



National Cancer Policy Forum Workshop on
Reducing Tobacco-Related Cancer Incidence and Mortality
Institute of Medicine , Washington, DC, June 11 & 12, 2012

Technology-Based Programs for Prevention and Cessation

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**MDAnderson
Cancer Center**

Making Cancer History®

2012 SGR: Main Conclusions...

After years of steady progress, declines in the use of tobacco by youth and young adults have slowed for cigarette smoking and stalled for smokeless tobacco use.

Coordinated, multi-component interventions that combine mass media campaigns, price increases ..., school-based policies and programs, and statewide or community-wide changes in smoke-free policies and norms are effective in reducing the initiation, prevalence, and intensity of smoking among youth and young adults.

Source: Preventing Tobacco Use Among Youth and Young Adults A Report of the Surgeon General. 2012 U.S. Department of Health and Human Services, Public Health Service

Era of Technology

Cellular subscription worldwide in 2012: 5.9 billion (87% of the world population)

Currently in the United States:

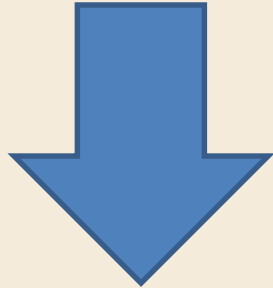
- 96,000,000 smartphones (57% increase from mid-2010)
- 327,600,000 wireless connections (9% increase)
- 279,300,000 data-capable devices (5% increase)
- 15,200,000 wireless enabled tablets, laptops and modems (17% increase)
- 1,138,000,000,000 SMS messages were sent and received (16% increase)
- Nearly 100% of public schools had broadband internet access in 2008

Sources: mobiThinking 2012; Cellular Telecommunications Industry Association, 2011;
NCES, 2010

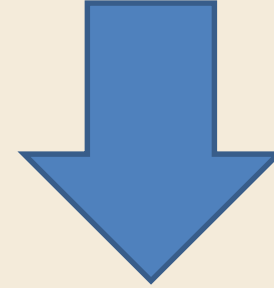
Technology is Broadly Appealing!



Technology Can Improve...

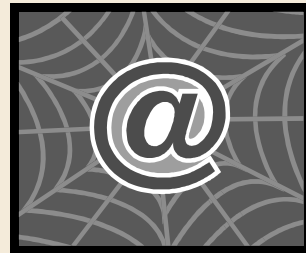


Training & Education



Data Collection/Management

Types of Technology We Use



- ASPIRE
- "Look At Your Health"
- TEAM

- CURBING
- ASPIRE 2
- SUCCESS
- EVOLVE

"HealthScore General Hospital"

CASA



ACTION

COMBAT

CYCORE

Factors Leading to Tobacco Use

q Sociodemographic factors

- § Low socioeconomic status
- § Developmental stage
- § Male gender (ST)

q Environmental factors

- § Accessibility
- § Advertising
- § Parental use
- § Sibling use
- § Peer use
- § Normative expectations
- § Social support
- § Exposure to smoking in movies

q Behavioral factors

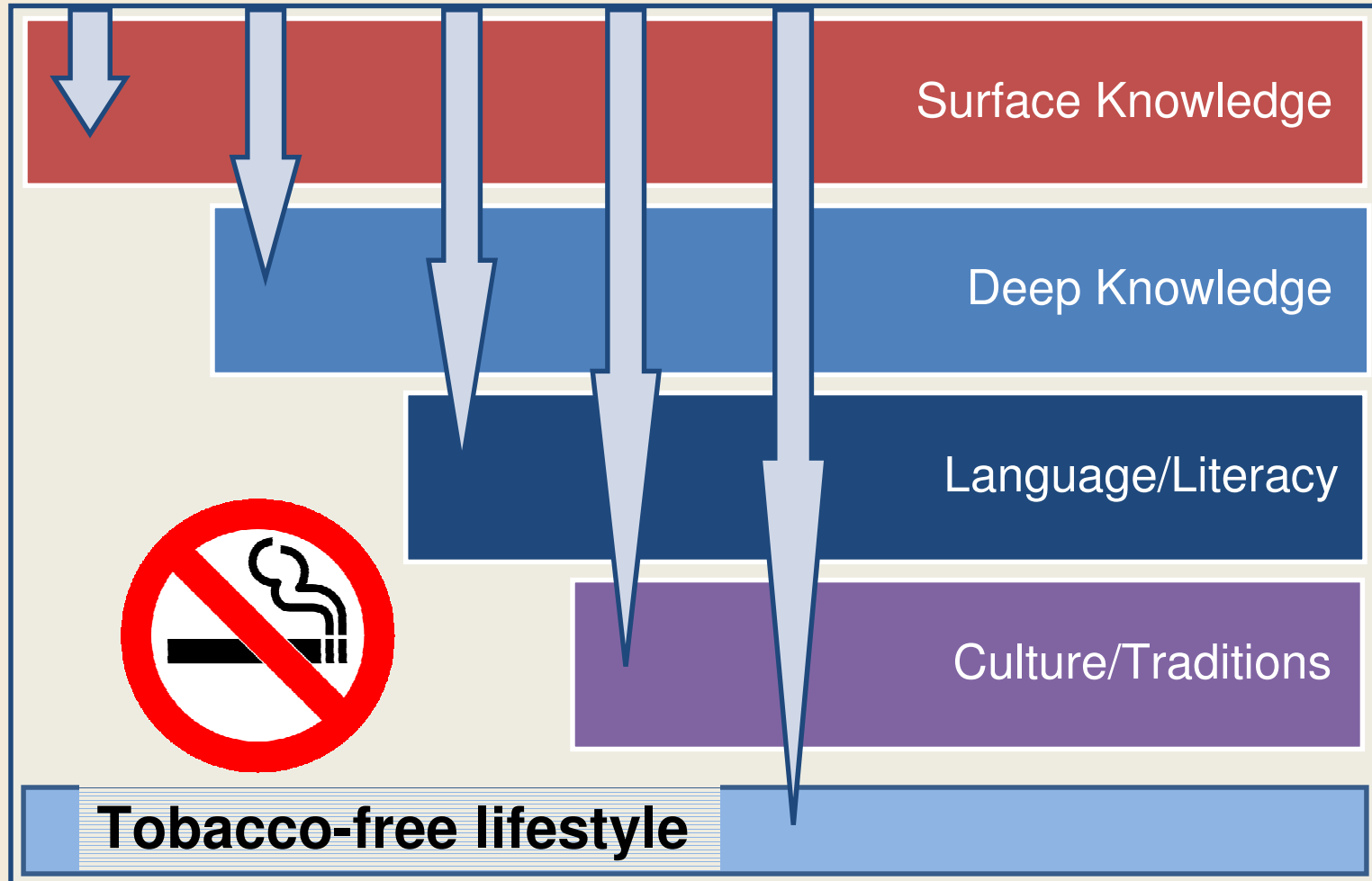
- § Academic achievement
- § Other problem behaviors
- § Constructive behaviors
- § Behavioral skills
- § Intentions
- § Experimentation

q Personal factors

- § Knowledge of consequences
- § Functional meanings
- § Subjective expected utility
- § Self-esteem/self-image
- § Self-efficacy
- § Personality factors
- § Psychological well-being
- § Depression
- § Propensity to risk-taking

Sources: Sargent et al., 2005; Escobedo et al., 1995;
Koval et al., 2000; USDHHS, 1994

Are We “Drilling” Deep Enough?





ASPIRE: An Interactive Multimedia Smoking Prevention Curriculum for High School Students



ASPIRE Research Design and Sample

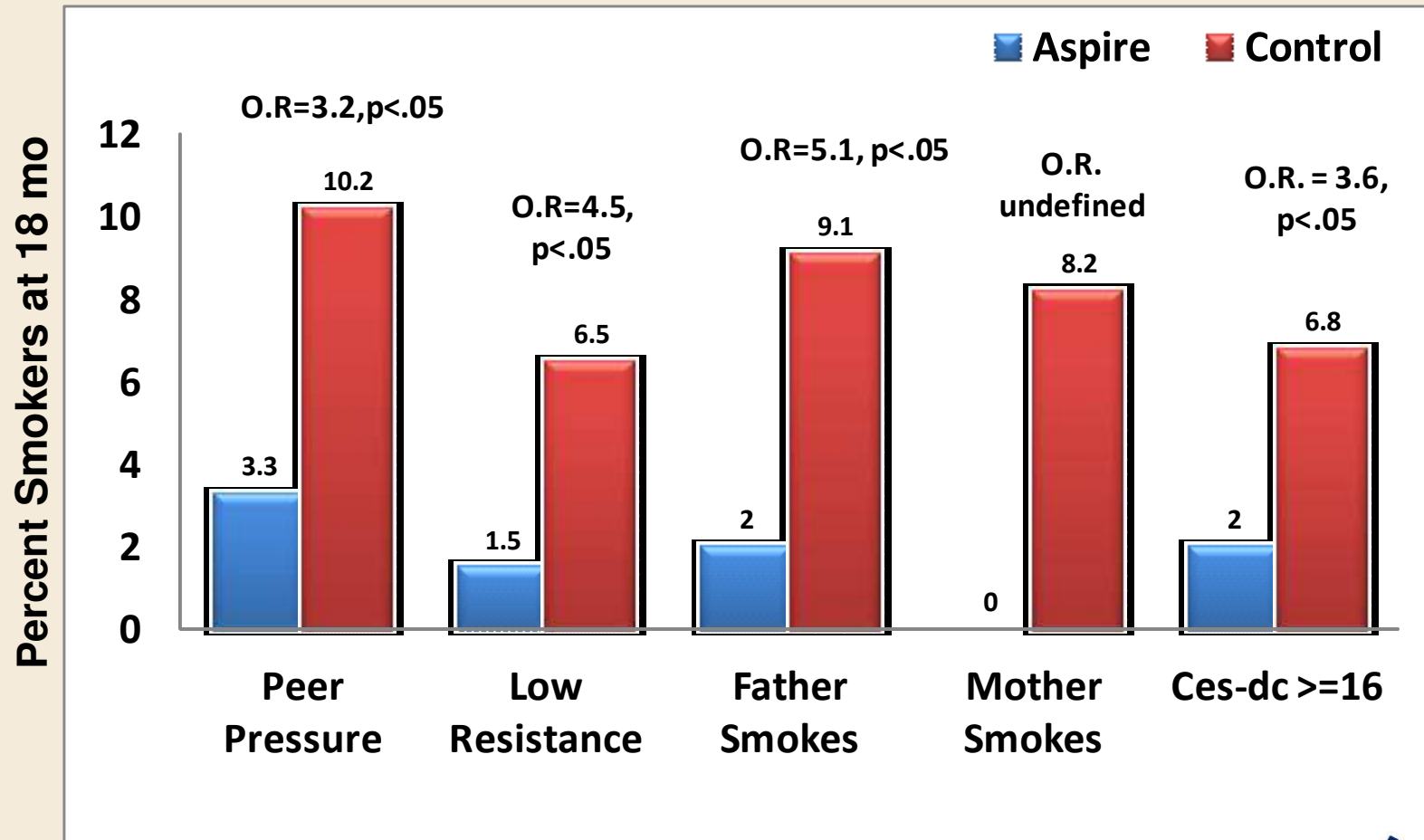
- Group-randomized, controlled trial in 16 inner-city Houston high schools - 8 intervention; 8 control
- 1,574 participants recruited at baseline
- Mean age 16 years; 59% female
- 51% Hispanic; 39% African-American
6% Caucasian; 4% Others
- 67% economically disadvantaged
- Intervention: Five 45-minute computer sessions
- Long-term follow-up (18 months)



ASPIRE Interactive Piece



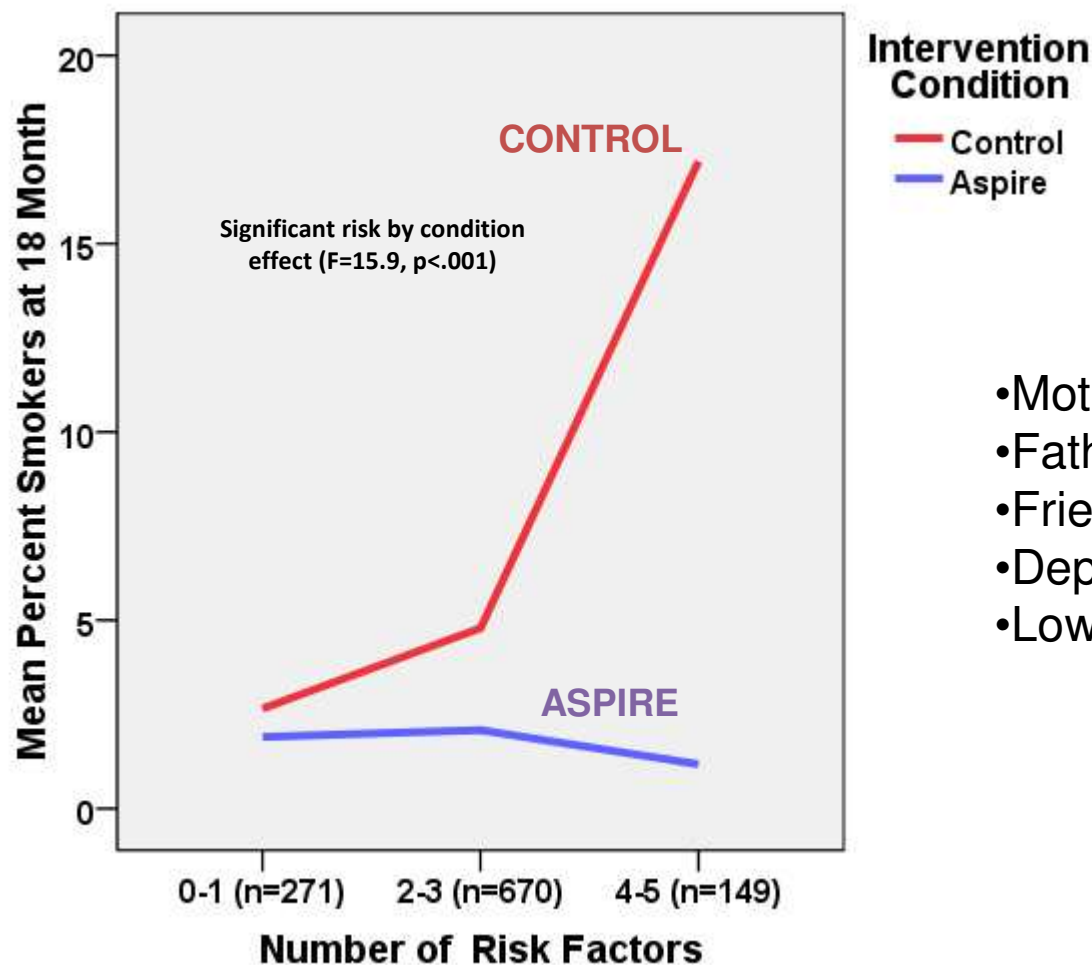
Smoking Initiation Among High Risk Students at 18 months



Prokhorov et al., 2008

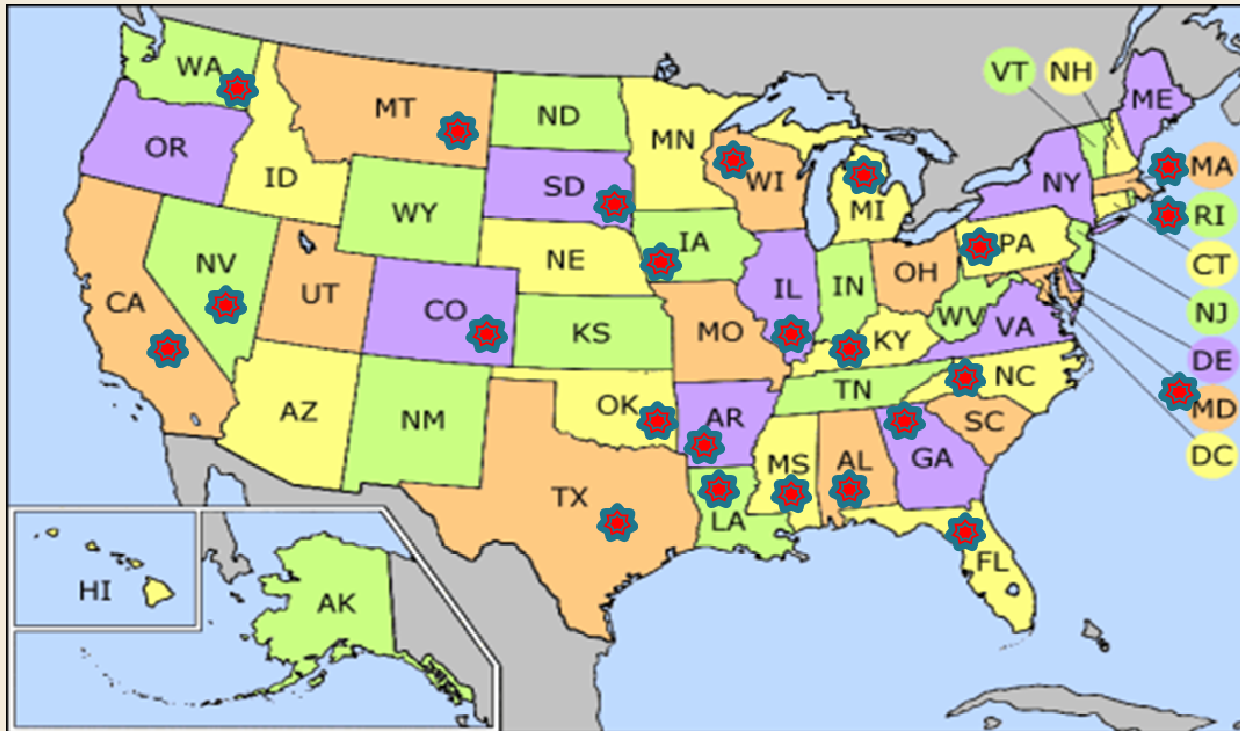


Smoking Initiation by Risk Level



- Mother smoking
- Father smoking
- Friends smoking
- Depressive symptoms
- Low resistance skills

ASPIRE Reach



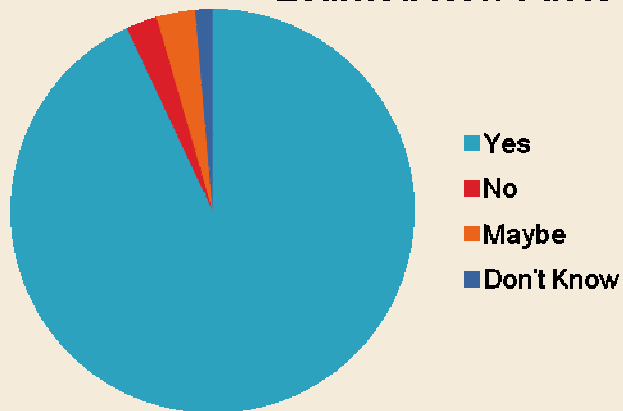
Enrolled States: AL, AR, CA, CO, FL, GA, IL, IA, KY, LA, MD, MA, MI, MS, MT, NV, NC, OK, PA, RI, SD, TX, WA, WI

Prospect States: AK, AZ, DC, KS, NY, OH, WY

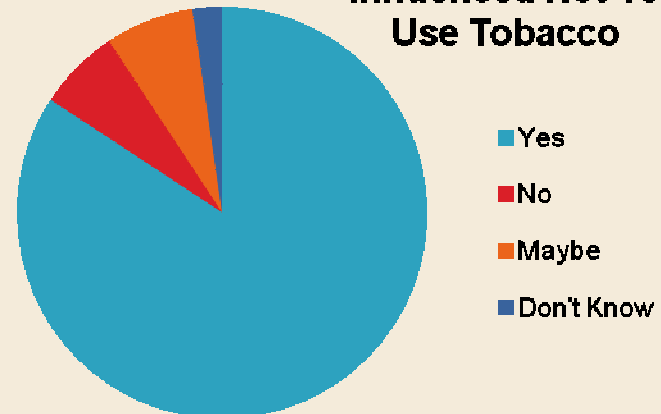
✘ new aspire FINAL.jpg

Student Feedback on ASPIRE

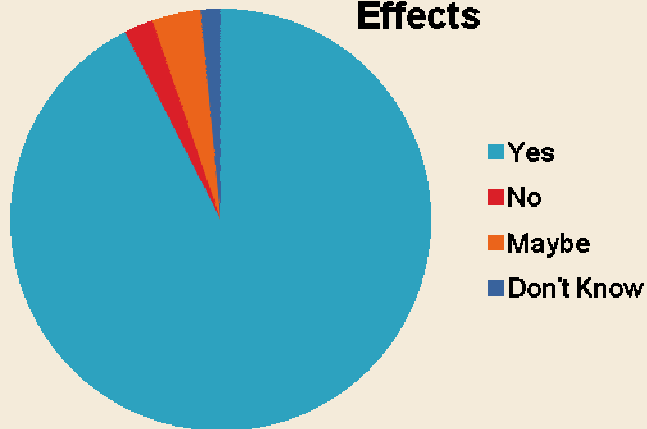
Learned New Facts



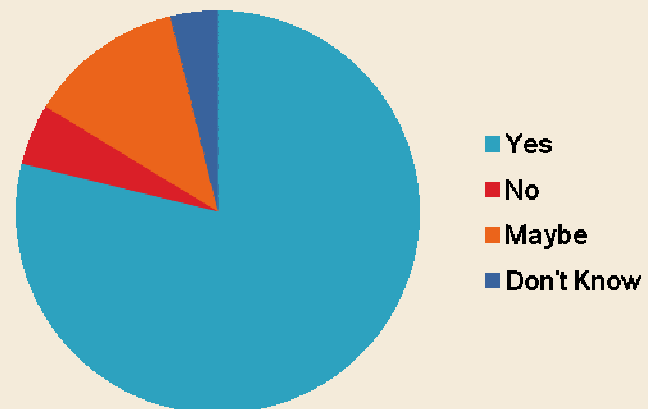
Influenced Not To Use Tobacco



Better Understand Tobacco Effects

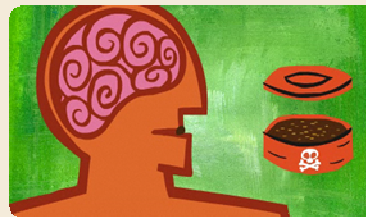


Would Recommend ASPIRE



new aspire FINAL.jpg

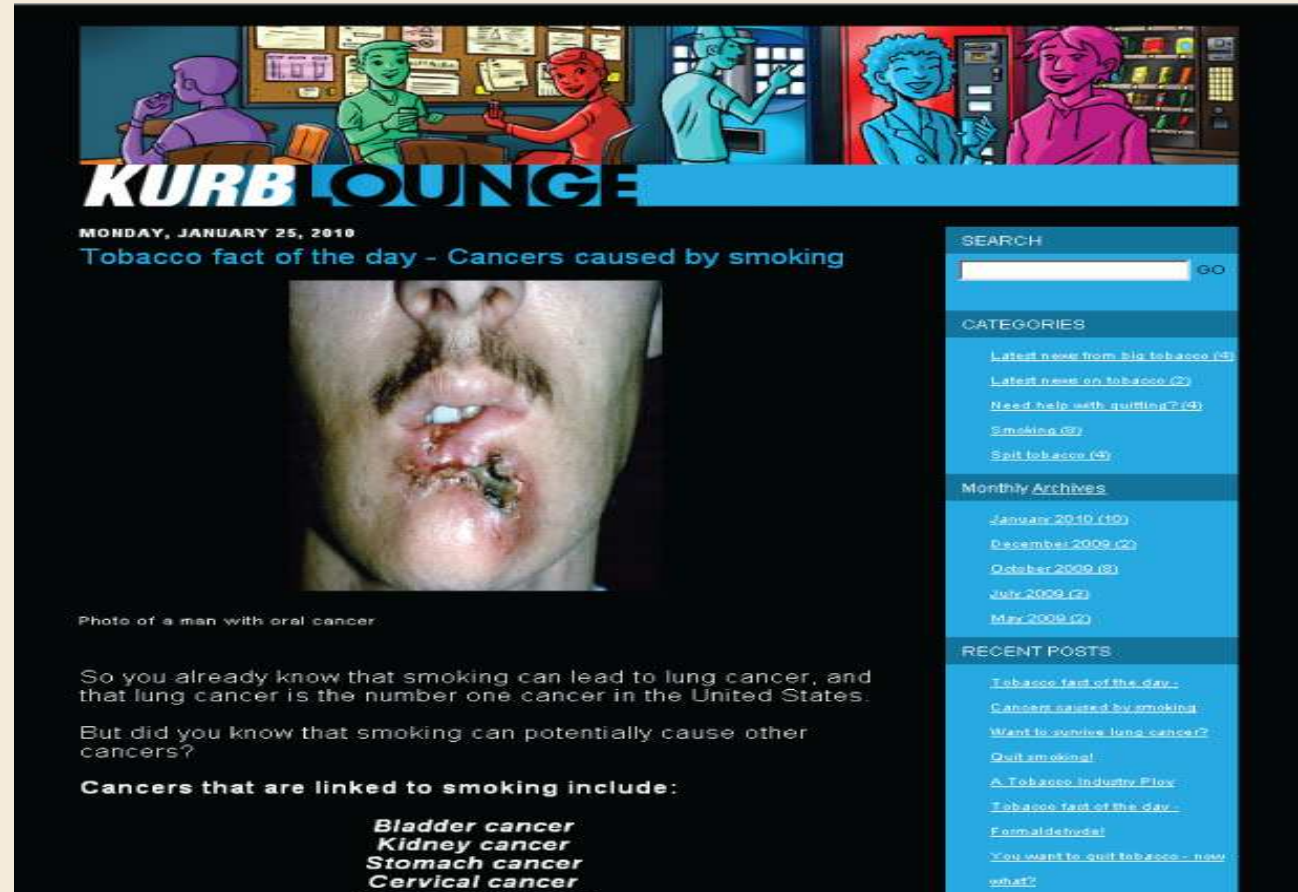
Project Curbing: Smoking and Smokeless Tobacco



Project Curbing ii.jpg

Virtual Support: KURB Lounge

- Virtual support given through an interactive blog
- Project staff post content and moderate comments
- Email updates sent to participants
- 250 participant comments collected



The screenshot shows a blog post from KURB Lounge. At the top, there is a colorful illustration of people in a lounge setting. Below the illustration is the title "KURB LOUNGE" in large, bold, blue letters. Underneath the title, the date "MONDAY, JANUARY 25, 2010" and the title "Tobacco fact of the day - Cancers caused by smoking" are displayed. The main content area features a photograph of a man's mouth with a large, dark, irregular lesion, indicating oral cancer. Below the photo, the text reads: "Photo of a man with oral cancer. So you already know that smoking can lead to lung cancer, and that lung cancer is the number one cancer in the United States. But did you know that smoking can potentially cause other cancers? Cancers that are linked to smoking include: Bladder cancer, Kidney cancer, Stomach cancer, Cervical cancer." To the right of the main content is a sidebar with a search bar, a "GO" button, and sections for "CATEGORIES" (listing topics like "Latest news from k10 tobacco (9)", "Latest news on tobacco (2)", "Need help with quitting? (4)", "Smoking (8)", "Spit tobacco (4)"), "Monthly Archives" (listing months from January 2010 to May 2009), and "RECENT POSTS" (listing recent blog entries).

Project Curbing ii.jpg

Participating High Schools

Houston

- Alvir
- BF T
- Char
- Deka



schools:

- King
- Mort
- Need
- Pasa
- Sam
- Sant
- Sterl




Project Curbing ii.jpg

What's Next?

- Continued dissemination nationally and internationally
- Collaboration with other states
- Translation into Vietnamese, Portuguese, and other languages



<http://www.mdanderson.org/aspire>

 new aspire FINAL.jpg

Websites for College Students

The screenshot shows the Project EVOLVE website interface. At the top right, there are links for "Account Settings", "My Journal", "Change Site Theme", and "Log Out". The main navigation bar includes "Home", "Get the Facts Smoking 101", "Start Today Steps to Quit", "Don't Panic Emergencies, Temptations", "Alcohol Alcohol, Smoking & You", "Mood Your Mood & Smoking", "I Don't Smoke", "Blog", "Forum", and "Resources Media & Links". The central banner features a collage of images: a red sculpture, a building with a sign that says "UNIVERSITY of HOUSTON", and a tiger statue. Below the banner, there are three content blocks. The first is titled "In Case of Emergency" with a date of "Mon, 05/14/2012 - 11:09" and a "Read Full Post" link. The second is titled "My Friends Still Smoke" with a date of "Mon, 05/07/2012 - 14:06" and a "Read Full Post" link. The third block contains a "Check Out The Quit Calendar" link. On the left side of the page, there are several call-to-action buttons: "Click Here To Take Survey" and "Check Out The Quit Calendar". The background of the entire page is a light-colored wooden desk with various school supplies like pens, pencils, paper clips, and a keyboard.

Account Settings My Journal Change Site Theme Log Out

MDAnderson Project EVOLVE

Home Get the Facts Smoking 101 Start Today Steps to Quit Don't Panic Emergencies, Temptations Alcohol Alcohol, Smoking & You Mood Your Mood & Smoking I Don't Smoke Blog Forum Resources Media & Links

UNIVERSITY of HOUSTON

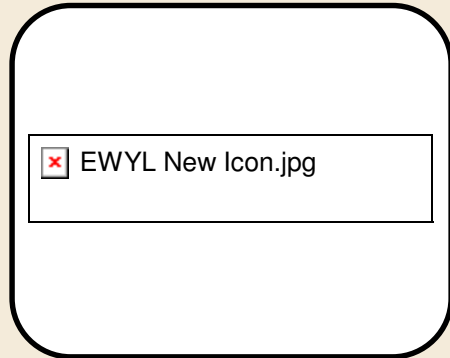
IN CASE OF EMERGENCY BREAK GLASS

[Click Here To Take Survey](#)

[Check Out The Quit Calendar](#)

In Case of Emergency
Mon, 05/14/2012 - 11:09 | [Read Full Post](#)
Craving a cigarette? Need help dealing with tempting situations? Check out the red emergency button on the left hand side for ways to handle tempting situations.
[Add new comment](#)

My Friends Still Smoke
Mon, 05/07/2012 - 14:06 | [Read Full Post](#)
Quitting smoking is hard enough, but quitting while your friends and family still smoke can make it even more challenging. Visit the Don't Panic tab for



Teens and Young Adults Acquiring Lung Cancer Knowledge

(TALK)

Kiosk/CD-Based Videogame

“Escape With Your

COMBAT



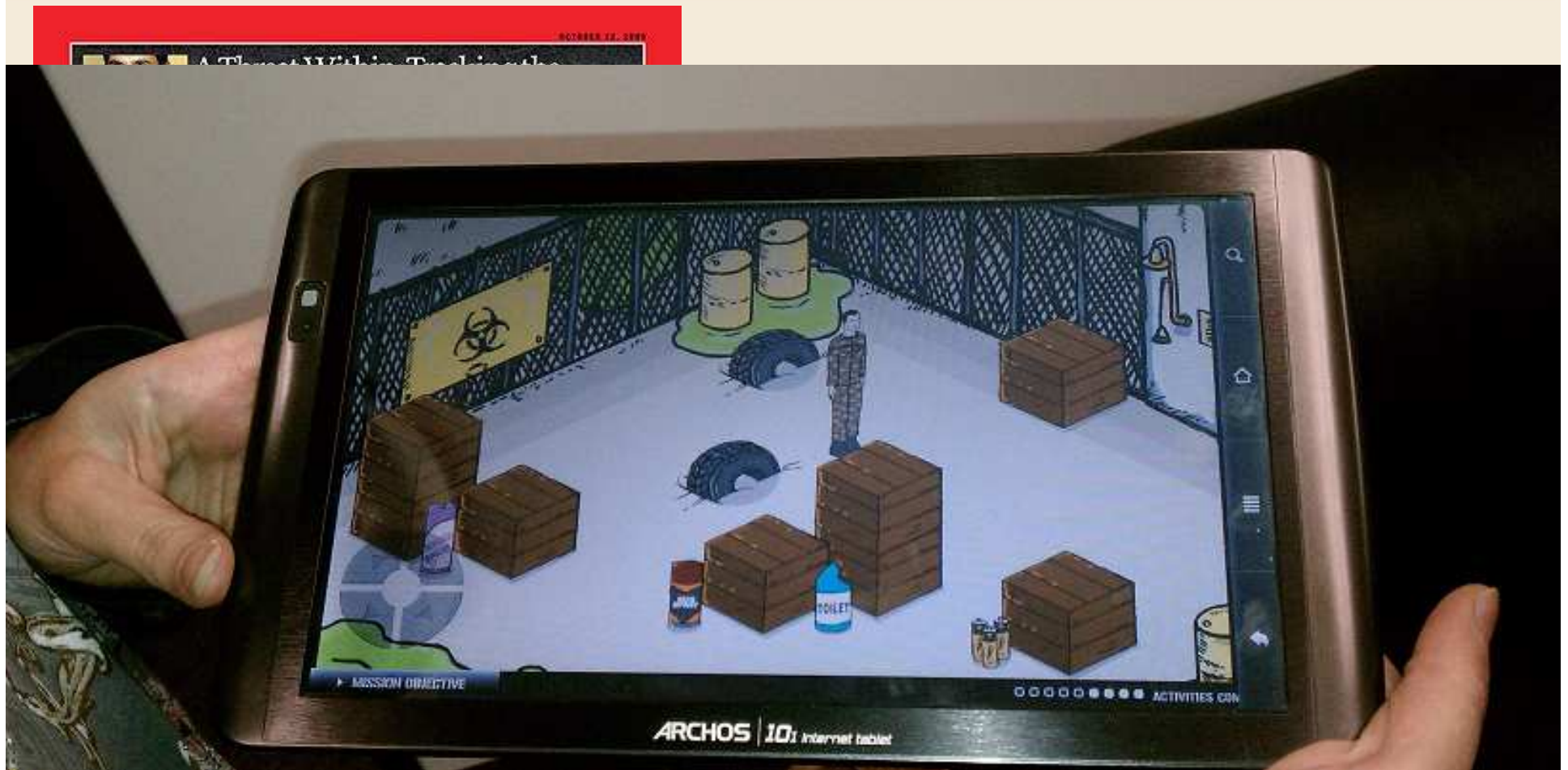
Delivering technology-based smoking cessation interventions via video games has the potential to reach substantial numbers of smokers. Most smokers, nonsmokers, and health care professionals endorsed this approach. (Raiff, Jarvis, & Rapoza, Nicotine & Tob Res 2012)

Escape With Your Life

- The videogame was tested in 2 Houston alternative schools:
 - 94% - game increased smoking knowledge
 - 82% - inspired to quit or not to start
- Existing Outreach: New kiosk placed in Minnie Rogers Juvenile Justice Center (Beaumont, TX) and in the Memorial Hermann Recovery Center (Houston, TX)



Tobacco Use Among the Military



Project COMBAT

TELL US ALL ABOUT YOURSELF

AGE

22

ETHNICITY

Hispanic

GENDER

MALE FEMALE

BUILD YOUR AVATAR
USE THE RED ARROWS TO SELECT!



ANSWER A FEW SHORT QUESTIONS

DO YOU CURRENTLY SMOKE?

YES NO

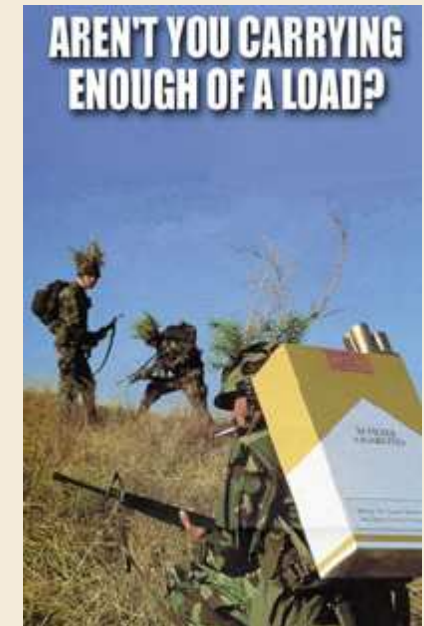
DO YOU USE SMOKELESS TOBACCO?

YES NO

DO YOU PLAN TO QUIT IN THE NEXT 6 MONTHS?

YES NO

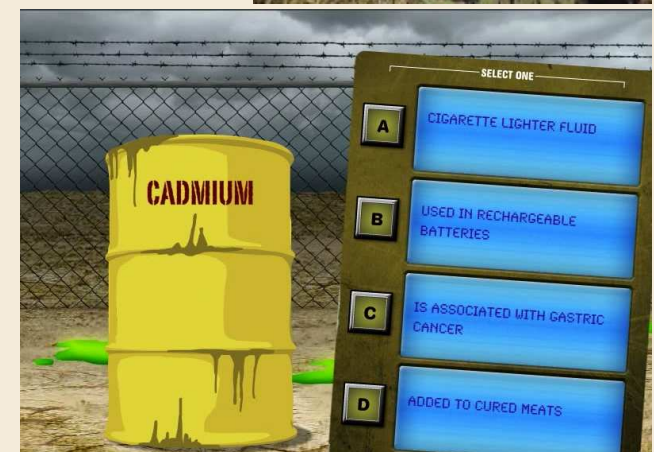
BACK DONE! BACK DONE! BACK DONE!



Educational videogame will be tested among 2000 soldiers at Fort Hood

Group-randomized trial

First tablet computer-based videogame addressing tobacco



mHealth...



Project ACTION

Description

Smoking cessation intervention study examining the effectiveness of 3 different programs using a mobile clinic model, group-randomized design:

Intervention Arms	
Standard Care (SC)	Brief Advice to quit smoking + NRT
Enhanced Care (EC)	SC components + Text Message Intervention
Intensive Care (IC)	EC components + One-on-One Counseling over phone



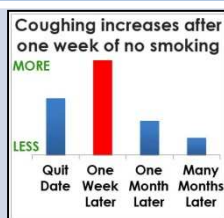
- Target Population: 756 adult smokers from low-income neighborhoods in the Houston area
- Recruitment Sites: Churches & Community Health Centers
- Recruitment Period: August 2011 to 2013
- Progress to Date: 229 participants

Project ACTION

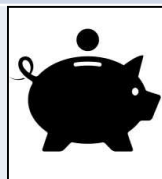
Text Message Intervention

Example Text and Pix Messages

Some people cough more soon after they quit cigarettes. This is a sign that the lungs are repairing themselves & the body is getting rid of toxins.



Reward yourself by putting the \$\$ that you would have spent on cigarettes in a jar each day you don't smoke.



Assessment

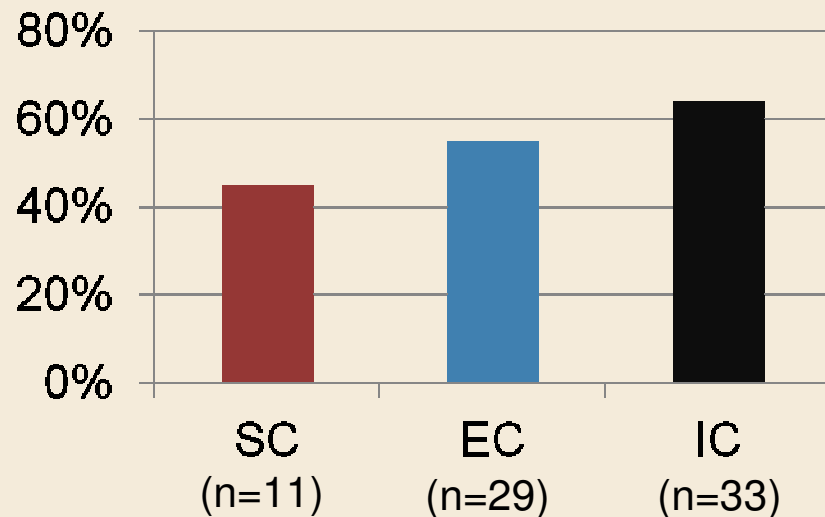
Participants complete self-administered assessments on a touchscreen laptop computer.

- Answer each question using the user-friendly touchscreen
- Audio available for each question and all response options
- Reduces data entry errors and staff burden



Smoking status (7-day) at 1 month, by treatment group (n=73)

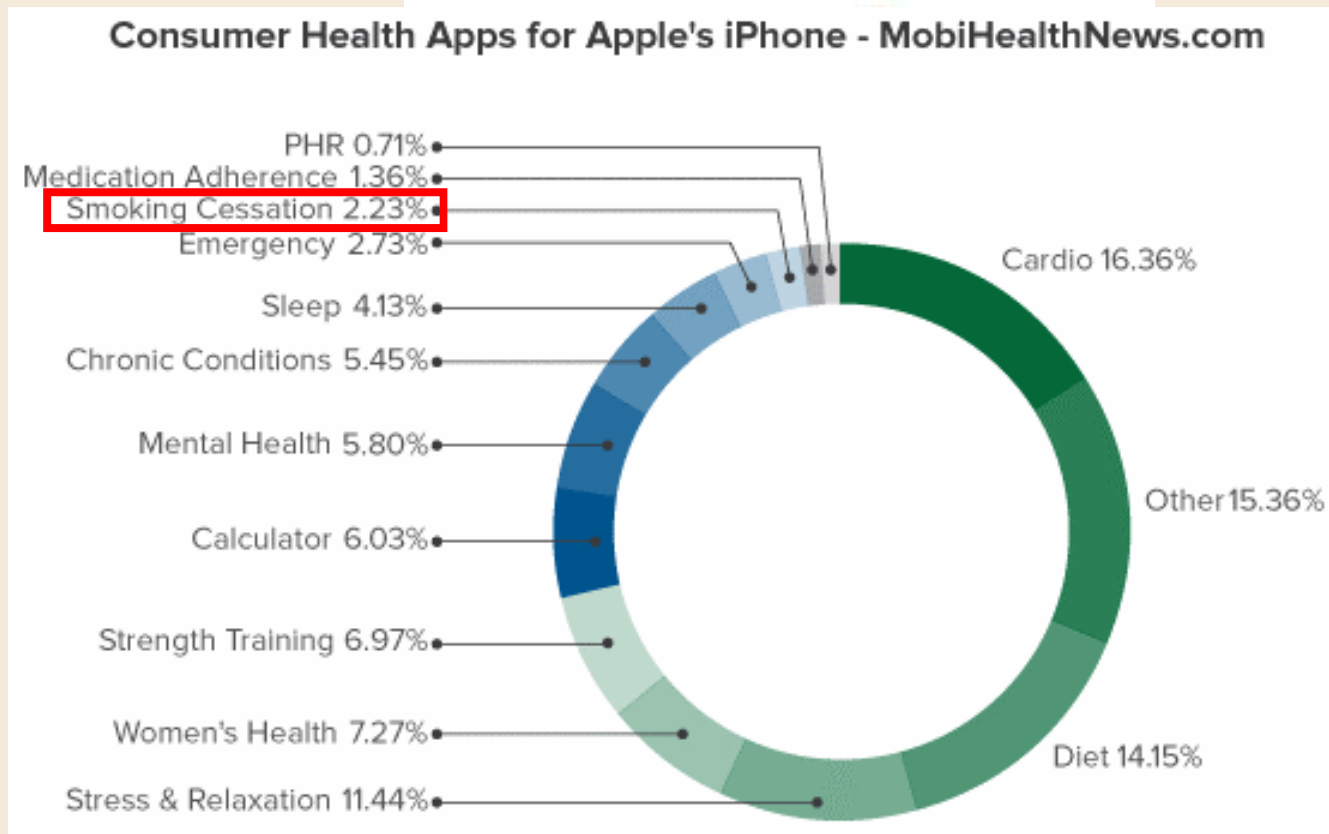
Quit (7-day abstinence)



Treatment Group	Odds ratio	95% Confidence Interval
Standard Care (SC)	1 (referent)	---
Enhanced Care (EC)	1.5	0.4, 6.0
Intensive Care (IC)	2.1	0.5, 8.4

Apps for Mobile Devices

Based on growth trends, by August 2012 there will be >13,000 iPhone health & fitness apps.



Reviewed iPhone apps for smoking cessation (n=47) rarely adhere to established guidelines for smoking cessation. It is recommended that current apps be revised and future apps be developed around evidence-based practices for smoking cessation (Abroms et al., Am J Prev Med 2011)

Apps: QuitSTART (NCI) and My Quit Coach (LIVESTRONG)



Created by the Tobacco Control Branch at the NCI

- A part of Smokefree Teens (SfT) resource.
- Collaboration with tobacco control professionals and smoking cessation experts + input from ex-smokers.
- Information: smokefreeapps@mmgct.com



Created by Demand Media Inc.

- Quitter can look at his/her history charts, how (s)he did per month, achievements.
- Full access to the LIVESTRONG.com community. The community works like an AA buddy, allowing for the quitter and others to say, out loud to the world, that you are strong enough to quit.

Apps for SHS Exposure Elimination



In progress:
Clean Air-Safe Air (CASA)

 **Spanish**

English 

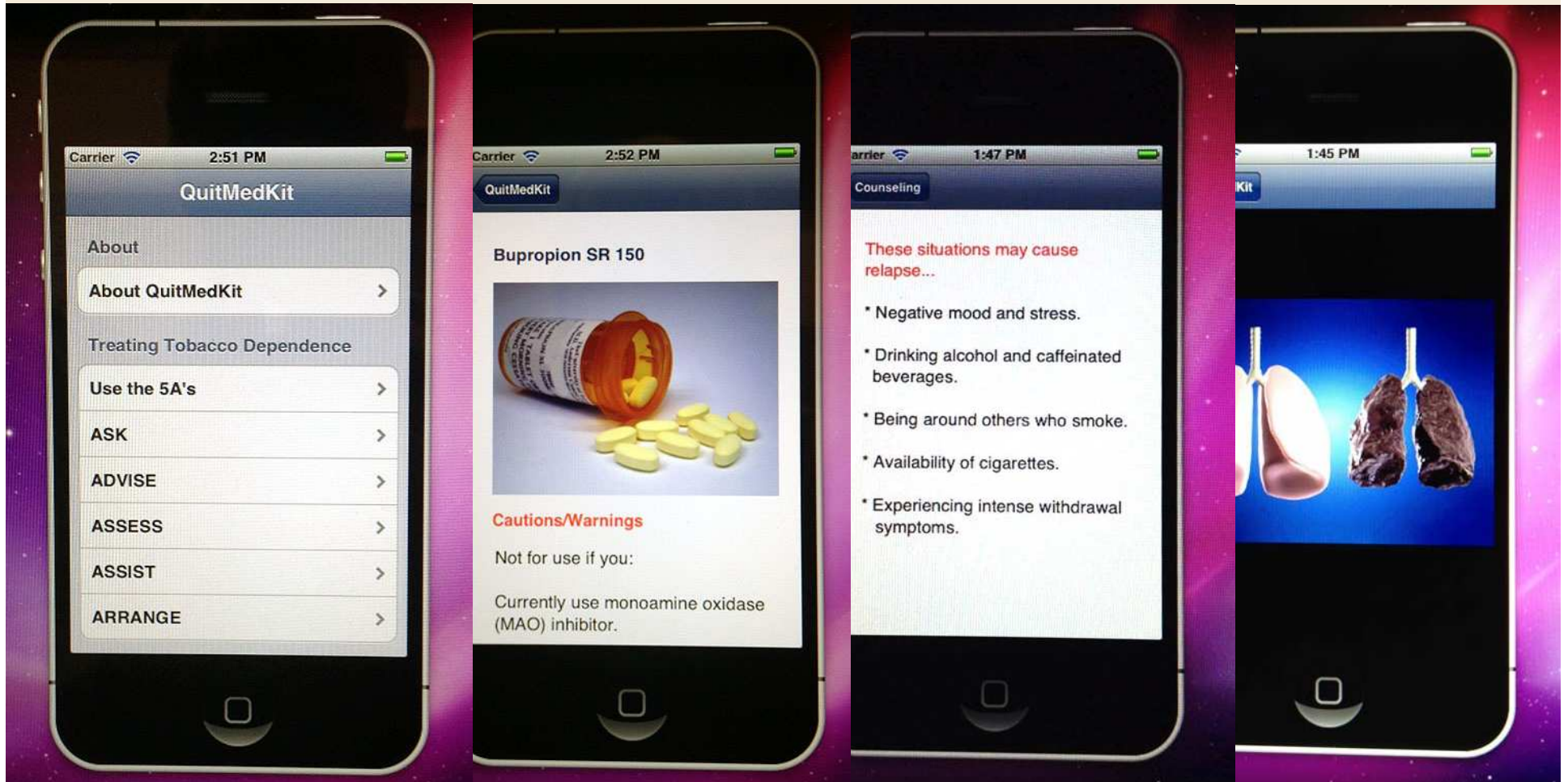


Source: Prokhorov et al., In press



App for Health Professionals

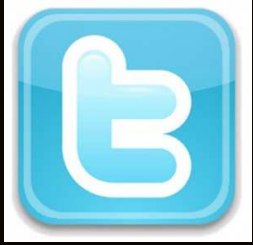
QuitMedKit



Source: Prokhorov et al., Arch Int Medicine, 2010

Interactivity on Tobacco Control Websites & Recruitment

- 68 unique websites selected from Google searches in 5 countries.
- The most common type of interactive content found on 46 (68%) of sites was for multimedia featuring content that was not primarily text-based, such as photo galleries, videos, or podcasts.
- Only 11 (16%) websites allowed people to interact and engage with the site owners and other users by allowing posting comments on content and/or hosting forums/discussions. Linkages to social networking sites were low: 17 pages (25%) linked to Twitter, 15 (22%) to Facebook, and 11 (16%) to YouTube. Interactivity and connectedness to online social media appears to still be in its infancy among tobacco control-relevant sites.
- Facebook can be a useful, cost-effective recruitment source for young adult smokers to complete a survey on substance use.



Twitter = Quitter?

- A cross-sectional analysis of 153 Twitter quit-smoking accounts dating back to 2007 and examined account activity in 2010.
- The accounts had a median of 155 followers and 82 total tweets per account. 48% linked to commercial sites for quitting smoking and 43% had tweets on e-cigarettes.
- In 2010, 81 of the accounts (53%) were still active.
- Though popular for building quit-smoking social networks, many of the Twitter accounts were no longer active, and tweet content was largely inconsistent with clinical guidelines. Future research is needed to examine the effectiveness of Twitter for supporting smoking cessation.

Source: Prochaska, Pechmann, Kim, & Leonhardt. Tob Control, 2011

Other Social Networking Tools: YouTube

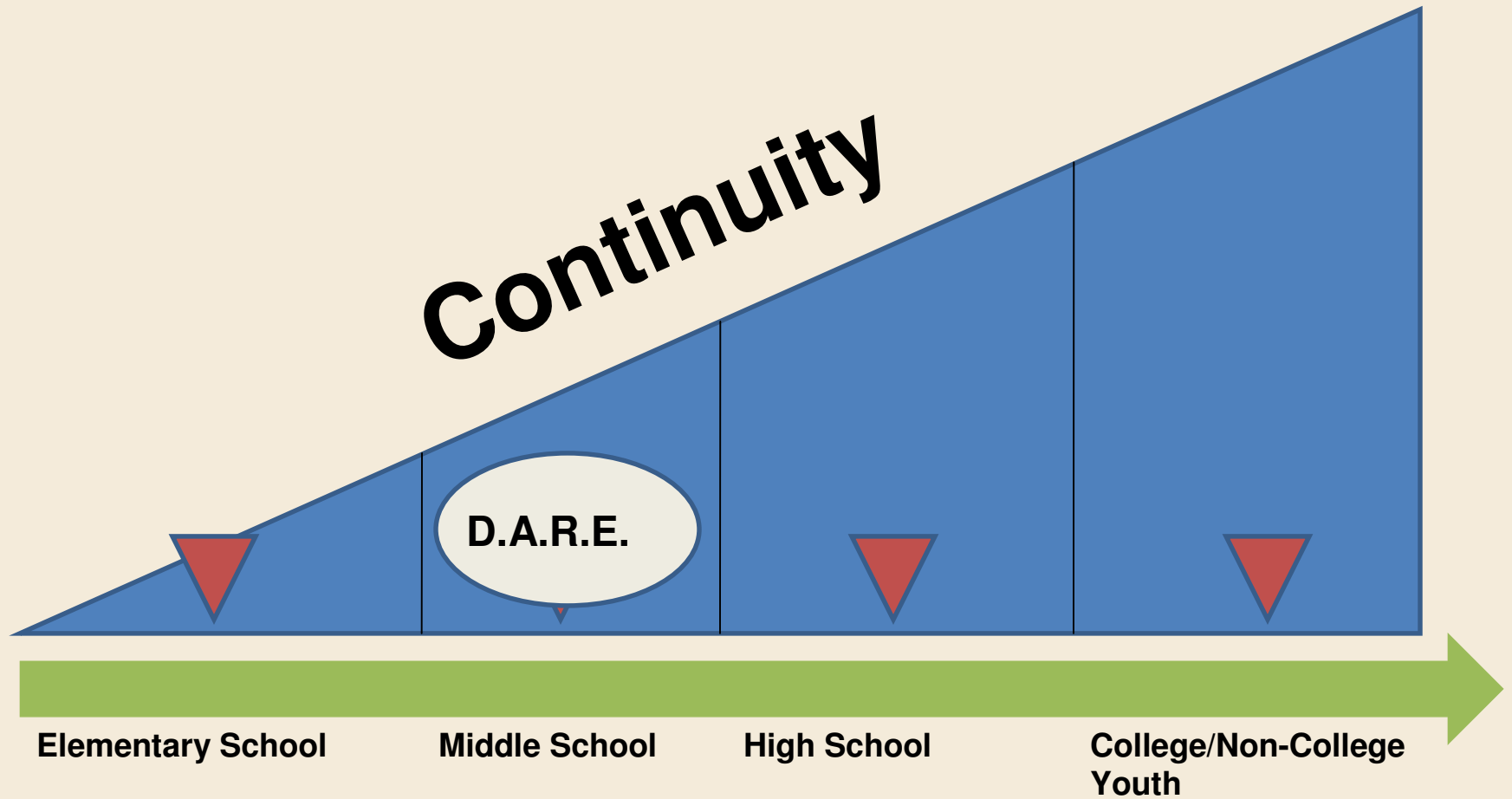
Study highlights the need to develop and upload videos containing evidence-based practices (EBP) both to increase the overall proportion of EBP-based videos in all categories, particularly in 'quit smoking' and 'stop smoking.' Research is needed to study whether YouTube videos influence knowledge, attitudes and behaviors regarding quitting smoking. (Backinger et al., 2011)

Although smoking cessation content is being shared on YouTube, very little is based on strategies that have been shown to be effective. (Richrdson et al., 2011)

Videos portraying smoking positively predominate on YouTube, and this pattern persists across time. Tobacco control advocates could use YouTube more effectively to counterbalance prosmoking messages. (Forsyth & Malone, 2010)



Rx for Success?



Rethinking “Evidence-Based”



Grant application Not funded Funded!! Development Testing Modification.....

In Conclusion...

“It has become appallingly obvious that our technology has exceeded our humanity.”

Albert Einstein

“Any sufficiently advanced technology is indistinguishable from magic.”

Arthur C. Clarke

Questions?



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