**Study Protocol (including Statistical Analysis Plan (SAP))**

**Official Title: V**aper to Vaper: A Multimodal Mobile Peer Driven Intervention to Support Adolescents in Quitting Vaping (V2V)

**NCT#**: NCT05140915

**IRB Approval Date:** March 3, 2023

## 1. TITLE
Vaper to Vaper (V2V): A Multimodal Mobile Peer Driven Intervention to Support Adolescents in Quitting Vaping

## 2. EXTERNAL IRB REVIEW HISTORY*
None.

## 3. PRIOR APPROVALS:
None.

## 4. OBJECTIVES*
In this study, we will develop Vaper-to-Vaper (V2V), a suite of mobile peer driven tools, including peer texting and coaching, based on lessons learned in our prior tobacco intervention work. These tools will engage and help adolescents use strategies to manage cravings and successfully quit e-cigarettes. The specific aims of the V2V study are to:

**Aim 1: Adapt the existing peer-driven and gamification mobile tools to develop the V2V intervention.**

**1A**. Conduct a qualitative study to (1) explore issues unique to e-cigarette use (e.g., concerns, motivations, triggers, symptoms of nicotine dependence), and (2) understand perceived needs for cessation support (preferences for technology (e.g., texting, app-based) to inform adaptation of the toolset.

**1B**. Work with these users to build the V2V innovations, including peer messaging for adolescents, peer-to-peer videos, and game narratives for gamification.

**1C**. Refine the V2V mobile toolset with iterative usability testing (mini-pilot).

There are no hypotheses for Aim 1. Aim 1 is just to adapt the existing peer-driven and gamification mobile tools to develop the V2V intervention.

**Aim 2: Evaluate the feasibility of the research protocols and the feasibility and acceptability of the V2V intervention (peer messaging, peer coaching, and gamification) compared to e-cigarette cessation written materials (control) in a pilot feasibility study.**

**2A**. Assess the feasibility of the research protocols, including participant recruitment and retention.

Hypothesis H1: *We will be able to recruit 80 adolescents (20/school, 40 per study condition), and ≥85% will be retained in each study condition at 6-month follow-up.*

**2B**. Monitor V2V engagement (e.g., number of responses to texting quizzes, peer coaching interactions, peer videos viewed) and assess acceptability of and satisfaction with the program.

**2C**. Assess preliminary effect size estimates of the V2V intervention on cotinine-validated 7-day point prevalence abstinence, time to first quit attempt, and amount of use.

Hypothesis H2: *The intervention will be associated with greater cotinine-validated 7-day point prevalence vaping abstinence rates, lower time to first quit attempt, and less amount of e-cigarette use compared to control at 6-month follow-up.*

## 5. BACKGROUND*
Adolescent e-cigarette use has now exceeded combustible cigarette use, leading the FDA and the U.S. Surgeon General to call the increasing use of e-cigarettes among U.S. adolescents an epidemic.[1-4] The 2018 National Youth Tobacco Survey found a 78% increase in e-cigarette use in just one year,[5] with over 3.5 million youth currently using e-cigarettes. Alarmingly, 28% of high school e-cigarette users are vaping on 20 or more days in the past month.[5] The high amounts of nicotine in e-cigarettes harm adolescent brain development, impacting learning,

memory, attention, mood, and impulse control.[6] Further, adolescent e-cigarette users are at higher risk than non-users of transitioning to traditional cigarettes.[1,2,6-10] Tobacco use continues to be the leading cause of preventable morbidity and mortality in the U.S., with nearly all tobacco use beginning during youth and young adulthood.[11,12] Once transitioned, 80% of these adolescent smokers will continue to smoke into adulthood and, of those, one-half will die 13 years earlier than nonsmoking peers.[13,14]

Evidence-based and accessible e-cigarette cessation interventions are critically needed to help adolescent e-cigarette users quit.[1,2,7] To our knowledge, there are currently no evidence-based interventions to assist adolescent e-cigarette users in quitting.[1,2,7] E-cigarette users are a complex group, including all race and ethnic groups as well as youth of higher and lower socioeconomic status (SES).[15] Although recent concerns regarding vaping and proposed regulatory changes (increasing purchasing age, banning flavors) may increase adolescent interest in quitting and demand for e-cigarette cessation interventions, the perception of lower risk of e-cigarettes may lead to a lower intention to quit,[16,17] with the majority of youth e-cigarette users believing vaping only includes flavoring and not nicotine.[18] Therefore, novel approaches specifically tailored to their unique needs that can be disseminated broadly are required to engage, educate, motivate, and support adolescent e-cigarette users to successfully quit.

Although rates are higher among adolescents in higher SES groups, rates have increased among lower SES groups also. For example, in a recent national online survey of youth aged 13 to 18 between August and October 2017, weighted to be representative of the overall U.S. population, 43% of adolescents who were from lower SES groups indicated that they were current e-cigarette users.[19] Lower SES groups also have lower perceived health risks of e-cigarettes.[20] If we do not appropriately address lower SES groups, we may end up in a similar situation to combustible cigarette use in which disparities have expanded considerably.[20,21] To date, higher SES groups have benefited more from smoking cessation interventions and their rates are considerably low, whereas rates among lower SES groups are considerably higher. Research addressing and boosting treatment potency among health disparities populations is also of considerable interest to NIDA as stated in the PAR (PAR-19-213).[22] Consequently, we decided to target lower SES groups in our study to prevent these disparities in the future.

The V2V multi-modal mobile peer driven intervention adapts our innovative, existing mobile technology into an e-cigarette cessation program for adolescents, creating a highly accessible, engaging and disseminatable treatment option. Delivery of treatment via multi-modal mobile technology may improve efficacy by providing adolescents coaching and support in considering quitting if they are not yet ready, and in quitting when ready, within their real-world contexts. The use of multi-modal mobile technology overcomes many of the challenges youth experience in accessing treatment for their nicotine dependence, potentially increasing reach and creating a highly accessible and disseminatable treatment option.

## 6. INCLUSION AND EXCLUSION CRITERIA*

### Aim 1 Study Population (20 adolescent e-cigarette users (Peer Advisory Panel) and two key informants)

The study population will be derived from 20 adolescent e-cigarette users in one high school selected for its high rate of racial/ethnic minorities and low SES status. We will also recruit two key informants (school nurse and Vice Principal) from the same high school.

**Inclusion criteria for peer advisory panel:** (1) enrolled in grade 9-12 at a local high school; (2) current e-cigarette user; (3) have a smartphone; and (4) English- or Spanish-speaking. Current e-cigarette user is defined as a response greater than "0 days" to the question: "During the past 90 days, on how many days did you use e-cigarettes?" This eligibility criterion is modeled on a question in the 2018 National Youth Tobacco Survey (NYTS), a survey of U.S. middle and high school students which used a 30-day timeframe.

**Exclusion criteria for peer advisory panel**: (1) unable or unwilling to provide informed assent or consent (in the case of those aged 18 years or older).

**Inclusion criteria for two key informants:** (1) employed as a school nurse or Vice Principal at the Aim 1 high school.

**Exclusion criteria for two key informants:** (1) unable or unwilling to participate in the study.

**Aim 2 (80 adolescent e-cigarette users and up to 12 key informants)**
In Year 2 of the project, 80 adolescent e-cigarette users in 4-7 high schools selected for their high rates of racial/ethnic minorities and low SES status (20/school, 40/study condition) will be recruited and complete assessments at baseline and 6-month follow-up.

**Inclusion criteria for 80 adolescent e-cigarette users:** (1) enrolled in grade 9-12 at a participating high school; (2) current e-cigarette user; (3) have a smartphone; and (4) English- or Spanish-speaking. Current e-cigarette use is defined as a response greater than "0 days" to the question: "During the past 90 days, on how many days did you use e-cigarettes?" This eligibility criterion is modeled on a question in the 2018 National Youth Tobacco Survey (NYTS), a survey of U.S. middle and high school students which used a 30-day timeframe.

**Exclusion criteria for 80 adolescent e-cigarette users:** (1) unable or unwilling to provide informed assent or consent (in the case of those aged 18 years or older).

**Inclusion criteria for key informants:** (1) employed as a school nurse, Vice Principal, or other academic administrator at a participating high school.

**Exclusion criteria for key informants**: (1) unable or unwilling to participate in the study.

**Vulnerable Populations**

Pregnant Women
Pregnant women may be included in this study as an incidental population.

Adults Unable to Consent
Adults unable to consent will not be included in the study population.

Prisoners
Prisoners will not knowingly be included in the study population.

Children
We will be recruiting adolescents in grades 9 through 12, aged 13-19 years old. The rationale for targeting adolescents in this study is that the FDA and the US Surgeon General call the increasing use of e-cigarettes among U.S. adolescents an epidemic, with e-cigarette use exceeding combustible cigarette use. The high amounts of nicotine in e-cigarettes harm adolescent brain development, impacting learning, memory, and attention. Adolescent e-cigarette users also are at higher risk than non-users of transitioning to traditional cigarettes. We are therefore interested in applying lessons learned in developing interventions for adolescents and another challenging population, low motivated adult smokers. Study investigators have extensive experience with conducting research with adolescents and a reputation for designing culturally sensitive, patient-centered programs, and we are accountable to those standards. Please see Section #11, *Procedures Involved,* and Section #30, *Consent Process*, for more information.

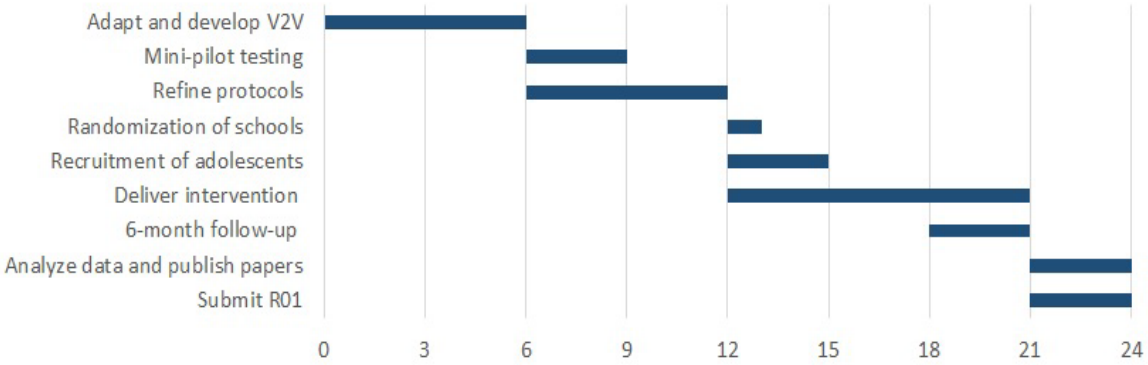
We will include English- and Spanish-speaking individuals in this study. Should the intervention be proven efficacious, we will apply for further funding and plan to include additional non-English speaking populations in future studies.

**7. STUDY-WIDE NUMBER OF SUBJECTS***
N/A; this is not a multi-site study.

**8. STUDY-WIDE RECRUITMENT METHODS***
N/A; this is not a multi-site study.

**9. STUDY TIMELINES***
The overall project timeline is described in the table below (Table 1):

**Table 1. Project Timeline**




This study is planned to take place over the course of two years. Primary analysis is expected to be complete by the end of year two.

**Duration of an Individual Subject's Participation**

Aim 1 adolescent participants (peer advisory panel) are expected to actively participate in the study for no more than one month. The peer advisory panel members will be invited to participate in four activities: 1) Semi-structured interview and brief survey; 2) Text message writing activity; 3) Peer video activity; and 4) Meaningful stories writing session. The semi-structured interview for adolescent participants is expected to last 30-60 minutes, and the survey is expected to last no more than 10 minutes. The text message writing activity is expected to last no more than one hour. The peer video activity is expected to take no longer than one hour. The meaningful stories writing activity is expected to last no more than one hour. In addition to the four activities, after the completion of the qualitative interviews and text message/story development, peer advisory panel members will be invited to participate in a mini-pilot to provide iterative feedback on text message frequency and content. The mini-pilot is expected to take no more than 2 weeks. We will also conduct a qualitative interview at the end of the mini-pilot; this interview is expected to take no more than one hour.

Each activity and the mini-pilot may occur independently from other activities; activities and the mini-pilot may be spread out over the course of one month.

Aim 1 key informant participants are expected to actively participate in the study for no more than one hour.

Aim 2 adolescent participants are expected to actively participate in the study for no more than six months. Once enrolled, adolescents will participate either the control or intervention for six months. We will also conduct brief (30-60 minute) qualitative interviews with all adolescents at their six-month follow-up appointment to deepen our understanding of their experience with the V2V program and obtain specific feedback on ways to improve the program for future refinements.

Aim 2 key informant participants are expected to actively participate in the study for no more than one hour.

All study activities will take place outside of academic instructional hours.

**10. STUDY ENDPOINTS***

The primary outcome for Aim 2 is the feasibility of the research protocols, including participant recruitment and retention. Secondary outcomes include: preliminary effect size estimates of the intervention on cotinine-validated 7-day point prevalence abstinence, time to first quit attempt, and amount of use; acceptability of and satisfaction with the intervention; system use and adoption of cessation supporting strategies; Social Cognitive Theory (SCT) constructs; and demographics and tobacco use.

**11. PROCEDURES INVOLVED***

As with our prior studies, all study activities will occur outside of academic instructional time. This means no student will be removed from their academic classes in order to participate in the study. We will use non-academic times such as physical education, study halls, etc. Study

activities, with the exception of peer coaching and texting, will not take place in the evenings and/or on the weekends.

**Aim 1:**

**Peer Advisory Panel Recruitment:** Letters will be sent to all parents (or legal guardians) of grade 9-12 students in the participating high school informing them of the study and asking them to contact us or the school if they do not wish their child to. Along with the letter, we will also send a fact sheet describing the study to all parents (or legal guardians). In the event that two parents (or legal guardians) are involved and residing at separate addresses, we will send letters and fact sheets to each individual parent (or legal guardian) – a letter and fact sheet will go to each parent at each individual address. Parents (or legal guardians) will have two weeks from the date the letter is sent to them to contact the study team or school. Objection from one parent/legal guardian would be sufficient in order to opt the student out from study participation. The Research Coordinator will maintain a list of all parents (or legal guardians) who have contacted the study team or school to indicate that their child may not participate in the study. If parents (or legal guardians) do not contact the study team or school within the two-week timeframe, their child will be eligible to meet with the Research Coordinator to discuss the study. Parental letters and fact sheets will be sent to all parents (or legal guardians) in the top 4-5 languages spoken at each school, including in English and Spanish. We are including the top 4-5 languages so as not to exclude any adolescents from potentially participating in the study based solely on the fact that their parent or parents' (or legal guardians') primary language is a language other than English. We will send a written letter to parents (or legal guardians) to confirm that their opt-out decision has been received and recorded.

For mailing information to parents/guardians, the study team will use the same mailing address that is used by the school to communicate other important school-related information.

After two weeks, we will recruit adolescent participants with approaches successfully used in our prior school-based studies, excluding those whose parents (or legal guardians) have indicated that their child may not participate in the study. Recruitment packets containing an informational brochure, eligibility criteria, and adolescent assent/consent forms will be given to all students. Flyers and posters will be placed in the school nurse's office and throughout the school. The study will be announced in health education classes and through school-wide and class announcements. Flyers, posters, and announcements will be submitted to the IRB for review and approval prior to use in the study. Recruitment materials will be available in English and Spanish.

Recruitment of the two key informants (school nurse and Vice Principal) will take place in-person at one local high School.

**Enrollment:** Recruitment materials will include the Research Coordinator's contact information. After flyers and posters are placed in the school nurse's office and throughout the school, and after the study has been announced in health education classes and through school-wide class announcements, interested adolescents will contact the Research Coordinator to indicate that they are interested in participating the study. The Research Coordinator will then confirm that the adolescent's parents (or legal guardians) have not indicated that their child may not

participate in the study and will schedule a meeting with the adolescent for the earliest possible date. Interested adolescents whose parents (or legal guardians) have not opted out, or who are 18 or older, will meet with the Research Coordinator in the privacy of the high school nurse's office. The adolescent will not meet with the school nurse. After a brief screening, assent, or informed consent if the student is 18 years of age or older, will be explained by the Research Coordinator such that students understand they have a right to refuse to participate, that their care in the school health clinic and their grades will not be affected by whether or not they decide to participate, and confidentiality will be emphasized. The two consent forms will be used with Aim 1 participants are 18 years of age or older. *See also #30, Consent Process.* The brief screening form will be submitted to the IRB for review and approval prior to use in the study.

**Study Activities:**
The 20 peer advisory panel members will be asked to participate in four activities, as detailed below. Peer advisory panel members will be given the option to participate in all activities, but may choose to participate in only one or some of the activities. In addition, all peer advisory members will be invited to join a mini-pilot.

**Activity 1: Semi-Structured Interviews with Adolescents:** We will employ semi-structured individual interviews with the 20 members of the peer advisory panel. We will develop an interview guide, specific to adolescents. Interview topics for the adolescents will include **i)** understanding their e-cigarette use and triggers; **ii)** positive and negative aspects of use, symptoms of nicotine dependence; **iii)** prior quit attempts; **iv)** what would help them and their friends quit, **v)** technologies they use; **vi)** their thoughts regarding our initial concepts and feedback on our prior technologies; and **vii)** what would support them in using a mobile program. To gather input on the technology, following an open-ended discussion, we will provide the participants' access to our prior tools. This is a recommended approach for gathering input for technology development, and will facilitate more focused input as the participants will have a better understanding of how users will interact with the technology. Further, during this process, we will also seek their input on intensity/frequency of peer messages, peer coaching, and the texting assessments.

The semi-structured interview is expected to last no more than 60 minutes. We will provide a $20 gift card for the completion of this activity. The interview will be conducted in-person or via phone/Zoom, depending upon a student's preference.

To keep interview questions to a minimum and use the interview time efficiently, we have developed a brief survey for Aim 1 adolescent participants. Survey questions include demographic information and e-cigarette use questions. Study staff will ask Aim 1 adolescent participants at the time they schedule their interview to complete the survey one week prior to their scheduled interview. The survey will take place online via REDCap or will be completed in-person via a paper survey, which will then be entered into REDCap (see #13, *Data Analysis and Management*, for more information).

**Activity 2: Peer Messages (70-75 messages):** We will develop a comprehensive set of peer messages using multiple strategies. First, members of the peer advisory panel will be asked questions about their e-cigarette vaping patterns, and history of quit attempts. They also will be asked to describe 3-5 factors/situations that have facilitated or challenged their vaping or their efforts to quit vaping, and strategies that have been helpful to overcome barriers. Next, for each scenario described, they will be asked to write messages to assist other adolescents who might face the same situation. Second, we will ask peers to write messages by responding to 4 scenarios. Scenarios will be matched to the peer writer's gender, vaping status, and other variables of interest. Third, because we may want to ensure inclusion of certain key messages (for example, messages

encouraging use of peer coaches), we will use a co-writing strategy. Our team will write specific messages for these topics and ask the peers to rewrite it in their own words. Co-writing has been shown to improve tone and relatedness of the message.

This activity is expected to last no more than one hour. We will provide a $20 gift card for the completion of this activity.

**Activity 3: Peer videos (8-10 videos):** Based on the first qualitative interview and examination of the peer messages, we will identify key themes and develop a peer video interview guide. We will invite those students who provide assent/consent to participate in the Aim 1 study to be filmed during the peer video interview. We will explain that portions of these filmed interviews will be used in subsequent videos for Aim 2 of the study, and may possibly be used in future iterations of the V2V intervention. For only those Aim 1 participants willing and interested in being videotaped, we will request active parental consent as well as adolescent assent for adolescents under the age of 18 prior to videotaping the peer videos. In addition, we will require all adolescents under the age of 18 and their parent to sign a video release authorization form prior to filming the peer videos. The video release form will state that the adolescent agrees to be videotaped responding to peer video interview questions, and that they understand that selected portions of their video will be digitally archived in a secure online video-sharing platform (example: Vimeo) and shared with others. We will require written consent for Aim 1 adolescents who agree to film the peer videos and are 18 years of age or older. We will also require that adolescents 18 years of age or older sign the video release form (but will not require that their parents (or legal guardians) also sign). Please see *#30, Consent Process* for a description of consent and assent procedures.

Only those adolescents under the age of 18 who provide assent to be videotaped and have active parental consent to be videotaped and whose parent signs the video release authorization, or adolescents aged 18 or older who have provided written informed consent and who have signed the video release authorization, will be videotaped responding to the peer video interview questions for the videos. As we did for the messages, we will generate meta-data for each of these clips. These meta-data will allow us to tailor presentation of these clips to the participant's status.

This activity is expected to last no more than one hour. We will provide a $30 gift card for the completion of this activity. The peer video will be conducted in-person or via phone/Zoom, depending upon a student's preference.

**Peer coaching:** In adapting the peer coaching scripts for V2V, we will include how to deal with common issues likely to be raised by adolescent e-cigarette users based on our qualitative work in Aim 1 (e.g., improving motivation and maximizing the teen's readiness to change, learning to anticipate situations likely to lead to vaping, developing the adolescent's skills and strategies to manage vaping triggers and address nicotine addiction symptoms, and how to maintain abstinence). We will submit peer coaching texting scripts to the IRB for review and approval prior to use in the study. As we have done in the past, peer coaches will receive training in the peer coaching protocol and motivational interviewing strategies, and ongoing fidelity checks will be conducted, with feedback provided to ensure the content of their texts are consistent with protocol. This activity is expected to last no more than one hour.

V2V will differ from the approach we have used in our adult asynchronous coaching study in five ways. First, we will use texting instead of email, as texting is widely used by adolescents.

Second, the coaches will be peer coaches, instead of TTS. Third, these coaches will test proactively connecting adolescents via texting to a peer coach who has successfully quit vaping with effort (a mastery model, as used in our prior work). Each participant will receive periodic texts from their coach inviting them to chat by text. Fourth, we will tailor the facilitation texts to the adolescent's gender and vaping status to increase the relevance of these messages.

**Activity 4: Gamification (2 game narratives):** We will use a similar procedure to the development of peer messages. We will ask the peer advisory panel about their top 1-2 preferred games and ask them to think about the narrative for these games. They will then be asked how they would develop this narrative if given the opportunity to develop the games. To use as prompts, our team will conduct a review of top games played by adolescents and collect the narrative used for these games. Through a group review, we will finalize these narratives for V2V.

This activity is expected to last no more than one hour. We will provide a $20 gift card for the completion of this activity.

**Activity 5: Mini-Pilot:** We will conduct 2-4 real world mini-pilot studies with a maximum of 16 participants. We will aim to conduct the mini-pilots with members of our peer advisory panel, but we may also invite other students from the high school to join the mini pilots (please see the description of Aim 1 recruitment strategies listed at the beginning of this section; all flyers, posters, and announcements will include mention of the mini-pilot). We will ask adolescents to provide separate assent for mini-pilot activities.

We will use the mini-pilots to test **i)** V2V's technical functioning; and **ii)** our protocols (e.g., data collection, peer coaching, gamification, frequency of texting quizzes). The mini-pilots in our past trials have been helpful in highlighting areas for improvement.[23] The mini-pilot will mimic our Aim 2 protocol; however, adolescents will have access to V2V for only a period of 2 weeks. At the end of two weeks, we will conduct a detailed qualitative interview with these users to identify potential facilitators and barriers to study participation. We will group review these barriers and facilitators to make needed protocol changes. The mini-pilot qualitative interview guide will be submitted to the IRB for review and approval prior to use in the study.

The mini-pilot is expected to last no more than 2 weeks. The qualitative interview at the end of the mini-pilot is expected to take no more than 60 minutes. We will provide a $30 gift card for the completion of the mini-pilot.

**Key Informant Recruitment and Enrollment:**
Recruitment of the two key informants (school nurse and Vice Principal) will take place in-person at the high school. We are requesting a waiver of documentation of consent for the two key informants. We will provide the key informants with a fact sheet.

**Semi-Structured Interviews with Adult Key informants:** We will employ semi-structured individual interviews with the school nurse and vice principal (2 key informants) from the high school. We will develop two complementary interview guides, one for adolescents and one for adult key informants. The interview guides will be submitted to the IRB for review and approval prior to use in the study.

Interview topics for adult key informants will include **i)** understanding the use of e-cigarettes in their school; **ii)** what they think might help students stop e-cigarette use, what they have tried and

how it worked/did not work; **iii)** their thoughts regarding our initial concepts; and **iv)** what they feel would help students use a mobile program. Interviews will employ a semi-structured open-ended approach, allowing for natural conversation with opportunities to explore unanticipated issues. Interviews will be recorded, transcribed, and coded.

The semi-structured interview is expected to last no more than 60 minutes. We will provide a $100 gift card to the key informants for completion of this interview.

**Compensation:** Gift cards totaling up to $120 ($20-$30 for each activity and the mini pilot) will be provided to adolescents for completion of Aim 1 activities. Gift cards of $100 will also be provided to the key informants (school nurse and Vice Principal) and to the school nurses assisting with study activities (e.g., serving as the on-site point person for study recruitment, referring students requesting additional information regarding the study to research staff). There are two nurses at the high school, and we will provide a $100 gift card per nurse.

See also Section #30, *Consent Process.*

**Aim 2**

We will recruit from 4-7 local high schools (that were not involved in Aim 1), selected for their high rates of racial/ethnic minorities and low SES status. Prior to recruitment, the study team will obtain IRB approval for the specific schools. To reduce the chances of imbalance across conditions, the schools will be matched based on percentage low income, percentage African American, and number of students, and divided into two sets of two. Within each set of two, we will randomly assign one school to each of the study conditions.

**Adolescent Recruitment:** Letters will be sent to all parents (or legal guardians) of grade 9-12 students in participating schools informing them of the study and asking them to contact us or the school if they do not wish their child to participate. Along with the letter, we will also send a fact sheet describing the study to all parents (or legal guardians). In the event that two parents (or legal guardians) are involved and residing at separate addresses, we will send letters and fact sheets to each individual parent/legal guardian – a letter and fact sheet will go to each parent/legal guardian at each individual address. Parents (or legal guardians) will have two weeks from the date the letter is sent to them to contact the study team or school. Objection from one parent/legal guardian would be sufficient in order to opt the student out from study participation. The Research Coordinator will maintain a list of all parents (or legal guardians) who have contacted the study team or school to indicate that their child may not participate in the study. If parents (or legal guardians) do not contact the study team or school within the two-week timeframe, their child will be eligible to meet with the Research Coordinator to discuss the study. Parental letters and fact sheets will be sent to all parents (or legal guardians) in the top 4-5 languages spoken at each school, including in English and Spanish. We are including the top 4-5 languages so as not to exclude any adolescents from potentially participating in the study based solely on the fact that their parent or parents' (or legal guardians') primary language is a language other than English. We will send a written letter to parents (or legal guardians) to confirm that their opt-out decision has been received and recorded.

For mailing information to parents/guardians, the study team will use the same mailing address that is used by the school to communicate other important school-related information.

We will recruit participants with approaches successfully used in our prior school-based studies. Recruitment packets containing an informational brochure, eligibility criteria, and adolescent assent/consent forms will be sent to all students. Flyers and posters will be placed in the school nurse's office and throughout the school. The study will be announced in health education classes and through school-wide class announcements. Recruitment materials will include the Research Coordinator's contact information. After flyers and posters are placed in the school nurse's office and throughout the school, and after the study has been announced in health education classes and through school-wide class announcements, interested adolescents will contact the Research Coordinator to indicate that they are interested in participating the study. The Research Coordinator will then confirm that the adolescent's parents (or legal guardians) have not indicated that their child may not participate in the study and will schedule a meeting with the adolescent for the earliest possible date. Meetings with the Research Coordinator will take place in the privacy of the school nurse's office. The adolescent will not meet with the school nurse. Informed assent, or informed consent if the student is 18 years of age or older, will be explained such that students understand they have a right to refuse to participate, that their care in the school health clinic and their grades will not be affected by whether or not they decide to participate, and confidentiality will be emphasized. Eligible students will be enrolled and follow the protocol for their school condition. All students in each school will receive the same intervention. Flyers, posters, and announcements will be submitted to the IRB for review and approval prior to use in the study. All recruitment materials will be available in both English and Spanish.

**Enrollment:** Interested adolescents whose parents (or legal guardians) have not opted out, or who are 18 or older, will meet with the Research Coordinator in the privacy of the high school nurse's office. The adolescent will not meet with the school nurse. After a brief screening, assent, or informed consent if the student is 18 years of age or older, will be explained such that students understand they have a right to refuse to participate, that their care in the school health clinic and their grades will not be affected by whether or not they decide to participate, and confidentiality will be emphasized. *See also #30, Consent Process.* The screening form will be submitted to the IRB for review and approval prior to use in the study.

**Study Activities:**

**Trial:** The control group will be provided written e-cigarette cessation materials. To the intervention group, we will provide access to the V2V toolkit, including access to peer coaches and peer messaging, detail how the peer messages and videos were pre-developed and set expectations for the response time from their peer coaches.

Baseline (study entry) and 6-month follow-up data will be collected from all enrolled Aim 2 participants in the privacy of the school nurse's office. Baseline and 6-month data collection forms will be submitted to the IRB for review and approval prior to use in the study; see Table 2 for a description of data to be collected. We have also included measures in the baseline and 6-month data collection forms to assess psychosocial factors (including the Perceived Stress Scale

and Depressive Symptoms Scale). We will calculate and monitor the scores for these scales in real-time. If we find a score above the pre-established clinically significant cutoff for that scale, we will notify the school nurse as soon as possible (within two business days) via phone and encrypted email. The school nurse will then follow the school's established policies for addressing depressed, anxious, or stressed students. Scoring for the Perceived Stress Scale is as follows: Individual scores on the 4-item PSS (PSS-4) can range from 0 to 16, with higher scores indicating higher perceived stress. Scores ranging from 0-5 would be considered low stress. Scores ranging from 6-11 would be considered moderate stress. Scores ranging from 12-16 would be considered high perceived stress. For the purposes of this study, we will consider any score in the 12-16 range to be clinically significant. The scoring for the Depressive Scale is as follows: Survey respondents are provided with four response categories, including "Never", "Rarely", Sometimes", and "Often." These four responses are assigned scores of 1, 2, 3, and 4, respectively, and then summed to produce an overall depressive symptom score which ranges from 6 to 24 points. In addition, these scores are increased by 10 to produce a new range of 16 to 34 points. The cutoff score of 29 or greater indicates notable depressive symptoms. For the purposes of this study, we will consider a score of 29 or greater to be clinically significant.

After completion of the surveys, we will verbally encourage all participants to speak with their health care provider or call or text the 988 Suicide & Crisis Lifeline at 988 or chat 988lifeline.org if they or someone they know is experiencing suicidal thoughts or is in emotional distress. Participants will be informed that the 988 Lifeline has trained crisis workers who are available to talk 24 hours a day, 7 days a week, that their call is confidential, and that it goes to the nearest crisis center in the Lifeline national network. These centers provide mental health crisis counseling and mental health referrals.

We will pre-test these assessments to ensure the time burden does not exceed 15-20 minutes. Data confidentiality will be emphasized on the surveys and verbally by the Research Coordinator, and by using a unique identification number. Our study also includes texting quizzes, to be sent out over the course of the 6-month trial.

With participant permission, we will collect complete and accurate contact information from the student at baseline, including home address, phone, cell phone, email, and phone numbers of three contacts and best times and days to reach them to maximize retention. A contact sheet will be completed by the participant that will include the above information. Care will be taken to maintain the confidentiality of the student's participation; therefore all students will be asked to provide us with the individuals or contact information where they feel comfortable being contacted by study staff or where they feel assured that the confidentiality of their participation will be maintained. The other contacts provided by the student will not be informed of the student's vaping status. We have found in prior studies that cell phone numbers and e-mail addresses are particularly helpful in remaining in contact with this population. Tracking procedures will be implemented for any student who does not attend a scheduled study visit or who is not accessible by telephone or e-mail at the contact location provided. Attempts to locate students will be made mainly through the schools and by telephone calls to the contacts provided or directory assistance.

Table 2. Study Assessments, Measures and Data Collection Timing

| **Variable and Measure** | Relevant Aim | Baseline | 6-month follow-up |
|---|---|---|---|
| Recruitment: # screened and eligible, # and reasons for refusal | 2A | • | |
| Retention: # of dropouts, reasons for dropping out | 2A | | • |
| Engagement (V2V only): # of completed responses to texting quizzes, peer videos viewed, peer coaching interactions | 2B | | * |
| Acceptability and satisfaction: Client Satisfaction Questionnaire (CSQ-8) semi-structured interview | 2B | | • |
| Cotinine-validated 7-day point prevalence abstinence: saliva samples collected from all; analyzed for those reporting 7-day abstinence; cut-off 11.4 ng/ml | 2C | | • |
| E-cigarette use frequency (past 7 and 30 day) and intensity (# days and amount vaped in past 7 and 30 day) | 2C | • | • |
| THC/marijuana and other tobacco use frequency (past 7 and 30 day) and intensity (# days and amount vaped) | | • | • |
| **Social Cognitive Theory (SCT) constructs** | | | |
| Self-efficacy, confidence to quit: Self-efficacy Questionnaire (SEQ-12) | | • | • |
| **Demographics and tobacco use** | | | |
| Demographics: age, gender, socio-economic status, race/ethnicity, grade in school, academic performance | | • | • |
| History of all tobacco use, past and recent quit attempts, cessation strategies used | | • | |
| Attitudes about e-cigarette and other tobacco use | | • | • |
| Stage of change: Prochaska's Stages of Change | | • | • |
| Severity of nicotine addiction: Hooked on Nicotine Checklist (HONC) (adapted for vaping) | | • | • |

**Semi-Structured Interviews:** In addition to the above assessments, we will conduct brief qualitative interviews with all intervention participants after they have completed six-month follow-up to deepen our understanding of their experience with the V2V program and obtain

specific feedback on ways to improve the program for future refinements. The interviews will examine a series of topics, including constructs from our hypothesized conceptual model, as well as participant perceptions of each of the V2V components, message content, and system usability. Across these topics, our goal will be to understand what participants most valued and to elicit recommendations for further intervention enhancement. Interviews will be semi-structured, allowing for natural conversation with opportunities to explore unanticipated issues. We anticipate interviews to be no more than 60 minutes in duration. The interview guides will be submitted to the IRB for review and approval prior to use in the study.

**Compensation:** Gift cards worth $25 will be provided to adolescents for completion of each assessment (baseline and 6-months; $50 total).

**Key Informant Recruitment and Enrollment:**
Recruitment of eight key informants (school nurse, Vice Principal, or other academic administrator) will take place in-person at the high school. We are requesting a waiver of document of consent for the key informants. We will provide key informants with a fact sheet.

**Semi-Structured Interviews with Adult Key informants:** We will employ semi-structured individual interviews with the school nurse, vice principal, or other academic administrator (minimum of 2 key informants) from each participating high school. We will develop two complementary interview guides, one for adolescents and one for adult key informants. The interview guides will be submitted to the IRB for review and approval prior to use in the study. The semi-structured interview is expected to last no more than 60 minutes.

**Compensation:** Gift cards of $100 will also be provided to the key informants (school nurse, Vice Principal, or other academic administrator).

See also #30, *Consent Process* and #9, *Study Timelines*.

**12. DATA AND SPECIMEN BANKING***
N/A

**13. DATA ANALYSIS AND MANAGEMENT***

**Aim 1:**
**Data collection:** Data collected from participants during Aim 1 will be obtained through semi-structured individual interviews, peer video interviews, a survey and writing/material development sessions. Data confidentiality will be emphasized during the informed assent/consent process with adolescents (see section #30 for more details). Any data captured via the writing sessions and surveys will be entered into the regulated environment through a secure Research Electronic Data Capture (REDCap) form. REDCap is a secure web application for building and managing online surveys and databases that was funded by the National Institutes of Health. REDCap data is also stored in a regulated and secure environment. With the exception of the peer videos, we will retain study records and documents for a period of 3 years after the completion of the study. As peer videos will become part of our V2V multi-modal intervention, we may use them in future iterations of the intervention. Thus, the peer videos will not be deleted at the conclusion of the study. We have noted in the active parental consent form, adolescent assent form, the consent form for adolescents 18 years or older, and the video release form that there is no limit on the length of time we will store the peer videos and that it is possible that we might use the peer videos in future iterations of the V2V Intervention.

**Data Analysis:**
Data gathered through qualitative interviews will be managed and coded using NVivo 10. An integrated approach to coding will be used, employing a coding start-list based on protocol questions (deductive coding) and open coding driven by emersion in the qualitative data (inductive coding).[24] Duplicate coding will be conducted with at least 10% of the interview transcripts and coding comparisons will be run to ensure inter-rater reliability.[25] Disputes in coding decisions will be discussed within the research group until resolved. We will continue to test and refine coding until we attain a Kappa >.80. NVivo qualitative analysis software will be employed to generate coding reports that summarize participant responses, ideas, and reflections related to relevant research questions.[26] Two members of the research team will complete the thematic analysis

**Aim 2:**
**Data collection:** Data collected from participants will be obtained through interviews, paper and pencil surveys, and collection of saliva samples for cotinine assessment by the Research Coordinator in-person at the school nurse office at baseline and 6-months post-study entry. The student survey and assessment tools for this study will be adapted from our prior adolescent smoking cessation trials and will be submitted to the IRB for review and approval prior to use in the study. Survey and assessment tools are described in Table 2 on page 10 of the ISP. Data confidentiality will be emphasized on the surveys and verbally by the Research Coordinator (see section #30), and by the use of a unique identification number. Data will be entered into the regulated environment through a secure Research Electronic Data Capture (REDCap) form. REDCap is a secure web application for building and managing online surveys and databases that was funded by the National Institutes of Health. REDCap data is also stored in a regulated environment. These files will be deleted after study completion. Portable devices used to collect data (audio and film recordings) will be UMMS-issued devices and files will not be encrypted during the recording, but the recordings will be transferred as soon as possible (i.e.: typically within the same day) to UMMS servers. Once the files are transferred, they will be deleted from the portable devices.

We will conduct biochemical verification using a saliva NicAlert® test (Nymox Corporation), which is a semi-quantitative method that uses a dipstick to measure the level of cotinine in a sample of saliva. The test strip displays the result in seven zones with each zone representing a range of levels of cotinine/smoking (e.g.: zone 0 [0 – 10 ng/mL, a nonsmoker] to zone 6 [>1000 ng/mL, a heavy smoker]). The results are read as 0-6, and as recommended, any value $\geqslant 1$ is considered as tobacco use. Research staff will enter these values into the database, using the participant ID as an identifier, and destroy the samples.

**Data Analysis:**
**Aim 2A (Feasibility)** *Hypothesis H1: We will be able to recruit 80 adolescents (20/school, 40 per study condition), and ≥85% will be retained in each study condition at 6-month follow-up.* We will estimate recruitment rates, overall and per condition. Also, for each condition, we will model 6-month retention, using generalized estimating equation (GEE) logistic regression to account for within-school clustering and dependence over time.

Proposed Sample Size**.** As appropriate for a pilot study, we are estimating our power and sample size based on the feasibility hypothesis (H1). Because pilot studies do not provide meaningful estimates of effect sizes due to the imprecision inherent in small samples, we base our proposed sample size of 40 students per condition (20 per school) on obtaining precision in estimating condition-specific retention rates, providing important information for design and recruitment for the future R01 study. Based on our prior study of adolescent smoking cessation, estimated intra-school correlation=0.01, for a design effect due to within-school clustering of $1 + [0.01 \times (20 - 1)] = 1.19$, and an effective sample size per condition of $40/1.19 = 34$. Based on our prior studies in

adolescents in school settings, we anticipate at least 85% retention. Thus, a conservatively wide 95% exact CI for per-condition retention rate is (68.9%, 95.0%).

**Aim 2B (Monitor V2V Engagement and Assess Program Satisfaction)** As the trial progresses, we will monitor engagement overall and by participant subgroups (e.g. by gender, race, age) as a formative assessment. Then, as the trial ends, we will also use this information as a component of our summative evaluation. We anticipate that engagement will lead to positive changes in acceptability, and satisfaction, and cessation.

Defining V2V Engagement level: Engagement measures include: Number of intervention assessments completed, peer videos viewed, and peer coaching interactions. To assess each of these, we will first categorize an adolescent's engagement with each component. For example, for intervention assessments, we will calculate percent of assessments completed (number of assessments divided by the total number of assessment opportunities). Second, we will then calculate the median percent complete across the sample and dichotomize into higher engaged (adolescent's percent completed was at the median or higher) or lower engaged (under the median). We will use a similar procedure for the peer videos viewed. Third, for peer coaching, we will use the count of the number of messages to the peer coach. We anticipate that this count could vary considerably, as some will have sent 0 messages and there is no absolute maximum number of messages sent. We will base the higher versus lower engaged based on the distribution (median split or another reasonable quantile). We could then look at the distribution of engagement with each component, and predictors of engagement (by the adolescent's characteristics).

From these three measures, we will create an *engagement summary score*. The range for the summary score would be from 0 to 3 (0 = lower engagement in all 3 measures, 3 = higher engagement in all 3). We will assess the association of this score with the acceptability and satisfactions score using linear mixed modeling. Acceptability and satisfaction scores will be calculated using the Client Satisfaction Questionnaire (CSQ-8). The overall score is calculated by summing the respondent's rating (item rating) score for each scale item. Scores therefore range from 8 to 32, with higher values indicating higher satisfaction. Similarly, we will look for association between summary score and cessation. We recognize that, for these analyses, power will be limited due to the sample, and further we do not have estimates upon which to base estimates for power calculations. These analyses are conducted to guide our future R01.

**Aim 2C (Cessation Outcomes)** *Hypothesis H2: The intervention will be associated with greater cotinine-validated 7-day point prevalence vaping abstinence rates, lower time to first quit attempt, and less amount of e-cigarette use compared to control at 6-month follow-up.* We recognize that there is some controversy about estimating effect sizes from pilot studies. However, we are calculating effect sizes in our study to provide a range, recognizing that there might be uncertainties because of our small sample size. To estimate effect sizes for V2V intervention versus control, between-condition differences over time will be estimated for **cotinine-validated 7-day point prevalence abstinence** using GEE logistic regression with a random effect for school and fixed effects of condition, time point (baseline and 6 months), and their interaction. Missing data is handled using inverse probability weighting. By taking the repeated measurements into consideration, the GEE model is able to increase the power to test the difference in the outcome. COX regression modeling will be used to examine the intervention effect on **time to first quit attempt** adjusting for other covariates. **Amount of e-cigarette use** will be calculated as a reduction from baseline. We will model this reduction using negative binomial regression modeling if the variance of the distribution of risk reduction is over dispersed.

Other information important for the design of a future study includes standard deviations, as well as **preliminary assessment of possible mediators** such as engagement, behavioral capability, and self-efficacy. We will identify important mediators in exploratory analyses. Guided by the conceptual model based on SCT, we will assess effects of intervention on the mediator and the

effects of the mediator on the outcome, controlling for other mediators in the model, and confounders of the mediator-outcome relationship, and then estimate the proportion of the intervention effect explained. Given the limited sample size, conclusions from the mediation analyses will be limited and treated with caution, but modeling will allow us to explore the constructs of SCT and potential predictors towards a larger RCT.

**Brief Interviews for Future Refinements:** In addition to the above assessments, we will conduct brief qualitative interviews with all study participants after they have completed six-month follow-up to deepen our understanding of their experience with the V2V program and obtain specific feedback on ways to improve the program for future refinements. We will use the same approach as Aim 1A to analyze these interviews. Data gathered through qualitative interviews will be managed and coded using NVivo[10]. An integrated approach to coding will be used, employing a coding start-list based on protocol questions (deductive coding) and open coding driven by emersion in the qualitative data (inductive coding). Duplicate coding will be conducted with at least 10% of the interview transcripts and coding comparisons will be run to ensure inter-rater reliability. Disputes in coding decisions will be discussed within the research group until resolved. We will continue to test and refine coding until we attain a Kappa >.80. NVivo qualitative analysis software will be employed to generate coding reports that summarize participant responses, ideas, and reflections related to relevant research questions. Two members of the research team will complete the thematic analysis.

**Data Security (Aim 1 and Aim 2)**
All persons collecting or handling data will be trained in human subjects' procedures, confidentiality, and privacy protection. All investigators and project staff are required to receive, and complete, Human Subjects and HIPAA training.

All computerized data, excluding data stored in REDCap (Research Electronic Data Capture), will be kept on secured computers or network servers, behind University of Massachusetts firewalls. These data will be accessible only to research staff with approved access, using confidential usernames and passwords. Any paper data will be kept in locked cabinets or a locked file room accessible only by research staff. Data downloaded from REDCap will be stored and secured according to these methods.

Participant confidentiality will be maintained through a number of strategies. Each participant will be assigned a unique study identification number. Subsequent protection of study data will be assured by the use of locked files and password-protected computer databases. A key to link each code with subjects' names and identifiers will be kept will be kept separate from the research dataset in a locked filing cabinet in the study office and in a password-protected excel sheet, stored on secure University of Massachusetts computers. This linkage data is necessary to implement the intervention and conduct the study. The linkage data file will be destroyed at the earliest possible time, once data collection is complete and data accuracy are verified.

Film recordings of peer video interviews will be recorded on portable devices, which will be stored in a secure location (locked drawer that only study staff can access). Portable devices will be UMMS-issued devices and files will not be encrypted during the recording, but the recordings will be transferred as soon as possible (i.e.: typically within the same day) to UMMS servers. Once the files are transferred, they will be deleted from the portable devices. We will obtain

assent and active parental consent from adolescents under the age of 18, and written consent for adolescents 18 years of age or older (see also section #30). Peer videos will be made available to study participants via a secure website (example: Vimeo), and will be password protected. As these peer videos will become part of our V2V multi-modal intervention, we may use them in future iterations of the intervention. Thus, the peer videos will not be deleted at the conclusion of the study. We have noted in the active parental consent form, adolescent assent form, the consent form for adolescents 18 years or older, and the video release form that there is no limit on the length of time we will store the peer videos and that it is possible that we might use the peer videos in future iterations of the V2V Intervention.

We will utilize professional transcription services for interview transcription. Recordings will be uploaded to https://www.sendthisfile.com, a HIPAA compliant website, to be transferred to a professional transcriptionist. Send This File uses SAS70 type II/SSAE16 compliant data centers to ensure that private data is protected; features of this service include 128-bit Transport Layer Security (TLS) encryption and password protection, among other security precautions. The transcriptionist uses a password to access uploaded materials to Send This File, works on a password-protected desktop computer, and once transcribed and the transcript is received by the client, the transcriptionist deletes the recording. Recordings will be transcribed verbatim without subject identifiers. Once transcripts have been reviewed for completeness and accuracy, recordings will be deleted from the secure network drive and devices, but will remain on the secure website mentioned above for the duration of the study. Transcriptions will be kept in locked file cabinets in locked offices, and on password-protected computers.

All data will be used for research purposes only; published data will not contain any individual identifiers and will be reported in the aggregate.

See also #14, *Provisions to Monitor the Data to Ensure the Safety of Subjects*, #26, *Confidentiality* and #27, *Provisions to Protect the Privacy Interests of Subjects.*

**14. PROVISIONS TO MONITOR THE DATA TO ENSURE THE SAFETY OF SUBJECTS***
The proposed study involves no more than minimal risk to participants. Please see Section #11, *Study Activities, Trial* for further information.

All study data will be stored in a HIPAA compliant regulated environment and access will be only through a secure VPN network. All participant-related identifiers are encrypted in the database. The study's biostatistician will organize data security and archiving. In no way will individual participant data be released to the public or cited in a publication. We have substantial experience with successfully implementing these methods.

Participant confidentiality will be maintained through a number of strategies. As noted in Section #13, *Data Analysis and Management*, each participant will be assigned a unique study identification number. The only individual who will have access to these identifiers will be the Research Coordinator responsible for data collection. Other UMMS personnel will not be privy to identifying information about the individual participants. The survey data collected from participants will not be accessible to the school nurse or other school personnel, as all completed surveys will be placed in a sealed envelope by the participants and given to the Research

Coordinator to be brought to UMMS for data entry. However, if we find a survey score above the pre-established clinically significant cutoff for the Perceived Stress of Depressive scales, the school nurse will be notified of this survey result as soon as possible (within two business days) via phone and encrypted email. Subsequent protection of study data will be assured by the use of locked files and password-protected computer data bases with access available only to the principal study personnel. Data collected via texting will be identified only by a study subject specific numerical code to ensure protection of confidentiality. Data will be automatically downloaded to our secure server and checked for errors and completeness. A key to link each code with subjects' names and identifiers will be kept in a locked filing cabinet in the study office and in a password-protected excel sheet, stored secure University of Massachusetts computers.

Data and Safety Monitory Board: This trial is not a Phase III study of a pharmaceutical treatment, but as it is a behavioral intervention, we will establish a Data and Safety Monitoring Board (DSMB). The DSMB will be charged with reviewing protocols and consent documents for this trial, monitoring safety issues throughout the study, monitoring the quality of the accumulating data, providing guidance on interim analyses, and providing guidance on stopping rules. They will also serve as a liaison among the study investigators, the University of Massachusetts Medical School's Office of Human Research Protections (IRB), and the National Institute of Health (NIH). The DSMB will be comprised of persons with no direct involvement in the study or conflict of interest with the research team conducting the randomized trial. The DSMB will include individuals with expertise in: 1) Biostatistics; and 2) Pediatric Psychology. Once recruitment for the trial has begun, the DSMB will meet two times per year or more frequently as determined by the DSMB members. The DSMB and the PI will decide upon the format of the meetings. Additional telephone conferences will be held if doing so is recommended by the DSMB. We will develop the DSMB Charter within the first three months of the study and will provide the IRB with a copy of the DSMB Charter once the document is available.

## 15. WITHDRAWAL OF SUBJECTS WITHOUT THEIR CONSENT*

We do not anticipate withdrawing any participants without their assent (for those under the age of 18), consent (for those 18 years of age or older), or without parental/guardian permission (for the videotaped interviews of minors).

## 16. RISKS TO SUBJECTS*

### Potential Loss of Confidentiality

There are potential risks associated with data collection and information management. These include inadvertent disclosure of research variables collected. Participants may also feel uneasy about participating in the interviews. Reasonable efforts will be made to inform the subject of these potential risks and to minimize the risks.

### Protection Against Risks

Minimizing Risks: Reasonable efforts will be made to minimize risks and participant inconvenience. Risks will be minimized by: 1) adequate training of all staff; 2) ensuring participants are verbally informed of the details of the semi-structured interviews and other study

activities as they are delivered, including informing the participant that they do not have to answer any interview questions that they are not comfortable answering, and that they can stop the interviews at any time; and 3) frequently encouraging participant questions throughout the semi-structured interviews and other study activities.

## 17. POTENTIAL DIRECT BENEFITS TO SUBJECTS*

One potential benefit of being in this study is preventing personal health risks that can be caused by vaping. Participants will also be helping to develop vaping interventions for teens that may help support adolescents to quit vaping. However, there are no direct benefits to participants from study participation.

## 18. VULNERABLE POPULATIONS*

### Adolescents

This study includes adolescent e-cigarette users, ages 13-19. For these participants, we will send letters and fact sheets to all parents (or legal guardians) of grade 9-12 students in participating schools informing them of the study and asking them to contact us or the school if they do not wish their child to participate. Informed assent with adolescents under the age of 18, or informed consent with adolescents 18 years of age or older, will be explained such that students understand they have a right to refuse to participate, that their care in the school health clinic and their grades will not be affected by whether or not they decide to participate, and confidentiality will be emphasized. We will request special permission during the assent/consent process to film the peer videos with our Aim 1 participants. After student participant assent is obtained, we will request active parental consent for those under the age of 18 to film the peer videos before proceeding with enrollment.

For adolescents under the age of 18, we will obtain the adolescent's overt agreement to participate in our study by providing the adolescent with an assent form describing the study. We will go through the assent process and study expectations with the adolescent and ensure any questions the adolescent may have about the study or their participation are answered. We will not enroll a child if there is any sign of unwillingness.

### Pregnant Women

Pregnant women may be included in the study as an incidental population. We confirm the following criteria for federally-funded research involving this population:

1. No inducements, monetary or otherwise, will be offered to terminate a pregnancy.
2. Individuals engaged in the research will have no part in any decisions as to the timing, method, or procedures used to terminate a pregnancy.
3. Individuals engaged in the research will have no part in determining the viability of a neonate.

### Prisoners

Prisoners will not be knowingly included in the study.

## 19. MULTI-SITE RESEARCH*

N/A; this is not a multi-site study.

**20. COMMUNITY-BASED PARTICIPATORY RESEARCH***
N/A

**21. SHARING OF RESEARCH RESULTS WITH SUBJECTS***
We do not plan on sharing the research results, including individual results, with study participants.

**22. SETTING**
The setting for this study (all aims) is five to eight high schools throughout Massachusetts. Assent/consent procedures and baseline and six-month data collection will take place in the privacy of the school nurse's office. All other study activities (semi-structured interviews, peer message development, peer videos, peer coaching trainings, and gamification development) will take place in the privacy of the school nurse's office or virtually via a secure Zoom call.

**23. RESOURCES AVAILABLE**
All study personnel will read the study protocol, receive the appropriate supervision and possess the appropriate experience (both higher education and related work experience) needed to fulfill their roles and complete their responsibilities for this study. All investigators and project staff are required to receive and complete Human Subjects and HIPAA training. All research personnel will hold a current Human Subjects Training Certificates. All study staff have adequate time budgeted to fulfill their responsibilities in the study and will meet periodically to ensure that they are adequately informed about the protocol, the research procedures, and their duties and functions. As study personnel roles are filled, we will update the list of Active Study Staff in the eIRB system. The Principal Investigators will oversee all personnel and all research activities conducted within this study.

The Multiple Principal Investigators (MPIs) will also have responsibility for the overall conduct of the project at the study site. They will have primary oversight of all study personnel. They will participate in the design and the execution of the respective study analyses and will be responsible for the reporting and dissemination of study results.

The Biostatisticians will assist in the design and performance of analyses relevant to the project and will assist in the development of study deliverables. The biostatisticians will direct the creation of data collection systems in year 1, monitoring of data collected in years 1-2, and statistical analyses for evaluating processes and outcomes of the study in year 2. In addition, the biostatisticians will provide statistical support and data collection supervision throughout the course of the project, will be responsible for maintaining the study's REDCap database, and will conduct data analysis for the study.

The Qualitative Expert will be responsible for designing and analyzing the project's qualitative interviews.

The Programmer will perform a range of programming and data management activities essential to conduct of the project. S/he will assist in the development of study databases, data cleaning

and validation activities, and the performance of analyses under the direction of the principal investigator.

The Project Directors will assist the Principal Investigators in implementing all aspects of the project. Under the direction of the investigators, the project directors will be responsible for day-to-day oversight of the project, including: developing timelines, work allocation, workflow plans, monitoring project progress and task completion, monitoring spending and effort allocation, and managing correspondence and administrative tasks. They will monitor/manage ethics and regulatory approvals (IRB, HIPAA), attend and plan for all project-related meetings, oversee recruitment, retention, data collection, and the distribution of incentives to participant. The project directors will also assist in supervising the Research Coordinator and initial set-up of recruitment. They will be responsible for maintaining communications with all parties participating in the project.

The Research Coordinator will be the primary study staff member responsible for participant recruitment, enrollment, and retention. This includes scheduling and conducting participant baseline interviews, entering collected data into the project's database, administering six-month follow-up assessments, including cotinine validation, and preparing and assembling all materials for the study.

The Peer Coaches will be students from local colleges who had smoked as adolescents and successfully quit with difficulty, providing a mastery model for smoking cessation. They will be trained in motivational interviewing and behavior change counseling, and will be required to demonstrate competency prior to delivering the intervention. The Peer Coaches will be responsible for sending periodic texts to Aim 2 intervention participants.

**24. LOCAL RECRUITMENT METHODS**

**Aim 1:**

Letters will be sent to all parents (or legal guardians) of grade 9-12 students in participating schools informing them of the study and asking them to contact us or the school if they do not wish their child to participate. Along with the letter, we will also send a fact sheet describing the study to all parents (or legal guardians). In the event that two parents (or legal guardians) are involved and residing at separate addresses, we will send letters and fact sheets to each individual parent – a letter and fact sheet will go to each parent at each individual address. Parents (or legal guardians) will have two weeks from the date the letter is sent to them to contact the study team or school. Objection from one parent/legal guardian would be sufficient in order to opt the student out from study participation. The Research Coordinator will maintain a list of all parents (or legal guardians) who have contacted the study team or school to indicate that their child may not participate in the study. If parents (or legal guardians) do not contact the study team or school within the two-week timeframe, their child will be eligible to meet with the Research Coordinator to discuss the study. Parental letters and fact sheets will be sent to all parents (or legal guardians) in the top 4-5 languages spoken at each school, including in English and Spanish. We are including the top 4-5 languages so as not to exclude any adolescents from potentially participating in the study based solely on the fact that their parent or parents' (or legal guardians') primary language is a language other than English. We will send a written letter to parents (or legal guardians) to confirm that their opt-out decision has been received and

recorded.

For mailing information to parents/guardians, the study team will use the same mailing address that is used by the school to communicate other important school-related information.

After two weeks, we will recruit participants with approaches successfully used in our prior school-based studies, excluding those whose parents (or legal guardians) indicated that their child may not participate in the study. Recruitment packets containing an informational brochure, eligibility criteria, and adolescent assent/consent form will be given to all students, using the procedure(s) selected by the school. Flyers and posters will be placed in the school nurse's office and throughout the school. The study will be announced in health education classes and through school-wide and class announcements. Recruitment materials will be available in both English and Spanish. Recruitment materials will include the Research Coordinator's contact information. After recruitment materials and announcements have been distributed throughout the school, interested adolescents will contact the Research Coordinator to indicate that they are interested in participating the study. The Research Coordinator will then confirm that the adolescent's parents (or legal guardians) have not indicated that their child may not participate in the study and will schedule a meeting with the adolescent for the earliest possible date. Interested adolescents whose parents (or legal guardians) have not indicated that their child may not participate will meet with the Research Coordinator in the privacy of the school nurse's office. Assent for those under the age of 18, or informed consent for those 18 years of age or older, will be explained such that students understand they have a right to refuse to participate, that their participation is voluntary, that their care in the school health clinic and their grades will not be affected by whether or not they decide to participate, and confidentiality will be emphasized. We will request special permission during the assent/consent process to film the peer videos with our Aim 1 participants. After student participant assent/consent is obtained, we will request active parental consent to film the peer videos before proceeding with enrollment. In addition, only adolescents under the age of 18 who provide assent to be videotaped and have active parental consent to be videotaped and whose parent signs the video release authorization, or adolescents 18 years of age or older and who provide informed written consent and who sign the video release authorization, will be videotaped responding to interview questions for the videos.

Recruitment of the two key informants (school nurse and Vice Principal) will take place in-person at the high school.

**Aim 2:**

Letters will be sent to all parents (or legal guardians) of grade 9-12 students in participating schools informing them of the study and asking them to contact us or the school if they do not wish their child to participate, as we have successfully done previously. Should individual schools require active parental consent, we will work with them to implement these procedures. Along with the letter, we will also send a fact sheet describing the study to all parents (or legal guardians). In the event that two parents (or legal guardians) are involved and residing at separate addresses, we will send letters and fact sheets to each individual parent – a letter and fact sheet will go to each parent at each individual address. Parents (or legal guardians) will have two weeks from the date the letter is sent to them to contact the study team or school. Objection from one parent/legal guardian would be sufficient in order to opt the student out from study

participation. The Research Coordinator will maintain a list of all parents (or legal guardians) who have contacted the study team or school to indicate that their child may not participate in the study. If parents (or legal guardians) do not contact the study team or school within the two-week timeframe, their child will be eligible to meet with the Research Coordinator to discuss the study. Parental letters and fact sheets will be sent to all parents (or legal guardians) in the top 4-5 languages spoken at each school, including in English and Spanish. We are including the top 4-5 languages so as not to exclude any adolescents from potentially participating in the study based solely on the fact that their parent or parents' (or legal guardians') primary language is a language other than English. We will send a written letter to parents (or legal guardians) to confirm that their opt-out decision has been received and recorded.

For mailing information to parents/guardians, the study team will use the same mailing address that is used by the school to communicate other important school-related information.

Recruitment packets containing an informational brochure, eligibility criteria, and adolescent assent/consent form will be sent to all students. Flyers and posters will be placed in the school nurse's office and throughout the school. The study will be announced in health education classes and through school-wide and class announcements. Recruitment materials will be available in both English and Spanish. Recruitment materials will include the Research Coordinator's contact information. After recruitment materials and announcements have been distributed throughout the school, interested adolescents will contact the Research Coordinator to indicate that they are interested in participating the study. The Research Coordinator will then confirm that the adolescent's parents (or legal guardians) have not indicated that their child may not participate in the study and will schedule a meeting with the adolescent for the earliest possible date. Interested adolescents will meet with the Research Coordinator in the privacy of the school nurse's office. Informed assent/consent will be explained such that students understand they have a right to refuse to participate, that their care in the school health clinic and their grades will not be affected by whether or not they decide to participate, and confidentiality will be emphasized. Eligible students will be enrolled and follow the protocol for their school condition. All students in each school will receive the same intervention.

Recruitment of the two key informants (school nurses, Vice Principals, or other academic administrators) will take place in-person at the participating high schools.

**25. LOCAL NUMBER OF SUBJECTS**

The local number of subjects for this study is as follows:

**Aim 1:** 20 adolescent e-cigarette users (peer advisory panel) and 2 key informants (school nurse and vice principal) from 1 high school.

**Aim 2:** 80 adolescent e-cigarette users from four high schools selected for their high rates of racial/ethnic minorities and low SES status (20/school, 40/study condition) will be recruited and complete assessments at baseline and 6-month follow-up. With a conservative 85% retention rate, we will achieve a total of 68 e-cigarette users (17/school, 34/study condition) at 6-month follow-up. We will also recruit up to 12key informants (school nurses, vice principal, or other academic administrator) from participating high schools.

Overall, we plan to recruit up to 110 individuals.

**26. CONFIDENTIALITY**

Participant confidentiality will be maintained through a number of strategies. All study information will be stored on the UMMS regulated environment. Each participant will be assigned a unique study identification number. Subsequent protection of study data will be assured by the use of locked files and password-protected computer databases. A key to link each code with subjects' names and identifiers will be kept will be kept separate from the research dataset in a locked filing cabinet in the study office and in a password-protected excel sheet, stored on secure University of Massachusetts computers on the UMMS regulated environment. This linkage data is necessary to implement the intervention and conduct the study. The linkage data file will be destroyed at the earliest possible time, once data collection is complete and data accuracy are verified.

Recordings of the semi-structured interviews will be transcribed by a professional transcriptionist and will have identifiers redacted during transcription. All recordings will be destroyed after study completion. Portable devices will be used for the recordings. Portable devices used to collect data (audio and film recordings) will be UMMS-issued devices and files will not be encrypted during the recording, but the recordings will be transferred as soon as possible (i.e.: typically within the same day) to UMMS servers. Once the files are transferred, they will be deleted from the portable devices.

As adolescents are particularly engaged by videos, a novel approach we will explore in this study is use of peer videos as an additional tool to deliver peer messages regarding vaping and quitting. Peer videos will be made available to study participants via a secure website (example: Vimeo), and will be password protected. As described in Section # 11, Procedures Involved, peer videos will be filmed as part of the Aim 1 activities, and will be used in Aim 2 of the study, when we will explore use of peer videos to deliver our messaging intervention. Our considerations for using peer videos is as follows: video-based peer-to-peer communication is very popular among adolescents, and videos (e. g., YouTube) are among the most engaged content by adolescents on social media. Most adolescents (69%) watch online videos every day (increasing from 34% in 2015), and prefer watching these videos on their phones rather than on their computers. Further, the presence of disparities does not mean that we don't consider these technologies for disadvantaged groups, rather that we explore different options to identify the best fit for the targeted groups. Otherwise, we might further perpetuate health disparities. These videos will be designed to be short (< 2 minutes) and each video will focus on one specific point. We will develop them to use less bandwidth for smartphone consumption. Please note that adolescents can wait to watch these videos when they have access to wi-fi. Further, we are delivering these videos as part of a multi-modal intervention; thus, adolescents can still benefit from V2V even if they are unable to view the videos. Our goal with this R34 is to explore engagement, acceptability and satisfaction with these technologies. As noted, we will require that all adolescents appearing in these peer videos provide assent (or consent for those 18 years or older) and sign a video release form. We will also require active parental consent and parental signature on the video release form for those under the age of 18. As these peer videos will become part of our V2V multi-modal intervention, we may use them in future iterations of the intervention. Thus, the peer videos will not be deleted at the conclusion of the study. We have noted in the active parental consent form, adolescent assent form, the consent form for adolescents 18 years

or older, and the video release form that there is no limit on the length of time we will store the peer videos and that it is possible that we might use the peer videos in future iterations of the V2V Intervention.

Data collected from participants will be obtained through interviews, paper and pencil surveys, writing sessions, and collection of saliva samples for cotinine assessment by the Research Coordinator, in-person at the school nurse office at baseline and 6-months post-study entry. Data confidentiality will be emphasized on the surveys and verbally by the Research Coordinator, and by the use of a unique identification number. Data will be entered into the UMMS regulated environment through a secure Research Electronic Data Capture (REDCap) form. Data (excluding peer videos) will not be distributed. Peer videos will be distributed to study participants via a secure website (example: Vimeo), and will be password protected. With the exception of the peer videos, we will retain study records and documents for a period of 3 years after the completion of the study.

See also #13, *Data Analysis and Management*.

**Protection for Risks Associated with Potential Loss of Confidentiality**

The study team have systems, oversight, experienced personnel, and an organizational culture that supports the appropriate use, access and storage of confidential information. All persons collecting or handling data will be trained in human subjects' procedures, confidentiality and privacy protection. All investigators and project staff are required to receive and complete Human Subjects and HIPAA training. All research personnel will hold a current Human Subjects Training Certificate.

Because the study will be funded by the NIH, we will follow the guidelines in the NIH certificate of confidentiality. The certificate keeps us from sharing identifiable sensitive information collected for the research unless the participants allow us to do so. This is included in the assent and consent form that was included as part of this IRB application. We will only disclose information about the students if they plan to harm themselves or others, or if they have a clinically significant score on the psychosocial factors scales included in the baseline and follow up data collection forms. We will not be disclosing information about illicit drugs issues to law enforcement agencies, parents, the school, or others.

If a parent (or legal guardian) calls the study team to request information that their child provides regarding their substance use, such information will not be disclosed to the parent/legal guardian per the NIH Certificate of Confidentiality.

We will not inform parents (or legal guardians) about their adolescent's vaping status unless the student chooses to participate in the peer videos. In that case, parental/legal guardian consent will indicate that the child is an e-cigarette user. The student will be informed that their parent (or legal guardian) will be notified of their vaping status in the consent form if they choose to participate in the peer videos.

See also #13, *Data Analysis and Management*.

**Data Collected via REDCap**
Study data will be captured via REDCap. The REDCap Consortium is comprised of hundreds of active institutional partners from CTSA and other institutions, and it supports a secure web application (REDCap) designed exclusively to support data capture for research studies (http://www.project-redcap.org). University of Massachusetts Medical School is a REDCap Consortium site.

REDCap is used to build and manage online surveys and databases. The front end of REDCap is written in PHP, which is widely used, robust, open source scripting language. Web servers, database servers, and security of communication between servers occur locally at each Consortium site where data capture is stored. Thus, all study data is stored and hosted at the local institution, and no project data is ever transmitted at any time by REDCap from that institution to another institution or organization.

Some additional security features include: a) specification of "user access": by account, by project, or by User Access group; b) system Log-in: assigned username and user-identified password required, automatic inactivity logout, password specificity requirements, passwords must be changed every 30 days, restrictions on use of previous password; c) system lock-out: following succession of unsuccessful login attempts, or if no login to the system within 30 days.

**Data Destruction**
We will retain study records and documents (excluding peer videos) for a period of 3 years after the completion of the study. Identifying information will be destroyed at the earliest possible time, once data collection is complete and data accuracy is verified. Informed consent will be kept for 6 years after completion of the study in conformance with UMass and federal policy. There is no limit on the length of time we will store the peer videos.

**27. PROVISIONS TO PROTECT THE PRIVACY INTERESTS OF SUBJECTS**
All participants will be told that participation is voluntary, that they are free to not respond or to terminate involvement at any time, with no adverse consequences.

**28. COMPENSATION FOR RESEARCH-RELATED INJURY**
None; there are no resources available. We do not anticipate any research-related injuries. We believe the research poses no more than minimal risk to subjects.

**29. ECONOMIC BURDEN TO SUBJECTS**
N/A. There are no anticipated costs to participate in the study.

**30. CONSENT PROCESS**

**Aim 1:**

- **V2V_Aim 1 Parental Letter_English:** This letter will be sent to all parents (or legal guardians) of grade 9-12 students at a local high school. The parental letter will inform parents (or legal guardians) of the study and will ask them to contact us or the school if they do not wish for their child to participate. Parents (or legal guardians) will have two weeks from the date the letter is sent to them to contact the study team or school. The Research

Coordinator will maintain a list of all parents (or legal guardians) who have contacted the study team or school to indicate that their child may not participate in the study. If parents (or legal guardians) do not contact the study team or school within the two-week timeframe, their child will be eligible to meet with the Research Coordinator to discuss the study. Parental letters will be sent to all parents (or legal guardians) in the top 4-5 languages spoken at each school, including in English and Spanish. We are including the top 4-5 languages so as not to exclude any adolescents from potentially participating in the study based solely on the fact that their parent or parents' (or legal guardians') primary language is a language other than English.

- **V2V_Aim 1 Parental Fact Sheet**: This fact sheet will be sent to all parents (or legal guardians) of grade 9-12 students at a local high school. It will contain additional information about the study not included in the parental letters. The fact sheet will be sent in the top 4-5 languages spoken at each school, including in English and Spanish.
- **V2V_Aim 1 Adolescent Assent Form:** This assent form will be used with interested adolescents under the age of 18 whose parents (or legal guardians) have not contacted us or the school indicating that they do not wish their child to participate in Aim 1 activities, including a one-hour semi-structured interview, peer message development, peer videos, and gamification. We will request special permission during the assent process to film the peer videos with our Aim 1 participants. Assent will be obtained by the Research Coordinator in the privacy of the school nurse's office. Assent will be explained such that students understand they have a right to refuse to participate, that their care in the school health clinic and their grades will not be affected by whether or not they decide to participate, and confidentiality will be emphasized. We will obtain the adolescent's overt agreement to participate in our study by providing the adolescent with an assent form describing the study. We will go through the assent process and study expectations with the adolescent and ensure any questions the adolescent may have about the study or their participation are answered. We will not enroll a child if there is any sign of unwillingness.
- **V2V_Aim 1 Mini-Pilot Assent Form.** This assent form will be used with adolescents under the age of 18 who are participating in the Aim 1 Mini-Pilot. Assent will be explained such that students understand they have a right to refuse to participate, that their care in the school health clinic and their grades will not be affected by whether or not they decide to participate, and confidentiality will be emphasized. We will obtain the adolescent's overt agreement to participate in the mini-pilot by providing the adolescent with this assent form. We will go through the assent process and mini-pilot expectations with the adolescent and ensure any questions the adolescent may have about the mini-pilot or their participation are answered. We will not enroll a child if there is any sign of unwillingness.
- **V2V Aim 1_Parental Consent Form:** This consent form will be used with parents (or legal guardians) of adolescents under the age of 18 who agree to film the peer videos. After student participant assent is obtained, we will request active parental consent to film the peer videos before proceeding with filming.
- **V2V_Aim 1 Students 18 or Older Consent Form_Mini-Pilot:** This consent form will be used with adolescents aged 18 years or older who are participating in the Aim 1 Mini-Pilot.
- **V2V_Aim 1 Students 18 and Older Consent Form**: This consent form will be used with Aim 1 participants who agree to participate in Aim 1 activities and are 18 years of age or older. We will also require that these participants sign the video release form, as described below.

- **V2V_Aim 1 Video Release Form:** This form will be used for both adolescents and parents (or legal guardians) of adolescents who agree to film the peer videos. While this is not a consent document, we do feel it is important to note that both adolescents under the age of 18 and their parents (or legal guardians) will be required to sign this form prior to proceeding with the filming of the peer videos. We will also require adolescents 18 or older to sign this form, but will not require parental signature for those 18 or older. This form emphasizes that the adolescent and their parent (in the case of those under the age of 18) agree to participate in the filming of the adolescent's interview about e-cigarette use, and that they understand that selected portions of the adolescent's video regarding e-cigarette use will be digitally archived in a secure online video-sharing platform (example: Vimeo) and shared with others participating in the V2V multi-modal intervention without disclosing the adolescent's identity.
- **V2V_Aim 1 Key Informant Fact Sheet:** As per prior IRB recommendation, this fact sheet will be provided to the Aim 1 Key Informants (school nurse and vice principal) in lieu of a written consent form. We are requesting a waiver of documentation of consent for key informants.

**Aim 2:**

- **V2V_Aim 2_Parental Letter_English:** This letter will be sent to all parents (or legal guardians) of grade 9-12 students in the participating schools informing them of the study and asking them to contact us or the school if they do not wish their child to participate. Parents (or legal guardians) will have two weeks from the date the letter is sent to them to contact the study team or school. The Research Coordinator will maintain a list of all parents (or legal guardians) who have contacted the study team or school to indicate that their child may not participate in the study. If parents (or legal guardians) do not contact the study team or school within the two-week timeframe, their child will be eligible to meet with the Research Coordinator to discuss the study. Parental letters and fact sheets will be sent to all parents (or legal guardians) in the top 4-5 languages spoken at each school, including in English and Spanish. We are including the top 4-5 languages so as not to exclude any adolescents from potentially participating in the study based solely on the fact that their parent or parents' (or legal guardians') primary language is a language other than English. We will send a written letter to parents (or legal guardians) to confirm that their opt-out decision has been received and recorded.
- **V2V Aim 2 Parental Fact Sheet**: This fact sheet will be sent to all parents (or legal guardians) of grade 9-12 students at participating high schools. It will contain additional information about the study not included in the parental letters. The fact sheet will be sent in both English and Spanish.
- **V2V Aim 2 Adolescent Assent Form_Intervention and V2V_Aim 2 Adolescent Assent Form_Control:** This assent form will be used with interested adolescents under the age of 18 whose parents (or legal guardians) have not contacted us or their school indicating that they do not wish their child to participate in Aim 2 study activities. Assent will be obtained by the Research Coordinator in the privacy of the school nurse's office. Assent will be explained such that students understand they have a right to refuse to participate, that their care in the school health clinic and their grades will not be affected by whether or not they decide to participate, and confidentiality will be emphasized. We will obtain the adolescent's overt agreement to participate in our study by providing the adolescent with an assent form

describing the study. We will go through the assent process and study expectations with the adolescent and ensure any questions the adolescent may have about the study or their participation are answered. We will not enroll a child if there is any sign of unwillingness. Eligible students will be enrolled and follow the protocol for their school condition.

- **V2V Aim 2_Students 18 and Older Consent Form_Control**: This consent form will be used in place of informed assent with Aim 2 participants who are 18 years of age or older and will be participating in the control arm of the study.
- **V2V Aim 2_Students 18 and Older Consent Form_Intervention**: This consent form will be used in place of informed assent with Aim 2 participants who are 18 years of age or older and who will be participating in the intervention arm of the study.
- **V2V Aim 2 Key Informant Fact Sheet**: Per prior IRB guidance, this fact sheet will be provided to Aim 2 Key Informants (school nurses, vice principals, or other academic administrator) in lieu of a written consent from. We are requesting a waiver of documentation of consent for key informants.

For the consent process for both aims, we will follow *HRP-802 INVESTIGATOR GUIDANCE: Informed Consent*.

**31. PROCESS TO DOCUMENT CONSENT IN WRITING**

We are requesting a waiver of written documentation of consent permission for all participants in Aim 1 and Aim 2 of the study, excluding adolescents aged 18 years or older. We feel that the waiver of documentation of written consent is reasonable in this instance, as:

1. The research presents no more than minimal risk to subjects because it consists of materials development, semi-structured interviews, and surveys. This is a low-risk study. The intervention is fundamentally educational.
2. The research involves no procedures for which written consent is normally required outside of the research context. Recorded semi-structured interviews and surveys have appropriate confidentiality protections.
3. The investigator will provide a written statement regarding the research that embodies the elements of consent.
4. The investigator will provide participants with that written statement.

We are also requesting a waiver of parental permission for all adolescent participants under the age of 18 who participate in Aim 1 and Aim 2 of the study, excluding those who chose to participate in the filmed interview activity. In accordance with § 46.117, we feel that the waiver of parental permission is reasonable in this instance, as:

1. The research presents no more than minimal risk to subjects because it consists of materials development, semi-structured interviews, and surveys. This is a low-risk study. The intervention is fundamentally educational.
2. The research could not practicably be carried out without a waiver of parental permission, as adolescent e-cigarette users may be reluctant to participate if their e-cigarette use status is revealed to their parents (or legal guardians). Most 9-12 graders do not tell their parents (or legal guardians) that they use e-cigarettes. We would not be able to recruit enough students who both meet our eligibility criteria and tell their parents (or legal guardians) that they use e-cigarettes.
3. A waiver of parental permission will not adversely affect the rights and welfare of the

subjects, as we will be obtaining adolescent assent for participation in the study and providing parents (or legal guardians) with an opportunity to let us know if they do not wish to have their child participate in the study.

4. The research could not practicably be carried out without using identifiable private information because we need access to participant names and contact information in order to conduct study activities and follow-up.
5. If clinically relevant information is discovered over the course of the research, we will contact the IRB before contacting study participants and/or their parents (or legal guardians).

We will request parental written consent for all adolescents participating in the filming of peer videos in Aim 1 and for participants aged 18 years or older. Each signed consent form will be maintained for a minimum of six years after the completion of the research.

We will follow HRP-803 INVESTIGATOR GUIDANCE: Documentation of Informed Consent for the written consent forms.

**32. DRUGS OR DEVICES**

N/A; this research does not involve testing drugs or device.

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