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## Educational Intervention to Change Knowledge and Attitudes Regarding Sexual Behaviors to Reduce Rates of Sexually Transmitted Infections among University of Kentucky's Sorority Life Students.

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Julianna Maita, Student

Dr. Rafael Perez Figueroa, MD, MPH, Committee Chair

Sarah Wackerbarth, Director of Graduate Studies

**Educational Intervention to Change Knowledge and Attitudes Regarding Sexual Behaviors  
to Reduce Rates of Sexually Transmitted Infections among University of Kentucky's  
Sorority Life students.**

CAPSTONE PROJECT PAPER

A paper submitted in partial fulfillment of the  
requirements for the degree of  
Master of Public Health  
in the  
University of Kentucky College of Public Health

By  
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## Abstract

Sexually transmitted infections disproportionately affect young adults. Within this age group, women are at an increased risk for contracting and STI and face more severe long-term adverse consequences than men. College aged individuals are at an increased risk for contracting an STI due to risky sexual behaviors such as unprotected sex with multiple partners. College students involved in Greek Life have been found to engage in riskier sexual behaviors than non-Greek life students. These individuals perceive themselves to be at a higher risk for contracting an STI and have an increased number of unprotected sexual encounters under the influence of drugs or alcohol. The University of Kentucky, located in Lexington, reported a 393% increase in Chlamydia cases from 2007 to 2017. Due to the risk factors involved in Greek Life and the spike in STI cases on campus, The University of Kentucky's Panhellenic community is the ideal place to implement an intervention program. *Insights* is a minimal, yet highly tailored intervention focused on improving the adoption of condom use and other safe sex practices among sorority women. Participants complete a baseline survey which identifies a unique combination of strategies and pertinent information that are most beneficial to the individual. Customized booklets will be created and distributed to each participant. Along with the booklets women will receive a safe sex kit. Goals of the intervention include increasing existing knowledge regarding STIs and sexual risks, promoting positive change in attitudes and beliefs surrounding condom use, and enhancing self-efficacy for condom use and safer sex negotiations. *Insights* will be evaluated with self-administered 3-month and 6-month follow up surveys. Identifying barriers and opportunities for program implementation in our specific community as well as overall program effectiveness in promoted our desired goals is the focus of our evaluation. Long-term intervention outcomes include a decrease in STI prevalence within our community.

## TARGET POPULATION AND NEED

The target population of this proposed program is women involved in Sorority life at the University of Kentucky.

### STI Overview

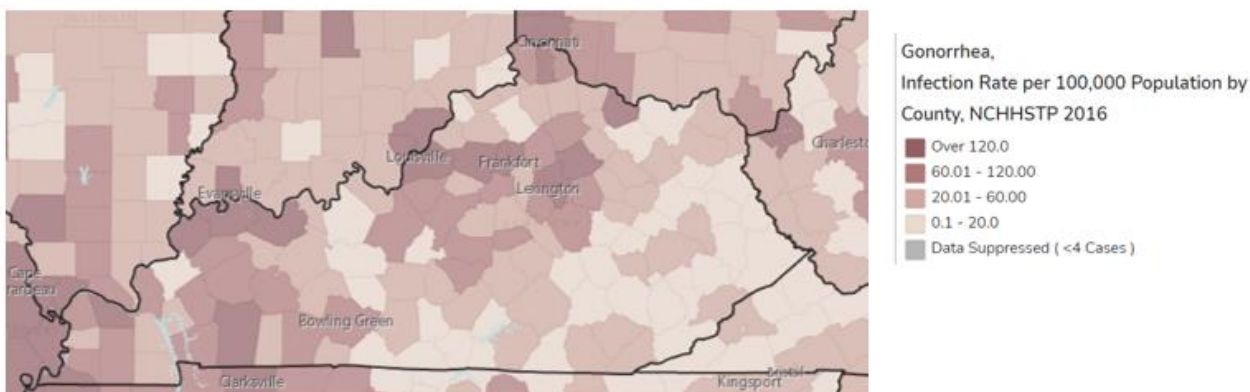
Sexually transmitted infections (STIs) disproportionately affect young adults. Although young adults make up only a quarter of the United States population, they account for half the new STI cases (Shannon and Klausner, 2018). Women are at an increased risk for contracting an STI due to the anatomy of their reproductive organs, and they are less likely to present symptoms that would raise concern (CDC, 2011). Compared to men, women in the United States experience more severe long-term adverse consequences of STIs (CDC, 2011). Untreated STIs can lead to pelvic inflammatory disease which results in infertility and ectopic pregnancies (CDC, 2011). Women can also pass STIs to their babies resulting in stillbirth, brain damage, and other serious complications (CDC, 2011).

The prevalence of chlamydia (CT) and gonorrhea (GC) are increasing at startling rates among college aged individuals. CT infections among females aged 15-19 years old increased 4.1% from 2014-2016 (Shannon and Klausner, 2018). From 2015-2016 alone, rates of GC infection increased 11.3% among individuals aged 15-19 years and 10.9% among individuals 20-24 years (Shannon and Klausner, 2018). These rates directly reflect the need of this program among this young adult age group.

The University of Kentucky is in Fayette County, the second most populated county in Kentucky (United States Census Bureau, 2020). Fayette County's rates of new CT and GC cases is well above the national and state average. Fayette County's CT infection rate per 100,000

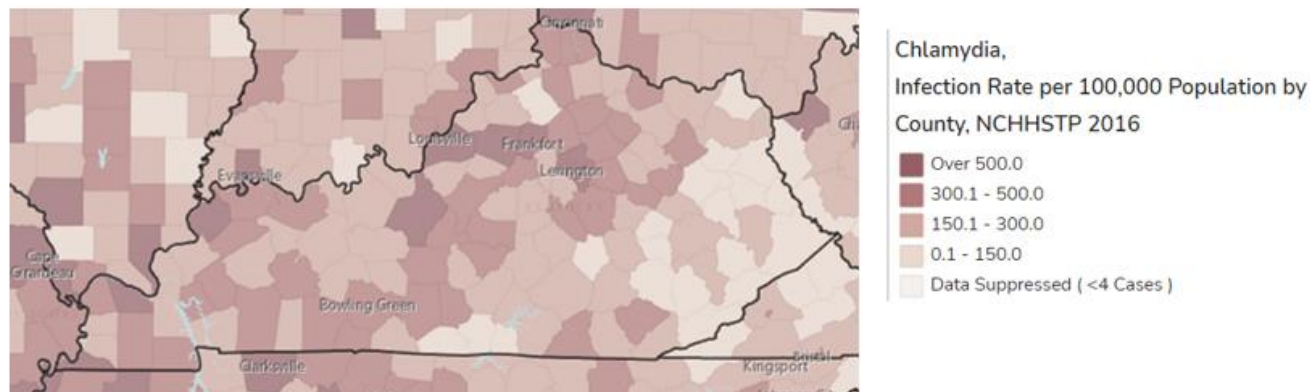
people was 737.4, compared to the state average of 436.4 and the national average of 539.9 (CDC, 2018). Fayette County’s GC infection rate per 100,000 people was 320.5, compared to the state average of 167.7 and the national average of 179.1 (CDC, 2018). Behind from Jefferson County, Fayette County has the highest rates of GC and CT in the state of Kentucky (CDC, 2016). The increased population due to the urban setting as well as the college, and an overall higher access to testing services may be reasons Fayette County has increased rates of STIs. The maps below depict GC and CT cases by county. With Lexington as a reference point, this map shows the STI disparities experienced by Fayette county.

**Gonorrhea Infection Rate per 100,000 Population by Kentucky County**



Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention: 2016

**Chlamydia Infection Rate per 100,000 Population by Kentucky County**



Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention: 2016

UK's University Health Services reported an increase of CT and GC cases that reflect the overall national increase among this age cohort (Eads, 2018). From 2007 to 2017 a 393% increase in CT cases was reported at University Health Services (Eads, 2018). There are multiple biological, cultural, and behavioral reasons sexually active young adults are at a higher risk of contracting an STI (CDC, 2018).

### *STIs among Sorority Women*

During the 2018-2019 school year there were 21.9 million students enrolled in colleges and universities across the United States (Bustamante, 2019). The largest proportion of full-time students were among the 18-21-year-old age group (Bustamante, 2019). Greek Life, an umbrella term for the different social organizations, is a major part of many students' college experiences. Men and women join chapters that offer leadership, service, and social opportunities during their college career. There are 750,000 members on over 800 college campuses in the United States and Canada (Greek Life Statistics). About 27% of the University of Kentucky's full-time undergraduate population is involved in Greek life (Fischer, 2018).

College aged individuals are at an increased risk for contracting an STI for multiple reasons. Young adults, ages 16-24 years, are more likely to have multiple sex partners and participate in unprotected sex (Subbarao and Akhilesh, 2017). This age cohort may not have a comprehensive knowledge on ways to prevent the acquisition of STIs (Subbarao and Akhilesh, 2017). This age group may experience barriers to quality STI prevention and treatment services which can attribute to further infections (CDC, 2018). Stigma surrounding STI services is also prevalent among this age group (CDC, 2018). There are multiple factors associated with an increased rate of STIs among college aged individuals. Many young people have more than one sex partner and

do not get regularly tested (CDC, 2014). Along with these social factors, young women's bodies are biologically more prone to STIs (CDC, 2014).

Greek members have been found to engage in riskier sexual behaviors than non-Greek students (Scott-Sheldon et al., 2008). Studies have shown a relationship between Greek membership and an increased number of sexual partners and increased number of sexual encounters under the influence of drugs or alcohol (Scott-Sheldon et al., 2008). Greek life students perceived themselves to be at a higher risk of contracting and STD than non-Greek students (Scott-Sheldon et al., 2008). Heavy drinking at Greek life parties was associated with unprotected sex (Mair et al., 2016). Greek members overall were more likely to report participation in unplanned sexual encounters (Mair et al, 2016).

One of the four subcategories of Greek Life is the National Panhellenic Conference. Fifteen all-women social organizations make up the University of Kentucky's Panhellenic community (UKY.edu, 2020). Panhellenic is the largest women's organization on UK's campus involving over 3,600 undergraduate students (uksorority.com, 2020). The newest sorority joined UK's campus in 2019, while the oldest was founded over 110 years ago (uk.sorority.com, 2020). Women involved in sororities are often prone to risky sexual behaviors and are susceptible to the negative consequences of risky sexual behavior (Hernandez, 2018).

### Community Resources

All University of Kentucky sorority members are eligible to use University Health Services (UHS) for their on-campus healthcare (ukhealthcare.uky.edu, 2020). Since they must be a full-time student to be a part of Greek life, these women pay a mandatory health fee through their tuition (ukhealthcare.uky.edu, 2020). Gynecology services and individual sexual health classes

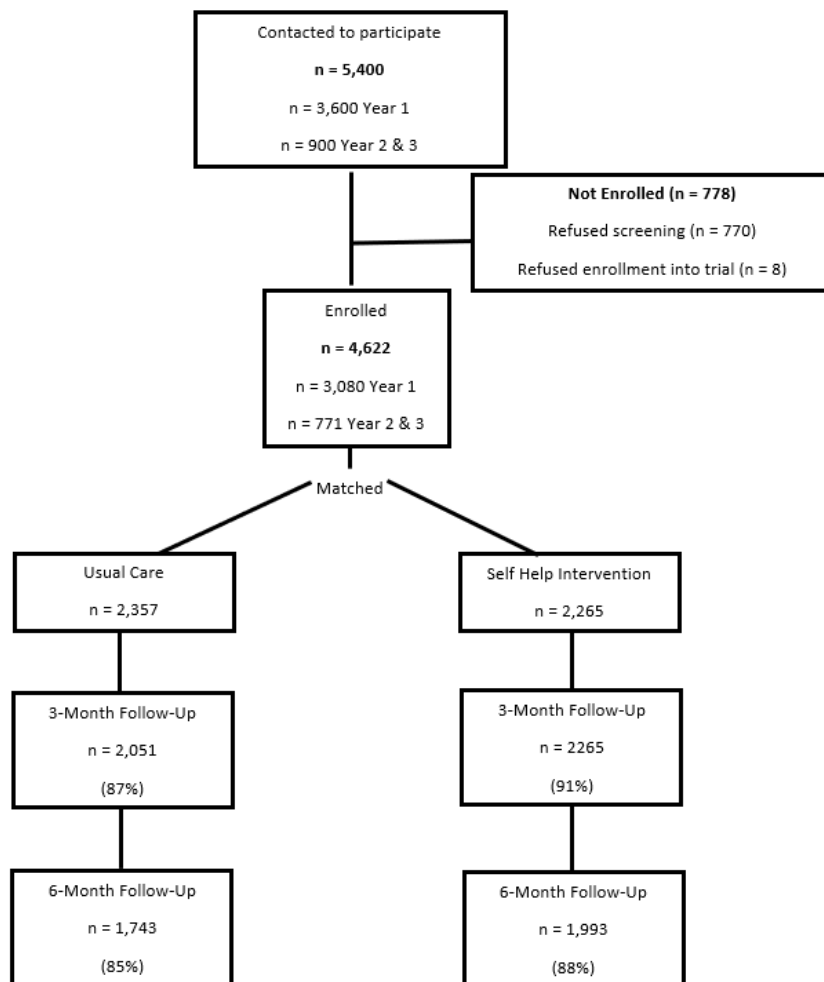


are available to students (ukhealthcare.uky.edu, 2020). Students can receive STI screening as well as birth control counseling through these services. These services are not always advertised well, and many students do not know they have access to them.

PAWS (Promoting and Achieving Wellness for Students) is a subdivision of UHS focused on providing health education to all University students (ukhealthcare.uky.edu, 2020). This entity is staffed with nurses, sexual health educators, and student leaders dedicated to promoting safe sexual practices on UK's campus (ukhealthcare.uky.edu, 2020). They provide STI testing and counseling as well as free condoms and other safer sex supplies (ukhealthcare.uky.edu, 2020). PAWS also have a variety of sexual health education sessions led by a trained educator (ukhealthcare.uky.edu, 2020).

Current University services are compiled to meet the needs of general students. Data shows Greek women have specific habits that directly influence their risk of contracting an STI. Existing resources do not take these unique tendencies into account when creating and implementing campus wide events and programs. Perceived and self-stigma is contributed to a delay in seeking STI related services (Cunningham et al, 2009). Existing services do not take this stigma into account when creating programs. For STD related services to be effective, we must have a program that reduces barriers to care while creating a curriculum that reflects the specific needs of our population. Our proposed program, Insights, is the necessary addition to these existing services. *Insights* is a program that provides tailored health information and preventive materials to the women in University of Kentucky's Panhellenic community. Our program reduces perceived barriers to care while also providing women with the most relevant information to increase knowledge and improve attitudes regarding STI prevention.

### Program Sample



Scholes, D., McBride, C. M., Grothaus, L., Civic, D., Ichikawa, L. E., Fish, L. J., & Yarnall, K. S. (2003). A tailored minimal self-help intervention to promote condom use in young women: results from a randomized trial. *AIDS (London, England)*, 17(10), 1547–1556. <https://doi-org.ezproxy.uky.edu/10.1097/00002030-200307040-00016>

5,400 individuals would be invited to participate in our 3-year study.

Using enrollment and retention data for this intervention in a similar setting, we would expect 85% (4,622 women) to enroll in our program (Scholes et al, 2003).

We expect 3,080 women to participate in year one and 771 to participate in years two and three.

We expect relatively high three and six month follow up rates in both the intervention and control groups. Individuals in the intervention group may

demonstrate greater overall program investment which may account for the slightly higher rates of follow-up. Inclusion criteria for our study include being a self-identifying woman who is an undergraduate member of one of UK's 15 Panhellenic sororities. Exclusion criteria include being under the age of 18 or over the age of 24. Our program's high enrollment is reflective of our minimum exclusion criteria. In previous studies, women were excluded for self-reporting monogamous relationships or a lack of intercourse in the 6 months leading up to enrollment

(Scholes et al, 2003). We adapted this exclusion criteria because we believe these women are still in need of our intervention.

## **PROGRAM APPROACH**

This program will act as the main sexual health education resource for UK's sorority organizations. In the section above we identified the shortcomings of the University's existing services. Our program works hand in hand with the Panhellenic community and staff to identify specific challenges faced by these women. We will create individual and tailored interventions for our study participants.

### *Program Planning*

Our planning period will begin three months before students arrive to the University of Kentucky campus. This time will be spent hiring and training staff members, forming relationships with partners, and finalizing schedules. Staff members will participate in a condensed version of the intervention to familiarize themselves with program content and evaluation measures. During this planning period we will establish a Community Advisory Group (CAG). The members that make up the CAG are listed in the table below.

<b>Community Advisory Group</b>	
<b><i>Name</i></b>	<b><i>Position</i></b>
Dr. Aaron Hotchner	Program's Primary Investigator
S. Smith	Office of Greek Life Staff Member
B. Brown	Director of PAWS
L. Lane	Director Office of Student Wellbeing
R. Rogers	Assistant Provost for Health and Wellness
C. Cole	Representative from the Lexington-Fayette Health Department
H. Homes	Representative from the National Panhellenic Council

Lead by PI Dr. Aaron Hotchner, these individuals are all representatives from different university entities. Each member brings a unique and important perspective to the CAG. The shared commitment to promoting health among students is what brings these individuals together. S. Smith will be an additional liaison between the program staff and the University's office of Greek Life. B. Brown, Director of PAWS, will sit on the CAG to help with program improvement and implementation. L. Lane and R. Rogers are representatives from the University there to ensure that improving health and wellness of University students remains the goal of our program. C. Coles will be responsible for keeping Lexington's local health department up to date with our programs success. Finally, H. Homes will act as the National Panhellenic Council's representative. Their women are involved in our study and therefore a representative from their national organization should be included.

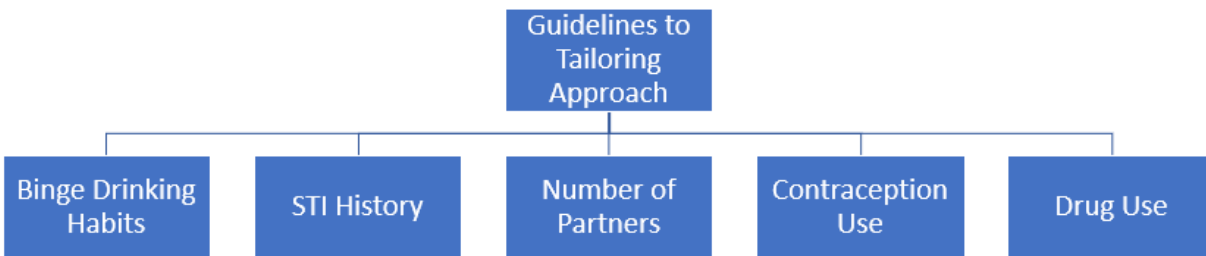
We will pilot our program with the leadership teams of the sororities. This will allow for piloting within a smaller sample before full rollout. The individuals that comprise the leadership teams reflect the overall organization, therefore act as an appropriate pilot sample. This will also allow the most influential members of each organization the opportunity to experience the intervention first. These women can positively influence their organization's member to participate in our program. Social desirability within the organization can positively impact our program's enrollment and follow-up processes.

### Program Implementation

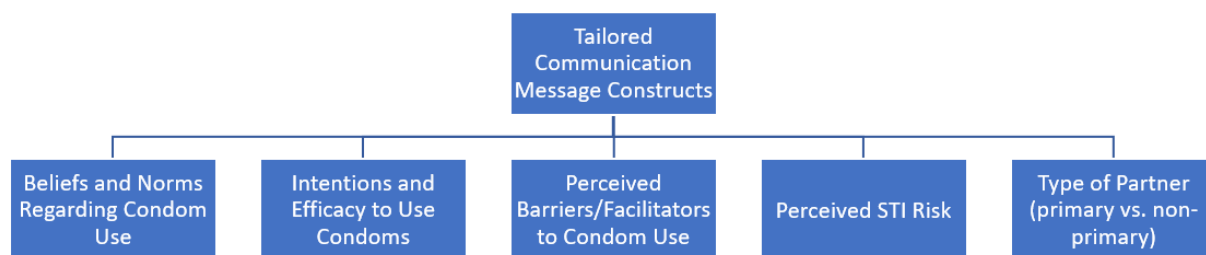
Our intervention, *Insights*, is a minimal, yet highly tailored intervention focused on improving the adoption of condom use and other safe sex practices among sorority women

(Scholes et al., 2003). This intervention was tested and shown to be effective among sorority aged women (Scholes et al., 2003). Participants complete a baseline survey which identifies a unique combination of strategies and pertinent information that are most applicable to that individual (Scholes et al., 2003). Information gained regarding the woman's beliefs and practices goes into creating each participant's 12-page self-help magazine style booklet entitled *Insights* (Scholes et al., 2003). All women will receive a customized booklet through this intervention. *Insights* has a large quantity of different booklet components that can be pieced together to best achieve the program's overall goal of increasing condom use over a 6-month period (Scholes et al., 2003).

Only relevant information to that woman is included in her booklet allowing for the intervention to be as condense and brief as possible. This strategy allows for the necessary information to be given greater attention to address the individual's barriers to safe sex practices (Scholes et al., 2003). The booklet's messages were dependent on the participants' readiness to adopt condoms, beliefs regarding condom use, intention, and self-efficacy to use condoms, perceived barriers, and facilitators to use, type of partner, and perceived STI risk (Scholes et al., 2003). Key guidelines included in the tailoring processes include binge drinking habits, STI history, number of partners and contraception use (Scholes et al., 2003). We decided to also include drug use as a tailoring guideline since these habits can influence risk of contracting and STI. The charts below depict the both the guidelines to the tailoring process, as well as the different constructs included in the tailored messages.



Scholes, D., McBride, C. M., Grothaus, L., Civic, D., Ichikawa, L. E., Fish, L. J., & Yarnall, K. S. (2003). A tailored minimal self-help intervention to promote condom use in young women: results from a randomized trial. *AIDS (London, England)*, 17(10), 1547–1556. <https://doi-org.ezproxy.uky.edu/10.1097/00002030-200307040-00016>



Scholes, D., McBride, C. M., Grothaus, L., Civic, D., Ichikawa, L. E., Fish, L. J., & Yarnall, K. S. (2003). A tailored minimal self-help intervention to promote condom use in young women: results from a randomized trial. *AIDS (London, England)*, 17(10), 1547–1556. <https://doi-org.ezproxy.uky.edu/10.1097/00002030-200307040-00016>

Booklets included a cover page and 11 sections of material (Scholes et al., 2003). Four of the sections were generic to the program while the other seven are dependent on the individual (Scholes et al., 2003). Material included articles, testimonial stories, advice columns, and overall educational information (Scholes et al., 2003). Each booklet was accompanied by a “safe sex kit” which included both male and female condoms, a condom carrying case, and instruction on how to properly use the condoms (Scholes et al., 2003). Inclusion of dental dam and premier personal sexual lubricant packs is an adaptation found in our program. The safe sex kits are an additional resource to our participants. The materials provided ensure that our participants can practice their newly acquired safe sexual practices learned from their tailored booklets. After the three months survey was complete, participants receive a newsletter titled *Extra Insights* and a

second condom pack (Scholes et al., 2003). This second newsletter is used to further amplify the takeaway messages from their initial booklet in hope of increasing behavior change.

This program was tested and shown to be an effective intervention in promoting overall condom use, a moderating factor in STI risk (Scholes et al., 2003). Participants in the intervention group underwent this tailored program while the control group did not (Scholes et al., 2003). Surveys were administered 3- and 6-months post intervention to evaluate the program's effects (Scholes et al., 2003). Individuals in the intervention group reported overall increased condom use than the control group at the 3-month and 6-month follow up (Scholes et al., 2003). The intervention effects were stronger at the 6-month follow up than at the 3-month follow up, meaning reported condom use was higher as time went on.

A 10% greater overall condom use was seen among the intervention group (Scholes et al., 2003). Members of the intervention group also reported using condoms in a higher proportion of their episodes of sexual intercourse than the control group. Consistent condom use was also observed in a portion of the intervention group (Scholes et al., 2003). Members of the intervention group reported an increase in incidence of positive condom use conversations with their partner (Scholes et al., 2003). The intervention group also reported higher rates of overall condom preparedness as well as self-efficacy to use condoms with primary partners (Scholes et al., 2003). Knowing that increase condom use and consistent condom use is associated with an overall decrease of STIs, we can suggest this program will decrease the burden of CT and GC among sorority women.

This intervention will be implemented individually within all 15 sororities on UK's campus. Since all groups are uniquely comprised of women from different religious and educational backgrounds, we will be matching sororities based on an overall group score created following

the baseline survey. Individual members' knowledge and beliefs regarding safe sex and STI will be computer generated into a grade score (A+-F-). All members scores will be used to create an overall grade for the sorority. Sororities will be matched and split into two groups based off this stratified score and key demographic information such as race, sexual orientation, and religion status.

Group A will receive the full intervention while group B only initially receives the pre and post-test. The use of a control group will be important when evaluating the intervention's outcomes. Group B will receive the full intervention the following year to ensure all women benefit from the program. A limitation we anticipate is contamination of the control group. Women in the control group may be friends or classmates with women in the intervention group. Sharing of intervention materials and newly gained knowledge is to be expected due to this uncontrollable level of interactions.

These organizations have chapter facilities which act as a meeting place for the women. An explanation of the intervention and the baseline surveys will be explained in these facilities during the chapter meetings. The surveys will be sent to the women through this school email and the organizations' leadership teams will assist in ensuring women complete them. Booklets and safe sex kits will be distributed at this location as well. Conducting this intervention within a space familiar and comfortable for the women will be essential to collecting accurate data to compose the most effective booklets.

This program is a good fit for these 15 different settings because many of these women are at an increased risk for contracting a sexually transmitted infection. This specific intervention is also the best option for this population. Sorority women not only have to be mindful of their educational commitments, but also their commitments to their organization. These students have



busy lives and are balancing many things. This intervention is brief and structured to best serve the needs of the student. These women will not be wasting their valuable time learning about information they already know. This intervention's tailored nature allows these women to get the most out of this intervention without having to sacrifice a significant amount of time.

The 'take home' ability of this intervention is also ideal for this community. Women will have the ability to complete the survey and go over their booklets on their own time. They can take them back to their dorms or share them with friends if they choose. This program will be implemented nicely into the existing system of the sororities. These organizations meet as an entire group every week. This reduces the barrier of having to get all the women into the same place to explain and distribute the booklets. The groups are also self-governed. Each organization has a leadership team that can be an additional liaison. This evidence-supported program had success in increasing condom use among young at-risk women. The women who participate in UK's Greek life are at an increased risk and would therefore benefit from a program like this.

This program will be implemented by using the existing structure involved in sorority life. These organizations have weekly meetings that can serve as the in-person time for this program. This program was adapted from an intervention that focused on young females. The mechanism of this specific intervention had success in that population so with small changes this program will have even greater success with sorority women. The program materials are tailored to the individual's needs which will ensure the appropriateness and inclusivity of the program. Targeting these young women with educational materials regarding beliefs and behavior changes are important in this population. This is an at-risk population who require attention to prevent future adverse health outcomes.

Individuals will be recruited through the sorority organizations they already belong to. This program will be advertised as an educational workshop for these women. Many of these sororities have workshop requirements from their headquarters and this program can fulfill that requirement. We will also be recruiting the leadership teams of these organizations to be involved in our pilot period. Having the respected organization members already participating in our study will help with the general member recruitment and retention throughout the entire intervention. Social desirability is a powerful force, and we are anticipating this to increase overall program participation. The incentivization of our program is fully explained in the upcoming section, but it is important to note that the goal of the incentive is to promote retention and overall success.

#### *Dissemination and Sustainability*

Normalizing this program within the Greek community is crucial for its sustainability. Our partnerships with existing University resources will work to aid in this goal. The PAWS program is a regular University service that can adapt key processes of our intervention once the three-year grant has expired. Maintaining positive relationships with the Office of Greek life will also help with the program's sustainability. When University staff see the positive behavior changes due to our intervention, they will be more likely to fund it as an annual program. These student organization are already required to include a level of educational workshops throughout the year. Our intervention can become a routine program that already has a place that does not add any additional burdens to these students. A hope is this program can eventually be disseminated into all organization of Greek life, not just sororities. On a larger scale, we have included the National Panhellenic Council as a partner to potentially pilot this program on other college campuses. More about their role in the program is explained in an upcoming section.

Our inclusion of the National Panhellenic Council in our dissemination plan is not our only outlet for sharing our program's key findings. Our PI will also directly oversee the dissemination of our program's results with all members of the CAB. It will be important these key community partners are presented with the latest findings throughout our three-year funding period. Our PI and Program Director will also attend regional and national conferences. We will develop manuscripts and presentations to share with other members of academia at these events. We will not only share our successes at these conferences, but also gain insight into further ways to maintain continuous quality improvements to our program.

All members of the research team will go through extensive racial justice training. The group will also go through sexual orientation inclusivity trainings. This is important because although many studies have found an extremely small percentage of Greek life participants being members of the LGBT community, we want to ensure our team is prepared to engage with members. It will also be important for the team to be trained in sexual assault response measures. There is a possibility through this intervention that incidences of sexual assault on campus will come to light. We want staff to be prepared to use appropriate language and be aware of available resources to link these women to. Ensuring cultural competency is necessary for the success of this intervention. Our staff will also be prepared to link participants to on-campus counselling resources if necessary.

## **PERFORMANCE MEASURES AND EVALUATIONS**

Participants will receive a computer administered survey through their University specific email address after submitting their consent form. Following the baseline survey, participants will receive their 3-month and 6-month follow ups through the same UK email account. All survey items were pilot tested to ensure the phrasing was clear and appropriate. Survey data will

be electronically sent to REDCap for our biostatistician. All three of these surveys will have a brief section collecting key social demographic information such as race, ethnicity, age, gender identity, sexual orientation, educational attainment, employment status, and socio-economic status will be accomplished. Further explanation of how these surveys will be used to also collect process and outcome evaluation are explained in detail below. These long-term and short-term outcomes are depicted visually in the logic model which can be found in the appendix.

### Process Evaluation

The goal of our process evaluation is to understand the barriers and opportunities for implementing Insights into the Panhellenic Community at The University of Kentucky. Our evaluation will focus on four elements of our intervention: reach, fidelity, dose delivered, and dose received. Multiple methods, such as surveys, product order and time logs, and team meetings will be used to evaluate these four elements within our intervention. Goals of our process evaluation include understanding barriers and facilitators to implementation, data collection, and overall program adoption.

<b>Parts of Process Evaluation</b>
1. Program Wide Activity Log <ul style="list-style-type: none"> <li>a. Staff Time Logs</li> <li>b. Product Order Logs</li> </ul>
2. Baseline, 3-month, 6-month surveys
3. Voluntary Focus Groups
4. Team Debriefs

Logs will be used to ensure staff members are putting in the required time associated with their position. It will also be important to have a record of what location research assistants and other staff members were working at on particular days. Staff will clock in and out when they

visit the sorority house facilities, as well as their time in the office space. Our program has multiple sets of materials that need to be ordered and distributed according to a specific timeline. Copies of these forms will be cataloged to ensure program booklets and safe sex kits are purchased and delivered at the necessary times. We will also be keeping track of which individuals do not pick up their booklets and kits. This will be important when determining how many individuals our program served, and to what extent they participated.

Surveys focused on understanding barriers and facilitators to implementation, data collection, and overall program adoption will be included with the outcome measures described above. Open ended responses as well as scales ranging from highly satisfied to highly dissatisfied will be used to gain a comprehensive understanding of the participants point of view throughout the study. Multiple survey items will be used to see how well the participants believed their booklets were tailored to them. The program tailoring is a major component of our intervention and it will be important to see if we achieved this program goal. We will also use these surveys to see how many participants used the resources provided to them in the safe sex

kits.

Voluntary focus groups will include guided conversation by our Program Director to identify common themes experienced by our participants. Focus groups will evaluate common themes such as adverse or unforeseen experiences of our participants that contributed to the adoption and success of our implemented

Focus Group Template  
Company: \_\_\_\_\_

<p><b>Question 1:</b></p> <p>Notes:</p>  <p>Common Responses:</p>  <p>Noteworthy Individual Responses &amp; Ideas:</p>
<p><b>Question 2:</b></p> <p>Notes:</p>

program. An example of a focus group meeting template can be found above. Team meetings will be the final component to our process evaluation. These meetings will give the PI and Program Director a chance to hear firsthand from the GRAs how the program implementation went. They will be able to explain where they saw the program did not reach the planned potential. These individuals contribute to most of the groundwork; therefore, it will be important to get their feedback.

### Outcome Evaluation

The goal of our outcome evaluation is to effectiveness of our tailored self-administered intervention within our population. We are focused on evaluating the three following outcomes: knowledge about STIs and sexual risk, attitudes and beliefs surrounding condom use, and self-efficacy for condom use and safer sex negotiations. These outcomes will be evaluated primarily through three computer administered surveys (baseline, 3-month and 6-month follow up). We will be using a cluster waitlist control study design in our outcome evaluation. It is important we have a control group to ensure our results are due to our intervention and not potential outside factors. This study design is necessary because we need to ensure each control group receives the intervention in the same school year as the intervention group. We will administer the intervention to each control group during the second half of the year to ensure they benefit equally from our program. This study design allows us to collect the necessary data while also providing all women with the important intervention.

A 19-item questionnaire will be used to collect information regarding knowledge about STIs and sexual risk (Anwar et al.2009). Questions items focus on preventative measures for STIs, STI signs and symptoms, and overall STI knowledge (Anwar et al.2009). We will use the Sexual Behavior Scale (SBS) to measure attitudes and beliefs surrounding condom use. Topics covered

by this measure include abstinence, perceived condom availability as well as overall feelings surrounding use of condoms to prevent STIs (Jemmott, 1998). Three items are also focused on predicted intent to suggest condom use during their upcoming sexual encounters (Jemmott, 1998).

Measures to evaluate self-efficacy will be pulled from the Sexual Health Indicators survey (Smylie et al. 2013). This self-administered survey is used to collect data regarding the five dimensions of sexual health among individuals aged 16-24 (Smylie et al. 2013). For examining self-efficacy, each item within this instrument had response options that ranged from 1=strongly disagree to 5=strongly agree. Examples of questions focused on self-efficacy include: “I feel confident in my ability to protect myself and/or my partner” and “I feel confident in my ability to suggest using protection with a new partner” (Smylie et al. 2013). Cronbach’s alpha coefficients ranged from 0.79 to 0.90 indicating there was internal consistency among these scales (Smylie et al. 2013).

Our 3-month and 6-month follow up surveys will allow women to self-report any positive or negative STI tests. We will also use future STI data from University Health Services to see the long-term impact our program had in reducing rates of STIs among our population. Descriptive statistics will be used to demonstrate results. ANOVA and t-test will be used to analyze knowledge differences between surveys. ANOVA tests will be used to compare results between all three surveys.

### Limitations

Obstacles in data collection may arise due to participation bias. Participation bias is a skepticism involved in many sexual behavior studies that include surveys (Dunne et al. 1997). It

is a concern that the individuals choosing to fully participate in the completion of the follow up surveys may have certain characteristics that make them different from the larger study population. Individuals who went through the intervention and did not experience behavior change may be less likely to complete follow-up surveys than those who did make positive behavior changes.

Social desirability bias may be an obstacle to overcome in this study due to the sensitive nature of the topic. Participants may underreport their unsafe sexual behaviors or overreport their safe ones (Latkin et al. 2018). Both situations can lead to inaccurate data collection. Our team will work to reduce these obstacles by providing an incentive to encourage full participation in the follow up surveys. The sorority with the highest percent of survey completion will receive a catered meal for all the women. This plays into the competitive nature of the organizations while also providing a desirable incentive for program completion.

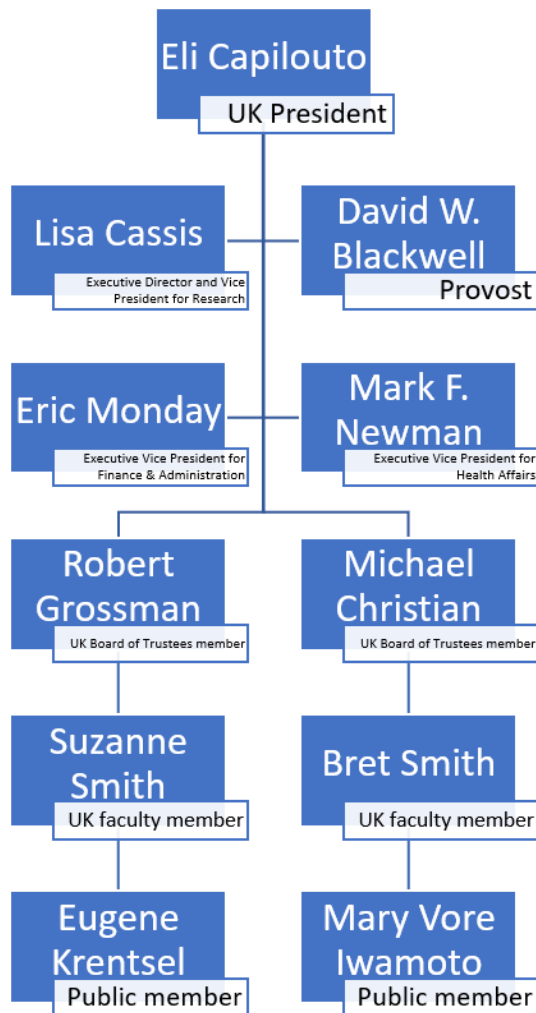
Data collected after the first year will be used to make appropriate changes for the second year. Data from the second year will be evaluated and changes will be made going into the third year.

## **CAPACITY AND EXPERTISE OF THE APPLICANT ORGANIZATION**

The University of Kentucky is a Research-Intensive Institution that promotes research across its 16 degree-granting colleges, the Graduate School (including the James W. Martin School of Public Policy and Administration and the Patterson School of Diplomacy and International Commerce), some 80 multidisciplinary research centers, and more than 30 core research facilities. All individuals participating in research involving humans are required by the University to undergo Collaborative Institutional Training Initiative (CITI) to ensure the upmost



ethical conduct of research. The University of Kentucky has a human research protection program that is fully accredited by the Association for the Accreditation of Human Research Protection Programs, Inc.



The University of Kentucky Research Foundation (UKRF) is the organization through which funds may be received, invested, and expended in the interest of the University. The Office of Sponsored Projects Administration (OSPA) and The Office of the Treasurer's Research Financial Services (RFS) are two units included within the UKRF. The OSPA is responsible for the procurement, review, approval, and submission of proposals. The RFS provides post-award grant accounting, including financial reporting, invoicing, and collection of receipts in accordance with federal, state, and sponsor guidelines. The flow chart to the left depicts 2020-2021 UKRF leadership.

Under the Carnegie Classifications, The University of Kentucky is one of 131 private and public universities to be classified as Doctoral Universities: Very High Research Activity (R1). University of Kentucky also received the Carnegie 2015 Community Engagement Classification, which recognizes institutions that provide evidence of substantial engagement and contribution to their communities. The University of Kentucky brought in over \$4299 million in new

sponsored projects and was awarded \$272.2 million in grants and contracts by federal agencies in 2020. They were ranked 42<sup>nd</sup> among public universities based on research and development expenditures in 2018 communities. These honors and awards show the University to be capable of planning and executing a program that achieves sustainable community impacts.

The UK Office of Research Integrity (ORI) is an important player in the institution's fully accredited Human Research Protection program (HRPP). Dr. Helene Lake-Bullock, director of the ORI, leads a 20-person team responsible for providing key administrative support to federally mandated review boards. This team works through protocol review, ethics/regulatory training and advising, quality improvement and efficiency initiatives, allegation and compliance reporting, and research compliance policy development.

The University contributes to the economic development and quality of life within Kentucky's borders and beyond, nurturing a diverse community characterized by fairness and equal opportunity. To foster an environment of respect for the dignity and worth of all members of the University community, the University of Kentucky is committed to maintaining an environment free of prohibited discrimination. The University is committed to a policy of providing equal employment opportunities to all candidates regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, or sexual orientation. The mission statement of the University is as follows: "facilitates learning, informed by scholarship and research; expands knowledge through research, scholarship, and creative activity; and serves a global community by disseminating, sharing and applying knowledge".

## **PARTNERSHIPS AND COLLABORATIONS**

University of Kentucky Office of Greek Life will be an important partnership to ensure this program's ongoing success. This local level partner has significant influence over our target population. The staff in the Greek Life Office have experience working with the leaders of each sorority, as well as University officials. They are a trusted group by the sorority women on campus and will be able to provide us with an insight into forming mutually beneficial relationships with the sorority population. The Office of Greek Life works to promote healthy lifestyles among their members. Our intervention is primarily focused on achieving this goal. Built relationships with them will promote sustainability as new groups of women come to campus and prepare to take part in this intervention.

PAWS (Promoting and Achieving Wellness for Students) is a subdivision of UHS focused on providing health education to all students ([ukhealthcare.uky.edu](http://ukhealthcare.uky.edu), 2020). This entity is staffed with nurses, sexual health educators, and student leaders dedicated to promoting safe sexual practices on UK's campus ([ukhealthcare.uky.edu](http://ukhealthcare.uky.edu), 2020). They provide STI testing and counseling as well as free condoms and other safer sex supplies ([ukhealthcare.uky.edu](http://ukhealthcare.uky.edu), 2020). Many of our women have experiences PAW services or are familiar with their work. Our program builds on the mission of the PAWS program and it will be beneficial to have them apart of our project.

It will be important to include the Lexington-Fayette County Health Department as a community partner due to the extensive work they do within our community. They are a valued and trusted organization who we want to keep informed of our progress. The Office of Student Wellbeing will be a local partner due to our shared goals of improving the health of University students. The National Panhellenic Council is included as a partner because they are the national

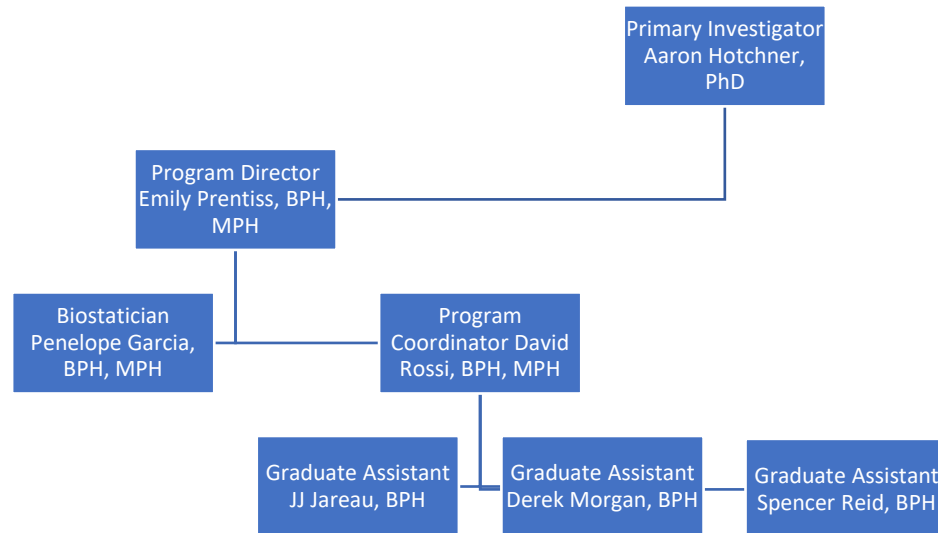
organization that all our subjects are a part of. This partnership is important during the entirety of our intervention, yet their role will intensify after the program is complete. This national organization oversees all the Panhellenic women on campuses across the United States. They will assist in the dissemination of information to other college campuses in hopes they are interested in bringing Insights to their Greek communities. Having this partnership can open doors for sustainability and expansion.

As mentioned in a previous section, maintaining positive relations with our partners is crucial to the sustainability of our program. For our intervention to assimilate into existing University resources at the end of our three-year grant, we must ensure our partners are aware of our processes and satisfied with our success.

<b>Stakeholders and Community Partners</b>		
<b>Entity</b>	<b>Level</b>	<b>Role</b>
University of Kentucky Office of Greek Life	Local	Will act as crucial liaison between program staff and participants. Women have pre-existing trust in this office.
PAWS ( Promoting and Achieving Wellness for Students)	Local	Share similar interests and goals. Existing entity at the University which we are building upon.
Lexington-Fayette County Health Department	Local	They are the champions of health in our community therefore it will be necessary to have them up to date with the process and success of our program
Office of Student Wellbeing	Local	Will be important to have ongoing support from this office throughout our intervention.
National Panhellenic Council	National	Additional relationships with the national organizations to which the women belong. They will be the key players in dissemination and program extension.

## PROJECT MANAGEMENT

Shown below is the organizational structure of those involved in our program implementation.



Primary Investigator Aaron Hotchner is an Assistant Professor in the Department of Public Health at The University of Kentucky and will be responsible for the overall managing, implementing, and monitoring of our program. He has over 5 years' experience conducting sexual health research and has many connections throughout academia. The PI is responsible for overseeing the entire program and will assist other team members implement and monitor the intervention in its entirety. He will lead the Community Advisory Group and is responsible for hiring the program director. He will also work closely with the program director and project coordinator to identify and solve problems as they arise.

Program Director Emily Prentiss, MPH, is responsible for the day-to-day operations of the program and must keep the primary investigator informed on a regular basis. Having extensive prior research experience, she will be responsible for managing the budget and program

evaluation. She will also be responsible for keeping the activity and purchasing logs as well as ordering all the necessary supplies.

Program Coordinator David Rossi, MPH, is responsible for hiring and coordinating the 3 graduate research assistants throughout the intervention. He will help with program organization and prepare the graduate research assistants to properly fulfill their roles. Penelope Garcia, MPH, is the team biostatistician and will oversee all the data analysis for the program. She will be expected to clean and prepare the data for the manuscript. Derek Morgan, Jenifer Jereau, and Spencer Reid are the programs' three graduate research assistants. They will each oversee presenting the program, delivering materials, and answering questions for their assigned sororities.

Representatives from each local partner will sit on our Community Advisory Board. Using CAB meetings to disseminate information will be the simplest way. National partners will receive a bi-yearly report illustrating our progress. Hearing and acting on program partner's concerns will be a main priority throughout this process.

Staff will be required to complete a training where they will learn their individual responsibilities. There will be constant communication through the ranks to ensure all problems and concerns are dealt with swiftly and efficiently. Due to the expedited nature of the program, there will be little room for error. Staff meetings will be held to check in on progress and aid in boosting team morale. Although we expect graduate research assistant turnover, we do not foresee an issue hiring competent and driven new employees.

## BUDGET AND BUDGET JUSTIFICATION

### A. Personnel

\*Salaries increase 3% per year.

Position	Annual Salary	%FTE	Salary	Fringe	Salary Requested	Total Requested
Principle Investigator	\$100,000	10%	\$10,000	\$2,743	\$12,743	\$26,066
	\$103,000	5%	\$5,150	\$1,413	\$6,563	
	\$106,090	5%	\$5,305	\$1,455	\$6,760	
Program Director	\$50,000	75%	\$37,500	\$12,604	\$50,104	\$119,946
	\$51,500	50%	\$25,750	\$8,655	\$34,405	
	\$53,045	50%	\$26,523	\$8,914	\$35,437	
Biostatistician	\$70,000	30%	\$21,000	\$6,317	\$27,317	\$84,433
	\$72,100	30%	\$21,630	\$6,506	\$28,136	
	\$74,263	30%	\$22,279	\$6,701	\$28,980	
Program Coordinator	\$50,000	50%	\$25,000	\$8,403	\$33,403	\$82,292
	\$51,500	35%	\$18,025	\$6,058	\$24,083	
	\$53,045	35%	\$18,566	\$6,240	\$24,806	
Graduate Research Assistant 1	\$24,000	50%	\$12,000	\$5,600	\$17,640	\$54,523
	\$24,720	50%	\$12,360	\$5,809	\$18,169	
	\$25,462	50%	\$12,731	\$5,983	\$18,714	
Graduate Research Assistant 2	\$24,000	50%	\$12,000	\$5,600	\$17,640	\$54,523
	\$24,720	50%	\$12,360	\$5,809	\$18,169	
	\$25,462	50%	\$12,731	\$5,983	\$18,714	
Graduate Research Assistant 3	\$24,000	50%	\$12,000	\$5,600	\$17,640	\$54,523
	\$24,720	50%	\$12,360	\$5,809	\$18,169	
	\$25,462	50%	\$12,731	\$5,983	\$18,714	
<b>Total:</b>						<b>\$476,306</b>

**Primary Investigator: Aaron Hotchner, PhD** (10%, 5%, 5%)

Dr. Aaron Hotchner is an Assistant Professor in the Department of Public Health at The University of Kentucky. Dr. Hotchner has his DrPH and over 5 years' experience conducting research through the University of Kentucky. His primary interest of research is sexual health and HIV/AIDS prevention. Dr. Hotchner is widely respected and has many connections throughout academia. He will lead the Community Advisory Group and be responsible for hiring

the program director. Dr. Hotchner will assist the program director in implementing and monitoring the intervention in its entirety. He will contribute 10% FTE during year 1 and 5% during years 2 and 3.

***Program Director: Emily Prentiss, BPH, MPH (75%, 50%, 50%)***

Emily Prentiss will be responsible for forming the relationships with program partners as well as the sorority organizations. Ms. Prentiss will be responsible for keeping the activity and purchasing logs as well as ordering all the necessary supplies. She will be responsible for managing the budget and program evaluation measures. She has been a part of many successful programs in the past and will bring a unique skillset to our team. She will contribute 75% FTE in the first year and 50% in the second and third years.

***Program Coordinator: David Rossi, BPH, MPH (50%, 35%, 35%)***

David Rossi will act at the program coordinator. He is primary responsible for hiring and coordinating the 3 graduate research assistants throughout the intervention. His tasks include organizing the groups for the intervention and preparing the graduate research assistants to properly fulfil their roles. Mr. Rossi will be responsible for documenting and submitting the GRA's hours and will report directly to the Program Director. He will contribute 50% FTE during year 1 and 35% during years 2 and 3.

***Biostatistician: Penelope Garcia, BPH, MPH (30%, 30%, 30%)***

Penelope Garcia is a biostatistician with an MPH from the University of Kentucky. She will oversee all the data analysis for the program. The graduate research assistants will be responsible for providing Ms. Garcia will all the collected data. Ms. Garcia will summarize the findings and create necessary tables and charts. She will contribute 30% FTE for all three years.



**Graduate Assistants 1-3 JJ Jareau, Derek Morgan, Spencer Reid BPH (50%, 50%, 50%)**

The program's 3 graduate research assistants will act as the boots on the ground force of this program. They will each be in charge of presenting the program, delivering materials, and answering questions for their assigned sororities. They will contribute 50% FTE for all three years of the program.

**B. Supplies**

Item Needed	Number Needed	Unit Cost	Amount Requested
Computer	3	\$900	\$2,700
iPad	3	\$400	\$1,200
Insights Booklets	4,622	\$10	\$46,220
Follow-up Booklets	4,622	\$5	\$23,110
Male Condoms	36,976	\$0.17	\$6,286
Female Condom	36,976	\$0.95	\$35,127
Premier Personal Sexual Lubricant Packs	36,976	\$0.19	\$7,025
Dental Dam	36,976	\$1.25	\$46,220
Condom Carrying Case	4,622	\$1.95	\$9,013
Incentive	384	\$20	\$7,680
			<b>Total: \$184,581</b>

Computers will be used by the Program Director, Program Coordinator, and Biostatistician.

iPads will be used by the Graduate Research Assistants. This technology is necessary for the ordering of supplies, collection and organization of data, and overall program implementation.

The Insights booklets and follow up booklets are the main component of our program. Since a portion of the booklets are universal, that drives down the overall cost of production. The safe sex kit materials are also a crucial part of the program. One condom carrying kit, three male condoms, three female condoms, and three sexual lubricant packs will be included in each kit.

The incentives are in the form of pizzas that will be distributed two times a year to the chapters who have the overall highest rate of follow up survey response.

### C. Travel

	Expense	Y1	Y2	Y3
Annual Regional Meeting in Atlanta, Georgia	Airfare	\$600	\$600	\$600
	Hotel	\$400	\$400	\$400
	Per Diem	\$72.00 x 3 Days = \$216	\$72.00 x 3 Days = \$216	\$72.00 x 3 Days = \$216
	# of Attendees	2	2	2
	Total	\$2,432	\$2,432	\$2,432
Annual Program Director Meeting in Washington, DC	Airfare	_____	\$400	\$400
	Hotel	_____	\$400	\$400
	Per Diem	_____	\$72.00 x 3 Days = \$216	\$72.00 x 3 Days = \$216
	# of Attendees	_____	1	1
	Total	_____	\$1,016	\$1,016
				<b>Total: \$9,328</b>

Two staff members will be attending the annual regional meeting each year of the program. This will allow for professional networking and sharing of ideas. The Program Director will be attending an annual meeting in Washington, DC the second and third year. This will act as an opportunity for the director to learn about programs around the country working to reduce the same health disparities as ours.

### D. Tuition

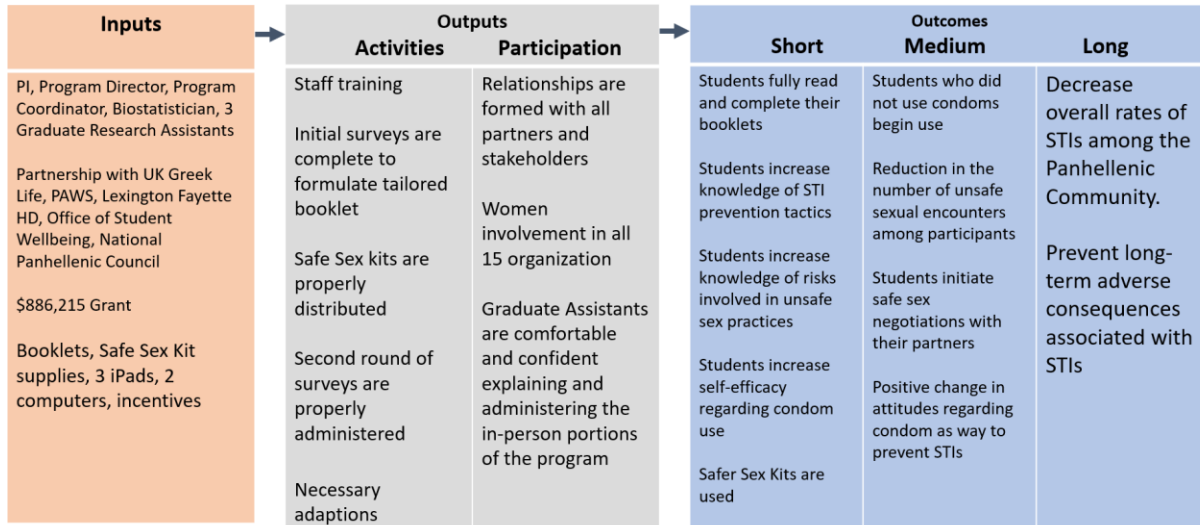
Tuition is also requested for the graduate research assistant, as required by the University of Kentucky. In-state tuition is \$12,000 per semester. It would cost \$72,000 a year to fund our graduate research assistants.

Category	Cost
A. Personnel	\$476,306

B. Supplies	\$184,581
C. Travel	\$9,328
D. Tuition	\$216,000
<b>Total: \$886,215</b>	

Appendix:

# Logic Model



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