Slide 1: Interactive Media for Diabetes Self-Management: Issues in Maximizing Public Health Impact

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Slide 2: Overview

- Context and Potential for Multi-media
- Enhancing Effectiveness of Patient-Centered Care: Engagement, Action Planning, Follow-up Support
- Enhancing Public Health Impact: Reach, Adoption, Robustness
- Summary: Current Status and Key Opportunities

Slide 3: Context for diabetes Self-management (NIDDK)

- 23 million Americans age 20 and over have diabetes
- Costs estimated at $174 billion/year
- Cases of diabetes in U.S. have doubled since 1990

Slide 4: Context for Diabetes Self-management (CDC)

- This chart illustrates the prevalence of diabetes among patients 20 years and older by race and ethnicity.

Slide 5: Context for Diabetes Self-management

- Patient
    - Multiple, complex demands
    - Information overload
    - Emotional stress
    - Social environment not supportive
    - Comorbid medical conditions
    - Limited literacy and numeracy
- Physician
    - Multiple competing demands
    - Same, limited time
    - Often no resources or training
    - 15-minute visit not supportive
    - Other conditions demand attention
    - Diagnostic and resource limits

Source: Eisenberg Center Conference Series 2009, Translating Information Into Action: Improving Quality of Care Through Interactive Media, Effective Health Care Program Web site (http://www.effectivehealthcare.ahrq.gov/index.cfm)

Slide 6: 5 A's Approach to Patient-Centered Care
5's activity/ Multimedia Example

- Assess / Pre-visit on-line survey or kiosk
- Advise / Tailored feedback on multiple behaviors
- Agree (SDM) / Present choices among alternatives
- Assist / Set goals, ID barriers, action planning
- Arrange (Follow-up) / Web, e-mail, text messages, IVR

Slide 7: Figure 1. 5 A's Self-Management Model: A Guide for Making Decisions about Self-management Plans

- ASSESS:
    - Beliefs, Behavior & Knowledge
- ADVISE:
    - Provide specific
    - Information about
    - Health risks and
    - Benefits of change
- AGREE:
    - Collaboratively set goals
    - Based on patient's interest
    - and confidence in their
    - ability to change the
    - behavior.
- ASSIST:
    - Identify personal Barriers,
    - Strategies, Problem-solving techniques and Social/
    - Environmental Support
- ARRANGE:
    - Specify plan for
    - Follow-up (e.g., Visits,
    - IVR, E-mailed
    - Reminders)
- Personal Action Plan
    - List specific goals in behavioral terms
    - List barriers and strategies to address barriers.
    - Specify Follow-up Plan
    - Share plan with practice team and patient's social support

Slide 8: Enhancing Multi-media Effectiveness: ENGAGEMENT CHOICE:

Source: Eisenberg Center Conference Series 2009, Translating Information Into Action: Improving Quality of Care Through Interactive Media, Effective Health Care Program Web site (http://www.effectivehealthcare.ahrq.gov/index.cfm)

- Behavior(s)
- Timing
- Voice Over or Not; Language
- Feedback Displays
- Entry Modality (Web or IVR)

Autonomy support key mediator of outcomes

Slide 9: Enhancing Multi-media Effectiveness: ENGAGEMENT STRUCTURE:

- Simple targets at first
- Initial success is critical
- Add complexity later
- Self-monitoring of goal achievement
- Repeat expectations
- Prompts if not engaged
- Quotes, motivational tips

Slide 10: Enhancing Multi-media Effectiveness: ACTION PLAN ACTION PLANS:

- On-screen and print
- Easily modifiable
- Shared with healthcare team

Problem-solving skill independent key predictor of successful self-management

Slide 11: Image of pages from the Web site: My Path to Healthy Life
Slide 12: D-Net Website Usage: Peer Support (PS)
Graph illustrating the decline in website usage based on the number of logons per participant per month

- When a Web site offers peer support, Web site logons are:
    - Month 1-3: 18.7 times
    - Month 4-6: 13.2 times
    - Month 7-10: 6.7 times
- When a website does not offer peer support, Web site logons are:
    - Month 1-1: 9.4 times
    - Month 4-6: 5.1 times
    - Month 7-10: 3.6 times

Slide 13: Enhancing Multi-media Effectiveness: FOLLOW-UP
Mediterranean Lifestyle Program RCT:

- Women with type 2 diabetes
- Initial 6 months weekly group meetings
- Multiple behavior change study

Two-session computer interaction on "Selecting Community Resources" narrated trip through "My Community" as effective as ongoing group meetings.

Slide 14: ENHANCING PUBLIC HEALTH IMPACT

- REACH
- ADOPTION
- GENERALIZABILITY

Slide 15: RE-AIM Model Elements, Definitions, and Multimedia Intervention Example
RE-AIM Element / Multimedia Intervention Example

- Reach / From the pool of eligible patients, 40% of those invited to an Internet self-management intervention participated. Those declining were more likely to be Latino and male.
- Effectiveness / Seventy percent of those randomized to an automated eye exam reminder phone call program had their eyes examined compared to 42% in the control condition. There were no differences between conditions on other preventive services, adverse events, or quality of life.
- Adoption / Forty-six percent of medical offices approached to participate in an Internet DSME program evaluation took part. Participating clinics were larger, had more diabetes patients, and offered more wellness activities.

Slide 16: RE-AIM Model Elements, Definitions, and Multimedia Intervention Example
RE-AIM Element / Multimedia Intervention Example

- Implementation / The average number of log-ins in an Internet physical activity intervention was 25.2. Usage decreased over the 24-week intervention, and number of overall log-ins and use of the social support forum were associated with greater improvement.
- Maintenance (Individual Level) / At a 6-month follow-up, there was 60% attrition in a touchscreen computer DSME. Those responding lost an average of 9 pounds. A mail follow-up of initial non-respondents revealed an average weight loss of 4 pounds among this group.

Source: Eisenberg Center Conference Series 2009, Translating Information Into Action: Improving Quality of Care Through Interactive Media, Effective Health Care Program Web site (http://www.effectivehealthcare.ahrq.gov/index.cfm)

- Maintenance (Setting level) / Of 24 clinics participating in an in-office, computer-assisted DSME, six continued the program unchanged, 10 requested substantial changes or added their own components, and eight discontinued the program.

Slide 17: Ultimate Impact of Magic Diet Pill: Law of Halves

Dissemination Step	Concept	% Impacted
50% of Clinics Use	Adoption	50%
50% of Clinicians Prescribe	Adoption	25%
50% of Patients Accept Medication	Reach	12.5%
50% Follow Regimen Correctly	Implementation	6.25%
50% of Those Taking Correctly Benefit	Effectiveness	3.2%
50% Continue to Benefit After 6 Months	Maintenance	1.6%

Slide 18: Rationale for mailed DVD intervention: Enhancing Public Health Impact: REACH

- Vast majority of U.S. homes have DVD players
- Education can be individualized
- DVD available for repeated viewing, as needed
- Family can watch together

Slide 19: Preference Design Features

- Potential participants randomized to Choice (mailed DVD or class) or RCT condition
- Allows more realistic evaluation of intervention Reach
- Can evaluate impact of Choice on outcomes

Slide 20: Study Design
The image illustrates the process steps for enrolling participants in a study

Slide 21: Participation Rates

- Among those confirmed eligible (n=310)
   - Choice 70.5%
   - RCT 55.8%
- Among choice condition confirmed eligible

Source: Eisenberg Center Conference Series 2009, Translating Information Into Action: Improving Quality of Care Through Interactive Media, Effective Health Care Program Web site (http://www.effectivehealthcare.ahrq.gov/index.cfm)

- o DVD 55.8%
- o Class 14.7%

DVD equally effective as Class on changes in self-management and clinical indicators.

Slide 22: RE-AIM Metrics
A Tale of Two Interventions: What is the Bottom Line?

Slide 23: Multi-media Behavior Change: Two Approaches to Self-Management (SMS)
In office SMS

- In-office, PCP staff delivered (CA) program – 3/year
- Patient arrives 30 minutes prior to regular visit, completes CA assessment with feedback
- Receives feedback on care recommendations, issues to discuss with PCP

Linked, Separate SMS

- Separate 2-hour CA visits with health counselor - 3/year
- Detailed CA feedback, goal setting, action planning, and relapse prevention
- Patient and counselor have print-out
- PCP receives e-mail/fax summary

Slide 24: Two Approaches to Self-Management Support (SMS)
In-Office SMS

- Care Manager reviews plan in office; answers questions
- Follow-up includes repeat PCP diabetes visit as recommended at 6 and 12 months
- Care manager makes follow-up calls

Linked, Separate SMS

- Health counselor provides lengthy feedback, detailed action planning on dietary and physical activity targets
- Follow-up includes repeat visit at 2 and 12 months, and follow-up phone calls

Slide 25: REACH: Which is better?
In office attracted 50% (vs. 41% of eligible participants.)

Slide 26: ADOPTION: Which is better?

Source: Eisenberg Center Conference Series 2009, Translating Information Into Action: Improving Quality of Care Through Interactive Media, Effective Health Care Program Web site (http://www.effectivehealthcare.ahrq.gov/index.cfm)

Linked, separate approach recruited 47% of PCPs; in-office PCP team delivery approach recruited 6% of PCPs.

Slide 27: Enhancing Public Health Impact: Generalizability across Levels

Levels:

- Health care setting (HMO vs. non); health counselor (4); patient characteristics

HMO vs. non:

- Lower participation in HMO (38% vs. 54%, p<.001)
- No differences in outcomes

Health Counselors:

- 2 meetings and follow-up calls—no difference
- No differences in implementation or outcomes across counselors

Patient Characteristics:

- No main or moderator effects on outcomes by demographics, income, comorbid conditions, BMI, or baseline self-efficacy

Slide 28: Summary of Multimedia (MM) Results

- MM can reach large numbers of diabetes patients and enhance patient-centered care and self-management.
- Judicious use of personal contact with health coach (can be electronic) seems beneficial supplement to MM.
- Future research indicated on integration with primary care and use of multiple social media

Slide 29: Key Question for Future Research

- What Multi-media Programs are most widely applicable and cost-effective for:
    - producing which (RE-AIM) outcomes,
    - for what types of patients,
    - under what conditions,
    - and, how generalizable are results?