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The Effects of Naloxone Education Among Adults in Alameda County

Patricia Ronnica Tinglin
University of San Francisco, patriciatinglin@gmail.com

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The Effects of Naloxone Education Among Adults in Alameda County

Patricia Tinglin

University of San Francisco

Committee Chair: Dr. Trinette Radasa

Committee Member: Dr. Alexa Curtis
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Abstract

Fatal opioid overdose is a growing concern in the United States (U.S.). The pharmaceutical companies assured the medical community that opioid pain relievers were not addictive. As a result, providers prescribed them at a significantly higher rate, which led to more extensive use of authorized and unauthorized opioid use before it was realized that they could be highly habit-forming (The U.S. Department of Health and Human Services [HHS], 2019). A growing body of evidence supports providing naloxone education as a means of harm reduction. The quality improvement project aims to implement educational sessions for adult patients seen at East Bay Pain Management, who use prescription and non-prescription opioids, on naloxone and its benefits on reducing fatal opioid overdoses. The project lead evaluates the effectiveness of naloxone educational sessions on improving participants’ knowledge of naloxone and opioid overdoses and improving participants’ confidence in identifying an opioid overdose event and acting on it.
The Effects of Naloxone Education in Alameda County Among Adults

The prevalence of fatal drug overdose continues to increase in the U.S., as more than 700,000 Americans have died due to overdose on drugs between 1999 and 2017 (Centers for Disease Control and Prevention [CDC], 2019). Approximately 68% of the over 70,200 fatal drug overdoses in 2017 contained an opioid. The daily death toll of Americans from opioid overdose averages 130 (CDC, 2019). Pharmaceutical companies assured the medical community that opioid pain relievers were not addictive. Thus, providers prescribed them at a significantly higher rate, which led to more extensive use of authorized and unauthorized opioids, before it was realized that they could be highly habit-forming (HHS, 2019). High doses of opioids can suppress the drive to breathe and can be fatal (World Health Organization [WHO], 2019). Illegally manufactured fentanyl, heroin, cocaine, or methamphetamines accounted for approximately 85% of fatal drug overdoses in over 24 states and the District of Columbia from the period of January to June of 2019 (CDC, 2020).

Naloxone is an inexpensive, nonscheduled opiate antagonist that can readily reverse the respiratory depression and sedation caused by opioids (Sproler & Karl, 2007). Majority of accidental overdoses happen in a home setting; hence, naloxone was made for first responders; in addition to family, friends, and caregivers. No formal medical training is required to administer naloxone. Moreover, naloxone is to be administered immediately for suspected or actual opioid overdose. It should not be taking the place of emergency medical care. So, laypersons should get emergency medical help immediately after administering the first dose of naloxone, even if the person wakes up (Narcan, 2021).

Opioid overdose has claimed the lives of approximately 47,000 persons in the United States in 2018 and resulted in high costs to the U.S economy. In 2017, the opioid epidemic cost the economy an estimated $1,021 billion, including an estimated $471 billion in opioid use disorder and $550 billion in cost of fatal opioid overdose. The CDC used national-level cost estimates to calculate the cost of opioid use disorder and fatal opioid overdose for the state level in 2017 (Luo et al., 2021). The cases of opioid
use disorder and fatal opioid overdose differ significantly among states. The purpose of this project is to implement educational sessions to patients seen at East Bay Pain Management, to describe evidence found to answer the following clinical question: Among adults who use prescription and non-prescription opioids, will naloxone educational session, compared to no naloxone educational session increase knowledge about opioid overdose, and increase knowledge and confidence in the use of naloxone, over a three-month timeframe?

**Problem Description**

Opioid abuse has been a chronic epidemiological issue in the United States (U.S.). Pharmaceutical companies assured the medical community that opioid pain relievers were not addictive. Providers prescribed them at a significantly higher rate, leading to more extensive use of prescription and non-prescription opioids before the governing body realized that they could be highly addictive (HHS, 2019). Because the brain controls breathing, opioids in high doses can cause respiratory depression and death (WHO, 2019). Naloxone is an opiate antagonist with no potential for abuse. It is a nonscheduled drug that can readily reverse the respiratory depression and sedation caused by opioids. The Drug Enforcement Agency (DEA) recommended that clinicians prescribe naloxone to individuals at risk for opioid overdoses, such as individuals who are on relatively high doses of opioids, take other medications prescriptions for naloxone doubled from 2017 to 2018. Only one naloxone prescription is dispensed for every 70 high-dose opioid prescriptions (WHO, 2019).

Alameda County recorded opioid-related mortality rates from a low of 1.6 per 100,000 residents in 2006, to a high of 8.5 per 100,000 residents in 2020. African Americans have the highest mortality rate at 15.7 per 100,000. Among the opioid-related deaths, 10.3 per 100,000 were between the ages of 25 to 34 years and 8.8 per 100,000 among males. Deaths from prescription overdose in Alameda were 3.2 per 100,000 residence in 2014 (Alameda County Public Health [ACPH], 2021). Moreover, in
Alameda County, deaths from opioid misuse tripled between 2005 and 2014 (Alameda County Health Care Services Agency, n.d).

The project will target patients at East Bay Pain Management who use prescription and non-prescription opioids. A knowledge deficit about naloxone was found among patients at the clinic after a needs discussion with the CEO of the clinic hence the need to provide educational sessions to those patients.

Setting

The project was implemented at East Bay Pain Management in San Leandro, Alameda County. The project targeted patients at the clinic who use prescription and non-prescription opioids. A thorough discussion with the medical director was done, which revealed a knowledge deficit about naloxone use and patients’ confidence in using it, hence the need to provide educational sessions to those patients.

The clinic is privately owned and operated by Dr. Ernest Bonner. Dr. Bonner has practiced as a Medical Doctor for 46 years and is board certified in addiction medicine. The patient population is majority African American females from Alameda County seeking treatment for chronic pain. Payments options for service are through Medical, cash, and some private insurances. Patients are from all socioeconomic statuses, the majority are in their late 50s, and most have at least a high school level of education.

Specific Aim

The aim of the quality improvement project is that, by December 2021, the project lead will implement educational sessions on adults over 30 years, seen at East Bay Pain Management, who use prescription and non-prescription opioids, on naloxone and its benefits reducing fatal opioid overdoses. In addition, the project lead will evaluate the effectiveness of the naloxone educational session on improving participants’ knowledge of naloxone and opioid overdoses and improving participants’
confidence in identifying an opioid overdose event and acting on it. Thus, the objectives are to increase understanding of naloxone’s potential to decrease fatal opioid overdoses and improve participants’ confidence in identifying an overdose event and acting on it.

Available Knowledge

PICOT Question

Population: Among adults Intervention: will naloxone educational session, Comparison: compared to no naloxone educational session Outcome: increase knowledge about opioid overdose, and increase knowledge and confidence in the use of naloxone, Time: over three months?

Search Method

An intensive search of Cochrane, Joanna Briggs, CINAHL, PubMed, and Scopus databases yielded several articles. Topic and search terms such as “naloxone prescription program and opioid overdoses,” “naloxone effectiveness,” “opioid overdoses,” “opioid overdose and naloxone prescription program,” “naloxone take-home kits and opioid overdoses,” “naloxone take-home kits,” and “naloxone take-home kit and peer administration.” Inclusion criteria of research articles in the U.S., ranging from 2015-2021. A total of 64 possible articles were yielded, of which eight were chosen for this project. The remaining two articles were chosen from a similar article search option in CINAHL search. The systematic review articles were selected since they are the highest level of evidence-based on the hierarchy of evidence. Longitudinal cohort study, retrospective study, and a literature review were chosen as they were related to the topic and higher on research evidence hierarchy than some unrelated studies, case studies, and expert opinions found. The articles were appraised using the Johns Hopkins Nursing Evidence-Based Practice Research Evidence Appraisal Tool (Dang & Dearholt, 2018).

Integrated Review of Literature

Chimbar & Moleta (2018), in their high-quality level II systematic review, aimed to explore the
benefit of the naloxone prescription program, which includes educating participants about naloxone, on decreasing opioid overdose deaths among users. Several major scholarly search engines were used to explore studies that supported the aim, which initially yielded 118 studies. A total of nine studies met the inclusion criteria. Information researchers extracted from the ten articles. Overall, the finding suggests that take-home kits (THK) reduce the mortality rate from an opioid overdose. One study revealed a 98% rate of successful rescue attempts, and another showed a confidence interval (CI) of 95.5 upper estimates and 97.1 lower estimates of successful opioid survival.

Another study revealed 96% upper estimates and 83% lower estimates of reduction in mortality rate of opioid overdose. One limitation was due to unreported data from the studies. As a result, further studies were recommended to include improved data collection methods and precisely follow up periods from 3-12 months when determining patient outcomes from THK compared to communities that have no THK (Chimbar & Moleta, 2018).

McDonald & Strang (2016), in their level II high-quality systematic review, aimed to reveal information about the usefulness of THK, which include educating participants about naloxone, the effect of overdose deaths, and the safety of such programs. They performed a structured search of the literature using the “PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)” as a guide to extract information. They searched electronic databases to explore peer-reviewed studies issued January 1946 and the third week in June 2015. Twenty-two articles met inclusion criteria. The articles were analyzed and found to meet the nine Bradford Hill original criteria, which included experimental and quasi-experimental evidence is known to be strong (McDonald and Strang, 2016). They concluded that THK programs help reduce fatal opioid overdoses, lower the rate of adverse events, and are very cost-effective. In total, 2249 of the 2336 THK administrations resulted in a successful overdose reversal (CI of 95.5 upper estimates and 97.1 lower estimates of successful opioid survivals). However, bias in the
selection process might have influenced the result since ten studies’ outcomes depended on the follow-up to evaluate overdose events; only 22.9% of participants followed up (i.e., 1973 of 8602).

McAuley et al. (2015), in their level II high-quality systematic review, aimed to determine the effects of take-home naloxone (THN) programs, including educating participants about naloxone on opioid overdoses. They explored studies conducted from 1992 to 2014. They searched major scholarly electronic databases and utilized specific search terms related to the topic. Studies that detailed THN programs met the inclusion criteria and were selected or excluded if they failed to include information on peers’ overall outcome of the total naloxone administrations. They analyzed each study by utilizing the “proportion of use (PoU)” approach to calculate the amount of naloxone given by a peer, the number of candidates who received training, and supplies of naloxone. They focused mainly on persons who use drugs over three months period.

McAuley et al. (2015) revealed that in the United States (U.S.), THN training could yield 35,000 to 88,000 uses every three months, which constitute the most significant number of lives potentially saved. They also highlighted the application of THN based on the effects of opioids dosage and the increased rate of enforcement that resulted in substantial reductions in overdoses mortality rates. McAuley et al. (2015) recommended exploring the impacts from when participants received naloxone utilization training to naloxone use. Moreover, a high-quality level of research must be a priority in future studies, specifically comparing various training structures to determine relative effectiveness and utilize a series of fixed periods from 3 to 12 months to test whether the time since training influences the rate of naloxone use (McAuley et al. (2015)).

Hanson et al. (2020), in their level III qualitative research, studied the effects of preventing opioid overdoses by implementing a naloxone prescription program (NPP), which includes educating participants about naloxone in rural Alaska. In 2017, the Alaska Department of Health and Social Services (DHSS) and several other organizations in the community provided education on opioid overdose and distributed
naloxone rescue kits to 18 laypersons. The participants were selected from two urban and two rural communities and interviewed for approximately 17 minutes regarding the accessibility of naloxone, naloxone training, overall knowledge, and prior use. The interviews were recorded and analyzed for the correctness of the qualitative data (Hanson et al., 2020). They found success in the accessibility of naloxone among participants, the nature of naloxone to reverse overdoses, overdose education, and overall fatal overdoses based on participants’ responses provided during the interviews (Hanson et al., 2020). Participants feared arrest, stigma, housing, and custody issues if 911 was contacted, in addition to some not trusting Alaska’s Good Samaritan Law. Hence, further studies are warranted to explore differences in peers’ experiences related to gender and rurality, to explore other groups, and not solely peers of opioid users, in receiving and giving naloxone (Hanson et al., 2020).

Siegler et al. (2017) conducted a longitudinal study that explored the effects of a naloxone prescription program, which included educating participants about naloxone toward decreasing fatal overdoses. Individuals who completed the training on preventing opioid overdose from June to September 2013 were selected. Participants were chosen from six of the most extensive overdose prevention programs in New York. Closed-ended questions were asked immediately after the training, then at three months for six months, followed by 12 months after the training. Data were analyzed using descriptive analysis, as well as bivariate and multivariate analysis, to reveal a possible link between observing an overdose and giving naloxone. Logistic regression was utilized to compute the odds ratio, 95% confidence interval (CI), and p-values to establish components associated with witnessing and overdose compared to not witnessing an overdose. Moreover, associations with administering naloxone compared to not administering naloxone during an overdose event (Siegler et al., 2017). A sensitivity analysis was done to determine any statistically significant relationship between demography and differences in drug uses over 12 months (Siegler et al., 2017). The researchers found that, of the 675 individuals who completed the overdose prevention training (OPT), 312 witnessed opioid overdoses, and
naloxone was administered in 241 events (77%) by 188 (60%) of the OPT study participants. Blacks/African American race vs. Hispanic, some college or college graduate versus less than high school and witnessing an overdose in three months before the overdose prevention training were factors associated with increased odds of witnessing an overdose. The adjusted odds ratio (AOR) = 2.41, 95% CI 1.22–4.76); 2.54, 95% CI 1.21–5.32); and 4.96, 95% CI 1.99–12.41), respectively. For participants who witnessed an overdose, and syringe exchange program (SEP) participations, odds ratio (OR) = 2.91, 95% CI 1.25–6.77), and cocaine/crack use (OR) = 2.89, 95% CI 1.29–6.49 were linked to naloxone administration in bivariable analysis. Still, none were statistically significant in multivariable analysis (Siegler et al., 2017). Thus, there can be a tremendous impact on decreasing fatal opioid overdoses if participants likely to observe and act on an overdose event are adequately trained (Siegler et al., 2017).

Equally important, when compared the participants who stayed in the study to those who left the study, the ones who were lost to follow-up “were more likely to be Hispanic (73% vs. 54%, p = 0.006), between 21 and 44 years old compared to those 45 and older (57% vs. 33%, p < 0.001), unstably housed (30% vs. 16%, p = 0.017), and less likely to report the use of methadone (44% vs. 60%, p = 0.011)” (Siegler et al., 2017).

There were discrepancies in the number of fatal opioid overdoses and rates of naloxone administrations, in addition to the loss of valuable information limiting follow-ups and generalizability, which all affected the reliability of the data (Siegler et al., 2017).

The researchers concluded that if naloxone distribution is prioritized and provided to a population likely to witness an event, the impact on opioid overdose mortality will be tremendous. Moreover, population training is recommended to target an adequate number of candidates likely to observe and act on an overdose event to decrease the number of fatal opioid overdoses (Siegler et al., 2017).
Mitchell & Higgins (2016), in their level III literature review of 38 articles, sought to identify the effects of public access to naloxone and the effects on fatal opioid overdose. They found that several international countries and states in the U.S. recorded success in reversal rates using NPP, which included educating participants about naloxone. In one study, 152,283 candidates received THK after training on opioid overdose; 26,463 overdoses were reversed. Equally important, another showed an 89% success rate in reversals. Some limitations of the study were due to stigma associated with illicit users, which could affect the reliability of the result if participants fail to report findings or follow up. Moreover, providers were reluctant to prescribe due to fear of liability issues. The high price of naloxone forced users to seek more affordable forms or discouraged use. Well-renowned organizations, including the Office of National Drug Control Policy, support NPP recommended intranasal naloxone due to its safety, protocol implementation for naloxone distribution, legislative reform, and holistic approach in preventing overdoses.

Wheeler et al. (2015) level III literature review, assessed a survey conducted by the Harm Reduction Coalition (HRC) on 140 organizations in the United States that supply naloxone to laypersons. HRC aimed to determine the effects of NPP on fatal opioid overdoses from 1996 through June 2014. The NPP includes educating participants about naloxone. The research results included 136 organizations that responded to the survey and revealed that a total of 152,283 naloxone kits were given to laypersons, of which 26,463 reported successful reversals in opioid overdoses. The researchers concluded that if training for opioid overdose events and naloxone rescue kits are provided to candidates who are likely to witness an opioid overdose, fatal opioid overdoses can be reduced. Further studies are recommended to include laypersons likely to observe an overdose.

Ogeil et al. (2018) conducted a retrospective review to assess the effects of THN on the impact of fatal opioid overdoses. This study was appraised as level III evidence. The researchers reviewed pharmaceutical overdose deaths records from January 2011 to December 2013 from Coroners Court
Victoria in South-Eastern Australia. There were 125 participants, 69.6% males ranging from 16-65 years and 30.4% female with ages ranging from 22-63 years. Descriptive statistics was used to analyze the results. It was evident in more than 20% of the deaths that a witness, mainly partners or acquaintances, noticed common signs related to overdose. Those witnesses were prepared to administer naloxone as first aid. However, in 70.4% of the cases, the witnesses did not act even though they noticed probable overdose symptoms. The study revealed that overdose education and naloxone administration to layperson including families must be implemented to reduce fatal opioid overdoses. A limitation is that witnesses present at the initial stage of the overdose might not have been questioned or included in the coroner report. Another is that witnesses might withhold information to avoid any law enforcement interaction. Overall, the generalizability and validity of the findings may be affected when witnesses are absent or withhold information.

Furlan et al. (2018) carried out a level II high-quality systematic review of peer-reviews and untraditional published literature that sought the correlation between approaches to monitor the proper use of opioids and reducing fatal opioid overdoses. A total of 65 studies were used to extract information: 9 randomized trials and 56 were non-randomized, and 66 specific strategies were identified. The strategies covered areas such as educational, clinical practice, distribution of naloxone, therapies on opioid substitution therapies, prescription monitoring, campaigns focused on returning of unused opioids, regulations, policies and public movements or campaigns. PRISMA checklist was utilized, systematic quantitative review including Cohen’s d tests, were done to analyze the result.

Twenty-two studies evaluated the impact of several strategies on overdose and deaths, with effects ranged between -3 to 3. Implementation of an opioid dosage guideline had the most considerable negative impact resulted in a significant increase in mortality due to methadone. On the other hand, four strategies had a significant positive effect that included overdose prevention training and naloxone distribution, changes in the legal status of naloxone permitting its administration by any member of the
public, and pharmacy-based naloxone distribution in addition to education and training. Equally important opioid substitution, primary care involvement, THN and training program had a significant positive effect. Naloxone distribution was the most common approach to decreasing fatal opioid overdoses with largely positive feedback.

Some limitations were selection bias and poor participant follow-up: for example, one study reported a 39% dropout rate. Another problem was that the study was unclear about the groups selected for the study. Therefore, further studies are recommended to include an adequate description of the study groups, limiting the risk for bias.

Mueller et al. (2015), in their level III literature review, sought to reveal the effects of community naloxone prescription program on opioid overdose. The NPP includes educating participants about naloxone. A total of 41 articles were obtained from PubMed were used in the research. PRISMA was used to condense the studies. One study found that naloxone administration was influential with an 86% reversal rate; another reported an 80% reversal rate. Some limitations were related to some witnesses not being comfortable administering naloxone, and prescribers were not willing to prescribe naloxone. In addition, they underreported data due to possible legal implications associated with reporting to law enforcement. See Appendix C for the evaluation table on the literature above.

Synthesis of the Evidence

After reviewing the evidence of the ten research articles, the naloxone prescription program consistently demonstrated a decrease in opioid overdose mortality rates in five of the articles. The naloxone prescription program entails educating laypersons on identifying and managing opioid overdose and distributing naloxone rescue kits to the attendees. The other five articles revealed a high chance of reducing fatal opioid overdoses if training is provided on opioid overdose and THK is given to candidates attending the training, who are more likely to observe and act on an overdose. Further research was recommended to include improved data collection, and follow-up periods collectively from 3-12 months
after participants received naloxone education. In addition, population training should target participants more likely to witness and act on an overdose event.

One of the main strengths contributing to the validity and reliability of the findings was consistent with the level of evidence found. They were mainly systematic reviews, with one using meta-analysis to support the evidence. Systematic reviews are known to have the most rigorous approach to limit bias in condensing research (Melnyk & Fineout-Overholt, 2019, p. 171). A meta-analysis uses a statistical process to generate new evidence from the available data. Most of the studies were within the past five years, which adds to relevancy and appropriateness when implementing the findings.

The inconsistencies were mainly with selecting and analyzing data from the various studies. Even though there were consistencies in the overall findings, each selection and or analysis method has limitations that can impact the overall findings. For example, two of the ten studies revealed participants feared arrest, stigma, housing, and custody issues if 911 was contacted. Another study done in Alaska revealed a lack of trust in the Good Samaritan Law. Further interventions should help raise awareness of the Good Samaritan Law to decrease the trust issues.

Even though the studies highlighted several limitations, consensus on the significant conclusion was evenly split. Five of the studies revealed NPP consistently decreased opioid overdose mortality. The other five articles revealed a high chance of reduction in fatal opioid overdoses if the educational session is provided on opioid overdose.

To decrease fatal opioid overdoses medical facilities should utilize the concept of naloxone education through a prescription program. In addition, NPP should ensure implementation of opioid overdose education and training of persons with higher chances of observing an opioid overdose event and acting on it. Further studies are needed to yield more consistent information as Nurse Practitioners (NPs) depend on consistent and reliable evidence to advocate educational sessions through NPP in medical facilities. NPs should become familiar with NPPs and educational sessions considering the
associated benefits to patient outcomes and become more engaged with policy proposals that target such educational programs implementations. In addition, NPs should prescribe naloxone to patients at risk for an opioid overdose to help decrease the opioid overdose mortality rate. NPs should also be involved in teaching efforts on proper usage of naloxone, including signs and symptoms of opioid overdose, to ensure patients are adequately informed. Lastly, NPs should be aware of the stigmas associated with opioid use disorder and engage in continuing education sessions to improve knowledge.

Rationale

The Cascade of Care model was used as a guide for this project. This model was used to identify participants who use naloxone. Also, the Cascade of Care model was used to enhance treatment outcomes with naloxone educational sessions to decrease related diseases and deaths. The model has four cascades: the prevention, identification, treatment, and recovery phase. The aim is to prevent opioid overdose, identify patients at risk for addiction and overdose, provide educational sessions, all phases eventually leading to recovery (National Institute of Drug Abuse (NIH), 2019). This framework fits well with the population, and it is simple to comprehend and self-explanatory to readers (see Appendix N).

Nola J. Pender’s Health Promotion Model (HPM) was used to guide the project (see Appendix P). Nola Pender began to work on the model in the mid-1970s, then published it in 1982. The model provided a multifaceted approach to a person’s life regarding their environmental interaction in the quest to pursue optimal health (McEwen & Wills, 2011).

There are several concepts and definitions of the Health Promotion Model, including personal factors, perceived benefit to action, barriers to action, self-efficacy, and activity-related effect. In addition, there are interpersonal and situational influences, commitment to the action plan, immediate competing demands and preferences, and health-promoting behavior (McEwen & Wills, 2011).
This project highlighted perceived self-efficacy and health-promoting behaviors. Perceived self-efficacy is related to a person’s confidence to do something. In the case of the project, the participants developed knowledge and confidence in identifying an opioid overdose event and acting on it. Health-promoting behaviors are outcomes of action “directed towards attaining positive health outcome” such as optimal well-being, personal fulfillment, and productive living” (Current Nursing, 2011). In the case of the project, the participants developed the knowledge and ability to safely and effectively use naloxone to reverse opioid overdoses.

The Health Promotion Model guided the project as the lead explored the effects of naloxone educational sessions among participants. It gave a better understanding of the approaches to promoting health on an individual level. Each person is unique and has a perception of health promotion. Understanding ways in which individuals view health or health promotion was beneficial.

This HPM helped explain how naloxone educational sessions can increase confidence in identifying an opioid overdose event and acting on it. Participants were readily available to change distorted perceptions about naloxone, mainly because the project lead presented evidence-based information to them. The HPM guided each phase of the project by helping to influence health-promoting behavior while seeking to gather information. The project lead approached each stage of the project with the knowledge that “health-promoting behaviors are useful to promote health state” (Chinn & Kramer, 2018, p 283). Utilizing the HPM assisted to identify variables to measure both dependent and independent variables. In addition, it allowed the project to consider independent variables such as prescription opioids, naloxone educational sessions, and location.
Interventions

A gap analysis was used to determine the current gap that revealed a need for naloxone educational sessions. The developmental plan was to implement naloxone educational sessions to increase knowledge about opioid overdose and increase knowledge and confidence in using naloxone. The Gantt chart was used to maintain the specified timeline of the project’s success in moving forward. In addition, adjustments were made throughout the project to ensure that it moves forward to completion. The work breakdown structure was used to outline the component of the project, which included the project’s introduction, planning development, implementation, and data analysis and evaluation. The responsibility/communication plan was used to outline communication throughout the project with the DNP chairman and committee member via email and zoom meetings as needed. Equally important, communication was done by telephone and in-person visit with the site medical director and other clinic staff. Finally, a strengths, weaknesses, opportunities, and threats (SWOT) analysis was used to assess the project’s strengths, weaknesses, opportunities, and threats.

Gap Analysis

Fatal opioid overdose is a growing concern in the U.S (HHS, 2019). Alameda County recorded an opioid-related mortality rate from a low of 1.6 per 100,000 residents in 2006, to a high of 8.5 per 100,000 residents in 2020. African Americans have the highest mortality rate at 15.7 per 100,000. Among the opioid-related deaths, 10.3 per 100,000 were between the ages of 25 to 34 years and 8.8 per 100,000 among males (Alameda County Public Health [ACPH], 2021).

Currently, clients at risk for opioid overdose have no educational program on naloxone use, and the desire is to increase knowledge and confidence in the use of naloxone. After the gap analysis was completed, it revealed that there was a need for naloxone educational sessions. Therefore, the
Developmental plan was to implement naloxone educational sessions to increase knowledge about opioid overdose and increase knowledge and confidence in using naloxone (see appendix D).

**Gantt Chart**

The milestones for this project were identified using a GANTT chart to guide the projected timelines (see Appendix E). This GANTT chart maintained the specified timeline of the project’s success in moving forward. In addition, adjustments were made throughout the project to ensure that it moves forward to completion.

The timeline spans from August 2021 to December 2021. Several meetings were held in 08/2021 with the chief executive officer (CEO)/medical director to achieve buy-in, formulating a committee with the medical director and psychiatric/medical assistant. Equally important, meetings were held with the DNP chair and committee members to discuss the project plan and obtain approval. Educational materials were gathered. In September 2021, further discussions were held with the CEO for project plan approval, a letter of support from the organization was obtained, and educational sessions were initiated. Process evaluation and reviews of the appropriateness of the patient training materials were done periodically throughout the six weeks period from September to October 2021. Data from the project was gathered, and preparation of the manuscript began in October and spanning to December for the DNP presentation. The project will be left open for any psychiatric mental health nurse practitioner (PMHNP) student who has an interest and willingness to carry out further quality improvement projects on the topic (see Appendix E).

**Work Breakdown Structure**

The goal was to provide educational sessions on naloxone to adults who use prescription and non-prescription opioids and their benefits in reducing fatal opioid overdoses. The overall objectives are
to increase understanding of naloxone’s potential to decrease fatal opioid overdoses and improve participants’ confidence in identifying an overdose event and acting on it. To implement the project lead’s role in the community setting and establish the tasks necessary to meet the project’s, a WBS was necessary (see Appendix F).

The responsibilities associated with meeting the project lead’s goal started with meeting with the chief executive officer (CEO)/medical director to achieve buy-in, formulating a committee with the medical director and psychiatric/medical assistant. Once the medical director supported the project proposal, the project lead obtained the letter of support granting permission to implement the project (see Appendix B). Finally, the project lead gathered evidence-based naloxone educational material on administering naloxone (see Appendix O), including a sample naloxone kit and printouts on naloxone spray quick start guide with opioid overdose response instructions was provided to those who attended the educational sessions (see Appendix L).

Staff education/communication was done on the education process, and help was received to randomly select the participants. Then, the trial began by educating 40 participants: at 5-10 patients per clinical day for a total of 6 weeks. Next, each participant completed pre-questionnaires with the help of the psychiatric assistant if available in the clinic. Next, the project lead provided the naloxone educational sessions, followed by a post questionnaire to evaluate the effectiveness of each session. Finally, the process evaluation was performed, and a measurable value was established that revealed the progress of the outcome or outcome metrics (see appendix Q).

Periodical reviews of the appropriateness of patient training materials at each visit were done, and changes were made when necessary. The project lead also maintained monitoring of outcome metrics to determine the effectiveness of the education sessions, formulated reports for stakeholders on data collected from the project, prepared the manuscript to be presented at the Doctor of Nursing Practice (DNP) project presentation.
Responsibility/Communication plan

Communication was done throughout the project with the DNP chairman and committee member via email and zoom meetings as needed. Equally important, communication was done by telephone and in-person office visits with the site medical director and other clinic staff (see Appendix G).

SWOT Analysis

A strength, weaknesses, opportunities, and threats (SWOT) analysis was conducted to identify the strengths, weaknesses, opportunities, and threats of implementing the naloxone education sessions (see Appendix H). There is evidence-based research to support the implementation of naloxone educational sessions. A review of the literature demonstrated the benefits garnered through various NPP, such as the decreased rate of opioid overdoses. Some of the benefits are that the educational sessions are available for participants likely to witness an opioid overdose event and act on it. Moreover, participants likely to see an opioid overdose event will gain knowledge and confidence. Thus, there will be an opportunity for harm reduction with the decreasing opioid overdose rate. Furthermore, participants willing to help in an opioid overdose can help with the knowledge and confidence gained from the educational session. Other strengths are related to stakeholders’ support. Each naloxone kit comes with a handout with steps on administering naloxone if participants need a refresher on how to use naloxone.

Some weaknesses are that naloxone kits will not be distributed during the educational sessions, thus limiting accessibility for naloxone. In addition, participants who will likely witness an opioid overdose and act on it might not want to partake in the educational sessions. Equally important, participants might be afraid of legal issues due to limited knowledge about the Good Samaritan Law in California (see Appendix M), and the clinic might be against the proposal.

After all, some opportunities for harm reduction are that the educational sessions will allow participants to provide help and save a life, possibly the lives of family or close friends. Moreover, the convenience of educational sessions via telephone call while participants are in a convenient setting.
Lastly, some threats are that participants might not want to answer an unknown call; thus, the targeted goal of 40 participants could have been affected.

**Budget and Financial Analysis**

There was an operating budget of $4 from August 2021 to December 2021. If the project continues, the projected cost for staff would be as follows: nurse practitioner who will provide the educational sessions, estimated for 2 hrs weekly x $85 per hr for six weeks = $1020. Moreover, the psychiatric assistant who will assist with gathering educational materials and selecting participants is estimated for 1 hr weekly x $15 per hr for six weeks = $90. Hence, the total cost was $1,114 for six weeks. If the project goes beyond December 2021, the operating budget will be around $2228 annually for year two and $4456 for year 3. Years two and three are budget propositions in the case of another DNP student interested in the topic and would like to continue with the project over three months, six months, respectively. Some requirements for the project were already in place by the clinic, including staffing and infrastructure. Therefore, the project will not yield revenue or return on investment (ROI) over the implemented period. However, the project is expected to show participants’ increased understanding of naloxone’s potential to decrease fatal opioid overdoses and improve participants' confidence in identifying an overdose event acting on it, thus harm reduction (see Appendix I).

**Outcome Measures**

Pre and post Interviews questionnaires (quantitative and qualitative questions) were provided to participants to determine participants’ knowledge about the benefits of naloxone on reducing fatal overdoses, participants' confidence level to identify an opioid overdose event and act on it. Also, participants learned about the Good California Samaritan Law, the benefits of the educational sessions, and indications of each participant’s success in using naloxone. The data was analyzed using SPSS. T-test was used to determine the difference between pre-and post-naloxone education on participants’
knowledge. Descriptive statistics was used to summarize the data. Software: Microsoft Excel data analysis program was used for logging data collected.

**Data Collection Tools**

Pre and post-test administered to measure knowledge of naloxone and opioid overdoses and confidence to identify an opioid overdose event. The data was logged in Microsoft Excel and stored as numbers.

**Analysis**

**Demographics**

There were 40 participants in the project and 11 (27.5%) identified as male and 29 (72.5%) identified as female (Table 1). For race, most participants identified as Black or African American (n = 33, 82.5%) followed by Other (n = 4, 10.0%), Hispanic (n = 2, 5.0%), and Caucasian (n = 1, 2.5%). On age, most participants reported being 50-79 (n = 20, 50.0%) or 30-39 (n = 19, 47.5%) years old followed by 79 and above (n = 1, 2.5%). All participants reported residing in Alameda County (n = 40, 100%). Finally, most reported their visit was by telephone (n = 31, 77.5%) and the rest in the office (n = 9, 22.5%).

**Table 1**

Participant Demographics

<table>
<thead>
<tr>
<th>Question</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is your gender?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>11</td>
<td>27.5%</td>
</tr>
<tr>
<td>Female</td>
<td>29</td>
<td>72.5%</td>
</tr>
<tr>
<td>What is your race?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black or African American</td>
<td>33</td>
<td>82.5%</td>
</tr>
<tr>
<td>Caucasian</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2</td>
<td>5.0%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>10.0%</td>
</tr>
<tr>
<td>-----------</td>
<td>-----</td>
<td>-------</td>
</tr>
</tbody>
</table>

I am between the ages of:

<table>
<thead>
<tr>
<th>30-49</th>
<th>19</th>
<th>47.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-79</td>
<td>20</td>
<td>50.0%</td>
</tr>
<tr>
<td>79 and above</td>
<td>1</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

What county do you live?

<table>
<thead>
<tr>
<th>Alameda</th>
<th>40</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Type of visit?

<table>
<thead>
<tr>
<th>Office</th>
<th>9</th>
<th>22.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
<td>31</td>
<td>77.5%</td>
</tr>
</tbody>
</table>

Descriptive Statistics

As seen in Table 2, most participants reported using opioids ($n = 27, 67.5\%$) and the rest reported no use ($n = 13, 32.5\%$). Many participants ($n = 12, 30.0\%$) reported using Oxycodone (Percocet) while 12 (30.0\%) reported no type of opioid use followed by Hydrocodone ($n = 9, 22.5\%$), and the rest ($n = 7, 17.5\%$) used more than one opioid. Many reported that they did not use other controlled substances ($n = 36, 90.0\%$) and had never had or witnessed an overdose event ($n = 26, 65.0\%$). When asked about accessing Naloxone, 20 (50.0\%) reported yes, while 19 (47.5\%) reported no. When asked about using non-prescription opioids, all participants, 40 (100\%), reported no use. Most participants did not have a designated person to assist them in case of an overdose ($n = 23, 57.5\%$), while 17 (42.5\%) did have a designated person. When asked if the designated person was trained on using Naloxone, 17 (42.5\%) reported yes. Finally, the pharmacist did not show most participants ($n = 24, 60.0\%$) how to use Naloxone based on the responses.
<table>
<thead>
<tr>
<th>Question</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you use opioids?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27</td>
<td>67.5%</td>
</tr>
<tr>
<td>No</td>
<td>13</td>
<td>32.5%</td>
</tr>
<tr>
<td>Name the type(s) of opioids that you use?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fentanyl, Oxycodone (Percocet)</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>Hydrocodone (Norco)</td>
<td>9</td>
<td>22.5%</td>
</tr>
<tr>
<td>Hydrocodone (Norco), Morphine</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>None</td>
<td>12</td>
<td>30.0%</td>
</tr>
<tr>
<td>Oxycodone (Percocet)</td>
<td>12</td>
<td>30.0%</td>
</tr>
<tr>
<td>Oxycodone (Percocet), Hydrocodone (Norco)</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>Oxycodone (Percocet), Methadone, Morphine</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>Oxycodone (Percocet), Oxycontin</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>Do you use other controlled substances?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Answer</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>7.5%</td>
</tr>
<tr>
<td>No</td>
<td>36</td>
<td>90.0%</td>
</tr>
<tr>
<td>Have you ever had or witnessed an opioid overdose event?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14</td>
<td>35.0%</td>
</tr>
<tr>
<td>No</td>
<td>26</td>
<td>65.0%</td>
</tr>
<tr>
<td>Do you know where to access naloxone in your county without the need for a prescription?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>20</td>
<td>50.0%</td>
</tr>
</tbody>
</table>
### Ethical Considerations

Several ethical issues might arise from implementing the educational sessions due to the nature of the medication and targeted population. Based on evidence-based research, it has been proposed that NPPs can decrease opioid overdoses. An ethical issue regarding the project was assessed from a practical perspective. The educational sessions were advantageous to participants taking opioids and having a naloxone prescription or yet to receive one. Naloxone is a safe drug with no potential for abuse (Darke & Hall, 1997). However, there can be some medico-legal complications associated with medical providers prescribing naloxone that participants will be given to and by individuals other than the prescribed person. Moreover, the economic cost of distributing naloxone for free on a broader scale. Nevertheless, considering its impact on overdose morbidity and mortality and the prospective higher price-effectiveness of more direct educational interventions, it may be worth the consideration (Darke & Hall, 1997).

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have a designated person in case of an overdose?</td>
<td>17</td>
<td>23</td>
</tr>
<tr>
<td>No Answer</td>
<td>19</td>
<td>47.5%</td>
</tr>
<tr>
<td>Has the designated person been trained how to use naloxone?</td>
<td>17</td>
<td>42.5%</td>
</tr>
<tr>
<td>No</td>
<td>23</td>
<td>57.5%</td>
</tr>
<tr>
<td>Do the pharmacist shown you how to use naloxone?</td>
<td>16</td>
<td>40.0%</td>
</tr>
<tr>
<td>No</td>
<td>24</td>
<td>60.0%</td>
</tr>
</tbody>
</table>
Patients have the right to veracity. Veracity is the duty to tell the truth (American Nurses Association [ANA], 2015). Participants were provided with truthful and accurate information about the project before gaining their consent. Also, participants were taught factual and evidence-based information. Participants have the right to confidentiality (ANA, 2015). Therefore, numbers were used as identifiers to protect participants’ information.

Finally, the project took into consideration and incorporated the ethical values of the University of San Francisco. The values to be considered are *cura personalis* that means caring holistically for patients. The project lead ensured to offer support and care to participants. All the participants’ questions were answered in a caring and respectful manner. Patients’ understanding of the educational sessions were assessed, and corrections were made when necessary. Moreover, being available for others and committed to diversity (University of San Francisco, 2021). Cultural competence was always practiced ensuring effective and appropriate communication during the sessions.

**Results**

Pre-and post-questionnaires were administered to measure knowledge of naloxone and opioid overdoses and confidence to identify an opioid overdose event. The pre-test had an average score of 1.95 (SD = 2.037), and the post-test average score was 5.00 (SD = .000). Based on the responses, the post-test score was found to be significantly higher than the pre-test score at $t(39) = -9.468, p < .001$ (Table 4). As a result, the intervention was successful in being statistically significant in raising knowledge and confidence (Figure 1).

**Table 3**

*Paired Samples Statistics for Knowledge and Confidence*

<table>
<thead>
<tr>
<th></th>
<th>$M$</th>
<th>$N$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Test score</td>
<td>1.95</td>
<td>40</td>
<td>2.037</td>
</tr>
</tbody>
</table>
Table 4

Paired Samples T-Test for Knowledge and Confidence

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Lower</th>
<th>Upper</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and</td>
<td>-3.05</td>
<td>2.037</td>
<td>-3.70</td>
<td>-2.39</td>
<td>-9.468</td>
<td>39</td>
<td>.000</td>
</tr>
<tr>
<td>Confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1

Knowledge and Confidence Mean Scores

Note. A bar graph illustrating the pre-and post-test mean score of knowledge and confidence.
Discussions

Summary and Interpretation

Firstly, THK decreases the mortality rate from an opioid overdose. One study revealed a 98% rate of successful rescue attempts. Another showed a confidence interval (CI) of 95.5 upper estimates and 97.1 lower estimates of successful opioid survival (Chimbar & Moleta, 2018).

Secondly, THK programs help reduce fatal opioid overdoses, lower the rate of adverse events, and are very cost-effective. Findings revealed CI of 95.5 upper estimates and 97.1 lower estimates of successful opioid survivals (McDonald & Strang, 2016).

Thirdly, THN training could yield up to 88,000 uses every three months, constituting the most significant number of lives potentially saved. Moreover, substantial reductions in overdoses mortality rates can result from the implementation of THN (McAuley et al., 2015).

Fourthly, there was success in the accessibility of naloxone among participants, the nature of naloxone to reverse overdoses, overdose education, and overall fatal overdoses based on participants' responses during the interviews (Hanson et al., 2020).

Equally important, there can be a tremendous impact on decreasing fatal opioid overdoses if participants are adequately trained to observe and act on an overdose event. Moreover, If naloxone distribution is prioritized and provided to a population likely to witness an event, the impact on opioid overdose mortality will be tremendous (Siegler et al., 2017). In another study, 152,283 candidates received THK after training on opioid overdose; 26,463 overdoses were reversed. Moreover, another showed an 89% success rate in reversals (Mitchell & Higgins, 2016).

Moreover, if training for opioid overdose events and naloxone rescue kits are provided to candidates who are likely to witness an opioid overdose, fatal opioid overdoses can be reduced (Wheeler et al., 2015). Equally important, overdose education and naloxone administration to laypersons including families, must be implemented to reduce fatal opioid overdoses (Ogeil et al., 2018).
Naloxone distribution was the most common approach to decreasing fatal opioid overdoses with largely positive feedback (Furlan et al., 2018). Finally, naloxone administration was influential with an 86% reversal rate; another reported an 80% reversal rate (Mueller et al., 2015).

Educating adults who use prescription and non-prescription opioids on naloxone and its benefits in reducing fatal opioid overdoses was a success. The approach increased understanding of naloxone’s potential for decreasing fatal opioid overdoses and improved participants' confidence in identifying an overdose event and acting on it.

By the end of the six weeks educational sessions, all 40 participants became more knowledgeable about the benefits of naloxone on reducing fatal opioid overdoses. There was an increase in confidence level in the ability to identify an opioid overdose event, and an increase in confidence level in the ability to act on an opioid overdose event. In addition, all patients became knowledgeable or improved their knowledge about the California Good Samaritan Law and successfully demonstrated/verbalized how to use naloxone.

**Limitations**

Some limitations to this project were garnering clinic staff support for the program. The student has contacted several clinics before receiving approval for the project by Dr. Bonner, CEO at East Bay Pain Management. Moreover, some participants likely to witness an opioid overdose and act on it might not have been selected to partake in the program. In addition, some participants were reluctant to disclose information during the telephone conversations because some participants thought the project lead was a telemarketer. Moreover, participants' bias and lack of trust might have affected the findings, as some participants might have feared that providing information for the project would affect their opioid prescription or refills; thus, some participants might falsify their responses to avoid such issues.

**Conclusion**

The implementation of the naloxone educational sessions was found to be valuable in helping to
combat the current opioid crisis. The ability of the sessions to educate adults who use prescription and non-prescription opioids on naloxone and its benefits on reducing fatal opioid overdoses is a crucial need. The naloxone educational sessions effectively improved participants' knowledge of naloxone and opioid overdoses and improved participants' confidence in identifying an opioid overdose event and acting on it. All the participants increased their understanding of naloxone’s potential to decrease fatal opioid overdoses and improve participants' confidence in identifying an overdose event and acting on it.

Considering the results from the literature review and statistical findings from the quality improvement project, medical facilities should utilize the concept of naloxone educational sessions to increase participants' knowledge and confidence. In addition, NPs should ensure the implementation of opioid overdose education and training of persons with higher chances of observing an opioid overdose event and acting on it. NPs should become familiar with NPPs and educational sessions considering the associated benefits to patient outcomes and become more engaged with policy proposals that target such educational program implementations. In addition, NPs should prescribe naloxone to patients at risk for an opioid overdose to help decrease the opioid overdose mortality rate. NPs should also be involved in teaching efforts on proper usage of naloxone, including signs and symptoms of opioid overdose, to ensure patients are adequately informed. NPs should also limit the stigmas associated with opioid use disorder by completing continuing education courses on opioid use and misuse. Lastly, further studies are needed to assess the benefits of naloxone educational sessions over more extended periods and possibly incorporate naloxone distributions.

Funding

No funding was provided for this project. Instead, personal funds were used to purchase copies of the naloxone nasal spray quick start guide.
References


Furlan, A.D., Carnide, N., Irvin, E., Van Eerd, D., Munhall, C., Kim, J., Meng Fei Li, C., Hamad, A., Mahood,


Appendix A

IRB and/or Non-Research Approval Documents (Statement of Determination)
IRB and/or Non-Research Approval Documents/Statement of Determination (continued)

2021 pilot program: The faculty would select participants in Alameda County's community and/or volunteers to demonstrate risk management conditions and improve participants' confidence in managing an evacuation event and acting on it by December 2021.


guided approach to implementation:

A comprehensive literature review will determine the need for a comprehensive literature review of the literature. The study will use a combination of both qualitative and quantitative methods to determine the efficacy of the intervention to be implemented. The intervention will be designed to improve participants' confidence in managing an evacuation event and acting on it.

How will this intervention be implemented?

The study will be a randomized controlled trial with the following design: the intervention group will receive an educational intervention, while the control group will receive no intervention. Participants will be stratified by gender and race/ethnicity. The intervention will be delivered through a series of lectures, seminars, and workshops.

Outcome measures:

How will you know that changes have occurred?

The study will measure changes in participants' self-efficacy and their ability to manage an evacuation event. Self-efficacy will be assessed using a validated self-efficacy scale. The intervention will be delivered through a series of lectures, seminars, and workshops.


table of contents:

- IRB and/or Non-Research Approval Documents/Statement of Determination
- Overview of the study
- Methodology
- Results
- Discussion
- Conclusion

References:


Website: [www.alamedacounty.gov/publichealth/index.html](http://www.alamedacounty.gov/publichealth/index.html)


Website: [www.alamedacounty.gov/publichealth/index.html](http://www.alamedacounty.gov/publichealth/index.html)

University of California, San Francisco, School of Nursing and Health Professions (2016). Report on the Innovation of Exercise in Nursing Education.

Website: [www.ucsf.edu/nursing](http://www.ucsf.edu/nursing)

Alameda County Health Care District (2016). Staff Statement of

Website: [www.accd.ca.gov/staffstatement](http://www.accd.ca.gov/staffstatement)
IRB and/or Non-Research Approval Documents/Statement of Determination (continued)
IRB and/or Non-Research Approval Documents/Statement of Determination (continued)
Appendix B

Letter of Support from Agency

Dr. Ernest Bonner
433 Estudillo Avenue suite 206
San Leandro, CA 94577
(510) 969-4166

September 16, 2021

To Whom It May Concern:

This is a letter of support for Patricia Tinglin to implement her DNP Comprehensive Project at my clinic. Patricia will educate adults who use prescription and non-prescription opioids on naloxone and its benefits in reducing fatal opioid overdoses. The objectives include increasing knowledge on naloxone’s potential to decrease fatal opioid overdoses and improve participants’ confidence in identifying an overdose event and acting on it.

I permit Patricia to use the name of my clinic in her DNP Comprehensive Project Paper and future presentations and publications.

Sincerely,

Ernest Bonner, MD

Dr. Ernest Bonner
## Appendix C

### Evaluation Table

<table>
<thead>
<tr>
<th>Chimbar &amp; Moleta (2018)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose of Article or Review</strong></td>
<td>Explore the benefit of NPP on decreasing opioid overdose deaths among users.</td>
</tr>
<tr>
<td><strong>Conceptual Framework</strong></td>
<td>Searched studies, identified, and selected studies to include, data extracted and synthesized, interpreted, then shared result.</td>
</tr>
<tr>
<td><strong>Design / Method</strong></td>
<td>Systemic review</td>
</tr>
<tr>
<td><strong>Sample / Setting</strong></td>
<td>Scholarly searched engines</td>
</tr>
<tr>
<td><strong>Major Variables Studied (and their Definitions)</strong></td>
<td>Opioid drug users</td>
</tr>
<tr>
<td><strong>Measurement of Major Variables</strong></td>
<td>Naloxone prescription program</td>
</tr>
<tr>
<td><strong>Data Analysis</strong></td>
<td>Inclusion and exclusion criteria</td>
</tr>
<tr>
<td><strong>Study Findings</strong></td>
<td>Take-home naloxone kits (THK) reduce the rate of mortality from opioid overdose</td>
</tr>
<tr>
<td><strong>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s)</strong></td>
<td>Mixed method, high-quality level II systematic review. THK is worth the practice. Conclusion: THK reduces the rate of mortality from an opioid overdose. Recommendations: Include improved data collection method and specific follow-up periods from 3-12 months when determining THK patient outcomes compared to communities with no THK.</td>
</tr>
</tbody>
</table>

Definition of abbreviations:
- NPP- Naloxone prescription program.
- THK- Take-home naloxone kits

<table>
<thead>
<tr>
<th>McDonald &amp; Strang (2016)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose of Article or Review</strong></td>
<td>Aimed to reveal information about the the usefulness of THK, the effect of overdose deaths, and the safety of such program regarding adverse events.</td>
</tr>
<tr>
<td><strong>Conceptual Framework</strong></td>
<td>Searched studies, identified, and selected studies to include, data extracted and synthesized, interpreted, then shared result.</td>
</tr>
<tr>
<td><strong>Design / Method</strong></td>
<td>Systemic review</td>
</tr>
<tr>
<td><strong>Sample / Setting</strong></td>
<td>n=22, Scholarly electronic databases</td>
</tr>
<tr>
<td><strong>Major Variables Studied (and their Definitions)</strong></td>
<td>Opioid drug users and naloxone prescription program</td>
</tr>
<tr>
<td><strong>Measurement of Major Variables</strong></td>
<td>Inclusion and exclusion criteria, PRISMA</td>
</tr>
<tr>
<td><strong>Data Analysis</strong></td>
<td>Bradford Hill criteria</td>
</tr>
<tr>
<td><strong>Study Findings</strong></td>
<td>THK program helps to reduce fatal opioid overdoses, lower the rate of adverse events, and very cost-effective.</td>
</tr>
<tr>
<td><strong>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s)</strong></td>
<td>Level II, high quality, systematic review. THK program helps to reduce fatal opioid overdoses, lower the rate of adverse events, and is very cost-effective. Selection bias and lack of follow-up may have affected the study result.</td>
</tr>
</tbody>
</table>

Definition of abbreviations:
- THK: Take-home naloxone
- Bradford Hill Criteria: A total of 9 concepts were used to examine cause and effects.
- PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses. It was used as a guideline to extract inform
### Evaluation Table (continued)

<table>
<thead>
<tr>
<th>McAuley, Aucott, &amp; Matheson (2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose of Article or Review</strong></td>
</tr>
<tr>
<td><strong>Conceptual Framework</strong></td>
</tr>
<tr>
<td><strong>Design / Method</strong></td>
</tr>
<tr>
<td><strong>Sample / Setting</strong></td>
</tr>
<tr>
<td><strong>Major Variables Studied (and their Definitions)</strong></td>
</tr>
<tr>
<td><strong>Measurement of Major Variables</strong></td>
</tr>
<tr>
<td><strong>Data Analysis</strong></td>
</tr>
<tr>
<td><strong>Study Findings</strong></td>
</tr>
<tr>
<td><strong>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) / Feasibility / Conclusion(s) / Recommendation(s) /</strong></td>
</tr>
<tr>
<td><strong>Strengths and Weaknesses</strong></td>
</tr>
<tr>
<td><strong>Feasibility / Conclusion(s) / Recommendation(s) /</strong></td>
</tr>
</tbody>
</table>

**Definition of abbreviations:**

- **THN**: Take-home naloxone
- **PoU**: Proportion of use. It was used to calculate the amount of naloxone given by a peer, the number of candidates who received training, and supplies of naloxone.

---

### Hanson et al. (2020)

| **Purpose of Article or Review** | Identify target population, interview participants, synthesize data, interpret, then share the result. |
| **Conceptual Framework**         | Semi-structured interview Participants selected from 2 urban and two rural Communities and interviewed for approximately 17 minutes |
| **Design / Method**              | Rural Alaska |
| **Sample / Setting**             | Age, sex, race, rurality of 18 laypeople who received opioid overdose rescue kits from project HOPE and administered naloxone to a peer. |
| **Major Variables Studied (and their Definitions)** | Participants must attend the class and be administered naloxone before. |
| **Measurement of Major Variables** | Interviews were audio-recorded, transcribed verbatim, and then reviewed and edited for accuracy.” (Hanson et al., 2020). |
| **Data Analysis**                | Success in the accessibility of naloxone among participants, nature of naloxone to reverse overdoses, overdose education, overall “harm reduction.” |
| **Study Findings**               | Level III, good quality, qualitative study. Further studies are warranted to explore differences in peers' experiences related to gender and “rurality” They explore other groups in receiving and administering naloxones, such as first responders or law enforcement and not peer users alone (Hanson et al. 2020). |
| **Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /** | |

**Definition of abbreviations:**

- **HOPE**: is a program that provides opioid overdose education and distributes naloxone.
### Evaluation Table (continued)

<table>
<thead>
<tr>
<th>Siegler et al. (2017)</th>
<th>Purpose of Article or Review</th>
<th>Conceptual Framework</th>
<th>Design / Method</th>
<th>Sample / Setting</th>
<th>Major Variables Studied (and their Definitions)</th>
<th>Measurement of Major Variables</th>
<th>Data Analysis</th>
<th>Study Findings</th>
<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To explore the effect of the Naloxone prescription program on decreasing fatal opioid overdose</strong></td>
<td>Identify study participants, observe participants, collect, and analyze data, interpret data, then share the result.</td>
<td>Longitudinal Cohort Study. Prospective observational study</td>
<td>Six of the largest opioid overdose prevention programs in New York. n= 321</td>
<td>Participants who completed OPT, baseline questionnaire, 3-12 months questionnaire, 18 yrs. or older, can meet the oral survey in Spanish or English and provide contact information.</td>
<td>Inclusion and exclusion criteria</td>
<td>Descriptive, bivariate, and multivariate analysis. Logistic regression &amp; calculation of the total number of overdoses witnessed, experienced, and naloxone administration.</td>
<td>If participants who are likely to witness and act on an overdose event are adequately trained, there will likely be a tremendous impact on decreasing fatal opioid overdoses.</td>
<td>Level I, Randomized Controlled Trial, good quality. Conclusion: Naloxone distribution must be prioritized. Recommendation: Training needs to target the population more likely to witness an overdose event.</td>
<td></td>
</tr>
</tbody>
</table>

**Definition of abbreviations:** OPT: Overdose prevention training

<table>
<thead>
<tr>
<th>Mitchell &amp; Higgins (2016)</th>
<th>Purpose of Article or Review</th>
<th>Conceptual Framework</th>
<th>Design / Method</th>
<th>Sample / Setting</th>
<th>Major Variables Studied (and their Definitions)</th>
<th>Measurement of Major Variables</th>
<th>Data Analysis</th>
<th>Study Findings</th>
<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Seek to identify the effects of public access to naloxone and the effects on fatal opioid overdose</strong></td>
<td>Searched studies, identified, and selected studies to include, data extracted and synthesized, interpreted, then shared result</td>
<td>Literature Review</td>
<td>Scholarly search engines.</td>
<td>The trend globally, U.S. OEPs with the distribution of naloxone, naloxone distribution barriers, political opposition and support, financial impact, and recommendations.</td>
<td>Inclusion and Exclusion criteria</td>
<td>Scrutinization of articles by the researchers</td>
<td>Success in reversal rates using NPP to include countries such as Scotland and several states in the U.S.</td>
<td>Level V, good quality literature review Conclusion: The method of article selection was not objective; hence important article may have been omitted. Recommended intranasally naloxone due to its safety, protocol implementation for naloxone distribution, legislative reform, and holistic approach in preventing overdoses</td>
<td></td>
</tr>
</tbody>
</table>

**Definition of abbreviations:** OEP: Overdose Education Programs
### Evaluation Table (continued)

<table>
<thead>
<tr>
<th>Wheeler et al. (2015)</th>
<th>Purpose of Article or Review</th>
<th>Conceptual Framework</th>
<th>Design / Method</th>
<th>Sample / Setting</th>
<th>Major Variables Studied (and their Definitions)</th>
<th>Measurement of Major Variables</th>
<th>Data Analysis</th>
<th>Study Findings</th>
<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /</th>
</tr>
</thead>
<tbody>
<tr>
<td>To determine the effects of NPP on fatal opioid overdoses from 1996-2014</td>
<td>Survey, Conceptual Review</td>
<td>Literature Review</td>
<td>The United States, HRC surveys</td>
<td>152,283 Naloxone kits and laypersons, 136 organizations in the U.S.</td>
<td>152,283 Naloxone kits and laypersons,</td>
<td>Survey responses, Histogram.</td>
<td>Opioid overdose training and naloxone kits provided to layperson likely to observe an overdose can reduce fatal overdose.</td>
<td>Level III good quality literature review. Further studies are recommended to include layperson likely to witness the overdose.</td>
<td></td>
</tr>
</tbody>
</table>

Definition of abbreviations:  
HRC: Harm Reduction Coalition

<table>
<thead>
<tr>
<th>Ogeil et al. (2018)</th>
<th>Purpose of Article or Review</th>
<th>Conceptual Framework</th>
<th>Design / Method</th>
<th>Sample / Setting</th>
<th>Major Variables Studied (and their Definitions)</th>
<th>Measurement of Major Variables</th>
<th>Data Analysis</th>
<th>Study Findings</th>
<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /</th>
</tr>
</thead>
</table>
| To reveal the effects of THN on the impact of fatal opioid overdoses | Retrospective review, Theoretical, Conceptual | Retrospective review, | N=125, 69.6% males and 30.4% females, South-Eastern Australia | Males with age ranges from 16-65 years. Females with an age range from 22-63 years. Overdose deaths record | Age, Sex, Overdose death records | Descriptive statistics | To reduce fatal opioid overdose, overdose education should be provided to laypersons, including families. | Level III good quality evidence.  
NPP is not worth the practice as there were underreported data. However, further studies are recommended to include candidates who will not withhold valuable information. |
### Evaluation Table (continued)

<table>
<thead>
<tr>
<th>Purpose of Article or Review</th>
<th>Conceptual Framework</th>
<th>Design / Method</th>
<th>Sample / Setting</th>
<th>Major Variables Studied (and their Definitions)</th>
<th>Measurement of Major Variables</th>
<th>Data Analysis</th>
<th>Study Findings</th>
<th>Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Furlan et al. (2018)</strong></td>
<td></td>
<td>Systematic Review</td>
<td>65 studies</td>
<td>Greylist, 65 studies</td>
<td>PRISMA checklist. A systematic qualitative review including Cohen’s d</td>
<td>Naloxone distribution was the most common approach to decreasing fatal opioid overdoses with largely positive feedback.</td>
<td>Level II high-quality systematic review of peer reviews and grey literature. Some limitations were selection bias and issues with participants’ follow-up. One study reported a 39% dropout rate, and another lacked a description of the formulation of the various groups in the studies. Further studies are recommended to include adequate descriptions of the study groups, overall limiting risk for bias.</td>
<td></td>
</tr>
<tr>
<td>Sought the correlation between approaches to monitor the proper use of opioids and reducing fatal opioid overdoses.</td>
<td>Searched studies, identified, and selected studies to include, data extracted and synthesized, interpreted, then shared result.</td>
<td>Systematic Review</td>
<td>65 studies</td>
<td>65 studies</td>
<td>PRISMA checklist. A systematic qualitative review including Cohen’s d</td>
<td>Naloxone distribution was the most common approach to decreasing fatal opioid overdoses with largely positive feedback.</td>
<td>Level II high-quality systematic review of peer reviews and grey literature. Some limitations were selection bias and issues with participants’ follow-up. One study reported a 39% dropout rate, and another lacked a description of the formulation of the various groups in the studies. Further studies are recommended to include adequate descriptions of the study groups, overall limiting risk for bias.</td>
<td></td>
</tr>
</tbody>
</table>

| **Mueller et al. (2015)** |                          | Literature review | N=41 articles obtained from PubMed. | 41 studies, NPP, THN | 41 studies, NPP, THN | PRISMA | One study found that naloxone administration was effective with an 86% reversal rate, another reported an 80% reversal rate. | Level III good quality literature review. Some limitations were related to witnesses not being comfortable administering naloxone, prescribers not willing to prescribe naloxone, and under the report of data due to possible legal implications associated with reporting to law enforcement. |
| Sought to reveal the effects of community naloxone prescription Program on opioid overdose. | Searched studies, identified, and selected studies to include, data extracted and synthesized, interpreted, then shared result. Conceptual | Literature review | 41 studies, NPP, THN | 41 studies, NPP, THN | PRISMA | One study found that naloxone administration was effective with an 86% reversal rate, another reported an 80% reversal rate. | Level III good quality literature review. Some limitations were related to witnesses not being comfortable administering naloxone, prescribers not willing to prescribe naloxone, and under the report of data due to possible legal implications associated with reporting to law enforcement. |
Appendix D

Gap Analysis

**Current State**
Fatal opioid overdose is a growing concern in the United States. Increasing opioid overdose rates in Alameda County. At risks clients have no educational program on naloxone.

**Desired State**
Increase knowledge and confidence on the use of naloxone.

**Gap**
Need for naloxone educational sessions

**Developmental Plan**
Implementing naloxone educational sessions
## Appendix E

### Gantt Chart

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold a meeting with the chief executive officer (CEO)/medical director of East Bay Pain Management to achieve a buy-in; formulate a committee with the medical director and psychiatric assistant.</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gather educational material on administering naloxone in English and naloxone kit.</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obtain the letter of support from the medical director before implementing the project</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trial of the naloxone education to 40 participants: 5-10 patients per clinical day for a total of 6 weeks</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Offer pre- and post-questionnaires to evaluate the effectiveness of each session.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform process evaluation.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish a measurable value that will reveal the progress of the outcome (outcome metrics) committee meeting.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Periodically review the appropriateness of patient training materials.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Document/log data gathered at each visit</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintain monitoring of outcome metrics to determine the effectiveness of the education session</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formulate reports for stakeholders on data gathered from the project.</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Preparation of manuscript and performing the final presentation.</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Open for any psychiatric mental health nurse practitioner (PMHNP) student interested and willing to carry out further studies on the topic.</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Appendix F

Work Breakdown Structure

- **Project Introduction**
  - Formulate project plan
  - Introduce project proposal
  - Obtain DNP statement of determination and support letter

- **Planning**
  - Finalize the timeline, goals and objectives of the project

- **Development**
  - Staff education and training materials
  - Establish a framework for project

- **Implementation**
  - Randomly select participants
  - Participants complete preeducation questionnaires
  - Provide naloxone education
  - Post education questionnaires
  - Input outcome into comprehensive DNP Project Report

- **Data analysis and Evaluation**
  - Enter result of survey into spreadsheet
  - Compare pre and post education questionnaires
  - Data collection
Appendix G

Responsibility/ Communication Matrix

- **DNP Project Communication Plan:**
  - Communicate via email and zoom meetings as needed

- **DNP Chair, Dr. Trinette Radasa and DNP Student:**
  - Communicate via email and zoom meetings as needed

- **DNP Committee Members and DNP Student:**
  - Communicate via email and zoom meetings as needed

- **Site Medical Director/Clinic Staff and DNP Student:**
  - Communicate via telephone and in-person
## Appendix H

**SWOT Analysis**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult naloxone educational sessions</td>
<td>Educational sessions are available to adults who use prescriptions established at East Bay Pain Management</td>
<td>Participants likely to witness an opioid overdose and act on it might not want to partake in the educational sessions</td>
<td>Increase knowledge on naloxone’s potential on decreasing fatal opioid overdoses</td>
</tr>
<tr>
<td></td>
<td>Participants likely to witness an opioid overdose event will gain knowledge and confidence</td>
<td>Participants fear legal issues due to limited knowledge about the Good Samaritan Law in California.</td>
<td>The sessions increase participants' confidence in identifying an overdose event and acting on it.</td>
</tr>
<tr>
<td></td>
<td>Sessions will likely decrease opioid overdose rates</td>
<td>Clinic against the proposal.</td>
<td>Decrease opioid overdose deaths</td>
</tr>
<tr>
<td></td>
<td>Participants needing the opportunity to help save lives with naloxone can help</td>
<td>Language barrier</td>
<td>Ability to provide help and save lives</td>
</tr>
<tr>
<td></td>
<td>A handout is available in the naloxone kit for the layperson’s convenience.</td>
<td>Limited stakeholders’ support</td>
<td>Participants can save family or close friends’ lives from a fatal opioid overdose.</td>
</tr>
<tr>
<td></td>
<td>Stakeholders’ support</td>
<td>Participants might not want to answer calls from an unknown number.</td>
<td>Personalize teaching style to ensure effective teaching.</td>
</tr>
<tr>
<td></td>
<td>The convenience of educational sessions via telephone.</td>
<td></td>
<td>The convenience of educational sessions via telephone.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inadequate supplies for demonstration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Clinic’s operating hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Participants might not want to answer calls from an unknown number, limiting the number of participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Project lead not reaching the targeted goal of 40 participants</td>
</tr>
</tbody>
</table>
### Appendix I

*Budget (3-year proforma)*

<table>
<thead>
<tr>
<th></th>
<th>Number needed</th>
<th>Unit Cost</th>
<th>2021 (6 weeks)</th>
<th>2022 (3 months/12 weeks)</th>
<th>2023 (6 months/24 weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxone nasal spray: quick start guide.</td>
<td>40</td>
<td>$0.1</td>
<td>$4</td>
<td>$8</td>
<td>$16</td>
</tr>
<tr>
<td>Nasal spray formulation of naloxone (Narcan) kit</td>
<td>6 units: for the first 6 weeks, then 12 units for year 2, and 24 units for year 3</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Staff</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Director</td>
<td>1</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Nurse Practitioner (NP)</td>
<td>1 (2 hours per week)</td>
<td>$85/hr</td>
<td>$0</td>
<td>$2040</td>
<td>$4080</td>
</tr>
<tr>
<td>Psychiatry/Medical Assistant</td>
<td>1 hour weekly</td>
<td>$15/hr</td>
<td>$0</td>
<td>$180</td>
<td>$360</td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Rent</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Utilities, internet</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Office Supplies</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>$4</td>
<td>$2228.00</td>
<td>$4456.00</td>
</tr>
</tbody>
</table>
Appendix J

Data Collection tools

Pre-Questionnaire: (Please circle to indicate your answer)

1. Type of visit?
   1. Office
   2. Telephone

2. What is your gender?
   1. Male
   2. Female
   3. Bisexual
   4. Other

3. What is your ethnicity?
   1. Black of African American
   2. Caucasian
   3. Hispanic
   4. Asian
   5. Other

4. I am between the ages of:
   1. 18-29
   2. 30-49
   3. 50-79
   4. 79 and above

5. Where county do you live?
   1. Alameda
   2. Contra Costa

6. Do you use opioids?
   1. Yes
   2. No

7. Do you use any unauthorized opioids?
   1. Yes
   2. No

8. Name the type (s) of opioid that you use
   1. Fentanyl
   2. Oxycodone (Percocet)
   3. Heroin
   4. Hydrocodone (Norco)
   5. Methadone
   6. Morphine
   7. Tramadol
   8. Oxycontin
   9. Alfentanil
10. Codeine
11. Dilaudid

Data Collection Tools (continued)

Pre-Questionnaire Continued: (Please circle to indicate your answer)

9. Do you use other controlled substances?
   1. Yes
   2. No

10. Have you ever had or witnessed an opioid overdose event?
    1. Yes
    2. No

11. My knowledge about naloxone and its benefits of reducing fatal opioid overdoses
    More than 90% (1)
    Less than 90% (0)

12. My confidence level to identify an opioid overdose event
    More than 90% (1)
    Less than 90% (0)

13. My confidence level to act on an opioid overdose event
    More than 90% (1)
    Less than 90% (0)

14. Do you know where to access naloxone in your county without the need for a prescription?
    1. Yes
    2. No

15. Do you know how to use naloxone?
    Yes (1)
    No (0)

16. Do you have a designated person in case of an overdose?
    1. Yes
    2. No

17. If so, has the designated person been trained how to use naloxone?
    1. Yes
    2. No

18. Has the pharmacist shown you how to use naloxone?
    1. Yes
    2. No

19. Do you know about the California Good Samaritan Law?
    Yes (1)
    No (0)
Appendix K

Post-Questionnaire: (Please circle to indicate your answer)

1. My knowledge about naloxone and its benefits of reducing fatal opioid overdoses
   More than 90% (1)
   Less than 90% (0)

2. My confidence level to identify an opioid overdose event
   More than 90% (1)
   Less than 90% (0)

3. My confidence level to act on an opioid overdose event
   More than 90% (1)
   Less than 90% (0)

4. Demonstrate/verbalize how to use naloxone
   Successful (1)
   Not successful (0)

5. I am now knowledgeable about the California Good Samaritan Law.
   Yes (1)
   No (0)

6. This education was
   Helpful (1)
   Not Helpful (0)
Appendix L

Naloxone Brochure (English)

**NARCAN® (naloxone HCl) NASAL SPRAY**

**QUICK START GUIDE**

**Opioid Overdose Response Instructions**

*Use NARCAN Nasal Spray (naloxone hydrochloride) for known or suspected opioid overdose in adults and children.*

Important: For use in the nose only.

Do not remove or test the NARCAN Nasal Spray until ready to use.

1. **Identify**
   - **Ask** person if he or she is okay and shout name.
   - **Shake** shoulders and firmly rub the middle of their chest.

2. **Give NARCAN Nasal Spray**
   - **Remove** NARCAN Nasal Spray from the box. Peel back the tab with the circle to open the NARCAN Nasal Spray.
   - **Hold** the NARCAN nasal spray with your thumb on the bottom of the plunger and your first and middle fingers on either side of the nozzle.
   - **Gently insert the tip of the nozzle into either nostril.**
     - Tilt the person’s head back and provide support under the neck with your hand. Gently insert the tip of the nozzle into one nostril, until your fingers on either side of the nozzle are against the bottom of the person’s nose.
   - **Press the plunger firmly** to give the dose of NARCAN Nasal Spray.
     - Remove the NARCAN Nasal Spray from the nostril after giving the dose.

3. **Call for emergency medical help, Evaluate, and Support**
   - **Get emergency medical help right away.**
     - Move the person on their side (recovery position) after giving NARCAN Nasal Spray.
   - **Watch the person closely.**
     - **If the person does not respond** by waking up, to voice or touch, or breathing normally another dose may be given. NARCAN Nasal Spray may be dosed every 2 to 3 minutes, if available.
   - **Repeat Step 2 using a new NARCAN Nasal Spray to give another dose in the other nostril.** If additional NARCAN Nasal Sprays are available, repeat step 2 every 2 to 3 minutes until the person responds or emergency medical help is received.

For more information about NARCAN Nasal Spray, go to www.narcanasalspray.com, or call 1-844-4-NARCAN (1-844-464-2726).

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On January 1, 2013, California became the tenth state to implement a “911 Good Samaritan” overdose fatality prevention law.

It’s likely that you know someone who has been affected by accidental overdose – since it is a leading cause of accidental death in California. According to the California Department of Public Health, more Californians died from an accidental overdose death in 2009 than from motor vehicle accidents.

Many of these deaths are preventable, yet people often fear arrest if they call 911 for help at the scene of a suspected drug overdose. 911 Good Samaritan laws are designed to encourage people to quickly seek medical care for the overdose victim by providing limited protection from arrest, charge and/or prosecution for low-level drug law violations.

AB 472, California’s 911 Good Samaritan law, states:

“It shall not be a crime for any person who experiences a drug-related overdose, as defined, who, in good faith, seeks medical assistance, or any other person who, in good faith, seeks medical assistance for the person experiencing a drug-related overdose, to be under the influence of, or to possess for personal use, a controlled substance, controlled substance analog, or drug paraphernalia, under certain circumstances related to a drug-related overdose that prompted seeking medical assistance if that person does not obstruct medical or law enforcement personnel.”

The law does not affect laws prohibiting the selling, providing, giving or exchanging of drugs, or laws prohibiting the forcible administration of drugs against a person’s will. The law does not affect liability for any offense that involves activities made dangerous by the consumption of controlled substances, including, but not limited to, driving under the influence. The law also does not offer specific protections from arrest for related charges, such as violation of parole or probation.

California’s 911 Good Samaritan Law provides limited protection from arrest, charge and prosecution for people who seek emergency medical assistance at the scene of a suspected drug overdose.

People seeking the protections provided by the law must not obstruct medical or law enforcement personnel, including efforts to secure the scene or deliver medical assistance.

While the definition of “possess for personal use” may vary, the law is designed to protect people who possess small amounts of drugs not in quantities that would suggest trafficking or sales. A similar law to protect minors from alcohol-related charges was passed in California in 2010 (AB 1999, Portantino).


California’s 911 Good Samaritan law was supported by a variety of organizations, including the California Society of Addiction Medicine, the Health Officers Association and the ACLU.
Appendix N

Cascade of Care Model

[Diagram showing the Cascade of Care Model with stages: Prevention, Identification, Treatment, Recovery]
Appendix O

Information covered during the educational sessions

Naloxone and opioid overdose:

- Opioids are drugs typically used for relief of pain
- Examples: fentanyl, oxycodone, heroin, hydrocodone, methadone
- Naloxone is an effective and safe medication to reverse opioid overdose.
- Naloxone is not addictive and is not harmful to anyone, including the person administering it
- Forms of naloxone: nasal spray, auto-injector, injectable from the vial via syringe
- Many overdoses are due to mixing opioids with other drugs such as sleeping aids, benzodiazepines, alcohol.
- Other causes of overdose are strength and purity of the drug, changing the mode of administration such as from snorting to injecting, physical health, tolerance to the drug, using while alone
- A person is high or sedated and not experiencing overdose if they have: relaxed muscles, slow or slurred speech, looking sleepy, nodding off, or does not respond to stimulations such as pinching, yelling, sternal rub

**Signs of overdose:**
- Deep snoring, gurgling, or wheezing
- Blue or grayish skin tinge skin
- Generally, the lips or fingertips get dark first
- Pale, clammy skin
- The person does not respond to stimulations
- Prolonged, irregular, or no breathing
- Faint pulse

**A checklist** that should be followed in the event of an opioid overdose:
1. Check responsiveness (rubbing sternum, yelling, pinching)
2. If the person is unresponsive, administer naloxone and call 9-1-1 and states the person is not breathing, unresponsive and that you suspect a possible overdose
3. While waiting for emergency medical services, give rescue breathing and CPR (if trained in CPR, use mouth shield)
4. Place the person in the recovery position to prevent choking
5. Administer aftercare

- Wait for a full 2 minutes before you administer the second dose of naloxone. If done before, it may exacerbate the withdrawal symptoms such as violent reaction when a person is waking from an overdose
- Effects of naloxone can last between 20-90 minutes
- Persons who call 9-1-1 and administer naloxone are protected from liability based on California’s Good Samaritan Law.
- Where to get naloxone: https://www.accma.org/Portals/0/assets/docs/accma-naloxone-distribution-list-revised-5%20(1).pdf?ver=2020-08-28-113627-327&timestamp=1598639801523

Reference
Appendix P

Nola J. Pender’s Health Promotion Model

[Diagram of Nola J. Pender’s Health Promotion Model]
Appendix Q
Outcome metrics

Participants randomly selected; 5-10 patients per clinical day.

Particpants complete prequestionnaire

Educational sessions

Participants complete post-questionnaire

Increase knowledge Participants complete prequestionnaire of naloxone and opioid overdoses. Improvement of participants confidence to identify an opioid overdose Participants complete prequestionnaire and act on it.