

# Developing a Web-based 21<sup>st</sup> Birthday Card

An Online Higher-Risk Drinking  
Intervention for Emerging Adults

Michael P. McNeil, MS, CHES, FACHA  
Alice! Health Promotion Program



- Describe theory and evidence used to develop online health promotion programs.
- Discuss planning, implementation, and evaluation of a higher risk drinking (21st birthday) programs.
- Identify practical strategies for developing, implementing, and evaluating online programs.

## Objectives

# 21<sup>st</sup> Birthday Initiative



Alice! Health Promotion Program  
Health Services at Columbia

- **Why?**
- **Supporting Evidence**
  - **Event- and Context- Specific Drinking**
- **Demonstration of Intervention Components**
- **Evaluation**
- **Options across resources**

## **Overview**

- Alcohol education for first-year students
- Training key student leaders  
(Fraternity/Sorority, Athletes, Event Hosts)
- Go Ask Alice!
- Collaboration with residential programs
  - RA Training
- **BASICS**
- 21st Birthday initiative
- Alcohol Ethnographic Study
- Community collaborations
  - Local bar owners
  - NYC consortium



## **AOD Continuum**



- **Alcohol-related consequences occur as a result of acute drinking episodes, often centered around specific events (parties, 21<sup>st</sup> birthday celebration) or in a specific context (football games or tailgating).**
- **Research indicates that students engage in higher-risk drinking while celebrating their 21<sup>st</sup> Birthday and that a majority of students do consume alcohol .**

## **Event- and Context- Specific Drinking**

- “The unique drinking patterns of college students call for Event-Specific Prevention (ESP) strategies that address college student drinking with peak times and events” (Neighbors, et. al., 2007)
- Drinking is often higher around events with cultural (St. Patrick’s Day, New Year’s Eve) or personal meaning (turning 21)
- Motivation for drinking may be different when centered around specific events
- *Recommendation that year round efforts be complemented with event specific prevention strategies.*

## Evidence Base

- Be Responsible About Drinking (B.R.A.D.)
- Harvard University
- University of Texas at Austin
- Penn State
- Cal Poly Pomona

*\*\*Few are delivered electronically, most are mailed – no evidence of programs with an interactive website*

## Sample Programs



- **Reduce negative consequences of high risk drinking on 21<sup>st</sup> birthday.**



- **Describe students' drinking expectations and behaviors while celebrating their 21<sup>st</sup> birthdays.**

## **Intervention and Research Purpose**

- **Needs assessment**
- **Funding**
- **Proposal (internal approval)**
- **RFP (external vendors)**
- **Requirements documents and process flow**
- **Content**
- **Establish a timeline, modify your timeline, then modify your modified timeline...**
- **Create relationships with stakeholders**

## **Planning & Implementation**

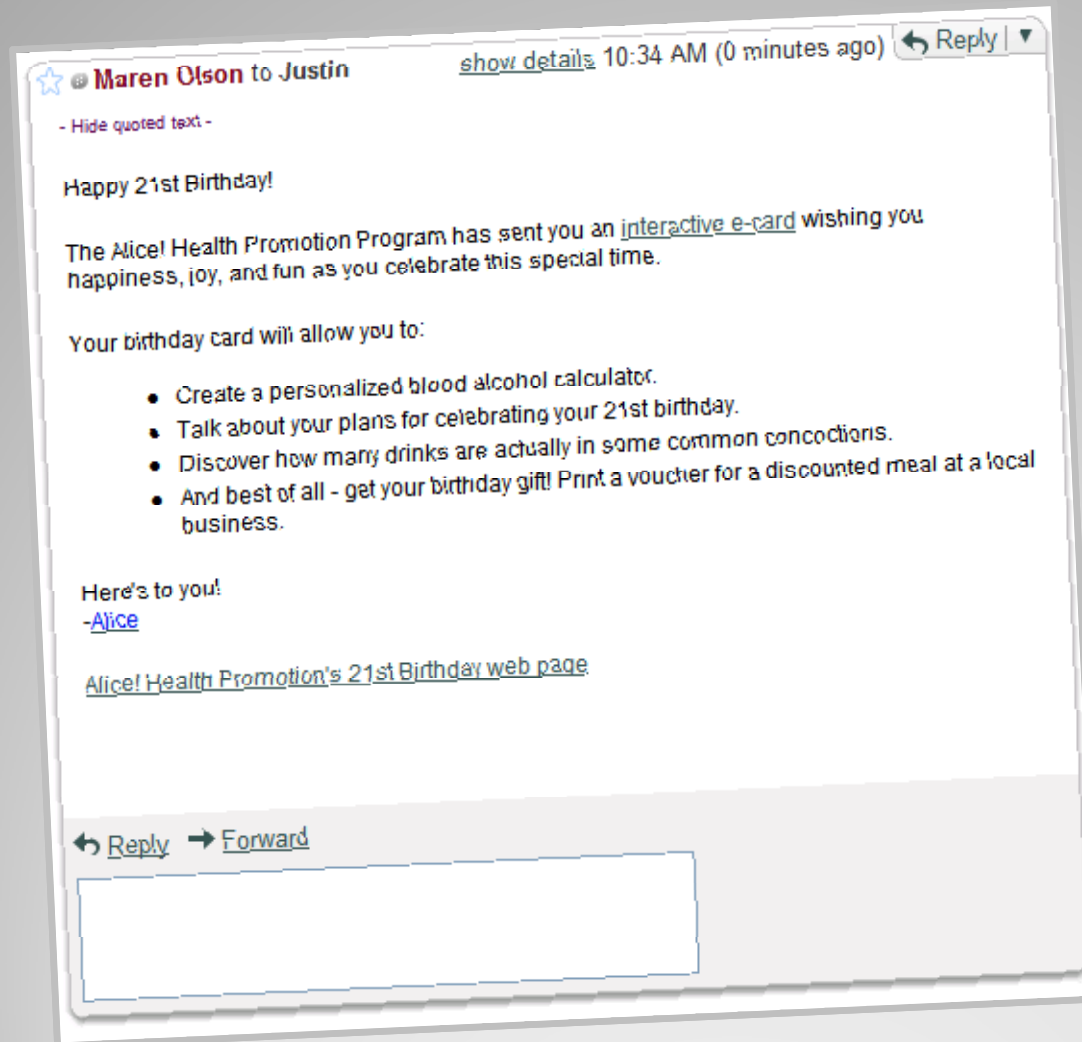
- Email invitation (SIS, CUIT)
  - Students are contacted 3 days before their 21<sup>st</sup> birthday
- Link to webpage
- Initial Survey (pre-test)
- BAC calculator, drink comparisons, and other resources
- Printable information and voucher
- Follow up survey (post-test)
  - Delivered by same mechanism two weeks after their birthday

## Intervention Components

- **Accessibility**
- **Tools to test accessibility**
  - **Wave by Webaim**
  - **JAWS – screen reading software**
- **World Wide Web Consortium**
  - **Current set of standards for accessibility online**



**Accessibility**



# Email



# Interactive Card

# Happy 21<sup>st</sup> Birthday Justin!

Cheers! Salud! L'Chaim! Feliz Aniversario! Celebrare!  
Alegria! давайте оставаться здоровыми  
Janam Din Mubarak! à votre santé 喜び



**LIQUOR** WINE BEER

ONE DRINK =  
1 shot glass (1.5 oz)  
1 rum & coke = 2 drinks  
1 vodka cranberry = 2 drinks  
One 12oz margarita = 2-4 drinks  
One Long Island Tea = 3-5 drinks

### SURVEY

This survey will ask you 7 short questions about your plans for celebrating your 21st birthday. Data based on participant responses will be used by Health Services to develop prevention and intervention programs related to alcohol. All of your answers will remain confidential. By selecting "yes" below, you agree to participate in the survey. More details about your participation are available using this link (link to PDF pending IRB approval).

NO YES

### BLOOD ALCOHOL CALCULATOR

Weight:

Gender:  Male  Female

No Blood alcohol Calculator is 100% accurate as Blood alcohol Concentration depends on a number of factors. This tool is meant as a guideline.

SUBMIT

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### SURVEY

1. How many of each of the following drinks do you plan to have when celebrating your 21st birthday?

Beer (12 oz can/bottle)

Wine (5 oz glass)

Liquor (1.5 oz shot)

Mixed Drink (Rum & Coke, Vodka & Cranberry)



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LIQUOR WINE **BEER**

ONE DRINK =  
**12 oz of beer**  
16 oz = 1.3 drinks  
22 oz = 2 drinks  
40 oz = 3.3 drinks

### SURVEY

2. While celebrating my 21 st birthday, I plan to: (choose all that apply)

- I do not plan to drink while celebrating my 21st birthday
- Drink more than I do during a typical night out
- Get Drunk
- Play Drinking Games
- Take Shots
- Participate in a Drinking Contest
- Have a friend watch out for me (make sure I'm okay)
- Have a friend cut me off (stop me from drinking)
- Have a predetermined number of drinks
- Drink at a bar near campus [within 10 blocks]
- Drink at a bar far from campus [farther than 10 blocks away]
- Drink at a restaurant
- Drink at a university owned residence [residence hall, apartment building]
- Drink at a fraternity or sorority house

BACK CONTINUE

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## SURVEY

3. I believe that drinking alcohol while celebrating my 21st birthday will/would: (choose all that apply)

- Help me have a good time
- Make it easier to deal with stress
- Let me fit in with my friends
- Help me enjoy the celebration
- Break the ice
- Make me feel sexier
- Help me hook up (facilitate sexual opportunities)
- None of the above

BACK CONTINUE

LIQUOR WINE BEER



ONE DRINK =  
**1 glass of wine (5 oz)**  
**One full typical glass = 2-3 drinks**  
**Big glass = up to 4 drinks**  
**One bottle = 5 drinks**

## BLOOD ALCOHOL CALCULATOR

Weight:

Gender:  Male  Female

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**LIQUOR** WINE BEER

ONE DRINK =  
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One Long Island Tea = 3-5 drinks



### SURVEY

4. Please indicate which of the following you have experienced due to your drinking in the last 30 days. [choose all that apply]

- Had a hangover
- Performed poorly on a test or important project
- Been in trouble with police, residence hall, or college authorities
- Damaged property
- Got into an argument or fight
- Missed a class
- Was criticized by someone I know
- Thought I might have a drinking or other drug problem
- Experienced memory loss
- Did something I later regretted
- Was hurt or injured
- Required medical attention for an alcohol overdose
- None of the above apply

BACK CONTINUE

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Gender:  Male  Female

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### SURVEY

4. (cont'd) Please indicate which of the following you have experienced due to your drinking in the last 30 days. [choose all that apply]

- Engaged in unplanned sexual activity
- Did not use protection during sex
- Was taken advantage of sexually
- Took advantage of another sexually
- None of the above apply

BACK CONTINUE

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Gender:  Male  Female

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**LIQUOR** **WINE** BEER

ONE DRINK =  
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**One bottle = 5 drinks**

### SURVEY

1 2 3 4 5 6 7 8 9 10

5. In the past two weeks, how many days have you had 5 or more alcohol drinks (beer, wine, liquor, etc.) in a row?

Please enter a number between 0 and 14

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Gender:  Male  Female

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### SURVEY

6. Within the last 30 days, on how many days did you drink alcohol?

Please enter a number between 0 and 30

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### SURVEY

7. Please estimate your overall grade point average.

GPA:

**This field is required.**

BACK SUBMIT

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## SURVEY

1 2 3 4 5 6 7

Thank you for completing this survey. For more info: Check out the Blood alcohol Calculator, drink information, links, and make sure to click on your gift.



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http://webservices.lampdev.columbia.edu/alice/  
http://webservices.lampdev.columbia.edu/alice/#

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- 1 vodka cranberry = 2 drinks
- One 12oz margarita = 2-4 drinks
- One Long Island Tea = 3-5 drinks



## BLOOD ALCOHOL CALCULATOR

1 drink = 12 ounces beer, 1.5 oz liquor or 5 oz wine.

Drinks	1HRS	2HRS	3HRS	4HRS	5HRS	6HRS	7HRS	8HRS
1	.01	0	0	0	0	0	0	0
2	.04	.02	.01	0	0	0	0	0
3	.06	.05	.04	.02	.01	0	0	0
4	.09	.07	.06	.05	.04	.03	.01	0
5	.11	.1	.09	.07	.06	.05	.04	.03
6	.13	.12	.11	.1	.09	.07	.06	.05
7	.16	.15	.13	.12	.11	.1	.09	.07
10	.23	.22	.21	.2	.18	.17	.16	.15
12	.28	.27	.26	.24	.23	.22	.21	.2
15	.35	.34	.33	.32	.3	.29	.28	.27
18	.43	.41	.4	.39	.38	.37	.35	.34
21	.5	.49	.47	.46	.45	.44	.43	.41

  Mild to moderate intoxication and impairment  
  Intoxicated and probable impairment, possible negative effects  
  Probable severe health risk

No Blood alcohol Calculator is 100% accurate as Blood alcohol Concentration depends on a number of factors. This tool is meant as a guideline.

# Happy 21<sup>st</sup> Birthday Justin!

May the frosting on your cake runneth over!

*(License Servers)*



### Lower Risk Drinking is:

- Determining the number of drinks you plan to consume before drinking
- Eating before and while you are drinking
- Pacing your drinking to no more than one drink per hour
- Consuming no more than 4 drinks for women, 5 for men in one sitting
- Alternating alcohol-free drinks and alcohol drinks
- Avoiding drinking games
- Planning how to get home before going out
- Asking friends for help sticking to your drinking "rules"
- Knowing what is in your drink
- Never leaving a drink unattended
- Avoid mixing alcohol and drugs

### Symptoms of Alcohol Poisoning

Alcohol depresses the nervous system. This includes the ability to breathe and the gag reflex which prevents choking. High levels of alcohol can stop these functions. Even after someone stops drinking, alcohol is in the system and can be fatal. If you see someone experiencing the following symptoms, call for help immediately:

- Mental confusion
- Semi-consciousness or unconscious and cannot be awakened
- Cold, clammy, pale, or bluish skin
- Slowed breathing (fewer than 8 breaths per minute)
- Irregular breathing (10 seconds or more between breaths)
- Vomiting while "sleeping" or passed out, and not waking up after vomiting

- If a person has any of these symptoms, s/he is most likely experiencing acute alcohol intoxication.
1. Get help. Call 854-5555 or 999; off-campus call 911
  2. Do not leave the person alone.
  3. Turn the person on his/her side to prevent choking in case of vomiting.
  4. Always better to be safe than sorry: How can someone be angry at you about caring for him/her?

### BAC (%) Possible Effects

0.2	Mild relaxation, loss of shyness, slight euphoria, mood is exaggerated.
0.5	Feelings of warmth and relaxation, emotions are intensified, lowered caution and inhibitions
0.8	Impairment of speech, balance, vision, hearing, reaction time. .08 is legally impaired (illegal to drive at this level). Perception of ability is often higher than actual ability.
0.10	Motor skills are markedly impaired, emotions are highly exaggerated and aggression is more likely, diminished erection in men.
0.20	Feelings of confusion and disorientation, may need help standing or walking.
0.30	Stupor, disorientation, little comprehension of surroundings, serious and life threatening health concerns at and above this level.

\*Individuals may experience additional or different effects at each level.

**YOUR GIFT!**  
**1 ENTREE & 1 DESSERT**

Redeem this voucher within one month of your birthday. Voucher is valid for single use, and may not be used to purchase alcohol.

**SIP**

bar • lounge • coffeeshop

PRINT THIS PAGE

### BAC Estimate 1 drink = 12 oz beer, 1.5 oz liquor or 5 oz wine

Hours	1	2	3	4	5	6	7	8	9	10	11	12
1	0.12	0.12	0.03	0.02	0.01	0.01	0.12	0.12				
2	0.12	0.12	0.03	0.03	0.03	0.03	0.12	0.12				
3	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.12	0.12			
4	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
5	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
6	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
7	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
8	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
9	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
10	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
11	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
12	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
13	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
14	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
15	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
16	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		
17	0.12	0.12	0.03	0.03	0.03	0.03	0.03	0.03	0.12	0.12		

■ Mild to moderate intoxication and impairment  
■ Intoxicated and probable impairment  
■ Probable severe health risk

Based on Average Concentration depends on a number of factors, these results are meant as a guideline.

# Printout and Coupon

Go Ask Alice! 21st Birthday Follow-Up Survey - Microsoft Internet Explorer provided by Health Services at Columbia

http://webservices.lampdev.columbia.edu/alice/end-survey.php

File Edit View Favorites Tools Help

Go Ask Alice! 21st Birthday Follow-Up Survey

## 21st Birthday Follow-up Survey

1. How many of each of the following drinks did you have when celebrating your 21st birthday? (indicate 0 if you had no alcohol)

Beer (12 oz can/bottle)

Wine (5 oz glass)

Liquor (1.5 oz shot)

Mixed Drink (Rum & Coke, Vodka & Cranberry)

2. While celebrating my 21st birthday, I: (choose all that apply)

I did not drink while celebrating my 21st birthday

Drank more than I do during a typical night out

Got drunk

Played drinking games

Took Shots

Participated in a drinking contest

Had a friend watch out for me (made sure I was okay)

Had a friend cut me off (stopped me from drinking)

Had a predetermined number of drinks

Drank at a bar near campus (within 10 blocks)

Drank at a bar far from campus (farther than 10 blocks away)

Drank at a restaurant

Drank at a university owned residence (residence hall, apartment building)


Drank at a fraternity or sorority house

None of the above.

3. Drinking alcohol while celebrating my 21st birthday: (choose all that apply)

I did not drink while celebrating my 21st birthday

Helped me have a good time



Internet 100%

# Follow-up Survey

- **Process feedback**
- **Number of cards sent**
- **Number of students who visit card**
- **Clicks on all elements of online card**
- **IRB approval**
- **Pre- and post-survey responses**
- **User feedback (ongoing relationship)**
  - **Periodic focus groups**

## **Evaluation**

**August 23, 2008 to April 23, 2008**

- **961 emails sent**
- **276 “opened” birthday card**
- **147 took pre-birthday survey**
- **145 took post-birthday survey**
- **58 students took both surveys**

**Mean number of drinks during celebrations**

- **4.7 for males (CI 3.3 to 6.1, N=67)**
- **3.1 for females (CI 2.4 to 3.8, N=72)**

**Respondents**

## Percent of respondents reporting drinking behavior during 21st birthday celebrations, by gender

Female Male



# Number of Drinks

**Significant correlation between number of reported drinks consumed on 21<sup>st</sup> birthday and number of reported negative consequences**  
( $r = .558, p = .000$ )

**Top 3 negative consequences reported**

- **Had a hangover (22%)**
- **Vomited (11%)**
- **Experienced memory loss (10%)**
- **Felt nauseated (10%)**

**Males reported more negative consequences**

(Mean of 1.43 for males vs. 0.56 for females,  $N=143, p=0.034$ )

**Reported Consequences**

- **Relationship with outside developer**
  - **Accessibility**
- **Central concepts & understanding**
  - **E.g., several definitions for “higher-risk” drinking**
- **Data collection and reporting**
  - **Data reporting tool**
- **Low response rate to survey**
  - **Improve incentive structure**

## **Challenges**

**Michael P. McNeil, MS, CHES, FACHA**

**mm3117@columbia.edu**

**Interim Director**

**Alice! Health Promotion Program**

**Health Services at Columbia**

**www.alice.columbia.edu**

**Thank you!**