Twitter-enabled Mobile Messaging for Smoking Relapse Prevention (Tweet2Quit)

NCT02823028

Study Protocol and Statistical Analysis Plan

University of California Irvine IRB approval of this final modification: 6/28/2019

UCI Office of Research	**Institutional Review Board** **Human Research Protections** **Protocol Narrative – Expedited/Full Committee** **Social/Behavioral/Educational Research** *Version June 2019*
Upload this completed narrative and any supplemental documentation to the IRB Application.	**IRB USE ONLY –** **HS#:**
Lead Researcher Name: Connie Pechmann, PhD	
Study Title: Twitter-enabled Mobile Messaging for Smoking Relapse Prevention, Phase 2	

ABSTRACT

Provide a non-technical summary of the proposed research that can be understood by IRB members with varied research backgrounds, including non-scientists and community members. The summary should include a brief statement of the **purpose of the research** and a brief description of the **procedure(s)**. *This summary should not exceed more than 250 words.*

Many smoking cessation treatments exist but engagement remains low and relapse rates remain high, suggesting the need for more innovative, accessible and interactive treatment strategies. In 2011-2014, we developed, piloted and evaluated a novel, interactive, live treatment for providing peer-based social support to smokers who are trying to quit, via Twitter on mobile phones. We refer to this as Phase I (HS# 2010-7990) of our research, because we developed a treatment protocol for this novel treatment and conducted a randomized controlled trial comparing this treatment to a base website intervention. HS# 2010-7990 was concluded in 2014. In the current Phase II we propose to continue testing Tweet2Quit by comparing randomized control and treatment groups with both coed and women-only treatment groups and biochemical verification of abstinence.

SECTION 1: BACKGROUND AND SIGNIFICANCE OF THE RESEARCH

1. Provide the scientific or scholarly **rationale** for the research. Describe the relevant background information and the specific gaps in current knowledge that this study intends to address.

Traditional quit smoking and drug use programs remain underutilized due to cost and inconvenience and relapse is common. To increase utilization in such programs, researchers and practitioners are urgently seeking to harness the power of social media. Wildly popular social media sites such as Facebook and Twitter allow users to stay connected to individuals and groups in real time and to share content at virtually no cost[1]. Social media is entrenched in US households with 73% of online adults using social media sites, 42% using multiple sites, and the majority visiting them daily[2]. Twitter is the dominant open social media site with a reported 200 million active users posting 400 million tweets daily and with 44% growth from 2012-2013[3]. There are already over 140 reported medical and health care uses of Twitter[4]. Relative to Facebook, Twitter has superior programming language (APL), and has continued to rise in use substantially (whereas Facebook use has not); and it is easier to keep group member communications private (i.e., within the group only).

Because of its broad reach and appeal, real-time interactivity and free cost, social media looks highly promising for delivering tobacco and other addiction treatment interventions. Also, because social media often elicits spontaneous, honest disclosures that are automatically catalogued, it can yield insight into oft-concealed

phenomena such as co-use of addictive drugs and how this might trigger relapse, suggesting possible new interventions. Despite social media's apparent promise, and observational evidence indicating that existing socially mediated forums may increase patient compliance[5], social media's potential for delivering interventions and developing new treatment approaches has not yet been fully realized.

Our intervention will address issues of engagement by testing and improving a socially-mediated intervention that already has been shown to produce good engagement. We believe that engagement happens due to the development of a sense of online community through interpersonal interactions online[7,8]. In response to calls for the application of systems science to public health[9], we intend to study online engagement by applying network analysis[10].

2. Describe the **purpose, specific aims** or **objectives**. Specify the hypotheses or research questions to be studied.

Aim 1

Our first primary aim is to test the 6-month efficacy of Tweet2Quit with biochemical verification of abstinence. We hypothesize that relative to usual care (n=240), Tweet2Quit-coed groups (n=480) will achieve significantly greater bioconfirmed sustained abstinence out to 6-months follow-up.

Aim 2

Our second primary aim is to test whether women do better in Tweet2Quit women-only versus coed groups. We hypothesize that women in Tweet2Quit will achieve significantly greater bioconfirmed 6-month abstinence in woman-only groups (n=240) vs. coed groups (n=240 women in those groups).

Secondary Aims will test the same hypotheses, however, based on 3-month (end of treatment) sustained and bioconfirmed abstinence rates and we will also test 7-day point prevalence abstinence at 1, 3, and 6 months.

Exploratory Aims will study the Tweet2Quit groups' social network structures with a focus on the identification of buddy pairs and social brokers, both via baseline theoretically-based measures and observed tweeting behaviors. In particular, we will test the following conceptual models positing how dyadic tie strength and betweenness centrality may serve as mechanisms of effects and promote smoking abstinence.

- *Better matched buddy pairs based on demographics → dyadic tie strength → dyad abstinence.*
- *Better social brokers based on self-monitoring → betweenness centrality → group tweets → group abstinence.*
- *These links will be stronger for women in women-only groups vs. women in coed groups of Tweet2Quit.*

3. List up to **ten relevant references/articles** to support the rationale for the research.

1. Joinson A, N. "Looking at", "looking up" or "keeping up with" people? Motives and use of facebook. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems; April 5-10, 2008, 2008; Florence, Italy.
2. Duggan M, Smith A. *42% of online adults use multiple social networking sites, but Facebook remains the platform of choice.* December 30, 2013 2013.
3. Brenner J, Smith A. 72% of online adults are social networking site users. 2013; http://www.pewinternet.org/2013/08/05/72-of-online-adults-are-social-networking-site-users/.
4. Baumann P. 140 Health care uses for twitter. 2009; https://vpn.nacs.uci.edu/+CSCO+0h756767633A2F2F637576796F6E687A6E61612E70627A++/140-health-care-uses-for-twitter/. Accessed January 16, 2009.
5. Cobb NK, Mays D, Graham AL. Sentiment analysis to determine the impact of online messages on Smokers' choices to use varenicline. *Journal of the National Cancer Institute Monographs.* December 1, 2013 2013;2013(47):224-230.

6. Eysenbach G, Powell J, Englesakis M, Rizo C, Stern A. Health related virtual communities and electronic support groups: Systematic review of the effects of online peer to peer interactions. *British Medical Journal.* May 15, 2004 2004;328(7449):1166-1172.
7. Gruzd A, Haythornthwaite C. Enabling community through social media. *Journal of Medical Internet Research.* 2013;15(10):e248.
8. Gruzd A, Wellman B, Takhteyev Y. Imagining Twitter as an imagined community. *American Behavioral Scientist.* 2011;55(10):1294-1318.
9. Luke DA, Stamatakis KA. Systems science methods in public health: dynamics, networks, and agents. *Annual review of public health.* Apr 2012;33:357-376.
10. Luke DA, Harris JK, Shelton S, Allen P, Carothers BJ, Mueller NB. Systems analysis of collaboration in 5 national tobacco control networks. *American journal of public health.* Jul 2010;100(7):1290-1297.

SECTION 2: ROLES AND EXPERTISE OF THE STUDY TEAM

1. **Complete the table below. (LR: Lead Researcher, FS: Faculty Sponsor, CR: Co-Researcher RP: Research Personnel)** *Include additional rows for study team members as needed.*
2. **Indicate whether the study team member will be involved in the following research activities.**
3. **If there is a Faculty Sponsor, s/he must be listed below (even if s/he is not engaged in human-subjects research*), as s/he must be identified to provide oversight and guidance to the Lead Researcher.**
4. **For minimal risk research (Expedited), Do NOT add UCI undergraduates as research personnel except when the research will be conducted outside California. Instead, the Lead Researcher must maintain a separate log listing all UCI undergraduate students who are engaged in the research.**
5. **List all non-UCI undergraduates (i.e. external collaborators) below.**
6. **For greater than minimal risk research (Full Committee), list all UCI and non-UCI undergraduates below.**

Personnel who are not interacting with participants for research purposes and/or who do not have access to identifiable private information or identifiable biospecimens (e.g., statisticians) are not engaged in human-subjects research and therefore should **not be listed below.*

Role	Name, Title & Degrees	Department & UCI Affiliation - Faculty, Staff, Graduate or Undergraduate Student	Recruit	Informed Consent Process	Interact with Participant	Access Participant Identifiable Information / Biospecimen	Analyze Participant Identifiable Information / Biospecimen
LR	Connie Pechmann, PhD, Professor	Marketing, Faculty	☐ **N/A** ☒ Yes ☐ No	☐ **N/A** ☒ Yes ☐ No	☐ **N/A** ☒ Yes ☐ No	☐ **N/A** ☒ Yes ☐ No	☐ **N/A** ☒ Yes ☐ No
FS	Jennifer Tang	Business and Financial Services, Faculty	☐ **N/A** ☐ Yes ☒ No	☐ **N/A** ☐ Yes ☒ No	☐ **N/A** ☐ Yes ☒ No	☐ **N/A** ☐ Yes ☒ No	☐ **N/A** ☐ Yes ☒ No

☒ CR ☐ RP	Cynthia Lakon, PhD, Associate Proffessor	Public Heath, Falculty	☐ N/A ☐ Yes ☒ No	☐ N/A ☐ Yes ☒ No	☐ N/A ☐ Yes ☒ No	☐ N/A ☒ Yes ☐ No	☐ N/A ☒ Yes ☐ No
☒ CR ☐ RP	Jodi Prochaska, PhD, Associate Proffessor	Medicine (Stanford)	☐ N/A ☐ Yes ☒ No	☐ N/A ☐ Yes ☒ No	☐ N/A ☒ Yes ☐ No	☐ N/A ☒ Yes ☐ No	☐ N/A ☐ Yes ☒ No
☐ CR ☒ RP	Douglas Calder, BA, Project Coordinator	Business, Staff	☐ N/A ☒ Yes ☐ No	☐ N/A ☒ Yes ☐ No	☐ N/A ☒ Yes ☐ No	☐ N/A ☒ Yes ☐ No	☐ N/A ☒ Yes ☐ No
☐ CR ☒ RP	Connor Phillips, BS, Assistant Project Coordinator	Business, Staff	☐ N/A ☒ Yes ☐ No	☐ N/A ☒ Yes ☐ No	☐ N/A ☒ Yes ☐ No	☐ N/A ☒ Yes ☐ No	☐ N/A ☒ Yes ☐ No

A. Training of Personnel

1. Describe the training plan that will be provided to your study team members. Who will provide the training, what will be included in the training, how will their level of knowledge be assessed to ensure they are ready to perform their assigned duties, and who will provide ongoing oversight.
2. Please identify who will interact with non-English speaking participants, if applicable.

All members will have completed the following CITI Training to work on the research study:
1. Research and HIPAA Privacy Protections
2. Basic Human Research Training – Social/Behavioral Investigators
3. GCP – Social and Behavioral Research Best Practices for Clinical Research

SECTION 3: SUBJECT POPULATION(S) (INDIVIDUALS/RECORDS/BIOSPECIMENS)

A. Individuals To Be Enrolled on this UCI protocol (Persons/Records/Biospecimens)

1. Complete the table of participant enrollments below. *Include additional rows for subject category/group, as needed.*
2. If the study involves the use of existing records or biospecimens, specify the maximum number to be reviewed/collected, and the number needed to address the research question.

Category/Group (e.g., adults, parents, children)	**Age Range** (e.g., 7-12, 13–17, 18 or older)	**Maximum Number to be Consented or Reviewed/Collected** (include withdrawals and screen failures)	**Number Expected to Complete the Study *or Needed to Address the Research Question***
Adults	21-59	3000	980
		Total: 3000	

B. Eligibility Criteria

1. Identify the criteria for inclusion and exclusion.

For both the Initial and Main Phases, we will recruit adult smokers, 21 to 59 years old, who intend to quit in the next 30 days. We will offer 8 weeks of free nicotine patches and 8 weeks of free nicotine gum/lozenges to all participants, which are relevant and meaningful incentives and *recommended for cessation.* We will recruit by putting ads on Google (donated), in order to reach those who might not use quit-smoking call-in lines or websites. We will inform people of our trial using our free Google ads that will appear when people search for relevant keywords or go to content pages that contain those keywords. An ad will be placed on SmokeFree.gov to further support advertising the study. We will also be recruiting with similar ads on Facebook. Additionally on Facebook, we will be advertising to an English and Spanish-speaking bilingual population using language targeting through Facebook's advertising interface. We cannot currently provide our intervention in Spanish but we hope to attract bilingual Spanish-English participants.

We will be creating groups that contain only females. Males will be excluded from these groups, but not the study. Males will be randomly allocated to one of the coed or control condition.

2. If eligibility is based on age, gender, pregnancy/childbearing potential, social/ethnic group, or language spoken (e.g., English Speakers only), provide a **scientific rationale**.

[ ] Not applicable: Subject eligibility is not based on these factors.

We are excluding participants below the age of 21 because California has increased the smoking age to 21 and other states are beginning to do so. Therefore, in the future, it might not even be possible to provide the nicotine replacement therapy that is essential to our study to minors under the age of 21. Non-English speakers will be excluded because the intervention requires communication between participants and English is the national language that participants can communicate in. In other words, all participants must be able to speak English so that they can communicate with other group members. Without communication the participants won't be able to receive the intervention. Even though there is no participant communication in the control groups, as groups are randomly assigned, all must be able to speak English. It is possible to make groups for other languages, but with the resources available to us, this is not feasible at the time. We attempted to test the study in other languages and countries, but have not found funding yet. This study is to test the intervention in the USA that can be replicated in other languages and countries should the study prove successful.

3. If American Indian or Alaska Native Tribes will be included in the research:
   a. Specify the name of the Tribe and
   b. Specify whether there is Tribal Law that may be applicable to this research and that provides additional protections for subjects (i.e., additional information to be disclosed in the consent process).

[X] Not applicable: American Indian or Alaska Native Tribes are not included in the research.

<Type here>

C. PRE-SCREENING AND DETERMINING ELIGIBILITY WITHOUT INFORMED CONSENT

1. **IMPORTANT NOTES:**
   a. This section is **Not applicable** to research that is funded/supported by the Department of Justice (**DOJ**)
   b. This section addresses pre-screening activities that are performed **without the written informed consent of the prospective subject or legally authorized representative (LAR).** This may be allowed without requesting a waiver of informed consent **IF the following guidelines are utilized**:

[X] Not applicable: Information and/or biospecimens will not be obtained for the purpose of screening, recruiting, or determining eligibility of prospective subjects. *Skip to Section 4.*

[ ] Study team will obtain information through **oral or written communication** with the prospective subject or LAR (i.e. self-report of medical information; medical records will not be screened).

*Submit recruitment script/s for IRB approval. Be sure to address minimum recruitment requirements and address **the following guidelines**:*

i. *Privacy: The script must address the case where someone other than the potential subject receives the communication. Please be mindful of privacy considerations (i.e., do not disclose any private information – such as a patient diagnosis). Limit phone contact / messages to no more than 5 attempts.*
ii. *Expertise: Study team member/s contacting potential subject must be knowledgeable and able to answer questions related to the screening and the main study.*
iii. *Specific Information: Include a description of the information and/or biospecimens that will be obtained for the purpose of screening, recruiting, or determining eligibility and the reasons for performing the screening tests.*
iv. *Confidentiality: Include a statement that informs the potential subject that if they are not eligible to participate in the study that the identifiable information and / or biospecimens will not be used for research purposes and will be destroyed at the earliest opportunity consistent with conduct of the research.*

[ ] Study team will **screen medical records** to determine subject eligibility.

Complete Appendix T to request a partial waiver of HIPAA Authorization.

[ ] Study team will **screen medical records** to determine subject eligibility **under IRB approved screening protocol.** Specify HS#: <Type here>

[ ] Study team will **screen non-medical records** (i.e., student records) to which they have access to determine subject eligibility. Specify: <Type here>

[ ] For research accessing student records, check here to confirm that evidence of FERPA[1] compliance has been / will be obtained (and on file) from the local school/district site prior to the initiation of research.

[ ] Study team will **access stored identifiable biospecimens**.

2. For studies that will **screen medical records**, explain how the study team will access the clinical data. *Access to UCI Medical Center medical records for research purposes outside the capacity of the Honest Broker Services, such as access to physician notes, must be obtained from the Health Information Management Services.*

[1] *34 CRF 99: Family Educational Rights and Privacy Act (FERPA) applies to this research.*

[ ] Not applicable: This study does not involve the screening of medical records.

How Obtained: Indicate <u>all</u> that apply:

[ ] The study team will request specific patient information/data from UCIMC Health Information Management Services.

[ ] The study team will review their UCI patients' records and abstract data directly from those records.

[ ] The study team will request specific patient information/data from UCI Health Honest Broker Services. Describe the following:

Cohort selection criteria (e.g., use the available Clinical Terms from the Cohort Discovery Tool such as Demographics: Gender, Diagnoses: Asthma, Procedures: Operations on digestive system): <Type here>

Expected cohort size/patient count: <Type here>

Cohort attributes or data elements (e.g., lab test values, medication, etc.): <Type here>

[ ] The study team will review non-UCI Health records and abstract data directly from those records. Describe the following:

Specify the non-UCI Health records that will be screened: <Type here>

Explain how the study team has access to this clinical data: <Type here>

[ ] Other; explain: <Type here>

3. For studies that will **screen existing biospecimens**:
   a. Indicate the source of the biospecimens and explain how the existing biospecimens will be obtained.
   b. Indicate whether the biospecimens were originally collected for research purposes.

[ ] Not applicable: This study does not screen existing biospecimens.

How Obtained: Indicate <u>all</u> that apply:
[ ] UCI Health Pathology Biorepository

[ ] Other UCI-Health Entity; specify: <Type here>

[ ] Non-UCI Entity; specify: <Type here>

[ ] Other; explain: <Type here>

Originally collected for research purposes:
[ ] NO – Please explain: <Type here>

[ ] YES – UCI IRB approval granted under IRB protocol number (i.e. HS#): <Type here>

[ ] YES – Non-UCI IRB approval granted. Confirm **<u>one</u>** of the following:

[ ] A copy of the IRB Approval Notice and Consent Form for the original research collection will be submitted with the IRB application (APP). The IRB Approved Consent Form does not preclude the proposed activity.

[ ] A copy of the commercial Vendor Policy or a Letter from the Vendor attesting that the information was collected and will be shared in an appropriate and ethical manner will be submitted with the APP. The vendor's policy does not preclude the proposed activity.

<u>SECTION 4</u>: RECRUITMENT METHODS

1. Indicate which recruitment methods will be utilized. Check all that apply:
2. Submit the required supplemental materials.

Advertisements must adhere to UCI Recruitment Guidelines. Various templates are available on the HRP webpage Application and Forms (see sub-section HRP and then Recruitment Templates).

[ ] This study involves no direct contact with participants (i.e., passive observation of public behavior or secondary use of information/biospecimens). ***Skip to SECTION 5.***

Method	Required Supplemental Materials
[ ] Flyers	Submit flyer(s)
[ ] Newspaper Advertisement	Submit ad(s)
[ ] Radio / Television Advertisement	Submit scripts(s)
[X] Online Advertisements – Including Social Medial	Submit text, page mock up or description of posting including any images.
[ ] Letters of Emails	Submit template letter(s) or email(s)
[ ] Phone Call	Submit phone script
[ ] Group or Class Presentation	Submit outline of presentation and any materials to be provided to participants
[ ] Social Sciences Human Subject Lab (SSHSL)	None
[ ] Other (specify): <Type here>	Submit the recruitment materials

3. Describe when, where, by whom and how potential participants will be approached.
4. If posting on your Facebook page or other social media sites, please explain.
5. If you will recruit by e-mail, phone, etc., explain how the researcher will obtain the participants' contact information.

For both the initial and main study groups, we will recruit adult smokers, 21 to 59 years old, who intend to quit in the next 30 days. We will offer 8 weeks of free nicotine patches and 8 weeks of nicotine gum or lozenges to all participants, which are relevant and meaningful incentives and recommended for cessation. We will recruit by putting ads on Google (donated) and Facebook (paid), in order to reach those who might not use quit-smoking call-in lines or websites. We will inform people of our trial using ads that will appear when people search for relevant keywords on Google or post the keywords on Facebook (e.g., quit smoking, free nicotine patches). We receive free Google ads through the study's participation in the Google Grant program that supports the work of nonprofits. On Facebook, the ads will include small suitable images (which are required), e.g., cigarettes, cigarette packs, and people of different ethnicities. See file Advertising Image Options.docx for examples. Both Google AdWords and Facebook will use geographical targeting to recruit a more diverse group of participants (e.g., Detroit to target African Americans and Miami to target Hispanics/Latinos). There are general Facebook and Google ads to target everyone as well as specific ads to target minorities and other races (e.g. African American, etc.) We will be additionally advertising to a bilingual English and Spanish-speaking population on Facebook using language targeting options. Any major changes in recruitment strategies will only be conducted after IRB approval is obtained by filing an EMOD.

SECTION 5: INFORMED CONSENT PROCESS

1. **Submit the Consent, Study Info Sheet, Courtesy Letter, Assent document(s).** ***Note:*** *After IRB Approval, distribute to participants the version of the document with the IRB-approval information in the footer.*
2. Identify the specific **steps for obtaining consent**. See **Guidance for Consenting Process**.

Check all that apply:

[ ] Signed informed consent will be obtained. *Customize the Consent for SBE Research.*

[X] Oral / Implied informed consent will be obtained (i.e., requesting a waiver from obtaining signed informed consent). *Customize the **Study Information Sheet** and Complete Appendix P.*

***Note**: If obtaining consent online (e.g., research involves completing a survey electronically administered via AMT, EEE, etc.), participants should:*

- *View the Consent/Study Info Sheet prior to participation*
- *Be prompted to verify they meet the eligibility criteria, and*
- *Indicate their willingness to participate in the research (e.g., click "Yes").*

[ ] Requesting to seek surrogate consent from the subjects' LAR. Surrogate consent may be considered only in research studies relating to the cognitive impairment, lack of capacity or serious or life-threatening disease and conditions of the research subjects. *Complete Appendix E.*

[ ] Informed consent will NOT be obtained (i.e., requesting a *complete* waiver of informed consent). No contact with participants; using existing data, records, charts, biospecimens, etc. *Complete Appendix O. Skip to Section 6.*

3. If medical records will accessed for research purposes, identify the specific steps for obtaining HIPAA authorization.

For additional information, see Protected Health Information (HIPAA). Templates are available on the HRP webpage Application and Forms (see sub-section HRP, HIPAA Documents).

[X] Not applicable: Medical records will not be accessed for research purposes.

[ ] Total waiver of HIPAA Authorization – No HIPAA authorization will be obtained (i.e., no direct contact with participants). ***Submit Appendix T.***

[ ] Written (signed) HIPAA Authorization will be obtained – A signature is required. ***Customize the HIPAA Research Authorization Form template.***

4. Indicate where the consent process will take place.

[ ] In a private room
[ ] In a waiting room
[ ] In an open unit
[ ] In a group setting
[X] The internet
[ ] In public setting
[ ] Over the phone
[ ] Other (specify): <Type here>

5. Specify how the research team will assure that subjects or their LAR have sufficient time to consider whether to participate in the research.

[ ] Subjects or their LAR will be allowed to take home the unsigned consent form for review prior to signing it.

[ ] Subjects or their LAR will be allowed <Type here> hours to consider whether to consent.

[X] Other (specify): The subjects or their LAR will be able to download a digital copy of the Information Sheet to read over before considering whether to participate in the research.

6. If children (anyone less than 18 years old) are participants, please describe the parent/legal guardian permission process and the child assent process.

[X] Not applicable: Children are not included in the research.

[ ] No parental permission or child assent will take place.

Parental Permission Process: <Type here>

Child Assent Process: <Type here>

7. If study team members will approach their own students or employees:
   a. Explain what precautions will be taken to minimize potential undue influence or coercion.
   b. Explain how compromised objectivity will be avoided.

See HRPP Policy for more information on this topic.

[X] Not applicable: Study team will not approach their own students or employees.

Specify how undue influence or coercion will be minimized: <Type here>

Specify how compromised objectivity will be avoided: <Type here>

8. Will this study include Non-English Speaking Participants?
9. Specify in 'Section 2: Study Team' who will be responsible for interacting with non-English speaking participants.

[ ] Not applicable: No consent process will take place.

[X] Only individuals who can read and speak English are eligible for this study.

[ ] The English version of the consent materials will be translated for non-English speaking participants once IRB approval is granted. An interpreter will be involved in the consenting process. ***Note:*** *After IRB Approval, distribute to participants the version of the document with the IRB-approved information in the footer.*

10. If deception or incomplete disclosure is involved:

[X] Not applicable: No deception or incomplete disclosure is involved.

Confirm that the following documents will be submitted with the APP:

[ ] Debriefing Script

[ ] Appendices O (Alteration of Consent) and G (Deception)

11. Release Form: If publications and/or presentations will include **identifiable information**, specify how the study team will obtain permission from participants. Please submit a 'Release Form'

N/A

SECTION 6: RESEARCH METHODOLOGY/STUDY PROCEDURES

A. Study Design and Procedures

1. Provide a **description of the proposed research** (e.g., pilot testing, intervention/interaction/data collection, and follow-up) and **procedures** (e.g., surveys, interview, focus group, and observation). See **Guidance for Online Research**.
   a. Specify **where** the research will take please (e.g., UCI, local public schools, international site, private business, etc.).
   b. Include an explanation of the study design (e.g., randomization, cross-sectional, longitudinal, etc.).
   c. Indicate how much **time will be required of the participant**, per visit and in total for the study.
   d. If a procedure will be completed more than once (e.g., multiple visits, pre and post survey), indicate **how many times** and the **time span** between administrations.
   e. If a procedure will occur via a crowdsourcing Internet marketplace (e.g., AMT) or in the cloud (e.g., Google Docs), please describe.

Initial Pilot Groups

In year 1, in the Initial Study Groups, we will conduct a pilot test of the 2nd generation *Tweet2Quit* intervention with one cohort of 20 coed smokers, including pilot testing of dyad formation, and the automated low tweeting detection and intervention algorithm. The pilot also will test the recruitment ads and methods for greater sample diversity and the follow-up procedures for web-cam supported, biochemical (cotinine) verification. We will implement the Twitter intervention and the base intervention including nicotine patches and gum/lozenges, *NCI's Smokefree.gov Quit Guide,* and the setting of a quit date. We will test our methods to recruit participants and train them on Twitter. We will test our survey methods and measures. If we encounter problems, we will revise our methods and/or materials. If the materials require substantial revisions, an eMOD will be submitted to the IRB for review.

All Twitter participants will be given simple instructions on how to send and respond to group and individual messages. Participants will be told that the maximum message length is 140 characters. There will be a research associate on call to help with any technical problems. In order to foster a safe and

supportive environment, participants will be given clear rules about appropriate content, based on the standard rules that are used on social networking sites. Anyone found to be inappropriate will be contacted and the rules reaffirmed. If the behavior persists and/or is extreme (e.g., threatening), the member will be discontinued and provided with other quit-smoking referrals, but we anticipate that few, if any, participants will be excluded for this reason.

We will also test and refine our approaches for motivating engagement in peer messaging. We will state that each member should send multiple messages per day. We will provide feedback on whether the goal is being met, and we will explain that the goal and feedback will help to ensure sufficient engagement for treatment efficacy. Then, a computer program will monitor the messages daily, determine the level of messaging, and send computer-generated feedback about participation levels to each group member via text from the study website. Each participant will receive feedback every day. The computer program will provide feedback on whether the individual met the goal. If a participant is told that s/he has not met the individual goal, the participant may try harder to do so. In addition to sending a feedback text each day, the automated program will keep track of how many days in a row there is a back and forth exchange between two participants, called a TweetStreak, and text participants each day with their top TweetStreaks. Furthermore, an automated program will keep track of tweets sent per day for each group and send out a weekly text reporting the group's tweet count as well as the average count and highest count of former groups during that time period. These features should incentivize participants to tweet more.

Initial Pilot Phase Study Timeline

Procedure	Approx. Time	Mode of Receipt
Screening Survey (Study information sheet/Screening survey/Contact information form)	30 minutes**	e-mail*
Webcam Verification	2 minutes	Webcam
Screening Survey 2	2 minutes	e-mail
Tweets on Twitter (1 group message per day – 90 days)	1 hour 30 minutes	Mobile phone/Website
1 Month Survey	2 minutes	e-mail
3 Month Survey	2 minutes	e-mail
6 Month Survey	2 minutes	Email
Biomedical Abstinence Confirmation (Saliva Test) 2x	10 minutes	Webcam
Total time	**Approx. 2 hours and 20minutes**	

*Surveys are emailed via Qualtrics, a secure survey provider that secures the data electronically online. Only authorized UCI personnel have access to the survey data that will be downloaded and identifiable data removed.

**For those that fail the Screening Survey, the approximate time is 20 minutes.

Main Phase Randomized Controlled Trial

In Years 2-5, we will achieve Aim 1 and 2: to conduct a 3-arm cluster-randomized controlled trial of the 2nd generation *Tweet2Quit* Twitter-delivered group intervention. Both treatment (coed and women only) and control participants will receive a web-based quit plan referral, 8-weeks of nicotine patches and 8-weeks of nicotine gum/lozenges but the control groups will get this without Twitter support. Cohorts of 20-30 smokers that have passed the screening will be randomly assigned to treatment coed (with control) or treatment women only and then treatment participants will be grouped into demographically homophilous dyads or buddy pairs. Thus, both dyads and cohorts will be nested factors in the analyses.

Although UCI is collaborating with UCSF, Investigator Kevin Delucchi is not engaged in human-subjects research, given he is not interacting with participants, and he is not accessing identifiable data. UC Reliance #977 is *inactive*

Recruiting is a continuous ongoing activity and a new group is created once 20-30 applicants have completed the enrollment process. Dr. Delucchi will create a randomization table that will determine, e.g., every month, if the next cohort to be recruited will be coed or women-only, with 2/3rds of the cohorts being

coed and 1/3rd being women-only. A coed cohort of 30 smokers will have a minimum of 6 men (max. 10) and a maximum of 24 women (min. 20). Then, Dr. Delucchi will randomize 20 of these smokers to coed treatment and 10 smokers to coed control with the provisos that there be (a) a minimum of 4 men in coed tweet2quit (to ensure a critical mass), and (b) even numbers of men and even numbers of women in coed tweet2quit, i.e., 4, 6 or 8 not 3, 5 or 7 (for buddy pairing within gender). Prof. Delucchi will not see any identifiable subject data; he will only see anonymized subject numbers such as G01P01. If the treatment cohort to be recruited is women-only, then only women will be recruited. Any men that we also recruit will be waitlisted and placed in the next coed cohort. As treatment to control ratios of genders may not be equivalent, gender will be taken into account as a covariate during analysis.

The interactive peer messaging treatment will be provided using Twitter and it will last 3 months (entire study will still be 6 months). Once a Twitter group has been formed, a research associate will set up the group online, on the Twitter website. The group will be protected (private), and each group member will follow the other members. When Twitter participants log into Twitter, they will see their group members' user names, real names, and participant-provided profile photo, but they will not see other personal information about those members. Also, Twitter participants will receive initial group tweets welcoming them to the group. The Twitter messages will be kept completely private, meaning that they will only be viewable by group members or research personnel. We will set up each Twitter group ourselves to ensure that privacy is protected. All Twitter participants will be informed and properly trained on the use of the program. Additionally, we will require all participants to abide by the codes of conduct in order to foster a safe and supportive environment.

Once a Twitter group (coed or women only) or control group has been formed, each smoker in that group will be sent individual emails at the start of the study that they should set a quit date within a week of the study start date. Smokefree.gov recommends setting a quit date within a week, and Clinical Practice Guidelines recommend this as well17. We will encourage a Saturday quit date to avoid work stress during the worst part of the withdrawal (72 hours), but we will allow the smoker to choose their own quit date. This will introduce some variability (a week maximum range) in the quit date among group members, but it will allow participants to choose dates that fit their own schedules and preferences. This is more realistic for a real-world intervention, and it will avoid having everyone experiencing the same level of withdrawal simultaneously.

Main Phase Study Timeline

	Twitter-enabled interactive Peer messaging		Control	
Procedure	Approx. Time	Mode of Receipt	Approx. Time	Mode of Receipt
Screening Survey (Study information sheet/Screening survey/Contact information form)	30 minutes	e-mail	30 minutes**	e-mail*
Webcam Verification	2 minutes	Webcam	2 minutes	Webcam
Screening Survey 2	2 minutes	e-mail	2 minutes	e-mail
Tweets on Twitter (1 message per day for 90days)	1 hour 30 minutes	Mobile phone/Computer	N/A	
1 Month Survey	2 minutes	e-mail	2 minutes	e-mail
3 Month Survey	2 minutes	e-mail	2 minutes	e-mail
6 Month Survey	2 minutes	e-mail	2 minutes	e-mail
Biomedical Abstinence Confirmation (Saliva Test) 2x	10 minutes	Webcam	10 minutes	Webcam
Total Time	**Approx. 2 hours and 20 minutes**		**Approx. 50 minutes**	

*Surveys are emailed via Qualtrics, a secure survey provider that secures the data electronically online. Only authorized UCI personnel have access to the survey data that will be downloaded and identifiable data removed.
**For those that fail the Screening Survey, the approximate time is 20 minutes.

Inclusion/Exclusion Criteria (Initial and Main Study Groups)
For both the Initial and Main Phases, we will recruit adult smokers, 21 to 59 years old, who intend to quit in the next 30 days. We will offer 8 weeks of free nicotine patches and 8 weeks of free nicotine gum/lozenges to all participants, which are relevant and meaningful incentives and *recommended for cessation.* We will recruit by putting ads on Google (donated), in order to reach those who might not use quit-smoking call-in lines or websites. We will inform people of our trial using our free Google ads that will appear when people search for relevant keywords or go to content pages that contain those keywords. An ad will be placed on SmokeFree.gov to further support advertising the study. We will also be recruiting with similar ads on Facebook. Additionally on Facebook, we will be advertising to an English and Spanish-speaking bilingual population using language targeting through Facebook's advertising interface. We cannot currently provide our intervention in Spanish but we hope to attract bilingual Spanish-English participants.

We will be creating groups that contain only females. Males will be excluded from these groups, but not the study. Males will be randomly allocated to one of the coed or control condition.

Enrollment Process (Initial and Main Study Groups)
All recruits will be e-mailed a survey that will screen for eligibility, and obtain contact information. The smoking-related screening criteria will include: must have smoked 100 cigarettes during their lifetime, must currently smoke 5 or more cigarettes a day, and must be in the preparation stage of quitting[100]. Smoking five or more cigarettes per day is required due to use of nicotine patches (www.habitrol.com) . Additional screening criteria will be: ages 21-59 years, English speaking, have a mobile phone with an unlimited texting plan and internet access (via their mobile phone), use text messaging at least once a week, use social media regularly, have an active email account, live in the continental USA, and abide by the procedures of the study. To determine if a recruit is in the preparation stage of quitting, we will ask if they are ready to quit in the next 30 days.

Participants will be excluded if they have a medical condition that is contra-indicated for nicotine replacement therapy: pregnant, breast feeding, a recent heart attack, an irregular heartbeat, high blood pressure not controlled with medication, skin allergies to adhesive tape or serious skin problems, and/or taking a prescription medicine for depression or quitting smoking They will also be disqualified if they use illicit drugs or if they use marijuana daily. They will be disqualified if someone else is already enrolled, or will be enrolled, in the study during the current grant period who lives in the same household or are immediate family to, or if they have failed the screening survey during the current grant period, or if they have previously been enrolled in the study in the current. Additionally, they will be disqualified if they participated in the prior grant period (HS# 2010-7990) as a member of the treatment group and did not tweet for more than a week (control group members can participate again). Research personnel will have access to list of previous participants (both those that passed and failed) to determined prior enrollment.

In addition, participants will complete a contact form which will ask for their name, mobile phone, home and/or work phone if applicable, home mailing address (to get the nicotine patches and nicotine gum/lozenges), email address (to get survey links), Facebook URL or Social Media picture (to validate they have a social media account), identifying photo (to post on Tweet2Quit Twitter account if applicable and to verify identity for saliva testing), and username and password for our website (and Twitter if applicable). In addition, they will be asked to supply additional names, phone numbers, and email addresses of collaterals which will only be used as last resorts to contact the participants. If the participant fails to provide the required personal information, s/he will be disqualified. Also an automated program will send both an email and a text to each participant and require a response to ensure both accounts are valid. If a participant fails, their photo will not be downloaded from the survey database. Those that pass will have their photographs used to verify identity during webcam interviews (for saliva tests). If the

participant is enrolled into a Twitter group, their photo will be used for their profile picture. After the study concludes, all copies of the pictures will be destroyed.

The screening survey will also ask about age, gender, marital status, years of education, race/ethnicity, employment status, years smoking, cigarettes per day, number of prior quit attempts, age when they started smoking, type of cigarettes they used, the Fagerstrom Test for Nicotine Dependence (FTND), and the Thoughts about Abstinence Scale[103,104]. It will also assess use of other tobacco and ENDS (electronic nicotine delivery) products. It will assess social media use, and self-monitoring and self-disclosure as personality traits. The screening survey will also explain the study requirements to participants (e.g., the study may involve tweeting and receiving text messages on mobile phones daily, will involve taking surveys, etc.) and it will confirm that the participant understands and agrees to these study requirements.

If participants fail the screen, they will be thanked and referred to NCI's Smokefree.gov Quit Guide. No more communication will occur and they will be blocked to prevent re-attempts at enrolling. Their data will be kept for screening analyses, but not used as part of the study results.

After recruits have passed the initial screen, first they will pass a verification check for their phone, email and webcam, or they will not be eligible to participate. Next, each recruit will complete a second screening survey to confirm eligibility in case of long lapse of time. In addition we will contact them via webcam to verify their identities and confirm their interest in participation. This will be a trial run for the remote collection of salivary cotinine test pictures for bioconfirmation of abstinence that will occur at 3 and 6 months that will take place via webcam with photo IDs.

The screening survey will assess demographic variables that will be used for dyad formation. After the randomization to study condition, the 20 smokers in each treatment group will be coupled into 10 demographically homophilous dyads or buddy pairs based on certain screening data. To determine the specific variables to use to form homophilous dyads, we will rely on analyses that are underway that correlate similar demographics with tie strength in our prior Tweet2Quit groups.

Standard Resources given to Participants (Initial and Main Study Groups)

All participants, regardless of assignment, will receive an integrated smoking cessation plan to ensure an equitable and adequate intervention dose for all participants. The integrated plan, including free nicotine patches and gum/lozenges, referral to the NCI Smokefree.gov Quit Guide and encouragement to set a quit date, represents a standard intervention for people desiring to quit smoking. The purpose of our study is to examine the potential efficacy of including Twitter-enabled interactive peer texting as a low-cost, accessible added intervention to the standard protocol. Participants assigned to control will not be prevented from following the very large existing Twitter quit smoking groups that are publically available on Twitter; but they will not be assigned to small, private quit-smoking groups with computer-generated feedback, like the treatment groups will be. Our proposed intervention is consistent with U.S. Clinical Practice Guidelines, which recommends nicotine-replacement therapy and the setting of a quit date, consistent with our protocol.

All participants (Twitter Coed, Twitter Women only, and control) in both phases will be given an integrated treatment for smoking cessation, via the website that we develop. The website will provide access to an evidence-based set of "base" treatment materials in one central location, that all participants will be encouraged to use. The website will have a section on proper use of the free nicotine patches and gum/lozenges that will be provided, and it will remind participants about their quit date. Throughout the study, treatment and control participants will be emailed links to numerous different SmokeFree.gov modules and embedded codes in the emails will allow us to track which modules they view and what other resources they use.

All participants will be offered 8 weeks of free nicotine patches and 8 weeks of free nicotine gum or lozenges, but will not be required to use the patches or gum/lozenges. Each participant will be mailed 8 weeks of nicotine patches and 8 weeks of nicotine gum or lozenges at the recommended dosages (with tapering) and with usage instructions with the similar instructions available on the website. However,

participants who report that they are breastfeeding in our secondary survey will not be mailed nicotine patches, due to breastmilk contamination. Breastfeeding participants will be sent a 8-week supply of nicotine gum and a 8-week supply of nicotine lozenges instead, with corresponding instructions. Emails will also go out to notify all participants to follow the provided instructions. For those smoking 10+ cigarettes per day (as determined by the screening survey) they will be given 4 weeks of 21 mg patches, 2 weeks of 14 mg patches, and 2 weeks of 7 mg patches. If the participant smokes only 5-9 cigarettes per day (as determined by the screening survey) then they will receive 6 weeks of 14 mg patches and 2 weeks of 7 mg patches. All participants will receive 8 weeks of nicotine gum or lozenges to fight urges to smoke. No more than 12 pieces of gum or lozenges should be used a day. Participants smoking within 30 minutes of waking (determined by the screening survey) will receive 4mg and those that do not will receive 2 mg as the gum dosage. All participants requesting lozenges will receive the 1 mg dosage. We want to have as many smokers as possible in our recruitment pool, including the increasing number of light smokers, so we will include adults who smoke 5 or more cigarettes a day. We cannot go any lower than that due to the use of nicotine patches; nicotine replacement therapy is not recommended if a person smokes less than 5 cigarettes daily (www.habitrol.com).

We will provide free nicotine patches because clinical guidelines state that all smokers trying to quit should be offered pharmacotherapy unless contraindicated1,17. The patches and gum/lozenges have few contraindications, so we expect few smokers to be excluded from our study for this reason. Further, the patches and gum/lozenges are available to most smokers because it is relatively low in cost (<$2 per day) and often free to qualified smokers. Health insurance plans increasingly cover cessation pharmacotherapy including the nicotine patch. For example, Medi-Cal (the California Medicaid program) covers the cost of 8 weeks of nicotine patches for smokers in cessation programs such as the state's quitline. Nationally, Medicare Part D covers the costs of prescribed cessation medications, and nicotine patch can be prescribed. Also, LA County and other entities periodically have programs to give out free nicotine patches, e.g., at cooperating pharmacies.

Study Management for Safety and Confidentiality (Initial and Main Study Groups)

Website Development and Computer-generated Feedback

The UCI Merage School of Business will host and back up our study website. The chosen firm, WebAdvanced, is developing a website that will (1) provide information about the trial and smoking cessation as described above,(2) allow participants to login securely to get more specific information, e.g., about their Twitter groups and quit date; and (3) include a help button so participants can request technical help and provide suggestions that will be entered into databases. The website will be very similar to the one we used previously, in our prior IRB approved study.

The firm WebAdvanced will also develop software code to: (1) create a database that stores and updates information; (2) automatically capture the tweets from each group nightly in an HTML file, convert the tweets to text and the Twitter time stamp to consistent date and time fields, and save the data in an excel file that is continually updated and securely stored; (3) automatically generate daily tweets to the Twitter groups that will state their participation levels on the previous day to motivate them and encourage engagement; and (4) develop the new automated features of TweetStreak, Buddy Pair Formation, the Automated Low Tweeting Detection and Intervention, and the Tweets Per Group Competition.

TweetStreak

After the tweets from a group are downloaded each day an automated program will look at all possible pairs of 20 members (19 possible pairs for each participant), and identify those pairs that exchanged directed tweets in the past 24 hours (i.e., A tweeted B using @Busername and also B tweeted A using @Ausername) versus not. The program will record 1 for yes or 0 for no for each pair if they exchanged directed tweets in the past 24 hours or not. For each consecutive day the streak goes up by 1 and missing a day resets the streak to 0. Every day after the current automated feedback text a second text will go out to each participant listing his or her top 5 TweetStreaks.

Buddy Pair (Dyad) Formation

Formation of buddy pairs will be fully automated via analysis of enrolled participants' responses to the online Screening Survey 1. The following 4 variables, identified in our initial work, will be used to find matched buddy pairs: Age, Education, Gender, and Location/Address. The computer algorithm will optimize match or similarity scores on these variables for the buddy pairs within each treatment group, and then send a text to each treatment participant identifying his or her buddy. Consistent with West et al.'s tobacco cessation "buddy" intervention, if one member of the buddy pair does not tweet, the other participant will nevertheless be treated as part of the buddy pair in analyses. No alternate buddy will be designated, though the individual may become part of a buddy pair that develops spontaneously.

Automated Low Tweeting Detection and Intervention. The study website will be enhanced to include automated pattern detection processes that will identify any problematic low tweeting within a group, based on the tweeting norms of prior groups. If tweeting in a Tweet2Quit group falls below norms, the software will send an alert to the project coordinators and PIs, send a prewritten text to the group, and post a tweet encouraging them to reengage. If tweeting falls below norms again, the process will repeat and new messages will be sent. Data on tweeting by day for the prior 100-day Tweet2Quit groups have already been analyzed to determine tweeting norms (i.e., expected tweeting volume and acceptable ranges for days 1-89). We have identified time-specific tweeting patterns that are indicative of a trend toward unacceptably low tweeting or engagement. Our website management firm WebAdvanced will use these data and our instructions to write pattern detection software that will detect when tweeting falls below norms (e.g., for 2 consecutive days) indicating that engagement is falling below an acceptable level.

Tweets Competition
On the Monday of every week (starting with day 8), participants will receive a text with their groups' total tweet count as well as the average tweet count and highest tweet count of former groups during that time period (e.g. days 1-7, 1-14, etc.) If the group's tweets for the time period beat the top maximum number held by another group, then they will become the new maximum for that period. This is to help give an incentive to participants to tweet more to be the best group.

Facebook Alumni Group
After each treatment group ends, if a participant needs more support they can join a group created on Facebook by Tweet2Quit to participate with group members from all treatment groups. Treatment participants have to request to enter the Facebook group and research personnel will accept participants in the group and similar kick members if needed. The participants are free to talk to each other, but there will be no intervention. Approximately once per week we will be posting current quit smoking information to the group. There will be no direct contact to any particular individual in the group. Messages sent via this group will not be collected or analyzed.

Collaborations with Other Campuses

Although UCI is collaborating with UCSF, Investigator Kevin Delucchi is not engaged in human-subjects research, given he is not interacting with participants, and he is not accessing identifiable data. UC Reliance #977 is *inactive*

UCI will be working with personnel from both UCSF and Stanford University in the analysis portion of this study. Survey and Abstinence results will be shared with the other sites. UCI personnel will remove all identifiable data from the files prior to sharing with the other sites. Data will be shared via encrypted Excel files that only the authorized personnel will have the password to. Dr. Judith Prochaska has secured IRB approval with Stanford University and will be working in collaboration with UCI. No subject enrollment or data collection will be conducted at Stanford. Data will be shared between Stanford and UCI primarily in a de-identifiable fashion but some datasets may include minimal identifiable data (Twitter usernames). Dr. Prochaska will also receive subject-identifiable data from UCI in the event of a serious adverse event, but will not receive identifiable data at any other time. In sum, both de-identifiable data and identifiable data will be seen by Dr. Prochaska while working from Stanford. Dr. Kevin Delucchi will be conducting his portion of the study from UCSF, however he will not have access to identifiable data. Both of these

researchers will be involved in the analysis portion of the data collected during this study. Dr. Delucchi will also be assisting in randomizing the groups but he will only use de-identified subject IDs for randomization and data analysis. Dr. Delucchi will have no interaction with human subjects. Dr. Ashley Sanders-Jackson has moved from her postdoc position at Stanford to an assistant professor position at Michigan State University. She will be involved with supplemental data analysis related to our exploratory goals and will only see de-identified data. She will not be involved with subject enrollment, data collection, primary data analysis or adverse events monitoring. Dr. Sanders-Jackson will not have access to subject indefinable data nor will she be interacting with human subjects.

All data will be sent as a password encrypted Excel files via email. Only personnel listed in this protocol will receive these files, as well as the password. UCI is the coordinating site for this research project. The PI (Dr. Pechmann) as well as the Project Coordinator and Research Assistants that are running the study will be working out of the UCI campus. UCI campus is the coordinating site as a result of the location of employment for the previously mentioned personnel. UCSF and Stanford University will be working in concordance with the UCI campus and staff electronically to assist in conducting the study and analyzing the data.

2. **Off-Site Research –**
   a. See **Guidance for Letter(s) of Permission**
   b. See **Template Letter of Permission**

[ ] Check here to confirm Letter(s) of Permission has been / will be obtained and kept on file.

B. Measures / Data Sources

1. List the measures that will be administered or data sources that will be accessed.
2. Submit **data collection instruments** (e.g., data abstraction sheet listing the variables that will be collected/analyzed for records reviews, measures, questionnaires, list of interview or focus group questions, observational tool, etc.).

Data Collection and Measures

Surveys will be sent out at 1, 3 and 6 months post-quit date to assess abstinence (see measures below). Additional questions will ask about their use of nicotine patches and gum/lozenges, NCI's Smokefree.gov Quit Guide, as well as anything else they used to help quit smoking. They will also be asked their use of Tweet2Quit if they are in the treatment condition (both Coed and Women-Only groups).

Primary Outcome Measure:
Percentage of participants with 6-month sustained abstinence. Percentage of participants who reported no use of tobacco products by answering the questions: 'How many cigarettes have you smoked', 'How many other tobacco products have you used', and 'How many times have you used ecigs' since the quit date (assessed at 1, 3 and 6 months post quit date) confirmed by salivary cotinine measurement (assessed at 3 and 6 months post quit date). Note: We will apply the Russell Standard for abstinence, allowing 5 or fewer instances of tobacco use over 6 months. In our primary (most rigorous) analysis, we will consider a cotinine-positive test, regardless of source, to be nonabstinent. In additional analyses, we will code as abstinent those who assert tobacco abstinence but continue use of FDA-approved nicotine replacement therapy. Given the uncertainty in the field as to how to consider ENDS-only use, in other analyses we will report results with ENDS-only users coded first as non-abstinent and then for comparison as abstinent.

Secondary Outcome Measure:
Percentage of participants with 3-month sustained abstinence. Percentage of participants who reported no use of tobacco products by answering the questions: 'How many cigarettes have you smoked', 'How many other tobacco products have you used' and 'How many times have you used an e-cig' since the quit date (assessed at 1 and 3 months post quit date) confirmed by salivary cotinine measurement (assessed at 3

months post quit date). Note: We will apply the Russell Standard for abstinence, allowing 5 or fewer instances of tobacco use over 3 months.

Other Pre-specified Outcome Measures:
Percentage of participants with 7-day point prevalence abstinence at 1 month. Percentage of participants who reported no use of tobacco products by answering the questions: 'How many cigarettes have you smoked', 'How many other tobacco products have you used', and 'How many times have you used an e-cig' over the past 7 days (assessed at 1 month post quit date).

Percentage of participants with 7-day point prevalence abstinence at 3 months. Percentage of participants who reported no use of tobacco products by answering the questions: 'How many cigarettes have you smoked', 'How many other tobacco products have you used', and 'How many times did you use an e-cig' over the past 7 days (assessed at 3 months post quit date) confirmed by salivary cotinine measurement (assessed at 3 months post quit date).

Percentage of participants with 7-day point prevalence abstinence at 6 months. Percentage of participants who reported no use of tobacco products by answering the questions: 'How many cigarettes have you smoked', 'How many other tobacco products have you used', and 'How many times did you use an e-cig' over the past 7 days (assessed at 6 months post quit date) confirmed by salivary cotinine measurement (assessed at 6 months post quit date).

At 3 and 6 months post-quit date, those that report as abstinent will have their abstinence confirmed using salivary cotinine Alere iScreen OFD test kit. Participants will be sent a test kit in the mail and then contacted via webcam to show their photo ID and perform the test on camera, then a picture will be taken and then texted back to UCI. The pictures will consist of the saliva kit placed on top of the paper they receive which has their appointment time and their name. The picture will be stored in a secure database via the internet. The kits results will read either pass (a salivary cotinine level 0-30ng/mL) or fail (>30ng/mL). Web-based video recordings to verify smoking status have been successfully employed in Internet smoking cessation research; mailed saliva cotinine test kits have been successfully used; and this has been done in Dr. Ramo's Facebook trial with young adult smokers (UCSF IRB #11-06294). During the study, video and audio conferences with the participants will not be recorded. The consent form will indicate that participants may be requested to provide a saliva test and will be provided a small incentive ($40 gift card per test) for completing it. In practice, only those who report being abstinent will be sent the cotinine test. If the participant's webcam and/or camera on their phone breaks during the course of the study, they have the additional option of mailing their kit. Kits collected this way will have a picture taken of the results, then the kit will be properly disposed.

Each abstinence survey will include the same set of measures, to allow for more powerful repeated-measures analyses, but questions will be brief. Also, we will repeatedly e-mail participants who do not complete a survey in a timely fashion to request that they complete it. Also, we will repeatedly call participants who have not responded to a survey and, when we reach them, we will administer the survey to them over the phone, starting with the questions on abstinence because these are our primary outcome measures. Upon completion of the 3 and 6-month follow-up surveys, participants will be mailed $15 compensation for each ($30 total). Only authorized UCI personnel will have access to participants' phone numbers and contact participants to administer surveys. All collected data will be stored in a secure file with identifiers removed. Finally, if participants still do not respond, we will contact their collaterals (i.e., family members, friends, etc. that they provide us with during screening), and gather data for the abstinence questions or have the collaterals remind the participants of the surveys. Brendryen et al. 24 realized a 95% response rate doing this; we estimate 90%. Completing the surveys by phone will only be available to participants who are contacted by the research personnel. As standard procedure all participants will be informed to complete their survey online as near to their set date as possible. Phone surveys will only serve as a last attempt to collect data. If research personnel are required to contact a participant via telephone they will conduct the survey based off of the IRB approved survey without adding or changing the wording. All phone calls will include the researcher stating their name, position, study name and name of the primary investigator.

Participants will receive incentives for completing the survey assessments, but not for using the intervention materials or for reporting abstinence, and survey completion incentives will be the same regardless of reported abstinence or non-abstinence. No reward will be offered for abstinence alone, and participants will receive a full 8 week supply of nicotine patches and 8 week supply of nicotine gum/lozenges regardless of abstinence.

If a Twitter or control participant fails to set a quit date, we will send out the assessment surveys at 1, 3, and 6 months after the last possible quit date. If a Twitter participant fails to participate in the group messaging, likewise, we will send out the surveys at 1, 3, 6 months. We hope that providing all enrollees with free nicotine patches and gum/lozenges will promote participation. Also, we will email and call non-respondents repeatedly and ask them to complete the surveys to increase response rates. If an enrollee refuses to complete one or more of the surveys, s/he will still be included in the analyses as missing data (see section on Missing Data below).

IMPORTANT TIME SAVER: PLEASE ATTACH *ALL* MEASURES FOR REVIEW. APPLICATIONS ARE INCOMPLETE AND WILL NOT BE REVIEWED UNLESS MEASURES ARE PROVIDED.

C. Use of Identifiable Private Information and/or Identifiable Biospecimens as Part of the Main Study

1. For studies that will use **existing identifiable biospecimens** as part of the **main study** (not for determining eligibility):
   a. Indicate the source of the biospecimens and explain how the existing biospecimens will be obtained.
   b. Indicate whether the biospecimens were originally collected for research purposes.

[X] Not applicable: This study does not use existing biological specimens as part of the main study.

How Obtained: Indicate all that apply:
[ ] UCI Health Pathology Biorepository

[ ] Other UCI-Health Entity; specify: <Type here>

[ ] Non-UCI Entity; specify: <Type here>

[ ] Other; explain: <Type here>

Originally collected for research purposes:
[ ] NO – Please explain: <Type here>

[ ] YES – UCI IRB approval granted under IRB protocol number (i.e. HS#): <Type here>

[ ] YES – Non-UCI IRB approval granted. Confirm **one** of the following:

[ ] A copy of the IRB Approval Notice and Consent Form for the original research collection will be submitted with the IRB application (APP). The IRB Approved Consent Form does not preclude the proposed activity.

[ ] A copy of the commercial Vendor Policy or a Letter from the Vendor attesting that the information was collected and will be shared in an appropriate and ethical manner will be submitted with the APP. The vendor's policy does not preclude the proposed activity.

2. For studies that will **use identifiable clinical data** as part of the **main study** (not for determining eligibility), indicate the source and how the study team will access the medical records. *Access to UCI Medical Center medical records for research purposes outside the capacity of the Honest Broker Services, such as access to physician notes, must be obtained from the Health Information Management Services.*

For investigator initiated/authored studies only, submit a data abstraction sheet that includes a complete list of data elements/information that will be collected from (existing) records or submit the case report form (CRF; eCRF).

[X] Not applicable: This study does not involve the use of identifiable clinical data as part of the main study. *Skip to Section 6.D.*

How Obtained: Indicate all that apply:

[ ] The study team will request specific patient information/data from UCIMC Health Information Management Services.

[ ] The study team will access their UCI patients' records and abstract data directly from those records.

[ ] The study team will request specific patient information/data from UCI Health Honest Broker Services. Describe the following:

Cohort selection criteria (e.g., use the available Clinical Terms from the Cohort Discovery Tool such as Demographics: Gender, Diagnoses: Asthma, Procedures: Operations on digestive system): <Type here>

Expected cohort size/patient count: <Type here>

Cohort attributes or data elements (e.g., lab test values, medication, etc.): <Type here>

[ ] The study team will request non-UCI Health records and abstract data directly from those records. Describe the following:

Specify the non-UCI Health records that will be screened: <Type here>

Explain how the study team has access to this clinical data: <Type here>

[ ] Other; explain: <Type here>

3. For studies that involve use of existing (i.e. on the shelf; currently available) clinical data, specify the time frame of the clinical data to be accessed (e.g. records from January 2002 to initial IRB approval).

<Type here>

D. Collection of Photographs, or Audio/Video Recording

Will any of the study procedures include collecting photographs, audio recordings and/or video recordings?

[ ] Not applicable: No photos, audio or video recordings will be taken.

[X] Photos, audio or video recordings will be taken. Text regarding the photos or recordings will be included in the consent document and specific permission to record identifiers will be obtained from participants.

Check one of the following:

[X] Facial image will be in video or photo

[ ] Participants' names will be collected or recorded in either video, photo or audio recording

[ ] Collecting photographs, as well as audio and video recordings will be optional for the participant

[ ] Other: <Type here>

E. Sharing Results with Subjects

1. Describe whether individual results (results of investigational diagnostic tests, genetic tests, or incidental findings) will be shared with subject or others (e.g., the subject's primary care physician). *Only tests ordered by a physician and conducted in a CLIA certified lab may be shared.*
2. Explain what information will be shared and how the results will be shared.

[X] Not applicable: Individual results will not be shared with subjects.

<Type here>

3. Describe whether overall study results will be shared with subjects.
4. Explain how results will be shared.

[X] Not applicable: Final study results will not be shared with subjects.

[ ] The overall study results will be listed on Clinicaltrials.gov. *All Applicable Clinical Trials must be registered.*

[ ] Other: <Type here>

SECTION 7: RISK ASSESSMENT AND POSSIBLE BENEFITS

A. Level of Risk

1. Indicate the level of review, based upon the investigator's risk assessment.

[ ] This study involves **greater than minimal risk** and requires **Full Committee review.**

[X] This study involves **no more than minimal risk** and qualifies as **Expedited research**.

2. If this study involves no more than minimal risk, provide justification for the level of review and for all applicable Expedited Categories you have chosen.

This research qualifies to be classified as Expedited under Categories 1a (nicotine patches), 7 (Twitter intervention), 6 (collection of photographs of Alere iScreen OFD test kit), and 3 (biochemical verification process).

We anticipate minimal risks for participants. After completion of the study information sheet, all subject data will be encoded and password protected that only the research staff listed in this protocol will have access to. Participants will be assigned an ID which will prevent their name from being attached to all surveys. The website will be designed by a professional firm, WebAdvanced, experienced in developing secure environments, Twitter is a commonly used social network and participants are not being exposed to any deception or expected to behave any differently than they normally would while participating in a Twitter group.

Nicotine Replacement Therapy patches and gum/lozenges will be supplied to all participants; however a 21 CRF Part 312 is not required. NRT patches and gum/lozenges are sold over the counter and all participants will receive full instructions with the patches and gum/lozenges that fully explain usage and recommended dosing.

Additionally, all participants will be given the NRT patches and gum/lozenges, but are not required to use them to participate in the study.

Participants who report that they are breastfeeding in our secondary survey will not be mailed nicotine patches, due to breastmilk contamination. Breastfeeding participants will be sent a 8-week supply of nicotine gum and a 8-week supply of nicotine lozenges instead, with corresponding instructions.

B. Risks and Discomforts

1. Describe the **risks/potential discomforts** (e.g., emotional reaction from personal or sensitive information included in surveys, interviews, focus group, etc.; embarrassment or stigma; invasion of privacy) associated with **each** intervention or research procedure.

We anticipate minimal risks to participants.

All of the survey measures will be standard measures used in prior studies with participants who smoke. There have been no reports of distress or adverse effects from answering the surveys. A possible concern is that participants will be embarrassed if they do not quit smoking.

Possible Breach of Confidentiality
Another issue is confidentiality, but we will take all possible steps to maximize confidentiality. None of the personal information that we collect will be shared with Twitter group members or anyone outside the research staff except for the names and photos provided by the participants will be displayed to their Twitter group. Each participant will be given a secure login identity and password, with a unique ID which will be used by researchers to track individuals. No names will be on the surveys or datasets, and the list of identifying links will be available only to the research staff. The researchers will make every possible effort to ensure that no one except research staff will see the completed surveys.

In addition, there are some confidentiality issues that may apply to interactive peer messaging groups. First, members of the interactive peer messaging groups will know their group members' Twitter user names and real names, and they will see the groups' messages that are sent to all members, as well as the individual messages that are sent just to them, because they will be interacting with each other on Twitter. They will see participants' profile photos on Twitter as well as participants' names so that they can better interact with each other. Further, members of the interactive peer messaging groups could decide to voluntarily share personal identifying information with other group members, or even call or meet other members in person. However, this risk is no greater than if they were regular participants on Twitter.

Ethical Reporting
If there is indication of child abuse, neglect, or homicidal actions, we will report participants to the necessary authorities. Name and contact information will be given to the appropriate authorities to ensure the safety of the participant and those around them, based on the participant's tweets and emails. This will only be done if the participant's life or anyone else's life is in danger as we want to protect the confidentiality of the participant when at all possible.

Nicotine Replacement Therapy

The nicotine replacement therapy (NRT) that will be provided to participants as an incentive to participate and as part of the baseline intervention also poses potential risks, but they are minimal. NRT is available over the counter (www.habitrol.com), and is considered sufficiently safe for the general population, including those with high blood pressure monitored by medication or diabetes. Proper dosage and usage information will be included in each product shipment and on our study website. Some side effects that have been reported from NRT include application skin irritation, redness or itchiness, irritability, frustration, anger, craving, hunger, anxiety, difficulty concentrating, restlessness, insomnia, and mouth/throat irritation or soreness. All enrolled participants will receive NRT supplies appropriate to their smoking level and lasting for eight weeks (eight weeks for gum/lozenges), which is the period recommended by the manufacturer and approved by FDA. Step-down or tapered dosages will be used for the patches, as recommended by the manufacturer and approved by the FDA. The appropriate dosages of patches and gum/lozenges will be mailed to participants along with instructions. Participants who screen for any medical condition where NRT is counter-indicated will be excluded from the study. NRT use is not required to participate in the study, but is being provided because research indicates its potential in supporting smoking cessation efforts when used per instructions.

Alere iScreen OFD – Saliva Test Kit

Saliva tests will be provided to participants to get accurate responses for abstinence. The test is a non-obtrusive collection of a biological specimen. There are no side effects to using the kit. Instructions will be provided to avoid this problem and administration will be overseen by research personnel via webcam to ensure safety. Alere iScreen OFD is available over the counter and considered safe for the population. Proper instructions will be given with the kit, in an email, and via webcam conference with the UCI research personnel. A picture of the test kit will be electronically sent to research personnel after completion of the test. After the pictures are returned to UCI, abstinence will be recorded and identifiers removed. Other research personnel will only have access to the unidentified results. After the saliva test is completed, the kit will be discarded by the participant. Video and audio will not be recorded during the webcam conferences. If the participant's webcam and/or camera on their phone breaks during the course of the study, they have the additional option of mailing their kit. Kits collected this way will have a picture taken of the results, then the kit will be properly disposed.

[X] This study involves the collection of participant identifiable data (even if temporary such as for recruitment or compensation purposes), and as such, a breach of confidentiality is a risk associated with the research.

2. Discuss what steps have been taken and/or will be taken **minimize and prevent** any risks/potential discomforts described above.

As previously mentioned, we anticipate minimal risks. The secure nature of the study website will ensure that participants and others cannot access the collected data, even their own data after survey completion. Each participant's records will be stored under a unique ID code, and no surveys or datasets will have names or personal identifiers on them; only the unique ID codes will be used. When the peer messages are downloaded into excel datasets, the personal identifiers (e.g., user names) will be replaced with the participants' unique ID codes. We will provide thorough set-up, instructions and guidelines to participants to send their Twitter messages as private, therefore ensuring the messages will not appear on the Twitter public timeline. Another protection is that participants will be free to stop participation at any time. If participants do not complete the follow-up surveys on line, they will be contacted by phone and asked to do the surveys over the phone, but they will not be pressured to do so. Participants will be eligible to receive small incentives for completing the surveys, but there will be no penalty for failing to complete the surveys.

The potential side effects of nicotine replacement therapy (NRT) will be clearly explained in the NRT packaging provided by the manufacturer. Participants who are counter-indicated for NRT will be excluded from the studies. Participants will be reminded of the medical conditions that are contraindicated for NRT use in their NRT shipments in case an excluded condition develops after initial consent (e.g., someone

becomes pregnant). Although all enrolled participants will receive NRT, using the NRT is not a condition of participation and if they experience discomfort they can discontinue the NRT without leaving the study.

Access to Data.
Data access will be limited to the study PIs Pechmann and Prochaska and the research staff, supervised by PI Dr. Pechmann and CR Dr. Prochaska. A file linking the participant ID with identifiable data will be stored separately in PI Pechmann's locked office.

Data Protection.
Upon enrollment, each participant will be assigned a unique ID code and these codes will be used on the surveys; i.e., participants' names will not appear on the surveys. All data collection and entry will be automated using web-based surveys (Qualtrics), and the data will be stored on secure servers and secure personal computers accessible only to research personnel using personal login names and passwords. No data will be stored on portable memory devices. The identifiable data will be maintained and destroyed consistent with university data storage policies, typically six years after completion of grant funding or after confirmation that all data analyses have been completed.

Facebook Alumni Group
With the inclusion of an alumni group for all treatment participants to join at the end of each group, participants will use their personal accounts. Since each participant use's their own account, we can't restrict participants accesses each other's profiles. Facebook does supply privacy settings so that participants can restrict other participants from accessing their profile or if their profile is set to public then it is normally available to all users. As Tweet2Quit is the moderator for the group, only verified members can join and researchers have the ability to remove participants if a participant misbehaves so risk is minimal.

C. Potential Benefits

Discuss the potential benefits directly **to the participant and to society**. **Compensation (i.e., gift cards, cash, course credit, etc.) is *not* a benefit.**

[ ] There is no direct benefit anticipated for the participant.

OR

The main direct benefit is that all participants will receive access to smoking cessation and relapse prevention information, a beneficial cessation protocol, and NRT which should help them to quit smoking or at least reduce their smoking. Providing 8 weeks of nicotine patches at no cost to participants should be a strong incentive to maintain cessation at least for those 8 weeks (as well as 8 weeks' worth of nicotine gum/lozenges to use throughout that time). People who try to quit smoking but fail have a better chance of quitting next time around. Thus many participants should eventually experience direct health benefits. In addition, we expect the Tweet2Quit treatment protocol to further increase cessation rates for those participants.

The research will help to inform researchers, practitioners, and self-help groups about possible ways to improve smoking cessation and prevent smoking relapses. Our approach, which uses Twitter, could be an innovative strategy for reaching a huge population (nationally and globally) of smokers seeking social support for quitting. Twitter is currently a free service that is very easy to use, and if it is effective at helping smokers quit and stay quit, it will represent an extremely cost-effective, readily disseminated treatment to help great numbers of smokers. Our work represents a change in how research is conducted on providing virtual social support to smokers, and we believe it has the potential to change how treatments are delivered, and how self-help is attained.

SECTION 8: ALTERNATIVES TO PARTICIPATION

Describe the alternatives to participation in the study available to prospective subjects. Include routine (standard of care) options as well as other experimental options, as applicable.

[X] No alternatives exist. The only alternative to study participation is not to participate in the study.

[ ] There are routine standard of care alternatives available; specify: <Type here>

[ ] There are other alternatives to study participation; specify: <Type here>

SECTION 9: PARTICIPANT COMPENSATION AND REIMBURSEMENT

1. If subjects will be compensated for their participation, explain the method/terms of payment (e.g., money; check; extra credit; gift certificate).

[ ] Not applicable: This study involves no interaction/intervention with research subjects. *Skip to Section 10.*

[ ] No compensation will be provided to subjects.

[X] Compensation will be provided to subjects in the form of cash/gift certificate.

[ ] Compensation will be provided to subjects in the form of a check issued to the subjects through the UCI Accounting Office. The subject's name, address, and social security number, will be released to the UCI Accounting Office for the purpose of payment and for tax reporting to the Internal Revenue Service (IRS).

[ ] Other: <Type here>

2. Specify the schedule and amounts of compensation (e.g., at end of study; after each session/visit) including the total amount subjects can receive for completing the study. *Compensation should be offered on a prorated basis when the research involves multiple visits.*

   For compensation ≥ $600, subject names and social security numbers must be collected. This information must be reported to UCI Accounting for tax-reporting purposes.

[ ] Not applicable: This study involves no compensation to subjects.

Subjects will be compensated with the following schedule and amounts: At 3 and 6 months after the participants' quit dates, they will be asked to complete a follow up survey and then, if they report being abstinent, to use the provided salivary cotinine Alere iScreen OFD test kit while on webcam. For each completion of the 3 and 6 month follow-up survey, the participant will be mailed $15 (gift card) compensation, and for each saliva test completion the participant will be mailed a $40 (gift card) compensation, for a total of up to $110. However, for participants who qualify for the 6-month saliva test and do not respond to standard contact methods for 3 months, we will increase compensation to $100 (gift card). This will bring the total possible compensation for participants just in this situation (including surveys) to $170. This is for participants who do not return their completed saliva tests after request by email, phone, and text for 3 months past original qualification date. Standard total compensation will remain at $110. All participants in both the Pilot and Main Study groups (including both intervention and control participants) will be offered these incentives.

3. Specify whether subjects will be reimbursed for out-of pocket expenses. If so, describe any requirements for reimbursement (e.g., receipt).

[X] Not applicable: This study involves no reimbursement to subjects.

Subjects will be reimbursed; specify: <Type here>

SECTION 10: CONFIDENTIALITY OF RESEARCH DATA

A. Information and/or Biospecimens Storage

1. Indicate how information and/or biospecimens will be stored and secured. Check all that apply:

[X] Information will be maintained electronically. Information will be password protected and maintained in an encrypted format. *Researchers may access UCI-contracted data sharing and storage tools through UCI OIT.*

[ ] Information will be maintained in hard copy. Information will be stored in a locked area that is not accessible to non-study team members.

[ ] Biospecimens will be stored in a locked lab/refrigerator/freezer that is not accessible to non-study team members.

2. List the location(s) where the data and/or biospecimens will be stored**.**

All data will be deidentified and maintained on a secure network computer.

3. Indicate all subject identifiers that may be retained with the information and/or biospecimens collected for the research study. *If any study-related data will be derived from a medical record, added to a medical record, created or collected as part of health care, or used to make health care decisions the HIPAA policy applies. The subject's HIPAA Research Authorization is required or a waiver of HIPAA Research Authorization must be requested by completing Appendix T.*

[ ] This study does not involve the collection of subject identifiers.

Check all the following identifiers will be used, created, collected, disclosed as part of the research:

[X] Names	**[ ]** Social Security Numbers	**[ ]** Device identifiers/Serial numbers
[X] Dates*	**[ ]** Medical record numbers	**[X]** Web URLs
[X] Postal address	**[ ]** Health plan numbers	**[X]** IP address numbers
[X] Phone numbers	**[ ]** Account numbers	**[ ]** Biometric identifiers
[ ] Fax numbers	**[ ]** License/Certificate numbers	**[X]** Facial Photos/Images
[X] Email address	**[ ]** Vehicle id numbers	**[ ]** Any other unique identifier

[ ] Other (Specify all): <Type here>

* *birth date, treatment/hospitalization dates*

2. Indicate if a code be used to link subject identifiers with the information and/or biospecimens.

[ ] Not applicable: No subject identifiers will be collected.

[X] A code will be used (i.e. information and/or biospecimens will be coded). Subject **identifiers** will be **kept separately** from the information and/or biospecimens. The code key will be destroyed at the earliest opportunity, consistent with the conduct of this research.

[ ] A code will not be used. Subject **identifiers** will be **kept directly** with the information/biospecimens.

5. If **subject identifiable data** will be transported or maintained on **portable devices**, explain why it is necessary use these devices. *Only the "minimum data necessary" should be stored on portable devices as these devices are particularly susceptible to loss or theft. If there is a necessity to use a portable device for the initial collection of identifiable private information, the research files must be encrypted, and subject identifiers transferred to a secure system as soon as possible.*

[X] Not applicable: Research data will not be transported or maintained on portable devices.

[ ] Research data will need to be maintained on the following portable device(s) for the following reason(s): <Type here>

B. Information and/or Biospecimens Access

1. Specify who will have **access to subject identifiable information and/or biospecimens** as part of this study. Check all that apply.

[ ] Not applicable: No subject identifiers will be collected.

[X] Authorized UCI personnel such as the research team and appropriate institutional officials, the study sponsor or the sponsor's agents (if applicable), and regulatory entities such as the Food and Drug Administration (FDA), the Office of Human Research Protections (OHRP), and the National Institutes of Health (NIH).

[ ] Other: <Type here>

2. Specify whether subject identifiers be disclosed in presentations and/or publications.

[ ] Not applicable: No subject identifiers will be collected.

[X] Subject identifiers will **not** be disclosed.

[ ] Subject identifiers will be disclosed. Text regarding the disclosure will be included in the consent document and specific permission to disclose will be discussed with subjects.

3. Specify whether **information and/or biospecimens be shared** with other researchers **outside of the study team** (i.e., UCI / non-UCI researchers) for secondary research purposes.

[X] Not applicable: information and/or biospecimens will **not be shared**

[ ] Identifiable information and/or identifiable biospecimens may be shared. Text regarding the information/specimens sharing will be included in the consent document and specific permission to share information will be discussed with subjects.

Check one of the following:

[ ] A biorepository will be established and manage by the UCI study team. ***Submit Appendix M.***

[ ] Subject identifiers will be retained in an established non-UCI biorepository (i.e. not managed by the UCI study team). The non-UCI biorepository has a current IRB approval on file. Specify the non-UCI biorepository: <Type here>

[ ] De-identified information and/or de-identified biospecimens may be shared (i.e. research participants cannot be identified by other researchers). Text regarding the information/biospecimens sharing will be included in the consent document, as applicable.

Check one of the following:

[ ] No subject identifiers will be retained by the study team beyond initial collection (i.e. information/biospecimens cannot be linked to an individual and a key code does not exist). Requests for de-identified information and/or de-identified biospecimens will be managed by the UCI study team.

[ ] Subject identifiers will be retained by the study team beyond initial collection (i.e. information/biospecimens can be linked to an individual and/or a key code exists). A biorepository will be established and managed by the UCI study team. ***Submit Appendix M.***

[ ] Subject identifiers will be retained by the study team beyond initial collection (i.e. information/biospecimens can be linked to an individual and/or a key code exists). De-identified information/biospecimens will be retained and managed in an established non-UCI biorepository (i.e. not managed by the UCI study team). The study team will remove any information that could potentially allow for the re-identification of participants prior to sending the information/biospecimens to the non-UCI biorepository. Specify the non-UCI biorepository: <Type here>

[ ] Other: <Type here>

C. Information and/or Biospecimens Retention

Indicate how long subject **identifiable information and/or identifiable biospecimens will be retained**. *If more than one of the options below is applicable (e.g., the study involves children), records must be kept for the longer period.*

[ ] **Not applicable**: No subject identifiable research data will be retained.

[ ] This research includes the potential for future **secondary research using identifiable information/biospecimens** which will be stored and maintained indefinitely.

[ ] This research involves **in vitro fertilization** or includes **pregnant women**. Identifiable information/biospecimens will be retained 25 years after study closure.

[ ] This study includes **children**. Identifiable information/biospecimens will be retained for seven years after all children enrolled in the study reach the age of majority [age 18 in California].

[ ] This research involves **Protected Health Information** (PHI). Identifiable consent/assent forms and HIPAA forms, as applicable, will be retained for six years after study closure. *Investigators must destroy PHI at the earliest opportunity, consistent with the conduct of this study, unless there is an appropriate justification for retaining the identifiers or as required by law.*

[X] Identifiable information/biospecimens will be destroyed once research data is analyzed and/or after publication/presentation.

[ ] Other; specify time frame and provide the rationale: <Type here>

D. Photographs, Audio/Video Recordings Retention

1. If subject identifiable audio or video recordings will be collected, specify the timeframe for the transcription and describe retention/destruction plans.

[X] **Not applicable**: Identifiable audio/video recordings will not be collected.

[ ] Audio or video recordings transcribed; specify time frame: <Type here>

[ ] Audio or video recordings will be maintained; specify time frame: <Type here>

[ ] Audio or video recordings maintained indefinitely; provide the rationale: <Type here>

[ ] Audio or video recordings destroyed; specify time frame: <Type here>

2. If subject identifiable photographs will be collected, describe retention/destruction plans.

[ ] **Not applicable**: Subject identifiable photographs will not be collected.

[ ] Photographs will be maintained; specify time frame: <Type here>

[X] Photographs maintained indefinitely; provide the rationale: Photographs of completed saliva test will be kept indefinitely to reconfirm biocomfirmation if needed. Photographs of participants will be deleted after group closure.

[ ] Photographs destroyed; specify time frame: <Type here>

E. Certificate of Confidentiality

1. Indicate whether a Certificate of Confidentiality (CoC) has been or will be requested.

[ ] Not applicable: No CoC has been requested for this study.

[ ] This is a non-NIH funded/supported study. Choose one of the following:

[ ] A CoC will be requested for this study. *The CoC application must be submitted to the IRB staff for review after IRB approval.*

[ ] A CoC has been obtained for this study. *Provide a copy of the CoC Approval Letter.* The expiration date of this CoC is: <Type here>

[X] This is an NIH funded/supported study and a CoC will be automatically issued for studies that involve identifiable, private, and sensitive information.

2. Explain in what situations the UCI study team will disclose identifiable private information protected by a CoC.

Researchers will disclose identifiable information under the following circumstances: Tweets will be monitored to ensure safety of all participants. If any tweets indicate child abuse, neglect, or homicidal intent we are legally obligated to report the messages. If any tweets indicate suicidal thoughts, we will refer the subject to the appropriate mental health services.