson 1
Getting started losing weight!

It includes 16 weekly, then 8 monthly lessons. Clicking on a pending lesson starts the audio lesson, accompanied by supporting images.
Lessons include interactive workbook pages. In each lesson, the final workbook page is an “action plan” that the participant commits to for the coming week.
In the “Keeping Track” section, participants self-monitor weight, diet, and physical activity.
They enter daily fat & calorie intake, plus pedometer steps. They can also track a wide variety of physical activities, and personal barriers to healthy lifestyles.
Once a week, participants receive automated emails detailing their progress since the start of the program (shown here), as well daily results from the last week.
The “Resources” page includes (a) DPP handouts; (b) helpful Internet links; and (c) excerpts from chat sessions between lifestyle coaches & participants.
From the “Communicate” page, participants can read announcements, view the calendar, join a chat, or send a secure message to their personal Health Coach.
In chat sessions, patients obtain real-time responses to their questions from a health coach. They can also gain social support from their peers.
Health coaches review progress weekly for 16 weeks, then bi-weekly, and send brief encouragement & advice.
Pilot Evaluation

50 patients enrolled from 11/16/06 & 2/5/07
   Referred by Primary Care Providers
   Overweight or obese with >1 weight-related CVRF
   With or without diabetes
### Sample Description

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD) or frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>51.94 (10.82)</td>
</tr>
<tr>
<td><strong>Sex [n (%)] female</strong></td>
<td>38 (76)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>43 (86)</td>
</tr>
<tr>
<td>African American</td>
<td>4 ( 8)</td>
</tr>
<tr>
<td>Other</td>
<td>3 ( 6)</td>
</tr>
<tr>
<td><strong>Baseline Weight</strong></td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td>10 (20)</td>
</tr>
<tr>
<td>Obese Class I</td>
<td>13 (26)</td>
</tr>
<tr>
<td>Obese Class II</td>
<td>11 (22)</td>
</tr>
<tr>
<td>Obese Class III</td>
<td>16 (32)</td>
</tr>
<tr>
<td>Current Smoking</td>
<td>2 (4)</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td># of wt-related CVRF</td>
<td>1.74 (0.80)</td>
</tr>
<tr>
<td>Ability to pay for basics</td>
<td></td>
</tr>
<tr>
<td>Not at all hard</td>
<td>35 (70)</td>
</tr>
<tr>
<td>Somewhat hard</td>
<td>13 (26)</td>
</tr>
<tr>
<td>Very hard</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Some HS/GED</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Some college</td>
<td>14 (28)</td>
</tr>
<tr>
<td>Completed college</td>
<td>9 (18)</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>25 (50)</td>
</tr>
</tbody>
</table>
Pilot analyses

Before-after evaluation: change in weight & blood pressure and 95% CI’s among completers and using LOCF.

Structured interview with qualitative analysis

N= 35
2 coders (kappa = 0.987)
1-Year Program Use

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # of logins</td>
<td>55.60 (50.34)</td>
</tr>
<tr>
<td>Login during last 30 days</td>
<td>50%</td>
</tr>
<tr>
<td>Entered ≥1 follow-up wt</td>
<td>98%</td>
</tr>
<tr>
<td>Wt tracking in ≥40 weeks</td>
<td>40%</td>
</tr>
<tr>
<td>Completed &gt;16 lessons</td>
<td>42%</td>
</tr>
<tr>
<td>Lesson during last 30 days</td>
<td>24%</td>
</tr>
</tbody>
</table>

(McTigue et al. Telemedicine & e-Health, Nov 2009)
## Change in Weight & Blood Pressure

<table>
<thead>
<tr>
<th></th>
<th>Weight (kg)</th>
<th>mean (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Completers (n=45)</td>
<td>-4.79 (-7.36, -2.22)</td>
</tr>
<tr>
<td></td>
<td>• LOCF (n=50)</td>
<td>-4.94 (-7.39, -2.48)</td>
</tr>
<tr>
<td>SBP (mm Hg)</td>
<td>• Completers (n=45)</td>
<td>-7.33 (-10.75, -3.92)</td>
</tr>
<tr>
<td></td>
<td>• LOCF (n=50)</td>
<td>-6.56 (-9.73, -3.39)</td>
</tr>
<tr>
<td>DBP (mm Hg)</td>
<td>• Completers (n=45)</td>
<td>+0.44 (-2.74, +2.83)</td>
</tr>
<tr>
<td></td>
<td>• LOCF (n=50)</td>
<td>+0.28 (-2.25, +2.81)</td>
</tr>
</tbody>
</table>
Average weight change

Mean body weight (kg)

Months of follow-up

0 3 6 9 12

85 95 105
Participant Satisfaction

Can you describe how helpful the program was in attaining your goals?

- Excellent: 57%
- Good: 23%
- Fair: 6%
- Not Very Good: 11%
- Poor: 3%
- Not Codable: 0%

Bhargava et al. CDC Diabetes Translation Conference. 2009
4 Themes emerged regarding the most useful program aspects

Self-monitoring
Information
Discipline
Attentiveness
Limitations of the Pilot Evaluation

Uncontrolled data
Limited sample size
Technical impediments limited the program’s intended support mechanisms
Current inability to accommodate patients with vision or hearing impairment, or those who are not English-speaking
Next Step: Online Counseling to Enable Lifestyle-Focused Obesity Treatment in Primary Care (OCELOT-PC) Study

PCP Referral

- Standard Online Counseling
- Modulated Online Counseling
- Online Goals & Resources
Value

Internet-based intervention can promote clinically meaningful weight loss among individuals with high risk for weight-related health problems.

The model of physician referral, coupled with an online intervention, provides a mechanism for overcoming barriers to high-quality clinical counseling.

Lower staffing needs of an Internet-based approach may result in a more cost-effective intervention.

Technologic advances may open diverse new options for improving preventive counseling in the clinical setting.
Acknowledgements


The UPMC IT team provided consultation advice regarding the development of the online version of the DPP intervention. They subcontracted with DPS-Health to program the software & incorporate their pre-existing physical activity self-monitoring tool.

While the University of Pittsburgh has licensed the program contents, the authors have assigned the copyright to the University & receive no personal royalties from its commercial use.
Acknowledgements

The online version of the DPP lifestyle curriculum was developed with a grant from the Department of Defense [USAMRAA W81XWH-04-2-0030 Siminerio (PI)], through the University of Pittsburgh Diabetes Institute.

The OCELOT-PC Study is funded by AHRQ: AHRQ 1R18HS018155-01
Self-Monitoring

“It was a wealth of functionality in being able to keep track of exercise and nutritional values of the foods that I was eating, not only on a day to day basis, but, in a historical perspective and looking back… it was also a good place to look back and see that I really had made progress when I thought that I hadn't necessarily made much progress.”
Information

“I think it was helpful to have someone to communicate with. When you had a question, you could fire off a question and get an answer back. Things like that… and certainly my coach was very helpful in advising me along the way whenever there were issues that I needed some help with.”
Discipline

“The success that I experienced for me that was the greatest was in the area of exercise, particularly in becoming more disciplined and regimented, as well as recording and making it more of a habit and kind of a labor of love instead of something that I was feeling kind of forced to do.”
Attentiveness

“…left to my own devices, if something doesn't come up in front of me everyday, then I will tend to forget about it… Out of sight, out of mind. So that contact from the coaches was a little reminder like, hey, you're part of this program and it's a choice that you made to be healthier and that kind of thing.”