Winter 12-14-2018

Under Pressure: Tailored CPR with Stress Management for Formerly Incarcerated Individuals

Amanda Lee
amaleenicole@gmail.com

Under Pressure: Tailored CPR with Stress Management for Formerly Incarcerated Individuals

By

Amanda Lee

A Capstone Project submitted in partial fulfillment of the requirement for the degree of Master of Science in Behavioral Health

University of San Francisco

San Francisco, CA

August 2018

Abstract

Purpose: The purpose of this study was to increase rates of Cardiopulmonary Resuscitation (CPR) training and bystander response to Sudden Cardiac Arrest (SCA). This was accomplished by providing a short, one hour adapted CPR course with a stress management component targeting common barriers (e.g. psychological concerns) to bystander response for formerly incarcerated individuals at the Delancey Street Foundation.

Methods: The CPR course was adapted based off a literature review on the learning needs and preferences of this population. Data collection included:1) instructor evaluation of skills based on oral and simulation examination by students (adapted from the standard American Heart Association [AHA]). 2) Modified, white board-based focus groups, and 3) informal participant feedback. Four classes were taught to a total of 31 participants from Hispanic, Caucasian, African American, and Asian background and further adapted based off participant feedback from each modified focus group.

Results: All participants passed the group oral exam along with the simulation testing. Approximately 80% of participants passed the simulation testing on the first try. The other 20% passed on the second try after review. Results indicated the importance of kinesthetic learning and repetition for this population. In the modified focus groups, all participants reported that the stress-reduction technique was useful for everyday stressors in addition to situations dealing with SCA. Participants also reported feeling confident about performing bystander CPR and in their ability to teach their fellow residents.

Discussion: Findings suggest a shorten one hour adapted and tailored CPR course was just as effective in training individuals as the traditional four-hour course, based off the group oral exam

and simulation testing. In order to work with this population, informality, kinesthetic learning, and repetition is essential.

Executive Summary

In the United States, 350,000 Americans experience out of hospital sudden cardiac arrest (SCA) (Anderson, Cox, Al-Khatib, Nichol, Thomas, Chan, & Peterson, 2014). The risk of SCA disproportionately impacts minorities and men in every age group and can result in neurological injury, disability, and mortality (Fender, 2014). Bystander cardiopulmonary resuscitation (CPR) can increase the chance of survival and lower the risks for brain injury and disability. However, only 5% of the population is CPR trained (Anderson et al., 2014). Barriers to bystander CPR include inability to recognize cardiac arrest, lack of training, liability concerns, and psychological factors (e.g. stress). This study aims to increase CPR training and bystander response to SCA by providing a short, one hour adapted CPR course with a stress management component for formerly incarcerated individuals at the Delancey Street Foundation ("Delancey").

Residents at Delancey are formerly incarcerated individuals from low socioeconomic backgrounds and are provided vocational training and education resulting in a high school equivalency degree (GED). Delancey Street is not a traditional therapy rehabilitation program. Residents learn how to develop strengths through the principle *each one teach one*; where residents are responsible for teaching one another what they learn. As of July 2018, one out of 180 Delancey Street residents was CPR certified. In response, an adapted CPR course with a stress management component was taught and further modified based off populations needs and learning preferences. CPR trained Delancey residents will eventually teach this course to new residents at Delancey.

Methods to collect data included skills testing (through an oral exam and simulation hands-on testing) and modified focus group. Four adapted classes were taught and further

tailored based on participant feedback from each modified focus group. The participants of this study were 31 former inmates of Hispanic, Caucasian, African American, and Asian descent, purposefully chosen from the Delancey Street Foundation in San Francisco, California. All respondents were male ages 32 to 55.

Results indicated a shorten one hour adapted CPR course was just as effective in training individuals as the traditional four-hour course, based off the group oral exam and simulation testing. Participants also reported feeling confident about performing bystander CPR and in their ability to teach their fellow residents. All participants indicated that the stress-reduction technique was comprehensive and useful for everyday stressors in addition to situations dealing with SCA. Results also signify the importance of kinesthetic learning and repetition for this population. Ratio differences between breaths and compressions for infant, child, and adult were difficult for the participants to grasp, therefore materials such as informational cards or booklets should be given for participants to take home to reinforce material taught in class.

Literature Review

Introduction

In the United States, 350,000 Americans experience out of hospital sudden cardiac arrest (SCA) annually (Anderson, Cox, Al-Khatib, Nichol, Thomas, Chan, & Peterson, 2014). The risk of sudden cardiac arrest disproportionately impacts minorities in every age group (Fender, 2014). Unfortunately, nine out of ten victims of cardiac arrest do not survive and those who do, have a high chance of neurological injury and disability (National Institute of Health [NIH], n.d.). Bystander cardiopulmonary resuscitation (CPR) can increase the chance of survival and lower the risks for brain injury and disability, however the neighborhood in which a person suffers SCA may dramatically affect the odds of survival (Anderson et al., 2014). This is in part due to lower rates of bystander CPR in low income and more racially diverse areas. However, only 5% of the U.S. population is CPR trained (Anderson et al., 2014). Growing literature reveals several reasons for this strikingly low percentage of CPR training as well as solutions to increase training where risk of cardiac arrest is high, and CPR is needed the most.

Sudden Cardiac Arrest and Bystander CPR

Sudden cardiac arrest (SCA) is when the heart suddenly and unexpectedly stops beating, causing blood flow to the brain and other vital organs to halt (NIH, n.d.). According to the American Red Cross Association, if action is not taken within six minutes, SCA can result in irreversible brain damage. This short window is not enough time for emergency medical teams to arrive, therefore the chance for survival depends on bystander's ability to perform CPR (Graham, McCoy, & Schultz, 2015). Many national and international studies indicate that bystander CPR can increase survival rates up to 50% (Ghose et al., 2010; Gilmore et al., 2006; Graham et al., 2015). Weinstein (2014), found that between the years 2005 and 2010, Americans who received

bystander CPR had a survival rate 37% higher than those who did not receive CPR (11.2% compared to 7.0% respectively).

Bystander CPR includes 1) being able to recognize cardiac arrest and provide immediate help, 2) willing to activate Emergency Medical Services (EMS) by calling 911, and 3) familiar with and willing to perform CPR (Graham et al., 2015). If sudden cardiac arrest is prevalent in the United States and bystander CPR is proven to increase survival rates, why is the percentage of CPR trainees so low?

Barriers to CPR

Studies have suggested four reasons than an insufficient number of people are CPR trained. These reasons include an inability to recognize cardiac arrest, lack of training, liability concerns, and psychological roadblocks (Graham et al., 2015). Acknowledging and addressing these barriers can assist in designing effective interventions targeted at decreasing common barriers.

Inability to Recognize Cardiac Arrest. The first barrier to bystander CPR is the inability to recognize cardiac arrest (Graham et al., 2015). Cardiac arrest can be confused with fainting, seizures, and more commonly a heart attack (Graham et al., 2015). Heart attacks occur when blood flow to the heart is blocked (American Heart Association [AHA], n.d.). This can manifest over hours, days, and weeks (AHA, n.d.). Cardiac arrest on the other hand happens suddenly and occurs when the heart unexpectedly stops beating (NIH, n.d.). Cardiac arrest needs quick action (CPR) to get blood to the brain and other vital organs before organ failure occurs, while a heart attack allows for more time to activate EMS (AHA, 2017). Due to the confusion, if one is unable to recognize cardiac arrest and take quick action, people may hesitate to perform CPR and the chances for survival decreases.

Lack of Training. Fear of harming a victim of cardiac arrest and performing CPR incorrectly are also common barriers for bystanders (Graham et al., 2015). Cho et al. (2010) study showed that when people are CPR certified, they felt more confident in performing bystander CPR, however as we mentioned previously, the percentage of properly trained individuals remains around 5% of the population (Anderson et al., 2014).

Training cost and the length of training courses also contribute to lack of CPR training (Graham et al., 2015). CPR classes cost around 80 to 150 dollars and classes traditionally run approximately four hours (AHA, 2011). The American Heart Association reports that lower income neighborhoods tend to have lower rates of CPR training due to training cost and time consideration (AHA, 2011).

Concerns about Liability. Not only is there a fear of harming an unresponsive cardiac arrest victim, but also fear of legal consequences (Graham et al., 2015). For bystanders, there is no legal duty to rescue, but there can be legal consequences for intervening (Graham et al., 2015). A fear of legal consequences is often cited as reason for not responding or providing immediate assistance in an emergency situation. The Good Samaritan law provides legal protection for those who assist a person who is injured or in danger (Morris, 2014). The Good Samaritan law was meant to reduce the hesitation, to aid in emergency situations, as well as promote fast action needed for cardiac arrest victims and other emergency situations (e.g. drug overdose) (Banta-Green, Kuszler, Coffin & Schoeppe, 2011). Washington state amended their Good Samaritan laws where they eliminated legal liability for good-faith reporting for drug overdoses (Banta-Green et al., 2011). Surveys displayed that 88% of drug users would be more likely to call EMS in response to a drug overdose (Banta-Green et al., 2011). However, many people are unfamiliar with the Good Samaritan law, in response, CPR trainers are encouraged to

inform trainees of this law to improve awareness. There is very little research done on the correlation between the Good Samaritan law and response to SCA.

Psychological Factors. Lastly, psychological factors such as panic, stress, apprehension, doubt, and confusion are barriers to bystander CPR (Graham et al., 2015). Lack of knowledge and training can cause panic about what to do. Stress and apprehension about legality and harm can cause hesitation and confusion about performing CPR correctly. These psychological factors may influence the readiness to act in an emergency situation, even with previous CPR training (Graham et al., 2015).

Effective Adapted CPR Methods

Adapted Basic life support (BLS) and CPR classes have been created to increase the number of bystanders certified in life-saving skills. Traditional CPR training courses are often costly, time consuming, and do not often target underserved populations where OHCA often occur (Anderson et al., 2014). However, growing evidence suggest alternative methods for bystander training are just as effective as a traditional program. These alternative methods include layperson instructors, computer and video self-instruction, peer training model, ultrabrief training sessions, and compressions only cardiopulmonary resuscitation (COCPR). (Castern, Nurmi, Laakso, Kinnunen, Backman, & Niemi- Murola, 2004; Reder, Cummings, & Quan, 2006; Wik, Brennan, & Barslow, 1995; Bobrow et al., 2011; Nichol et al., 2015).

Layperson Instructors and Computer Video Instruction. Layperson instructors and computer video instruction with skills modules are shown to provide the same competent CPR training as a traditional program (Castern et al., 2004). Castern et al. (2004) conducted a randomized study comparing CPR performance levels of lay volunteers trained by health care professional and those trained by non-health care professionals. The study found no statistical

difference between performance levels and concluded that lay instructors were just as effective in teaching CPR (Castern et al., 2004). Another study done by Reder, Cummings, & Quan (2006), conducted a control trial, examining interactive computer training only and interactive computer training with instructor led practice, comparing them to a tradition classroom instructor with high school students. They found that interactive computer based self-instruction alone was sufficient to teach competent CPR knowledge. After training all instructional groups had mean CPR and AED knowledge scores above 75%. For groups trained with computer program, scores were above 80% (Reder, Cummings, & Quan, 2006).

Peer Training Model. Not only do lay instructors and video-based training provide competent CPR knowledge, peer and group training is also proven effective in providing CPR knowledge as well as reaching larger segments of individuals. Wik, Brennan, & Barslow (1995) evaluated a peer-training model for CPR instruction for laypersons. Forty-one factory workers were trained in CPR and given instructor training, these trainees then trained 311 co-workers, who then trained 873 family members and associates at home (Wik et al., 1995). After conducting a skills test, Wik et al. (1995) did not find any significant differences between each segment, except that home trainees outperformed the original trainees in compression delivery. This study provides evidence that CPR instruction can be just as, if not more effective than traditional CPR training from the American Heart Association (AHA) at a lower cost and with potential to reach greater segment of the population.

Brief Educational Sessions. Traditional CPR courses are approximately four hours long and include videos, hands on training, lecture, and skills testing. Randomized controlled trials have shown that a 30-minute training module or even a 60 second training compressions only cardiopulmonary resuscitation (COCPR) training can be effective in retaining and instigating

layperson to perform bystander CPR (Bobrow et al., 2011). Bobrow et al. (2011) study compared four groups: control (no training), 8-minute video training, 5-minute video training, and 60 second video training. They conducted an assessment by splitting each group into two: immediate and delayed testing. The delayed test takers would come back in two months to complete the assessment. They found that individuals who had video training provided adequate lifesaving COCPR in immediate and delayed testing groups. They also found that the 60 second training group was more likely, in both the immediate and delayed assessment, to attempt any resuscitation compared to the control (Bobrow et al., 2011). Any CPR increases chance of survival compared to no CPR at all, and even short 60 second video trainings can help reduce the barrier of bystander hesitation.

Compressions Only Cardiopulmonary Resuscitation (COCPR). Compressions only cardiopulmonary resuscitation (COCPR) is another effective method to increase bystander CPR. COCPR helps target bystander hesitation and concerns with providing mouth-to mouth resuscitation breathing (Anderson et al., 2014). Chest compressions are frequently interrupted by rescue breaths; however, these interruptions reduce blood flow to the brain and other organs, potentially reducing the effectiveness of CPR (Nichol et al., 2015). Minimizing interruptions in chest compressions has shown to increase survival rates, therefore studies have compared the significance between compressions-only CPR to traditional CPR methods. Nichol et al. (2015) conducted a study comparing the survival rate to hospital discharge between adults who were treated with continuous chest compressions and interrupted chest compressions. They found no significant difference between the amount of people from survival to discharge and no marked difference in neurological outcomes between the two groups (Nichol et al., 2015).

In Arizona, over the span of five years Bobrow et al. (2010) studied a statewide effort to increase bystander CPR by teaching laypersons COCPR. The Save Hearts in Arizona Registry and Education (SHARE) used multiple approaches to train and inform the population about COCPR, reaching approximately 30,000 people. Three major findings were identified from the SHARE program. There was a significant increase in bystander CPR from 28.2% to 39.9%, COCPR increase during the study from 19.6% to 75.9%, and COCPR showed a significant independent association with survival (Bobrow et al., 2010). From these studies we can see the effectiveness of COCPR and its effectiveness in increasing bystander CPR. Although COCPR is highly effective in increasing survival rates for victims of cardiac arrest, some studies show traditional resuscitation and compressions are more effective in cases where someone has asphyxia-precipitated cardiac arrest such as trauma, drowning, acute respiratory diseases, and apnea (Anderson et al., 2014).

Although the barriers to bystander CPR as well as the adapted methods to increase bystander CPR are applicable to all segments of the population disparities exist for certain populations and areas. This includes higher prevalence of cardiac arrest but lower CPR training for African American men in rural areas. As efforts are made to decrease bystander barriers and increase CPR action, prevalence of cardiac arrest and disparities in bystander CPR training should be explored (Bobrow et al., 2010; Eisenberg et al., 2016).

Disparities in Bystander CPR

Sudden cardiac arrest and risk for sudden cardiac arrest predominantly affect older men who are of African American descent particularly those with underlying conditions such as diabetes, high blood pressure, heart failure, and chronic kidney disease (NIH, n.d.). Anderson et al. (2014) revealed the interaction between race, ethnicity, and bystander CPR is often a function

of an individual's socioeconomic status, with disparities most apparent in minority, poor, and non-English Speaking neighborhoods. Lower income neighborhoods with predominantly African American, Hispanic, lower- income residents have insignificant CPR training rates, as well as a decreased chance of receiving bystander CPR intervention. However, race and ethnicity can independently predict cardiac arrest survival rates. Bobrow et al. (2010) found that African Americans bystander CPR rates are 19% less than other non- African American neighborhoods. For Latinos, regardless of neighborhood, are approximately 30% less likely than predominantly white neighborhoods to receive bystander CPR (Bobrow et al., 2010).

Low-income residents and neighborhoods often include people with limited English proficiency (LEP) (Eisenberg et al., 2016). Another study conducted by Eisenberg et al. (2016) revealed that members of racial and ethnic minority groups are also less likely to perform CPR due to limited adapted CPR training classes for minority groups as well as individual language barriers calling 911. CPR training programs need to adapt to the different underserved populations where cardiac arrest attacks most regularly occur.

Training for Underserved Populations

Although barriers and interventions to target the low rates of bystander CPR are relevant to all segments of the population. This project will focus on CPR training for formerly incarcerated individuals. The prison population has high percentage of minorities coming from low- socioeconomic neighborhood (Normore & Fitch, 2012). This project applies some of the evidence-based CPR training adaptations and extends them with modifications based on this formerly incarcerated population’s background and learning styles.

Profile of a Student Inmate

Current and previous incarcerated individuals are usually members of a minority group between the ages 21 to 33 years old (Normore & Fitch, 2012). They are usually from low-income households with personal challenges that include substance abuse, record of previous incarceration, and low-literacy (Normore & Fitch, 2012). Nomore and Fitch (2012) approximate 60% of those who are incarcerated in the United States are functionally illiterate meaning they lack the necessary skills to read, write, and understand therefore many inmates are in need of remedial and special education needs. Special education is educating students with exceptional needs, such as learning disabilities, that addresses individual differences through planned, adapted, equipment and materials (The Understood Team, n.d.). A survey distributed to three prisons in Ohio and New York revealed that 75% of inmates qualified for special education due to the prevalence of low literacy and revealed the average inmate has remedial and special education needs (Normore & Fitch, 2012).

Inmates with low-literacy and who are in need of special education usually have low self-efficacy, self-worth, and often feel a great deal of embarrassment due to their low educational levels. Many of these individuals never received a proper education due to difficult upbringings and certain social determinants, therefore many prison students are unfamiliar with traditional classroom etiquette (Normore & Fitch, 2012). For example, inmate students will generally listen to the instructor during lecture, but when questions are asked by other students, the class rarely pay attention (Normore & Fitch, 2012). Understanding the students' learning abilities can help educators adapt lessons and objectives to meet their needs.

Successful Teaching Methods

It is important that educators find effective methods of teaching in order for students to engage and learn. A study done by O'Connor, Flynn, Weinstock, and Joseph (2014) present an

analysis of effective teaching methods and programs tailored to the underserved communities. These methods were shown to be more engaging and effective in relaying health education information (O'Connor et al., 2014). As we have mentioned, former or current inmates are likely to be considered an underserved population with limited education and English ability (Nomore & Fitch, 2012). The appropriateness of the created materials and language used can influence the effectiveness of the training among the target population (O'Connor et al., 2014).

Training Materials. About 68% of prisoners reported not having a high school diploma or obtaining a GED (Harlow, 2003). Therefore, complementary training materials should not rely too heavily on written or text-dense materials (O'Connor et al., 2014). O'Connor et al. (2014) suggest that written materials are more effective for this population if there are relatively few words, many illustrations, bulleted key points, and ample white space.

Group Activity, Simulations, & Quizzes. A review of the literature on effective teaching approaches for underserved populations include small group activities. Small group activities are based on the premise that adults learn best through active participation (O'Connor et al., 2014). O'Connor et al. (2014) argues that lecture-style teaching methods usually hurt the learning process and can cause learners to become passive during class. Lecture- style learning has also shown to make these particular students feel undervalued in knowledge and skills, as well as promoting feelings of inadequacy (O'Connor et al., 2014). Therefore, it is also important not to call on students to read or interpret charts or graphs, this often leads to feelings of incompetence and deflated self-confidence (O'Connor et al., 2014).

Simulations or hands-on exercises are known to be an effective learning method to engage students in training programs (O'Connor et al., 2014). Hands-on learning helps solidify and reinforce knowledge by applying skills learned in real-life situations (O' Connor et al.,

2014). Role playing can also be used in training to engage participants in an active way. In role playing, the instructor would gather volunteers to act out a certain situation and then open up the conversation to the rest of the group to participate in a step- by- step discussion about the situation (O' Connor et al., 2014). In this way, participants can review the information and apply it to deepen their understanding and retention of the information.

In order for instructors to check students understanding of course material a test or quiz is conventional. Rather than a formal test, it may be helpful to take the skills test as a group. O'Connor et al. (2014) found that oral quizzes can be an effective and entertaining way to transmit and reinforce information. Each quiz question can be presented to the group to answer and then be further discussed by the instructor. This also invites discussion and clarification of questions, if any (O'Connor et al., 2014).

As an instructor it is important to recognize the level of skills and experiences each student has. It is also critical for instructors to recognize that students with limited literacy and education may not thrive in a formal educational setting, however, this should not prevent these students from becoming valuable resources when confronting issues such as helping someone in need of CPR. Traditional methods of disseminating knowledge may not be the most effective way for certain students, but alternative methods presented above can help produce the same results.

STOP Stress Reduction Technique

Previously mentioned psychological factors such as panic, stress, apprehension, doubt, and confusion are barriers to bystander CPR (Graham et al., 2015). Lack of knowledge and training can cause panic, stress, apprehension, hesitation, and confusion about performing CPR correctly. In order to tackle this barrier, this adapted CPR course will include a stress reduction

component. A momentary mindfulness-based stress reduction technique called STOP: Stop what you are doing, take a few deep breaths, observe your experience as it is (thoughts, feelings, and emotions), and Proceed with something that will support you in the moment, may be an effective way to cope with witnessing the cardiac arrest and encourage action (Goldstein, 2013). This exercise is a simple comprehensive tool that can be performed anywhere and within a few moments. This exercise allows individuals to mitigate negative effects of stress and see that they have the power to change how they respond in stressful situations (Goldstein, 2013). Studies that employ mindfulness as an intervention reveal improved focus and attentional control abilities (Mitchelle, Zylowska & Kollins, 2015). The STOP technique is a top-down approach, meaning individuals are encouraged to use their cognitive function to clearly see the situation and find different ways to react to a given situation. This approach helps regulate attention and detect conflict which can help combat the psychological stress and shock for bystanders witnessing cardiac arrest.

Agency Profile

Delancey Street is a residential self-help organization for many formerly incarcerated individuals. Started in 1971 Delancey Street has served and continues to serve thousands of residents, in six locations throughout the United States. These locations include, San Francisco, New Mexico, New York, North Carolina, Los Angeles, and North Charleston. Residents at Delancey Street range from teenagers to senior citizens and include men and women of all races and ethnicities. The average residents are previous drug and alcohol abusers, former inmates, have a personal history of violence, and are from low-socioeconomic backgrounds.

Delancey Street Foundation is a self-help facility in the truest sense of the word. The Foundation receives no government funds and has no staff of experts, so the facility is upkept

and financed by its residents through Delancey Street services. These services include a restaurant, a café, a moving company, and Christmas tree lots. It is also supported by individual donations. A driving value of Delancey Street is that people who are considered problematic can become their own solution. Delancey Street's approach is to develop their strengths rather than to focus of their problems.

The minimum stay at Delancey Street is two years while the average resident remains for almost four years drug, alcohol, and crime-free. During their time at Delancey Street, residents receive a high school equivalency degree (GED) and are trained in three different marketable skills. These skills include sewing, upholstery, cooking, waiting tables, truck driving, and auto mechanics, just to name a few. Beyond academic and vocational training, residents learn important values and the social and interpersonal skills that allow them to live successfully in society. Residents learn to work together promoting non-violence through a principle called "each-one-teach-one" where each new resident is responsible for helping guide the next arrival. For example, residents tutor one another to achieve a high school equivalency degree.

Any act of violence, or threat of violence, results in immediate removal from Delancey Street. Former gang members who have sworn to harm each other, live and work together peacefully. There are three focal rules at Delancey Street: no drugs or alcohol, no physical violence, and no threats of violence. The goal of Delancey Street is to learn to lead a productive crime-free, drug-free life of purpose and integrity.

First Delancey Street teaches residents personal skills: how to break old habits, how to get along with other people, particularly those who are different. Most have never had jobs, so Delancey teaches basic work habits – showing up on time, listening to an authority figure, and getting along with coworkers. When ready, residents enter one of the vocational training schools

– where they are trained by more experienced residents and can work their way up. In the restaurant, for example, one can go from dishwasher to prep cook to line cook to managing chef.

Delancey Street also offers tutoring to residents to help them complete their high school equivalency degree followed by college courses. For those who stay three years they offer post-secondary Academy (associate degree program) accredited by the State of California . Delancey Street's residents do the teaching and tutoring. When ready to graduate from Delancey Street, members get a job and work out for several months, saving their money in the Delancey-managed credit union, and begin paying rent until they are ready to reenter society.

Delancey Street is not a traditional therapy rehabilitation program. Residents learn about themselves and how to develop strengths, not through therapy groups, but through action. This means practicing life skills such as each-one-teach-one, living harmoniously with others, working together, and interacting in the community. When mistakes are made, residents learn to acknowledge them, and face the consequences (usually in the form of extra work—washing the dishes). In this way, residents are allowed to replace old self-destructive habits with new strengths, talents, and a sense of responsibility. Delancey Street is seen more as a large family and community rather than a staffed treatment program.

Problem Statement

More recently, Delancey Street is trying to integrate a medical/health aspect into their educational curriculum. Two sudden cardiac arrest incidences at Delancey prompted the need for CPR training. In response, an adjusted CPR course has been created for this population based off a review of the literature and iterative feedback from the residents.

Methods

Participants

The participants of this study were 31 formerly incarcerated individuals purposefully chosen from the Delancey Street Foundation residential reentry program. At the time the total population of Delancey Street residents was 180. The organization's President chose groups of eight students from the emergency team at Delancey, followed by workers at the café, and restaurant. Four CPR classes were taught with a maximum of eight students per class. This purposive sampling was used to gather residents who were chosen to respond to emergency situations as well as residents who work in highly populated areas. The respondents were all male between 32 and 55 years of age.

Measures

Skills Testing. First method of data collection was through a modified skills test performed orally in a group. This skills test has been adapted from the standard American Heart Association (AHA). This modification was necessary because of the adaptation of this program. The traditional four-hour course which includes the use of an Autonomic external defibrillator (AED) had been adjusted to one hour. Because we did not have access to an AED and not all questions were necessary for this population. The modified skills test will be reinforced with an individual demonstration of their skills through simulation of one and two rescuer CPR as well as choking relief for adult and infant.

Modified Focus Group. Quick modified after class focus groups was used to gather feedback on the adjusted CPR course. Instead of a formal focus group setting, participants gathered around a whiteboard where the instructor asked questions specifically chosen to facilitate participant feedback. Instead of general open-ended question about participants thoughts and experiences, questions were designed to encourage participants to critically review the course with improvement in mind. This modification was necessary after discovering most

participants were only giving positive feedback when administering a previous survey (See Appendix A). This method of gathering feedback was also very effective for participants from this particular population due to their disfavor for formality and tendency to ignore their fellow classmates (Normore & Fitch, 2012).

The questions addressed delivery, content, and intake of knowledge. The developed question were content-validated by the vice president of Delancey Street, two instructors who have taught a class to this population, and pre-tested by a Delancey Street resident. Feedback was collected by writing on the whiteboard and recorded using a notetaker, analyzed, and tailored for the next course.

Procedures

The instructor had students demonstrate their hands-on skills, after each module was taught (one and two rescuer CPR for infants and adults). If a student could not demonstrate the skills, the instructor would correct the student and have them try again. If a student felt he needed additional help, the instructor met with students individually after class.

After all the modules have been taught, the instructor handed out a hard copy of the skills test and a writing instrument to each student. Instead of individual testing, the class answered test questions collectively. The instructor read the questions out loud, students would answer orally, and then fill out the correct answer on their skills test. The purpose of groups testing is due to the populations documented anxiety for test taking (Normore & Fitch, 2012). Students were allowed to keep the test for review on their own time. In order to ensure each student can perform and understand skills taught, each student will perform hands-on or simulation testing of different emergency situations.

At the end of the skills test the instructor gathered the students in a semi-circle around a white board. Having been informed why this modified focus group is taking place, the instructor then asked a series of questions directed towards how to improve the adjusted course for this population (See Appendix B). The aim of this discussion was to gain a better understanding of the learning styles of the population (audio, visual, kinesthetic learning), as well as delivery and content of the course. Feedback given allowed further improvement and tailoring. The reason for this approach was to ensure honest relevant feedback from students while it is still fresh in their minds.

Results

The study had three aims, to determine: 1) whether the adapted and tailored course effectively taught the Delancey Street residents to perform CPR, 2) if the Delancey Street residents believe that the stress reduction technique would make them more likely to respond to someone in need of CPR, and 3) if the adapted course effectively taught Delancey Street residents to teach CPR to their fellow residents. Preliminary adaptations were taken from the literature and further tailored based on instructors' observations and qualitative feedback from the participants.

Demographic Breakdown

A total of 31 Delancey Street residents from the emergency team, restaurant staff, café staff, and moving company participated in the adjusted CPR course and provided feedback. There were three classes of eight residents and one class of seven. All participants were male and obtained a high school equivalency degree or General Educational Development (GED), a grade 12 education. Participants racial and ethical make up consisted of 35% Hispanic, 32% Caucasian,

19% African American, and 12% Asian American. The demographic breakdown of participants is shown in Table 1.

Table 1: Demographic of Participants.

Race/ Ethnicity		Hispanic (n=11)	Caucasian (n=10)	African American (n=6)	Asian (n=4)	Total (n=31)
Age	30-35	4	2	3	1	
	36-40	1		1	1	
	41-45	6	5	2	2	
	46-50		2			
	55+		1			
Gender	**Male**	11	10	6	4	31

Adaptations

Adaptations to the course include evidence-based methods pulled from the literature. These modifications considered ways to overcome barriers to bystander CPR (inability to recognize cardiac arrest, lack of training, liability concerns, and psychological factors), as well as learning alternatives for underserved populations. These adaptations are shown in Table 2.

Table 2: Adaptations to the course based off literature review.

General Effective Adapted CPR Methods Used		
Author, (year)	**Methods Used**	**Adaptation**

Castern, Nurmi, Laakso, Kinnunen, Backman, & Niemi- Murola (2004)	Layperson Instructors	University of San Francisco graduate student trained as a Basic Life Support instructor trained Delancey Street Residents
Wik, Brennan, & Barslow (1995)	Peer Training Model	Delancey Street residents help each other during the training session and will eventually train their fellow residents.
Bobrow et al. (2011)	Brief Education Sessions	Instead of a traditional four-hour training session, the class will be one hour.
Nichol et al. (2015)	Compressions Only Cardiopulmonary Resuscitation (COCPR)	Will provide the option for COCPR.
Adaptations for Training Underserved Populations		
O'Connor et al. (2014)	Training Materials	Manual created with minimal text and supplemented with illustrations. Used large font, bullet points, and easy to follow tables.
	Group Activity	Class will be structured where the instructor will demonstrate, and participants will be divided into small groups or pairs for hands-on practice.
	Simulations	Participants will demonstrate their skills in different emergency response situations on the mannikins.
	Quizzes/Tests	Traditionally CPR trained students would take a multiple-choice test of

		their own, instead participants and the instructor will take the written test together orally.
Goldstein (2013)	STOP Stress Reduction Technique	This concept will be introduced in the beginning of the course, applied during the lessons, and reviewed in depth at the end of the skills test.

Effectiveness of Adjusted CPR Course and Stress Reduction Technique

The adapted CPR course was taught to a total of thirty-one Delancey Street residents. There were four classes in total: three classes of eight members and one class of seven. To observe whether this adapted CPR course was effective in teaching Delancey members CPR and whether Delancey members felt confident in teaching one another, an iterative process to conduct modified focus groups was used, as well as oral and hand-on skills test. We then tailored the course based off feedback from each class of participants.

Survey

The original method of collecting data was through a retrospective pretest survey with open-ended questions where participants would rate themselves on their knowledge and skills before and after taking the course, as well as provide constructive feedback on what they liked and what needed improvement. This method proved confusing and difficult for participants to complete and the format of the survey was difficult for students to navigate (See Appendix A). Respondents ratings of themselves did not match the answers to the open-ended questions. They stated they felt confident in their ability to teach their fellow Delancey residents, however they rated their CPR skills “1” or “poor” on the Likert scale. There was also distinct social desirability

bias where 100% of participants in class one had no negative feedback for the survey question, "What would you improve about the class," stating the class was, "perfect!" and "I wouldn't change anything." It was clear we needed to reformat how we would collect feedback for this population.

Modified Focus Groups. Taking into consideration time constraints as well as reviewing the literature on this population, a protocol for a modified focus group was developed to be conducted at the conclusion of each course. These focus groups were conducted for classes two, three, and four and proved more suited for this population. See Table 3 for participant feedback and modifications.

Based off participant feedback, several adjustments were made. Unlike traditional CPR classes, the adjusted course does not include lengthy explanations for established CPR practices (e.g. numerical differences in ratio of compressions and rescue breaths between children and adults for two-rescuer CPR). However, the modified focus group revealed that lack of explanation for the differences between children and adult's compression to breath ratios resulted in difficulty remembering what to do in each situation. Therefore, explanation will be provided for these differences to help put the ratios in context as well as reinforce memory of numerical differences. In addition, another informant suggested we create a small informational card with general CPR steps as well as compression to breath ratios for adults, children, and infants. Delancey Street residents often take public transportation and are not allowed portable devices such as cellphones, therefore they often go through their wallets to pass time. This informant suggested the informational card will, "help keep the numbers straight." See Table 3 for participant feedback and modifications.

Another informant suggested individual and pair testing simulations. Throughout the course, participants would demonstrate their skills after each learning objective and complete their skills testing orally as a class, with an instructor. Because they found hands-on learning so valuable, testing all their knowledge at the end of the course through different scenarios will reinforce what they have learned, as well as allow more hands-on practice. Simulation testing based of different possible scenarios was added to skills testing.

All class participants found the stress reduction technique (STOP) helpful. Multiple informants mentioned how this technique could not only help reduce stress in an emergency situation, but stress experienced in their everyday lives. An informant in class three mentioned how stressed he is in his new position at Delancey, he is responsible for new residents and will practice STOP when he feels overwhelmed. Due to differing request on when STOP should be introduced, we decided to briefly introduce stress reduction at the beginning of the course and then delve further into the technique at the end of the course. See Table 3 for participant feedback and modifications. Lastly, all Delancey members from all four classes felt confident they were able to teach this course to future Delancey members.

Skills Test Results

Rather than formal written individual tests, Delancey Street participants demonstrated their skills through simulations and completed the oral skills test as a group. O'Connor et al. (2014) found that oral quizzes can be an effective and entertaining way to transmit and reinforce information for underserved populations. The simulation skills test is done individually and was implemented (due to participant feedback) to complement the traditional written test for CPR certification. Individual simulation testing was also done to ensure each individual had the skills necessary to perform CPR. The aim of these two assessments was to assess whether the

participants understood the information. As an instructor I observed hesitation and tension from all participants when mentioning the written test while going over the class objectives, however, almost all relaxed when they were informed we would be taking the test orally and in a group. All participants passed and participated in answering questions for the oral test as well as passing the simulation tests. Although during the simulation test, one to two participants from each group hesitated during simulation testing, they took longer to correctly demonstrate their skills and had to retake the test after a five-minute review.

Table 3 Course modifications based on participant feedback during modified focus groups.

	Participant Feedback	**Adaptations to Course Curriculum**
Class One	• Lack of classroom materials, participants struggled to take notes. • Incomplete CPR manual. • Retrospective pretest study was confusing for participants to complete. No useful feedback was obtained.	• Checklist of materials needed before, during, and after the course. This includes name tags, clipboards, and writing utensils. • Modified informal focus groups where participants gathered around a whiteboard to provide feedback.
Class Two	• Participants needed context and explanation for numerical difference between compression and breaths for adults, children, and infants. • Participants requested to begin the training course with stress reduction instead of at the end.	• Provided evidence-based reasons for numerical differences between compressions and breaths for adult, children, and infants. • Information business card they can keep in their wallets with general CPR steps on one side and compression to breath ratios for adult, children, and infants for one and two rescuer CPR. • STOP technique to begin the course.

Class Three	• Participants requested hands-on simulation testing with varying scenarios. • Participants preferred stress reduction technique at the end of the course.	• After the group oral skills test, participants will individually and in pairs participate in simulation testing. Where they will be tested on different emergency scenarios. • STOP stress reduction technique will be introduced at the beginning of the course and then explored further at the end of the simulation tests.
Class Four	• Participants requested more hands-on practice	• Created open office hours once a week where participants can practice their skills with instructor supervision

Discussion

This study was designed to increase bystander CPR training in response to high rates of out of hospital sudden cardiac arrest by providing an adapted and tailored course that address common barriers to bystander CPR (inability to recognize cardiac arrest, lack of training, liability concerns, and psychological issues) for formerly incarcerated individuals at Delancey Street Foundation. To move towards this, we used a three-pronged approach: 1) to target psychological issues presented in bystander CPR, we implemented a stress reduction technique STOP to mitigate stress bystanders face in a sudden cardiac arrest situation. 2) Taking into consideration differences in learning style preferences, as well as educational levels, this course was adapted and then further tailored based off the populations needs and preferences. 3) We also investigated whether this course could be sustained by having the residents at Delancey Street teach this course to their fellow Delancey Street members. Methods to collect results were through modified focus groups and skills testing.

Through trial and error, our results revealed key findings for this population. Originally, feedback on confidence of skills learned, what they liked, or did not like, and what needed modifications were collected through a retrospective pretest survey (See Appendix A). However, this layout proved confusing for the residents to fill out. Many residents left sections blank or only gave short positive feedback for the course (e.g. “The class was perfect!). After reviewing the literature and conducting an organizational cultural assessment, we realized an informal modified focus group would yield more beneficial feedback. Due to Delancey streets mission statement *Each one teach one*; where each resident is responsible for helping teach other residents at Delancey street, this method of collecting feedback focused on how they could help the instructor as well as future residents who are taking this course. This method proved effective and provided several modifications made to the course.

Delancey’s mission: each one teach one may also explain other results. Our findings revealed a 100% consensus that the residents in each of the four classes would be able to teach their fellow Delancey Street members skills taught in the course. As residents of Delancey Street, they are expected to teach their fellow Delancey members their expertise as well as new skills they have acquired. With their expectation of having to teach another resident these skills, participants in the class may have paid closer attention and asked more clarifying questions knowing they have this responsibility in the future.

This study also adds to the already documented body of literature on training for underserved populations. This includes effective teaching approaches such as group activity, hands-on simulations, and how to administer skills test (O’Connor et al., 2014). O’Connor et al. (2014), found that group-based activities, including quizzes and hands-on simulations/exercises were the preferred learning style for underserved populations, because active participation and

hands-on learning aid in solidifying and reinforcing knowledge. Singling out students in this population and lecture-style learning were shown to lower student's self-efficacy and increase feelings of embarrassment and incompetence (O'Connor et al., 2014). We found similar findings in this study. Participants in each of the modified-focus groups reported favoring hands-on learning and group activities, several participants suggested simulation testing along with the oral quiz and additional hands-on practice, resulting in open office hours. Based off observations of each class, we also found, all participants had hesitated and looked panic when they were told they would have to take a test, but then relaxed when they found they would be taking it in a group. O'Connor et al. (2014), found that oral quizzes can be just as effective in transmitting and reinforcing information, allowing discussion and further clarification of any information. During the group quiz, we observed residents readily and confidently participated in answering test questions and seemed unafraid to ask additional clarifying questions. The transmission and reinforcement of the group quiz information was demonstrated by hands-on simulation testing they had to individually perform.

Our findings also revealed the opportunity to implement a simple stress reduction technique that is useful not only in sudden cardiac arrest situations, but in other everyday stressful events. Previously incarcerated individuals experience a great amount of stress (Murphy, 2004). Studies have shown that inmates may develop maladaptive responses and emotional stress while in prison due to traumatic events often encountered in prison (Murphy, 2004). Brinded et al. (2001) found the prevalence of individuals suffering post-traumatic stress symptoms in prison are higher than the general population. Modified focus groups reveled participants attentiveness and interest in the STOP technique. This technique can be used on the spot during any stress provoking situation. This technique is simple and broken down into doable

steps which revealed appealing to participants. Many informants reported how this technique could help them in current situations and new roles they are taking on at Delancey Street.

Our findings revealed the need for an informal setting for this particular population. Although classes should be structured and follow a comprehensive outline, lecture-style should be minimized while demonstrations and hand-on exercises should be emphasized. A cultural assessment of the organization (*each one teach one*) revealed key components on how to structure the course as well as how to approach this particular population as an instructor. In order to collect useful feedback on how to improve the course, as well as increase participation it was important to create a relaxed informal learning environment, where the instructor, while still facilitating and being the main source of information, disclose to the participants that they should feel free to ask questions, develop a conversation if sections need further explanation, and to ask their classmates as well as the instructor for further clarification and demonstration. Understanding Delancey Streets mission of helping one another was the focal point of the course structure and contributed to the successes of implementing the adapted CPR course.

The adapted CPR course has uncovered real opportunity to increase the number of CPR trained bystanders. By addressing time constraints, low-literacy concerns, lack of training, lack of certified instructors, and psychological stressors with lay/peer instructors, adapted curriculums, predominately illustrated manuals, stress reduction techniques, and other useful informational mementos, adapted CPR courses can potentially decrease morbidity and mortality rates for those who experience out of hospital sudden cardiac arrest, more specifically targeting and training underserved populations where risk of sudden cardiac arrest is greater.

Limitations

There were several limitations to this study. Although we were adapting and measuring the success of this course for underserved populations, in particular formerly incarcerated individuals, the population we adapted for were highly specific. Delancey Street is a highly structured residential two-year program, where members eat, sleep, learn, and work. Because residents follow their highly structured schedule, it was easy to gather participants to take this course; they did not seek this course out themselves. It may be difficult to recruit other underserved populations who have less time. Also, this population, while considered low-literate in the literature, all have their high school equivalency degree. Though this course was adapted for people with low-literacy, these participants all have fair literacy skills. Although the distributed CPR manual was highly dependent on illustrations, the manual and other worded deliverables may deem ineffective for other low-literacy populations.

There was also high social desirability bias for Delancey residents. Before modifying data collection, many residents only provided positive feedback. The social desirability bias may be due to the gratitude they felt towards the volunteer setting aside time to teach them a skill. Another limitation was, this course was intended to be an adapted Basic Life Support (BLS) training that included adult, child, and infant CPR, choking relief, and use of an Automated External Defibrillator (AED). Due to lack of finances, we could not afford an AED and decided to adapt a CPR class to include everything taught in a BLS course excluding the AED. This may lead to a risk of confusion and hesitation if participants were to perform CPR outside of the Delancey Street community and an AED was brought to them.

Lastly, there were certain limitations with group quizzing. Although this course was designed to align with the learning needs and preferences of this population, there are potential concerns around whether participants truly understood the skills taught and whether they are able

to retain information when quizzing is done in groups instead of individually. In order to address these concerns, simulation or hands-on quizzing was implemented to reinforce the oral group quiz. Because this population are kinesthetic learners, individual hands-on testing based off different emergency scenarios was the best method to reinforce and practice material taught.

Implications for Practice

Other highly populated residential programs may benefit from adapted CPR training. Although many other residential programs do require their staff to complete CPR and First Aid training, perhaps offering free training classes at recreational centers or senior centers will expand outreach and increase rates of trained bystanders. Because there are many aspects of CPR, I would recommend a trained volunteer who has undergone the traditional CPR class act as a point person to adapt, tailor, and teach the course based on the population and their abilities. This way, if other students have any clarifying questions there is a point person to answer them.

It is important to have tailored material based heavily on illustrated materials for participants to take home. This will help reinforce and refresh what they have learned in the course. By having this information, participants have the potential and opportunity to teach what they have learned to others in their household.

If the CPR class is not required, as it was at Delancey Street, outreach for the course may be difficult. Mitigators may be price and time. If this class was part of a recreational centers membership and if the length of time indicated one hour instead of the traditional one hour, more individuals may be inclined to join the class. Outreach on the reasons why this course is important may also be effective in recruiting participants. This can include flyers that advertise the course as well as data on how many people it affects and the frequency of which out of

hospital sudden cardiac arrest occurs. This informational flyer can also be tailored to neighborhood and populations.

Lastly, stress management techniques should be incorporated into all CPR or BLS classes. One reason this study added a stress management technique was to target psychological barriers to bystander CPR. Another reason is because previously incarcerated inmates are known to have maladapted stress responses due to circumstances and the environment they were in (Murphy, 2004). However, stress management techniques should always be incorporated in these training courses because emergency situations are inherently stressful. Panic, anxiety, and apprehension are all issues within the greater population, not only in previously incarcerated individuals. As research shows, documented psychological barriers result in non-action (Graham et al., 2015). Perhaps stress management techniques when training will increase bystander's willingness to act in an emergency situation.

Future Research

There are many areas where future research can be conducted. One area of research can focus on adaptation of CPR or Basic Life Support (BLS) classes for underserved populations. There is limited to no research on how these classes are adapted for this particular population. Research found on how to effectively adapt for underserved populations was based off teaching health safety to engineers. Research focusing primarily on adapted CPR and BLS classes for the underserved population, especially due to disparities and prevalence between sudden cardiac arrest and the underserved population should be explored further.

Another area includes conducting this study for other vulnerable populations with a larger sample. This CPR course was specifically tailored to this small population, future research may focus on testing these effective methods of teaching for other vulnerable population who are

considered lower-literacy to discover or reinforce what adapted and tailored methods work. For certain lower-literacy populations, material may need to be further adapted, or adapted differently. Instead of any written words or numbers, certain populations may need more illustrations or video demonstrations.

References

American Heart Association [AHA]. (2017). Focused update on adult basic life support and cardiopulmonary resuscitation quality: An update to the American heart association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care.

American Heart Association [AHA]. (2011). Heartsaver classroom courses and materials frequently asked questions (FAQs). Retrieved from http://www.heart.org /idc/groups/heartpublic/@wcm/@ecc/documents/downloadable/ucm_426459.pdf.

American Heart Association [AHA]. (n.d.). Heart attack or sudden cardiac arrest: How are they different? Retrieved from https://www.heart.org/en/health-topics/heart-attack/about-heart-attacks/heart-attack-or-sudden-cardiac-arrest-how-are-they-different

Anderson, M. L., Cox, M., Al-Khatib, S. M., Nichol, G., Thomas, K. L., Chan, P. S., & Peterson, E. D. (2014). Cardiopulmonary resuscitation training rates in the United States. *JAMA Internal Medicine*, *174*(2), 194–201.

Banta-Green, C. J., Beletsky, L., Schoeppe, J. A., Coffin, P. O., & Kuszler, P. C. (2013). Police officers' and paramedics' experiences with overdose and their knowledge and opinions of Washington State's drug overdose–naloxone–good samaritan law. *Journal of Urban Health : Bulletin of the New York Academy of Medicine*, *90*(6), 1102–1111. https://doi.org/10.1007/s11524-013-9814-y

Brinded, P. M., Simpson, A. I., Laidlaw, T. M., Fairley, N., & Malcolm, F. (2001). Prevalence of psychiatric disorders in New Zealand prisons: A national study. *The Australian and New*

Zealand Journal of Psychiatry, *35*(2), 166–173. https://doi.org/10.1046/j.1440-1614.2001.00885.x

Bobrow, B. J., Vadeboncoeur, T. F., Spaite, D. W., Potts, J., Denninghoff, K., Chikani, V., Abella, B. S. (2011). The effectiveness of ultrabrief and brief educational videos for training lay responders in hands-only cardiopulmonary resuscitation: Implications for the future of citizen cardiopulmonary resuscitation training. *Circulation: Cardiovascular Quality and Outcomes*, *4*(2), 220–226.

Bobrow, B. J., Spaite, D. W., Berg, R. A., Stolz, U., Sanders, A. B., Kern, K. B., Ewy, G. A. (2010). Chest compression–only CPR by lay rescuers and survival from out-of-hospital cardiac arrest. *JAMA*, *304*(13), 1447–1454.

Castrén, M., Nurmi, J., Laakso, J.-P., Kinnunen, A., Backman, R., & Niemi-Murola, L. (2004). Teaching public access defibrillation to lay volunteers—a professional health care provider is not a more effective instructor than a trained lay person. *Resuscitation*, *63*(3), 305–310.

Cho, G.C., Sohn, Y.D., Kang, K.H., Lee, W.W., Lim, K.S., Kim, W., Oh, B.J., Choi, D.H., Yeom, S.R., Lim, H. (2010), The effect of basic life support education on laypersons' willingness in performing bystander hands only cardiopulmonary resuscitation. *Resuscitation. 81*(6), 691–694.

Eisenberg, D., Seino, L., Meischke, H., Tu, S. P., Turner, A. M., Ike, B., Yip, M. P. (2016). Development of a culturally-adapted graphic novella about emergency communication: Collaborations with a limited English speaking Chinese immigrant community. *Journal of Health Care for the Poor and Underserved*, *27*(3), 1199–1210.

Fender, E. A., Henrikson, C. A., & Tereshchenko, L. (2014). Racial differences in sudden cardiac death. *Journal of Electrocardiology*, *47*(6), 815–818. https://doi.org/10.1016/j.jelectrocard.2014.07.023

Ghose R., Lyon R.M., Clegg G.R., Gray A. J. (2010). Bystander CPR in south east Scotland increases over 16 years. *Resuscitation. 81*(11), 1488–1491.

Gilmore, C.M., Rea, T.D., Becker, L.J., Eisenberg, M.S. (2006). Three-phase model of cardiac arrest: Time- dependent benefit of bystander cardiopulmonary resuscitation. *The American Journal of Cardiology, 98*(4). 497–499.

Goldstein, E. (2013). Stressing out? S.T.O.P. Retrieved from https://www.mindful.org/wp-content/uploads/MF-03-Aug13%20IPT%20STOP.pdf

Graham, R., McCoy, M. A., & Schultz, A. M. (2015). *The Public Experience with Cardiac Arrest*. National Academies Press (US).

Harlow, C.W. (2003). Education and correctional populations. Bureau of Justice Statistics. Retrieved from https://www.bjs.gov/content/pub/pdf/ecp.pdf

Mitchell, J. T., Zylowska, L., & Kollins, S. H. (2015). Mindfulness Meditation Training for Attention-Deficit/Hyperactivity Disorder in Adulthood: Current Empirical Support, Treatment Overview, and Future Directions. *Cognitive and Behavioral Practice*, *22*(2), 172–191. https://doi.org/10.1016/j.cbpra.2014.10.002

Morris, E. (2014). *Liability Under "Good Samaritan" Laws.* American Academy of Orthopedic Surgeons (AAOS).

Murphy, D. S. (2004). Pre-prison, prison, post-prison: Post-traumatic stress symptoms. *Retrospective Theses and Dissertations.* 806.

National Institute of Health [NIH]. (n.d). Sudden Cardiac Arrest. Retrieved from https://www.nhlbi.nih.gov/health-topics/sudden-cardiac-arrest

Nichol, G., Leroux, B., Wang, H., Callaway, C. W., Sopko, G., Weisfeldt, M., & Ornato, J. P. (2015). Trial of continuous or interrupted chest compressions during CPR. *New England Journal of Medicine*, *373*(23), 2203–2214.

Normore, A. H., & Fitch, B. D. (2012). Education-based incarceration and recidivism : The ultimate social justice crime-fighting tool. Charlotte, N.C.: Information Age Publishing.

O'Connor, T., Flynn, M., Weinstock, D., & Zanoni, J. (2014). Occupational safety and health education and training for underserved populations. *New Solutions: A Journal of Environmental and Occupational Health Policy*, *24*(1), 83–106.

Reder, S., Cummings, P., & Quan, L. (2006). Comparison of three instructional methods for teaching cardiopulmonary resuscitation and use of an automatic external defibrillator to high school students. *Resuscitation*, *69*(3), 443–453.

The Understood Team. (n.d.). Understanding special education. Retrieved from https://www.understood.org/en/school-learning/special-services/special-education-basics/understanding-special-education

Wik, L., Brennan, R. T., & Braslow, A. (1995). A peer-training model for instruction of basic cardiac life support. *Resuscitation*, *29*(2), 119–128. https://doi.org/10.1016/0300-9572(94)00835-4

Appendix A

Retrospective Pre-Test Survey

For each of the topic listed below, please check the box under the number that indicates your level of knowledge both before and after completing the course.

	Before Taking the Class				After taking the Class			
How would you rate your knowledge on the following topics?								
1= Strongly Disagree 2= Disagree 3= Agree 4= Strongly Agree	1	2	3	4	1	2	3	4
I have the necessary skills to perform one rescuer adult and child CPR								
I have the necessary skills to perform two rescuer adult and child CPR								
I have the necessary skills to perform infant CPR								
I have the necessary skills to help an adult or child who is choking								
I have the necessary skills to help an infant who is choking								
I feel confident identifying a person who has a cardiac arrest.								
I feel confident performing BLS if someone is in cardiac arrest?								
I feel confident performing choking relief.								
Taking this course is a worthwhile practice								
I am able to teach what I have learned to my fellow residents								

Your opinion matters to us! Please answer the questions below to help us improve the course!

If you have chosen Disagree or Strongly Disagree on any topic above, please explain why.

What did you like about this course? (Lecture, manual, simulations)

What do you think needs improvement? (Confusing parts of the course, things you thought were unnecessary, needing more explanation?)

Appendix B

Feedback Discussion Questions: Adjusted CPR Course for Delancey Street Residents

Distribution

After the course has concluded, participants will be asked to gather in a semi-circle around the whiteboard. Discussion points produced from questions will be recorded on a cellphone and written on a whiteboard.

Introduction

I was wondering if I could ask you all for your help today. This is a new class being taught at Delancey Street and I would like to get your advice on how to improve this class for you and future Delancey Street students.

Questions

- Somebody dropped in front of you as you exit this room, what would you do?
- What would help you feel more confident in performing CPR?
    - Prompt: More Practice, information, test?
- If you were teaching this course, what would you do differently?
    - Prompt: More hands on, teacher attention, class size too big?
    - (Place three lines to prompt three answers)
- In this training course, we used visual, auditory, and hands-on simulation, which did you find most helpful why? Least helpful and why?
- What else do you think we could do to help you learn CPR?
    - Prompt: More visuals? Cheat Sheet?
- You know the Delancey Street members around here best. What are at least three different ways we can make this course better for other Delancey Street members?
- We are trying to create a course that aligns with Delancey's mission statement (each-one-teach-one), meaning we are trying to structure the class where you are able to teach your fellow Delancey Street members this course, do you feel confident in your ability to teach your fellow residents?
- Did you find the stress-reduction technique easy to practice?
- Do you have any suggestions on how we can make this S.T.O.P technique more beneficial to you?