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Comparing an Evidence-Based Screening Tool to Standard Substance Abuse Screening Questions in Identifying Pregnant Women at Risk for Substance Abuse

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by

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Abstract

The purpose of the study project was to compare a nonspecific substance screening questionnaire with a well validated, evidence-based substance screening tool designed specifically for the pregnant population Evidence has shown use of an evidence-based screening tool improves maternal and fetal outcomes and reduces the risk of missed cases, stereotyping, and stigma. This study project utilized the social learning theory model, which defines human behavior as a reciprocal, continuous interaction among cognitive, behavioral, and environmental determinants. A pilot observational study project was conducted within a focal organization in a specified women's health clinic over a 12-week period comparing their currently used nonspecific substance screening questionnaire with the use of a well-validated, evidence-based screening substance screening tool. This study project demonstrated that the SURP-P tool, compared to the EPIC questionnaire, captures a significantly greater number of women in pregnancy at risk for substance abuse. It is important that clinicians are fully trained on this tool and understand how to objectively interpret the results to provide proper follow-up and management for those identified at risk for substance abuse. Adopting this tool within this women's specialty program will contribute to improved maternal and fetal outcomes. Every woman has the right to be cared for equally and comprehensibly, thus preventing stigmatization, discrimination, and marginalization.

Keywords: pregnancy, suboxone treatment, screening, referral, substance use, barriers, facilitators, buprenorphine, dependence, fetus, harm, methadone, opioid use disorder, intervention, opioid agonist medication, prenatal exposure, substance use disorder, addiction, treatment outcomes pregnancy

Dedication

With sincere gratitude, I dedicate this study project foremost to the women of New Mexico and all women across the globe. Their strength is my inspiration, their fight for their voice, my guiding light. I also dedicate this to my family, friends, classmates, mentors, and colleagues along the way, and to our loving God. Without each and every one of you, I would not be the person I am today.

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Ephesians 4:1-2: “Walk in a manner worthy of the calling to which you have been called, with all humility and gentleness, with patience, bearing with one another in love.”

In loving memory of Donna Mosier, CNM, Kathy Rusin, and Peter and Dolores Montoya

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List of Abbreviations

ACOG	American College of Obstetricians and Gynecologists
OB/GYN	Obstetrics and Gynecology
CDC	Centers for Disease Control and Prevention
NIDA-Modified ASSIST	National Institute on Drug Abuse Quick Screen-modified Alcohol, Smoking and Substance Involvement Screening Test
HHS	U.S. Department of Health and Human Services
SUD	Substance Use Disorder
SURP-P	Substance Use Risk Profile-Pregnancy
TNRs	Treatment non-responders
TRs	Treatment responders
WHO	World Health Organization

CHAPTER ONE: INTRODUCTION AND BACKGROUND

Problem Statement

It has been well documented that maternal mortality rates are on the rise in America. According to the Centers for Disease Control and Prevention (CDC, 2020), about 700 women die each year from pregnancy or birth complications. This death rate has steadily increased since the CDC began monitoring death rates related to pregnancy in 1987. A pregnancy-related death is considered any woman who has died within 1 year of the end of pregnancy from any cause related to the pregnancy or its management (CDC, 2020). This measurement does not include accidental or incidental causes. Per 100,000 births, the maternal death rate has increased from 7.2 deaths per year in 1987 to 16.9 deaths per year as of 2016 (CDC, 2020).

Recent research shows that maternal deaths are largely related to the growing population of Americans who suffer from multiple co-morbidities. These co-morbidities lead to higher risk pregnancies and outcomes with incidents resulting in death. Of the various co-morbid conditions, the most common are hypertension, diabetes, and heart disease (CDC, 2020). Research also demonstrates that significant variability in the risk of death relates to race or ethnicity. For example, according to the CDC (2020), African American women are 3 to 4 times more likely than White women to die from pregnancy-related causes. The same disparity exists among Native American and Native Alaskan populations as well; these populations are 2.5 times more likely than Whites to experience a pregnancy-related death (CDC, 2020).

Significant disparities have been observed between minority and White populations in the United States. Some of these, identified by the American College of Physicians (2010),

are: lack of insurance coverage or income; limited or no access in rural or urban communities; lack of training for best practices; determinants created by inequities (such as education, employment, transportation, and housing) related to public policy, laws, and racism; and clinicians ignoring concerns of minority patients, resulting in poor care. Of these findings, what is of most concern is growing evidence related to cultural insensitivity, which suggests a direct correlation between a patient's race or ethnicity and implicit and explicit biases among clinicians that negatively impact the quality of care being delivered to them.

The CDC (2020) has claimed that as many as 60% of maternal deaths are preventable. This means two out of every three deaths could have been avoided. This is a shocking and significant finding. Preventable disparities and inequities negatively impact the health of patients. As the U.S. population continues to grow and become more diverse, the healthcare industry must be able to keep up. It must become increasingly aware of the needs of this complex and evolving population. It is evident that in order to improve maternal health, reducing disparities and eliminating inequities is imperative.

To address the problem of increasing maternal mortality rates, approximately $351 million in funding was approved by the U.S. Department of Health and Human Services (HHS) for the Maternal, Infant and Early Childhood Home Visiting Program (MIECHV). These funds are to be utilized by grantees to develop and implement programs to meet the needs of their at-risk communities to improve maternal health (HHS, 2019). The focal organization of this study project has been awarded $2 million in a grant through MIECHV to develop its own programs. This award was achieved in part because the focal organization is considered a not-for-profit, with patients primarily comprised of minority groups. The focal organization currently does not have a program in place to treat substance abuse in the

pregnant population. The grantor has emphasized that with the award, a substance use disorder treatment program should be considered within the women's specialty care program to meet the needs of this at-risk community.

Study Project Purpose/PICOT

Within the women's specialty program in this study project, the first opportunity to screen a pregnant patient for substance abuse is at the initial obstetric visit when the patient first seeks care. The women's specialty program currently does not use an evidence-based universal screening tool to identify and manage pregnant women at risk for substance abuse. Instead, they use an electronic medical record (EMR) computer system known as EPIC, utilizing the system's basic and generic non-specific screening questionnaire for substance abuse, leaving management somewhat subjective and up to each clinical provider's discretion based on their findings. According to American College of Obstetrics and Gynecology (ACOG) and the World Health Organization (WHO), universal screening with an evidence-based substance screening tool contributes to improved maternal and fetal outcomes. In addition, use of an evidence-based screening tool reduces the risk of missed cases, stereotyping, and stigma (ACOG, 2017; WHO, 2014). The purpose of this study project was to screen pregnant women seeking obstetric care during their initial obstetric visit within a defined women's health clinic within the focal organization by using the Substance Use Risk Profile-Pregnancy (SURP-P), a well-validated, evidence-based tool compared to use of the current non-specific substance abuse screening questionnaire (EPIC questionnaire) to identify a higher percentage of women with increased risk of substance use over a 12-week period.

Objectives and Goals

The aim of this study project was to pilot the use of an evidence-based, well-validated universal substance abuse screening tool to determine whether a higher percentage of pregnant women could be identified as at-risk for substance abuse within the defined clinic. This was achieved by comparing and evaluating the EPIC questionnaire, the current non-specific substance abuse screening questionnaire, and the SURP-P tool. The SURP-P tool has been endorsed by both ACOG and WHO and is specifically validated for screening for substance abuse among the pregnant population. The goal of the study project was to encourage the focal organization women's specialty program to adopt a well-validated, evidence-based substance screening tool, with the overall goal of improving maternal and fetal outcomes through identifying high-risk patients early and offering appropriate treatment for substance-dependent patients seeking obstetric care.

Scope of the Study Project

This study project was carried out with the intent to establish which screening method would be most appropriate to use not only within this clinic but universally within the focal organization's women's specialty program. Three screening tools were considered for comparison with the questionnaire: the Substance Use Risk Profile-Pregnancy (SURP-P), the National Institute on Drug Abuse Quick Screen-Modified Alcohol, Smoking and Substance Involvement Screening Test (NIDA-Modified ASSIST) and the 4P's Plus. All three have been endorsed by both ACOG and WHO for use in screening for substance abuse. Although the NIDA-Modified ASSIST was endorsed by ACOG and WHO, it has not been specifically validated for use amongst the pregnant population, unlike both the SURP-P and the 4P's Plus. The 4P's Plus was found to have copyrights with specific licensing requirements that

were costly and required extensive training for use. For that reason, the SURP-P was chosen for this study project because this tool did not share the same complexities as the other two tools. This tool is both a well-validated substance abuse screening tool specific to the pregnant population, and it does not have any cost barriers associated with its use.

Assumptions

The first assumption of this study project was that the SURP-P tool was appropriate and specific to the population being screened. Secondly, it was assumed that the SURP-P tool was implemented properly by the staff surveying the patients. Lastly, it was assumed that participants were more likely to answer the SURP-P tool questions honestly than the questions with the EPIC questionnaire.

Significance of the Study Project

This study project expanded current practice within the focal organization's women's specialty program of how substance abuse screening is conducted amongst the pregnant population. This study project emphasized the importance of utilizing a well-validated, evidence-based universal substance abuse screening tool in pregnancy, which is necessary to identify pregnant women at-risk for substance abuse to give them proper evidence-based care and management.

CHAPTER TWO: REVIEW OF LITERATURE

Evidence-Based Substance Abuse Screening Tools

Several articles pertaining to screening tools for identifying pregnant women at risk for substance abuse were reviewed for this study. The first of these by Smith et al. (2010) details the origins of the NIDA Quick Screen tool and is titled "Single-Question Screening Test for Drug Use in Primary Care." The purpose of this study was to validate the use of the single-question screening tests now known as the NIDA Quick Screen for use as a universal screening for drug use and drug use disorders in primary care. This screening tool is the basis for a slightly modified NIDA tool known as the NIDA-modified ASSIST. It was slightly modified by the WHO and is now recommended by both WHO and ACOG as a substance abuse screening tool for the pregnant population. A quantitative randomized control trial was done in 2009 with 286 participants between the ages of 21 and 86 in an urban safety-net hospital primary care clinic at an academic medical center. Fifty-four percent were women with a median age of 49 years, with most participants (63%) identified as Black. Only 17% identified as White, and 16% identified as Hispanic. 78% had completed high school, but only 14% had completed college. They were screened using a single screening questionnaire for drug use and drug use disorders. The 10-item Drug Abuse Screening Test (DAST-10), an established tool widely used in criminal and detoxification settings, was administered for comparison.

Smith et al.'s (2010) study demonstrated that the single-question screening questionnaire test had a 100% sensitivity and was 73.5% specific for detection of drug use disorder. In reference to the DAST-10, test characteristics were similar. Drug use was also determined by oral fluid testing to demonstrate validity. The study produced significant

reliability scores. The single-question screen accurately identified a broad spectrum of drug use in the primary care setting. These findings support the use of brief, reliable screening tools for the identification of drug use. Although Smith et al.'s (2010) study was not conducted on the pregnant population, it did demonstrate significant reliability.

The second article reviewed was by Yonkers et al. (2010) and was titled "Screening for Prenatal Substance Use." The purpose of the study was to report on the development of a questionnaire used to screen for substance abuse in pregnant women that is now known as the SURP-P tool. This is a hybrid of three previously available screening tools—TWEAK (alcohol screening), 4P's Plus, and Addiction Severity Index—and contains two domestic violence questions. The performance of this tool was compared to the performance of other measuring tools. Patients were administered the modified TWEAK questionnaire, the 4P's Plus questionnaire, items from the Addiction Severity Index, and two questions about domestic violence (N = 2684). The sample was divided into training (N = 1610) and validation (N = 1074). Responses were recorded with a three-item Substance Use Risk Profile scale. The subsample was validated by comparing it with the modified TWEAK and various scoring algorithms of the 4P's Plus. Several established tools were also used in comparison and to allow for an effective and diverse tool that eliminated redundancy from using varying tools to do an assessment.

Yonkers et al.'s (2010) study found that low-risk populations demonstrated a high predictive value for substance use (Akaike's Information Criterion = 579.75, Nagelkerke R^2 = 0.27), with high sensitivity (91%) and specificity (67%). The high-risk population had lower sensitivity (57%) but higher specificity (88%). The study demonstrated that the SURP-P tool may be used to detect a range of substance abuse. This cohort study was large (N =

2684), which is important to analyze risk of use among a diverse population. This study showed that a simple scale tool such as the SURP-P can be used and has good sensitivity and specificity. This scale can be utilized for both high and low risk populations. Screening and scoring with the SURP-P were simple yet effective compared to the other tools.

The third article reviewed was by Coleman-Cowger et al. (2019) and was titled "Accuracy of Three Screening Tools for Prenatal Substance Use". The purpose of the study was to identify problematic drug use in pregnancy via screening. No specific substance-use screener had been universally recommended for use in pregnancy. This study compared and validated the use of three screening tools as recommended by ACOG and the WHO: the NIDA Quick Screen-ASSIST, the SURP-P, and the 4P's Plus. All three had previously been validated across several populations. Both the SURP-P and the 4P's Plus were specifically validated with a population of pregnant women; however, the NIDA Quick Screen-ASSIST was not. Previous studies on pregnancy found the 4P's Plus screening had 87% sensitivity and 76% specificity, and the SURP-P had 91% sensitivity and 67% specificity for low-risk populations, with a lower sensitivity of 57% and higher specificity 88% for those at high risk. In this study, compared to the NIDA Quick Screen-ASSIST, the SURP-P and 4P's Plus had higher sensitivity with negative predictive values. This demonstrated these two tools to be ideal for clinical use for prenatal substance abuse screening.

Of the 500 participants in Coleman-Cowger et al.'s (2019) study, 494 received at least one of the three screening tools. Four hundred eighty-five received the NIDA Quick Screen-ASSIST, 491 received the 4P's Plus, and 492 received the SURP-P. The NIDA Quick Screen-ASSIST had a sensitivity of 79.7% and specificity of 82.8%. The SURP-P had a sensitivity of 92.4% and specificity of 21.8%. The 4P's Plus had a sensitivity of 90.2% and

specificity of 29.6%. Four hundred fifty-three were retested for reliability, and 47 were unable to be followed up with. The test-re-test reliability was 0.84, 0.77, and 0.79 respectively for the 4P's Plus, NIDA Quick Screen-ASSIST, and SURP-P. A large sample size of 500 participants gave a confidence of 95% that a false-negative rate in this population was under 10%. Five hundred would be considered enough for determining significant disagreement between any pair of survey results. There were differences in validity indices by age and race but none for trimester, demonstrating good generalizability. Gold standard urine and hair testing were performed to measure screening validity.

When utilizing a screening tool, it is important the tool demonstrates a high sensitivity to ensure proper screening is being conducted. This study demonstrated that SURP-P and the 4P's Plus tools had higher sensitivity and negative predictive values than the NIDA Quick Screen-ASSIST tool, making these two tools more ideal substance abuse screening tools to utilize with the pregnant population. The NIDA Quick Screen ASSIST had highest specificity but a low sensitivity. This study confirmed prior studies in that both the SURP-P and 4P's Plus were found to be highly sensitive and recommended for use in all trimesters of pregnancy and with all racial groups. Establishing the use of a well-validated substance screening tool is essential to encourage proper screening in the clinical setting among this vulnerable population.

Management Approach to Substance Abusing Women

This literature review also examined several articles on the proper management of positively identified pregnant women with substance abuse. The first article reviewed was by Tuten et al. (2019) and was titled "The Impact of Early Substance Use Disorder Treatment Response on Treatment Outcomes Among Pregnant Women with Primary Opioid Use". The

purpose of the study was to assess the impact of early patient response on treatment utilization and substance abuse among pregnant participants enrolled in substance use disorder treatment (SUD). The study was specifically designed to assess the efficacy of tailored treatment intensity based on participant early treatment response. This was a quantitative secondary data analysis of 194 patients enrolled in a sequential multiple assignment randomized trial at the Center of Addiction and Pregnancy in Baltimore, Maryland. Participants were between the ages of 18 and 46 and entered treatment at gestational age 34 weeks or less with a single fetus. Participants excluded from the study were those without opioid use (N = 22) and those who had an abortion (N = 4). Ninety-two of the patients were early treatment responders (TRs) and 102 were early treatment non-responders (TNRs). TRs and TNRs were compared on demographic, psychosocial, and SUD treatment outcome measures for utilization of opioids, cocaine, and any other substance at 1 and 2 months after enrollment in the full sample.

Findings showed that TNR participants reported more days of use of multiple substances during the 30 days before treatment enrollment. Significant differences were observed on SUD treatment outcome measures for the two groups. TR participants attended 2 additional weeks of treatment before infant delivery compared with TNR participants. TR participants also had significantly lower rates of substance use at both 1 and 2 months relative to TNR participants. These significant findings are extremely useful for the current study, in that they show the earlier treatment interventions are done, the more likely is utilization of the treatment program, and higher likelihood of patient adherence leads to improved maternal and fetal outcomes. This study further validated that it is critical to

properly screen women for early identification of substance abuse and enroll them in proper treatment in a substance abuse program once identified.

The second article addressed the management of women with opioid addiction who were treated during their pregnancy with either methadone or buprenorphine. The article reviewed was by Kaltenbach et al. (2018) and was titled "Prenatal exposure to methadone or buprenorphine: Early childhood developmental outcomes". The purpose of the study project was to evaluate early childhood developmental outcomes of children exposed to methadone or buprenorphine in utero. This was a randomized controlled trial of 96 children and their mothers who received opioid-agonist pharmacotherapy during pregnancy. The children were assessed from age 0 to 36 months. The study project assessed children's growth parameters, cognition, language abilities, sensory processing, and temperament. Maternal perceptions of parenting stress, home environment, and addiction were also part of the study project, which was conducted at hospital sites by blind trained examiners (meaning they did not know which medication treatment participants received). The study project found no more harmful effects from receiving treatment in pregnancy than not receiving treatment. Previous studies have indicated that buprenorphine may be superior to methadone when considering neonatal outcomes; however, this study project did not find any significant difference between the two. Children between 3 and 36 months of age were within range for normal development, including physical and cognitive growth. This also held true for temperament, language abilities, and sensory processing, and no significant declines in the children were found over time. The study also demonstrated that neonatal abstinence syndrome (NAS) severity did not have any significant impact on the children's physical or cognitive growth.

In their research on the mothers, Kaltenbach et al. (2018) found that although the children presented within normal limits of development, mothers' perceptions of difficulties with their children increased notably over time. It was unclear if this was due to this population exhibiting higher levels of stress around typical child behaviors or whether the children exhibited more challenging behaviors or perhaps both. In contrast, home assessment scores showed consistency, in that these children had a more enriched home environment. This suggests that developmental risks may be more related to the parent–child relationship than adverse effects from treatment during the mother's pregnancy.

This information is important because it shows that both treatment regimens of methadone and buprenorphine can be considered. It is important to note there could be variation in cost or accessibility to either treatment. This study also demonstrated the importance of assessment and the long-term management considerations of the mother's coping and paternal competence. These results suggest that those with a history of drug abuse could have poorer coping skills than those without a history of drug abuse.

The third article reviewed was by Peles et al. (2017) and was titled "Newborn Birthweight of Pregnancy Women on Methadone or Buprenorphine Maintenance Treatment: A National Contingency Management Approach Trial". The purpose of the study was to assess whether an escalating incentive contingency-management approach may contribute to better newborn birth weights in opioid-abusing women on methadone treatment. The researchers noted that although methadone was the gold standard of care, low birth weights were reported, especially in those who became pregnant before admission into a program. The study was a quantitative randomized controlled trial of patients currently enrolled in the Israeli methadone/buprenorphine maintenance treatment program. The study had 35

participants with 46 pregnancies during the study period. Nineteen participants were placed in the contingency-management program and 16 in the standard program. The contingency program offered coupons escalating in value depending on the reduction of drug use, cigarette consumption, and alcohol consumption.

No difference was found in newborn outcomes between the two groups. The findings did show new enrollees in the incentive program had an improved birth weight, which was in line with the hypotheses. However, this was not statistically proven due to the small, unbalanced study groups. What was most notable, however, was that the findings showed that frequency of reinforcement is related to efficacy of the intervention. This demonstrated that if clinicians are not consistently monitoring patients for drug abuse, it is likely patients will continue their substance abuse undetected by their clinicians. This information is important to the current study in that it confirms the need for evidence-based, well-validated screening and consistent assessment and management in this population.

CHAPTER THREE: THEORETICAL MODEL AND METHODOLOGY

Theoretical Model

This study project utilized the social learning theory model, an evidence-based approach developed by psychologist Albert Bandura (1977). This model was appropriate for this study project because it focuses on vicarious, symbolic, and self-regulatory processes and their influence on psychological functioning (Bandura, 1977). The model defines human behavior as a reciprocal continuous interaction between cognitive, behavioral, and environmental determinants, and it defines learning as a cognitive process within a social context. According to the model, learning occurs by observing both behaviors and their consequences. Through observation, a thought, affect, or behavior can be adapted or taught through the self-regulatory process. In summary, this model emphasizes that humans can learn through observation and imitation.

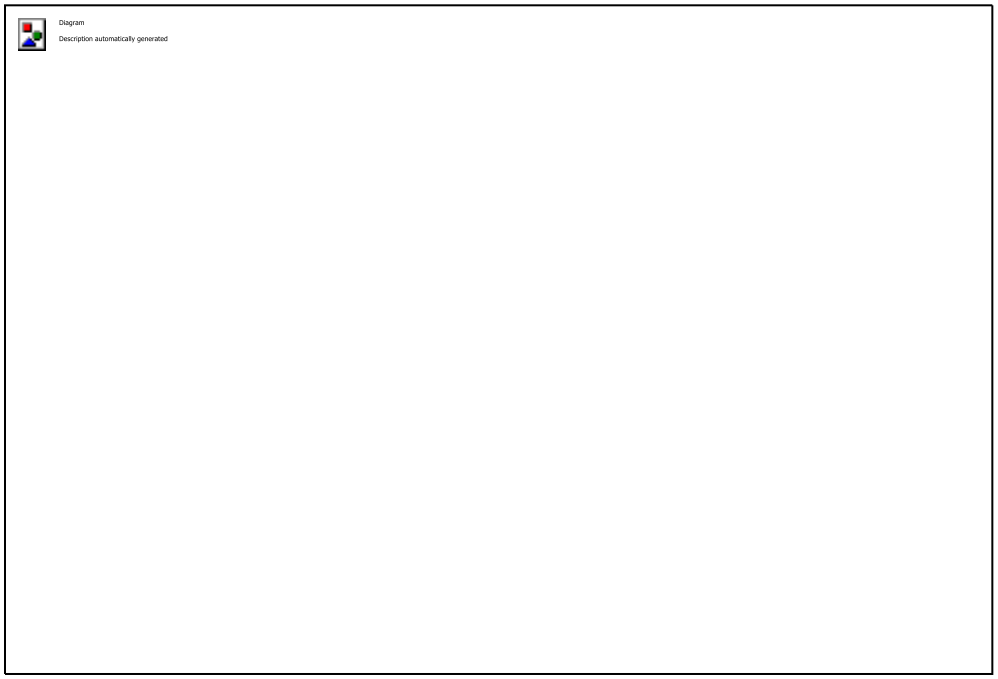
As summarized in Figure 1, four basic principles comprise the social learning theory model (Bandura, 1977):

- Attention: Must be able to pay attention to the model. To influence a behavior, attention to the behavior being observed and its consequences is extremely important.
- Retention: Must be able to remember the behavior. It is important to internalize the information into memory. How well recall takes place influences whether the behavior is later imitated.
- Reproduction: Must be able to replicate the behavior. Mental and physical practice often improves replication of the behavior.

- Motivation: Must want to replicate the behavior. Humans are typically motivated by observing consequence others receive.

Figure 1

Social Learning Theory



Conceptually, this model lends itself to this study project in that substance abuse is thought to be not only a chemical dependence but also a behaviorally or socially influenced condition. The Australian Government Department of Health (AGDH) has adopted the social learning theory model for use in their policy management for substance abuse. Utilizing this model, AGDH (2004) summarized substance abuse with the following key points:

- Finding pleasure in the activity creates risk of developing dependence.
- Dependence is a learned behavior related to conditioning, modeling, and thinking about the substance.
- Dependence exists in degrees. The higher the degree of dependence, the greater the negative feelings experienced in its absence.

- The compulsion of wanting to engage in the activity although one knows he or she shouldn't be is the hallmark sign of addiction.
- Behaviors become erratic with increased desire to engage in something he or she knows they shouldn't.
- Addictive behavior is only terminated when the individual makes the decision that the risk outweighs the benefit of substance use.

Methodology

This pilot observational study project was conducted over a 12-week period to compare the focal organization's women's specialty program's current nonspecific substance screening questionnaire (EPIC questionnaire) with a well-validated, evidence-based screening tool designed specifically for the pregnant population (SURP-P). Each patient at this clinic seeking initial obstetric care was given the opportunity to participate in the study project. If eligibility criteria were met at time of rooming, the patient was invited to take part in the study project. Eligibility assessment and invitations were conducted by one consistent nursing staff member within the specified women's health clinic. If a patient expressed interest while in their private clinic room, the staff member provided them all the necessary information to join the study project in a written packet format.

All information was printed and placed in the same order for each patient. Each packet was numerically paired to ensure each document was completed by the same patient. The first document was the informed consent cover letter for an anonymous survey (see Appendix A). The second document was the SURP-P tool (see Appendix B). The third document was the current non-specific EPIC questionnaire (see Appendix C). The patient was allotted all the time they needed to complete the surveys. The documents were tracked

by numerically paired data to ensure that consent and surveys were completed by the same patient. A comparison of this data evaluated the percentages and concordance and discordance between the two methods in terms of who screened negative and positive on each.

Statistical Analysis

Both Fisher's exact test and McNemar's test were utilized to analyze the data. Fisher's exact test is generally used to assess the significance of the association between two nominal variables (VassarStats, n.d.a). It was used in this study project with the SURP-P tool and the EPIC questionnaire as the two possibly associated categorical variables. McNemar's test is usually adopted to assess the statistical significance of differences between two percentages that are paired (VassarStats, n.d.b). This test was utilized in this study project to determine whether there were statistically significant differences in the percentages.

Ethical Issues

No ethical issues were expected to arise from utilizing staff to screen patients, as no extra workload was imposed on them. The screening process was integrated into the nursing staff's current workflow. There were several areas of concern regarding bias in the study project. The staff member conducting the screening could have held bias against women with substance abuse. Lack of transparency by each of the patients who were surveyed could have introduced bias. As Reddy et al. (2017) identified in a study project on opioid use in pregnancy, women may choose not to disclose their history of use due to concerns about social stigma or legal ramifications as well as mistrust of the healthcare provider. To address these possible sources of bias, the author ensured all staff were trained adequately and that a

disclosure was given to both staff and patients regarding the intent of the study project and patient's rights to privacy within the study project.

Setting

The study project took place at a specific women's specialty clinic within the focal organization in Espanola, New Mexico. This clinic is exclusive to women's health and serves women seeking obstetric care. The location surrounding this clinic is considered a rural community.

Population

For the purpose of this study project, predefined inclusion criteria were necessary. These included: pregnant seeking initial obstetrical care at the specified clinic, aged 18 years or older, and able to speak and read English to obtain informed consent. If these eligibility criteria were met, the patient was invited to participate in the study project.

Data Protection Plan

To ensure patients' sensitive information was protected during the study project, data were de-identified on the surveys and only tracked numerically. Collected data were then extracted to a collection spreadsheet. The electronic file was accessible only to the principal investigator and was housed on an encrypted computer. The written, numerically paired packets were locked in a drawer in the investigator's office. These will be stored in this manner for 7 years, as required by both the University of New Mexico and the focal organization's IRB committee. At the end of this time, the packets will be placed in a HIPAA-compliant shredding bin for document destruction.

Timeline

The timeline for this study project was:

I. Planning and development: October 2020–October 2021

a. Permission from the originator of the SURP-P tool (see Appendix D)
b. Proposal review and approval by chair and University of New Mexico College of Nursing
c. Presentation of study project to the focal organization's specialty clinic in Espanola, New Mexico
d. Letter of support from the Espanola OB/GYN Medical Director (see Appendix E)
e. IRB application 21-201 submitted 4/9/2021; approval granted 09/08/2021
f. Preparation and arrangement of nursing staff training

II. Study project implementation: 11/07/2021–02/04/2022

a. Collection of data
b. Initial data analysis

III. Data analysis: 12/01/2021–04/30/2022

a. Review of data collection
b. Statistical analysis with the University of New Mexico College of Nursing statistician
c. Summary of findings and discussion
d. Submission of final analysis to the committee
e. Presentation of study project findings to the committee and the University of New Mexico College of Nursing

Budget

No costs were anticipated for this study project due to the nature of its design. The SURP-P tool was a free downloadable tool. Nursing staff were adequately trained on how to administer the SURP-P tool, and the study project process coincided within their already-in-place rooming and assessment process. The focal organization donated the time, training, and supplies needed to conduct the study project.

CHAPTER FOUR: RESULTS AND DISCUSSION

Results

During this 12-week study project, 62 participants completed the surveys. Fisher's exact test and McNemar's test were utilized to make several assessments of the two screening methods. To assess the positive and negative results, three categories had to be analyzed in the SURP-P tool and two categories in the EPIC questionnaire. This was due to the fact that the SURP-P tool defines its categories as levels of risk based on a scoring system resulting from the patient's response. Per the guidelines of the tool, a "yes" response gives a score of 1 and a "no" response gives a score of 0. A 0 score indicates a low level of risk, a 1-point score indicates a moderate level of risk, and a 2- to 3-point score indicates a high level of risk (or affirmative positive). In contrast, the EPIC questionnaire only utilizes either negative or positive results. For comparison in this study project, the SURP-P tool low-risk category was considered equivalent to a negative EPIC result, and the SURP-P moderate or high-risk categories were considered equivalent to a positive EPIC result.

For the Fisher's exact test, a two-row by three-column table was created to calculate the necessary comparison percentages. To describe differences in screening rates between the two methods, the following percentages were calculated: (a) those who screened EPIC negative and SURP-P low, (b) those who screened EPIC positive and SURP-P low, (c) those who screened EPIC negative and SURP-P moderate, (d) those who screened EPIC positive and SURP-P moderate, (e) those who screened EPIC negative and SURP-P high, and (f) those who screened EPIC positive and SURP-P high. As shown in Table 1, the surveys produced a count of 13 for those who screened EPIC negative and SURP-P low, 0 for those who screened EPIC positive and SURP-P low, 17 for those who screened EPIC negative and

SURP-P moderate, 7 for those who screened EPIC positive and SURP-P moderate, 13 for those who screened EPIC negative and SURP-P high, and 12 for those who screened EPIC positive and SURP-P high.

Table 1

Total Survey Count

		SURP-P			
		low	mod	high	
EPIC	neg	13	17	13	**43**
	pos	0	7	12	**19**
		13	**24**	**25**	**62**

Based on these counts, as demonstrated in Figure 2, the following percentages were calculated: EPIC negative and SURP-P low resulted in 21%, EPIC positive and SURP-P low resulted in 0%, EPIC negative and SURP-P moderate resulted in 27%, EPIC positive and SURP-P moderate resulted in 11%, EPIC negative and SURP-P high resulted in 21%, and EPIC positive and SURP-P high resulted in 19%.

Figure 2

Percentages

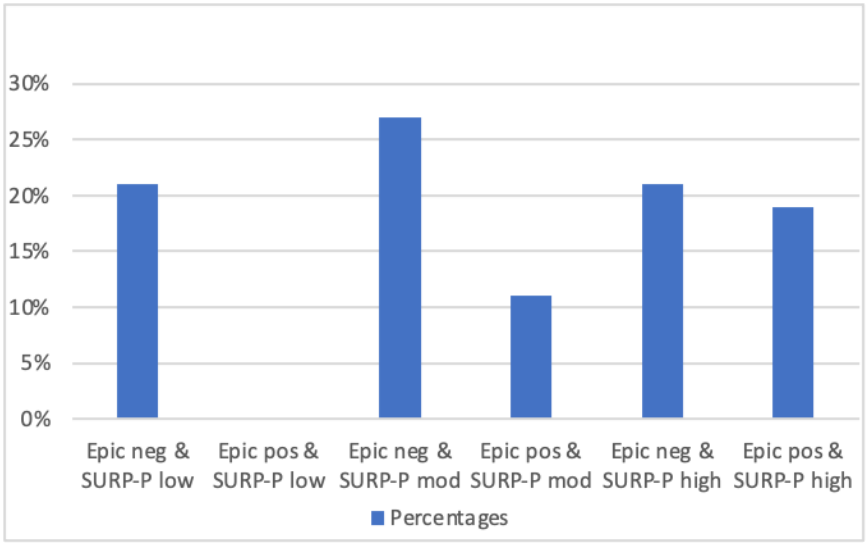
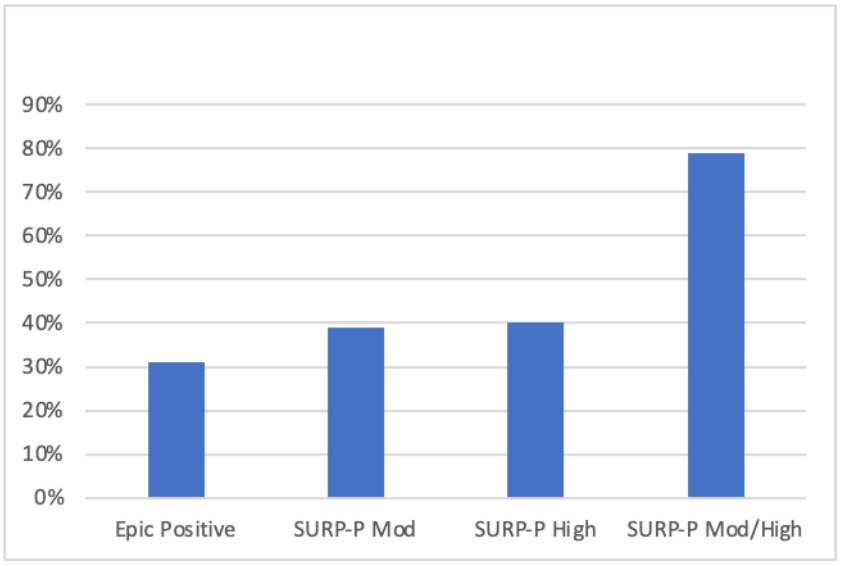


Figure 3 shows the percentages of those who screened EPIC positive versus those who screened SURP-P moderate, as well as those who screened SURP-P high and those who screened either SURP-P moderate or high. Only 31% of those utilizing the EPIC questionnaire screened positive, as compared to 39% of those who screened SURP-P moderate and 40% of those who screened SURP-P high. Overall, 79% of those utilizing the SURP-P tool screened either moderate- or high-risk as compared to what was captured by the EPIC questionnaire.

Figure 3

Positive Screening



In considering the association between the two methods, it was hypothesized that a significant association would exist between SURP-P and EPIC, as both methods attempt to screen for the same underlying risk. This association was assessed by Fisher's exact test with the Freeman-Halton extension. This gave a *p* value of .006, which indicated there was a significant association between the SURP-P tool and the EPIC questionnaire.

McNemar's test was used to make exact binomial probability calculations, given that the total number of discordant observations were equal to or less than 1000. For these calculations, two hypotheses were made. First, it was assumed there would be directional discordance with more EPIC negative and SURP-P high pairs than EPIC positive and SURP-P low/moderate pairs. As shown in Table 2, the survey count showed EPIC negative and SURP-P high at 13, while EPIC positive and SURP-P low/moderate had a count of 7.

Table 2

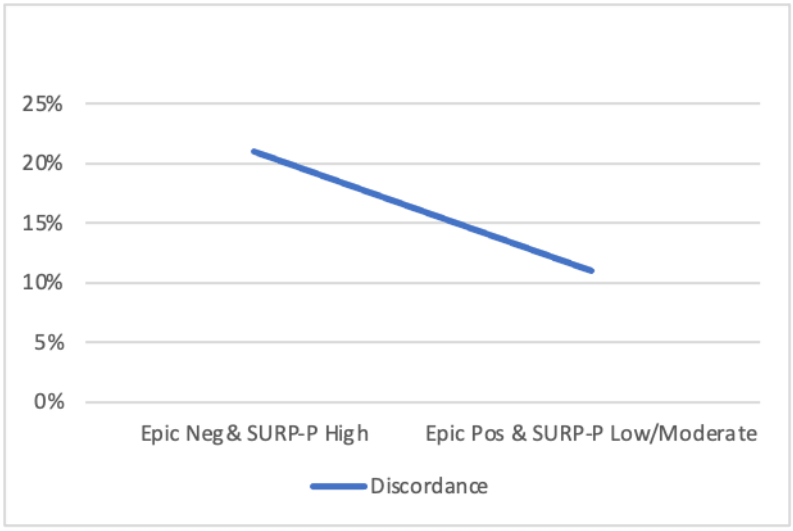
EPIC Negative/SURP-P High Pairs Versus EPIC Positive/SURP-P Low/Moderate Pairs

		SURP-P		
		low/mod	high	
EPIC	neg	30	13	43
	pos	7	12	19
		37	25	62

As shown in Figure 4, these survey counts demonstrated that 21% of the sample screened high with the SURP-P tool and did not screen positive with the EPIC questionnaire, as compared to 11% of the sample screening low or moderate with SURP-P and not screening negative with EPIC. The bi-directional probability value in this case remained insignificant, with a *p* value of .263, indicating no statistically significant discordance. Therefore, this finding did not support the initial first hypothesis.

Figure 4

Directional Discordance—SURP-P High



The second hypothesis assumed there would be directional discordance with more EPIC negative and SURP-P moderate/high pairs than EPIC positive and SURP-P low pairs. As shown in Table 3, the survey count showed EPIC negative and SURP-P moderate/high at 30, while EPIC positive and SURP-P low had a count of 0.

Table 3

EPIC Negative/SURP-P Moderate/High Pairs Versus EPIC Positive/SURP-P Low Pairs

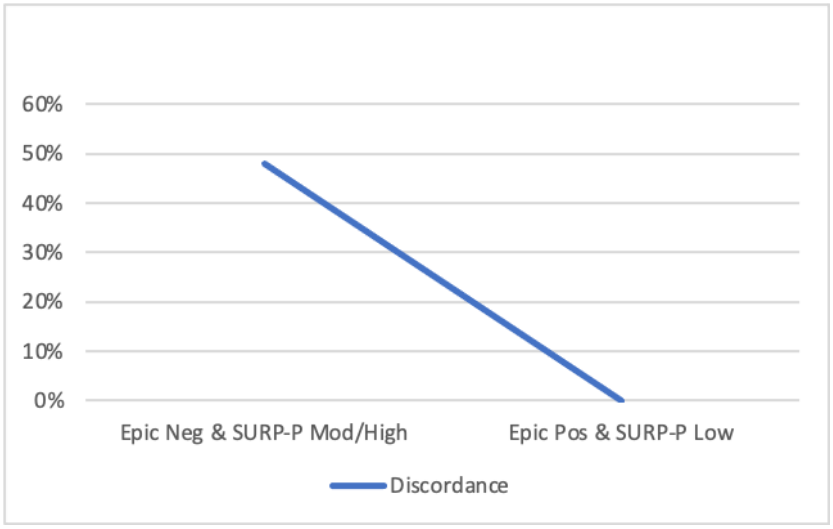
		SURP-P		
		low	mod/high	
EPIC	neg	13	30	43
	pos	0	19	19
		13	49	62

As shown in Figure 5, these survey counts revealed a remarkable difference between the two methods. Results demonstrated that 48% of the population who screened moderate or high in SURP-P did not screen positive with the EPIC questionnaire, and 0% who screened

low in SURP-P did not screen negative in EPIC. In this case, the bi-directional probability value was significant, with a *p* value of less than .001. This indicates that statistically significant directional discordance supported the second hypothesis.

Figure 5

Directional Discordance—SURP-P Moderate/High



Implications For Practice

These findings demonstrated several key points. First, the Fisher's exact results showed that the two screening methods were associated. This was evident in the initial positive percentage findings, which demonstrated that as SURP-P went from low to moderate to high, EPIC positive proportions increased steadily. As SURP-P increased, EPIC was more likely to screen positive, indicating some association between the two measures. This association was further evident with a *p* value finding of .006, indicating a significant association between the SURP-P tool and the EPIC questionnaire. This validated that the two methods attempt to screen for the same risk, supporting this study project comparison.

Second, the EPIC positive and SURP-P low percentages produced a 0% result. In contrast, the EPIC negative and SURP-P moderate percentages resulted in a 27% result, and the EPIC negative and SURP-P high percentages resulted in a 21% result. This demonstrated that SURP-P did not miss any screen that EPIC screened positive. This also demonstrated that SURP-P indicated some follow-up should occur, while EPIC did not.

The most significant finding in the Fisher's exact test comparing positive screenings was that the SURP-P tool captured 79% of the population in screening positive with a moderate- or high-risk result. In contrast, EPIC captured only about 31% of the population, and individually SURP-P moderate (39%) and SURP-P high (40%) were similar in comparison to the EPIC questionnaire. McNemar's test supported SURP-P moderate and high as the cutoff for screening, as evident in the bi-directional probability being significant; this was not found with SURP-P high alone being the cutoff. When used properly, the SURP-P tool recommends both moderate and high-risk categories have further follow-up. Clinicians cannot solely depend on a SURP-P high positive result. They must be able to understand and properly manage both SURP-P moderate- and high-risk results. The SURP-P tool gives guidance clinicians can follow based on each result.

These findings also demonstrated that 48% of the population who screened moderate or high in SURP-P did not screen positive with the EPIC questionnaire. This showed about half the sample screened as having risk with SURP-P but were not detected as having risk with EPIC. It also showed those who screened low in SURP-P also screened negative in EPIC. Lastly, these results demonstrated that SURP-P did not fail to capture anyone that EPIC might have caught.

Overall, this pilot study project and use of the SURP-P screening tool built upon current evidence-based research in substance abuse screening among the pregnant population. Study results demonstrated that the well-validated, evidence-based SURP-P screening tool captured a significantly greater number of pregnant women at risk for substance abuse than the non-validated EPIC questionnaire. This study project also showed that in addition to using such a tool, it is equally important for clinicians to be fully trained and understand how to objectively interpret SURP-P screening results and provide proper follow-up and management for those in pregnancy identified as at-risk for substance abuse.

Implementation

Because the focal organization's women's specialty program in this study project does not have a comprehensive substance abuse screening program and management system in place, several steps need to take place to achieve the short-term and long-term goals proposed in this study project. First, it would be beneficial to adopt the SURP-P tool across all providers who care for the pregnant population within the focal organization's women's specialty program. Evidence in this study project strongly demonstrated that a significant number of patients are being missed with the current Epic questionnaire and that the SURP-P tool is an extremely effective tool for identifying pregnant patients at risk for substance abuse.

These changes in care would impact current clinic workflow and coding and billing, as well as clinician practice. A review of programs, resources, and materials related to substance abuse would have to be conducted, and training on implementation would need to be provided to both staff and clinicians. It would be important to secure staff buy-in by

educating them on the goals of these changes being improving patient care and improving maternal and fetal outcomes.

It could be practical to consider rolling out the SURP-P tool at the focal women's health clinic only, with future plans to implement it program-wide. The clinic would need to ensure that this tool replaced the EPIC questionnaire in its entirety when screening the pregnant population. Considering that EPIC is an electronic medical system for documentation and SURP-P is a patient self-reporting instrument which has only been studied in written form, it would be necessary to first have the tool administered to patients in the usual fashion as discussed in this study project, and then the answers could be uploaded into EPIC where scoring could be calculated (Yonkers, et al., 2010, ACOG, 2017). This would provide ease of use, facilitate adoption of the tool, create integration into EPIC, and reduce potential for error when administering the tool.

Second, there needs to be consensus on and standardization of the framework for identifying and managing substance abuse in pregnancy. As they consider standardizing their substance abuse management framework, the focal organization women's specialty program can utilize both the MIECHV modified SURP-P tool and the evidence-based guidelines established by the WHO (2014). The MIECHV modified SURP-P tool, shown in Appendix F, provides guidance for the scoring as well as a framework for how to manage patients based on their scoring results. WHO guidelines provide 224 pages of detailed information on the identification and management of substance use and substance use disorders in pregnancy, including five key principles that should be followed:

1) Prioritizing prevention: A multifaceted approach uses multidisciplinary action to prevent, reduce, and cease the use of substance use during pregnancy and in the postpartum period.
2) Ensuring access to prevention and treatment services: Affordable prevention and treatment services and interventions should be accessible to all women and families affected by substance abuse.
3) Respecting patient autonomy: Patients should be fully informed on the risks and benefits of breastfeeding and substance abuse; available treatment options should be reviewed, and patient autonomy should be respected as patients make decisions regarding their own health and the health of their fetus.
4) Providing comprehensive care: It is critical that a comprehensive level of care be matched with the complexity and multifaceted nature of the patient's substance abuse.
5) Safeguarding against discrimination and stigmatization: Standardized treatment should be offered to all women in a way that is empathic, respectful, non-stigmatizing, and non-judgmental, with sensitivity to age, culture, and language differences. Resources should be available in written, video, and oral formats in patients' preferred language and consistent their level of literacy. Clinicians must take great sensitivity when private or distressing information is revealed by the patient.

Rolling out this framework is likely to be demanding, as it must be extensive and unique to the organization, specialty program, and patient population. This focal site of this study project may not be ready for a full substance abuse management program. However, at

a minimum they need to establish a framework and workflow for those identified as at-risk for substance abuse; as it currently stands, identifying these patients is largely subjective and based on individual providers' interpretation of the EPIC questionnaire results.

The focal organization would benefit from creating a committee task force comprised of the woman's specialty program, maternal fetal medicine, and other key stakeholders to ensure its success in developing their long-term goal of developing a full substance abuse management program. Any such program would undoubtably warrant institutional policy change and support within the focal organization to ensure in its long-term success.

Strengths and Weaknesses of the Study project

A strength of this study project was that both screening methods were administered in printed format in one packet, paired the same way for each participant in the study project. The study project was also anonymous, tracked only by numerical pairing to encourage honest disclosure by participants. The study project also had a comprehensive methodology for implementation and clear direction in research design and intended adoption.

A limitation of this study project was that it might not be generalizable because it was a small study project within one specified clinic. This study project utilized a small convenience sample, and participants were not randomly selected. Also, no sub-group analysis was considered in this study project. The screening tools was administered in English, which, although a requirement to participate in the study project, may have not been participants' primary language. A perception of disclosure risk may also have prevented some respondents from giving an honest appraisal of their at-risk use.

Conclusion

Pregnancy presents a unique opportunity for women to evaluate their patterns of living, such as whether they are substance abusing and whether they will change those patterns (WHO, 2014). Providers have limited opportunities to screen for such risks and intervene with greatest impact (WHO, 2014). Having the proper substance abuse screening tool in place will help clinicians avoid missed opportunities to intervene (Coleman-Cowger et al., 2019).

It is the responsibility of every provider caring for this vulnerable population to ensure that all women in pregnancy are being equally and comprehensively cared for, regardless of socioeconomic status or cultural background. (WHO, 2014). Substance abuse in pregnancy is a complex issue affecting the social, mental, and physical wellbeing of mothers, babies, and families (WHO, 2014). It is important that proper support, care, and resources are available in a manner that promotes the wellbeing of not only mothers and babies but also family units and communities, thus preventing stigmatization, discrimination, and marginalization (WHO, 2014.).

It is evident that a gap currently exists in evidence-based care in screening and managing pregnant women at risk for substance abuse within the focal organization of this study project. Fostering the adoption of a well-validated, evidence-based universal substance abuse screening tool in a nondiscriminatory, routine manner is the necessary first step in providing the optimal care necessary for this vulnerable population within this organization. As evidence has shown, use of an evidence-based, universal substance abuse screening tool contributes to improved maternal and fetal outcomes, and this has been demonstrated in this study project.

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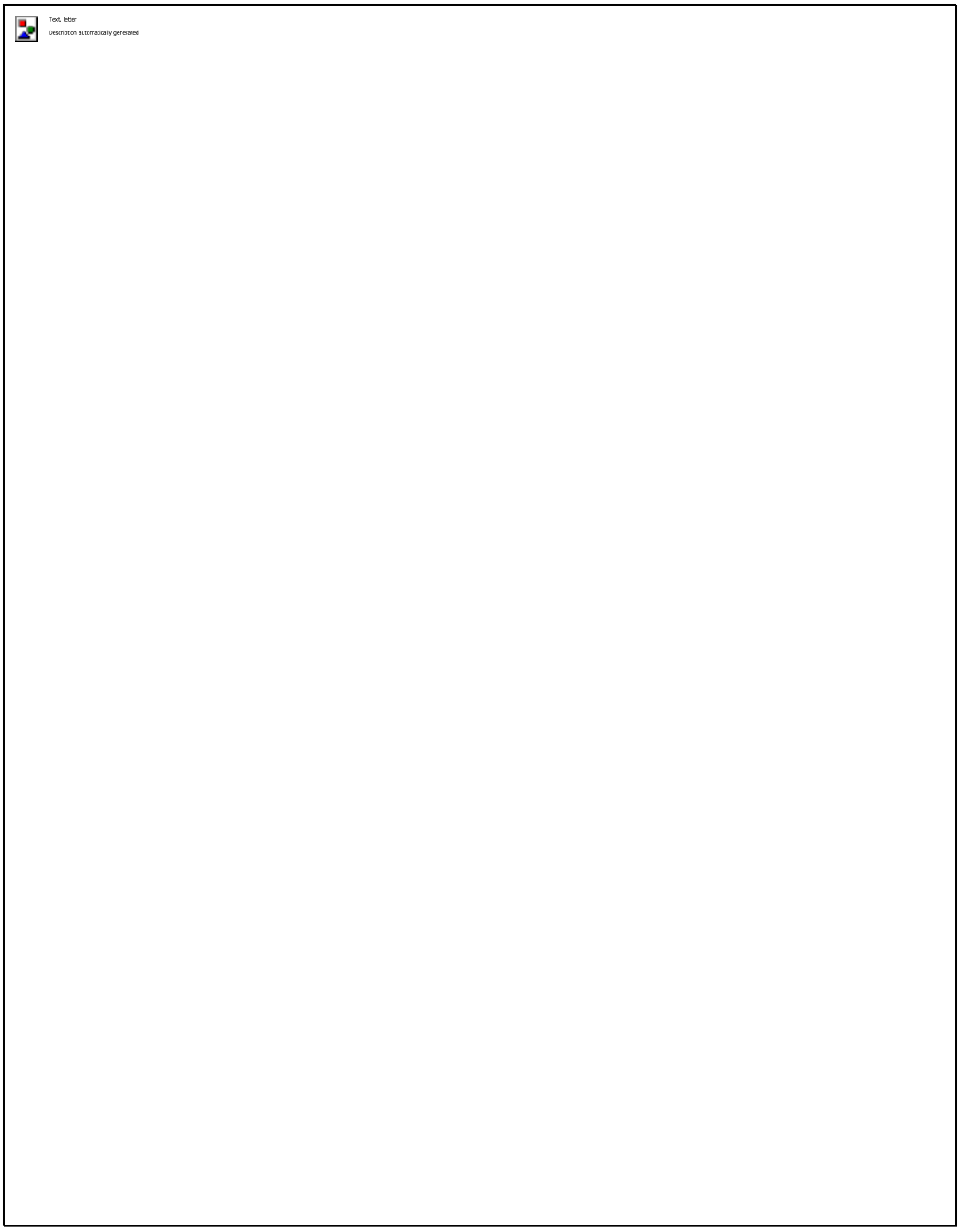
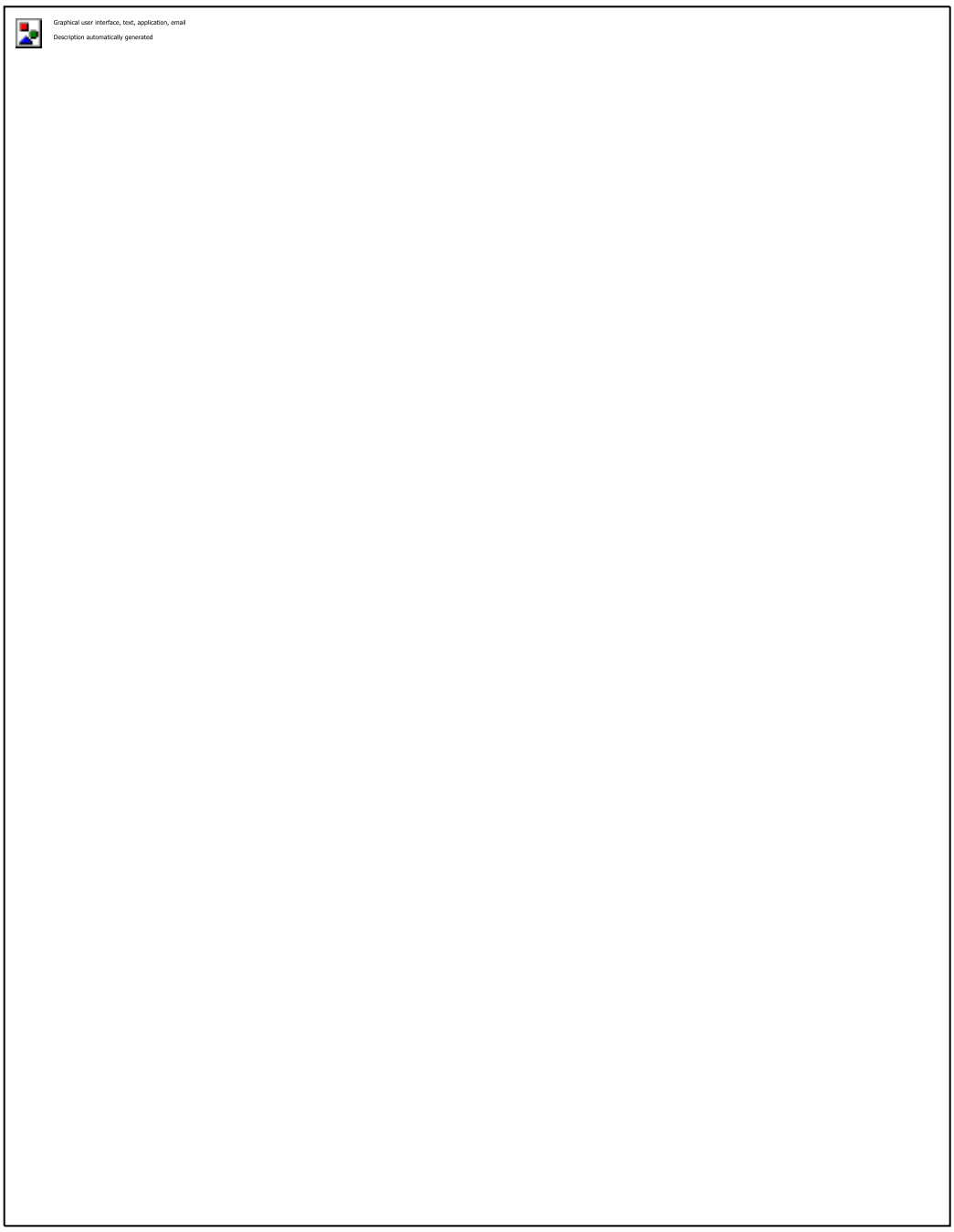
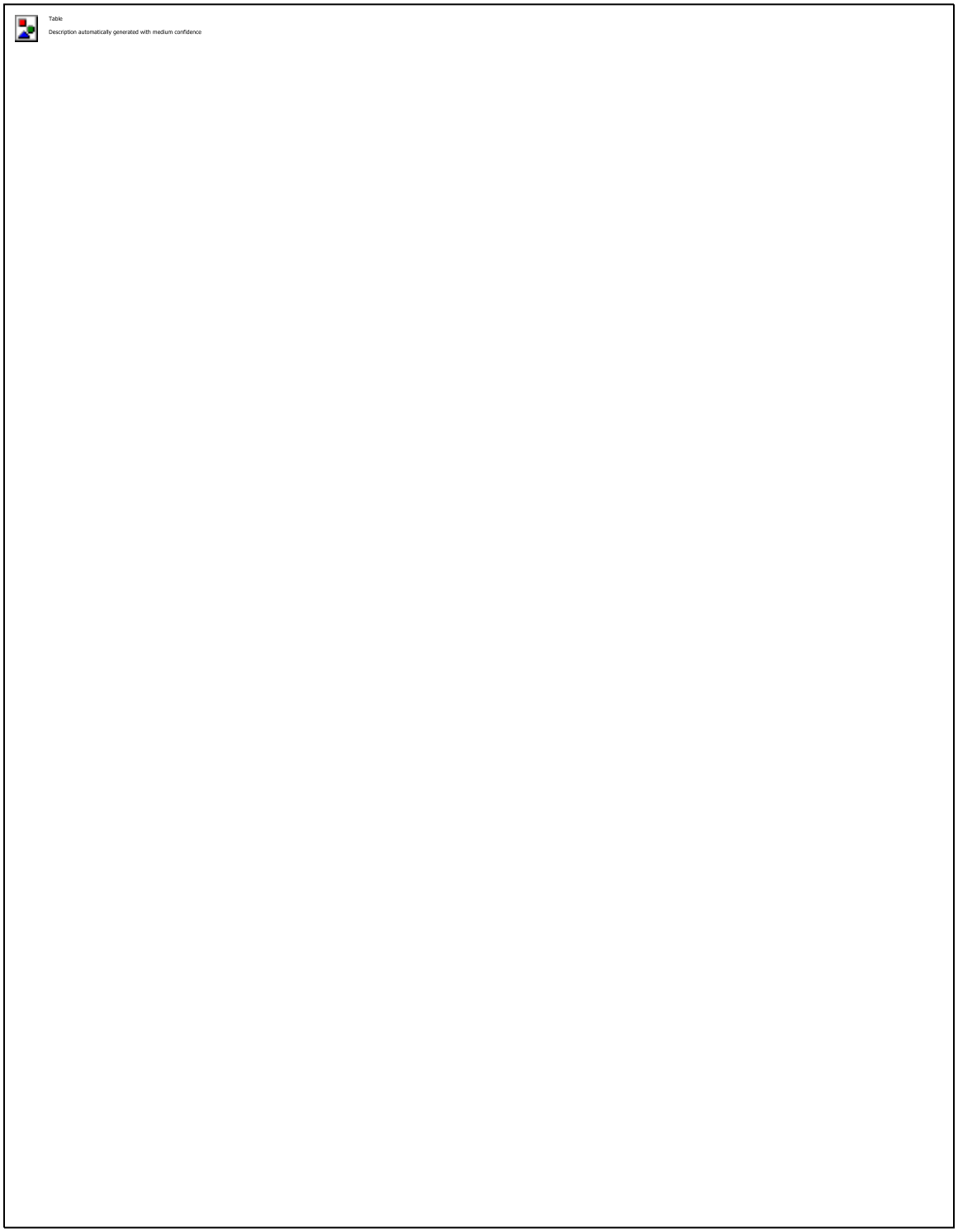
Appendix A: Informed Consent



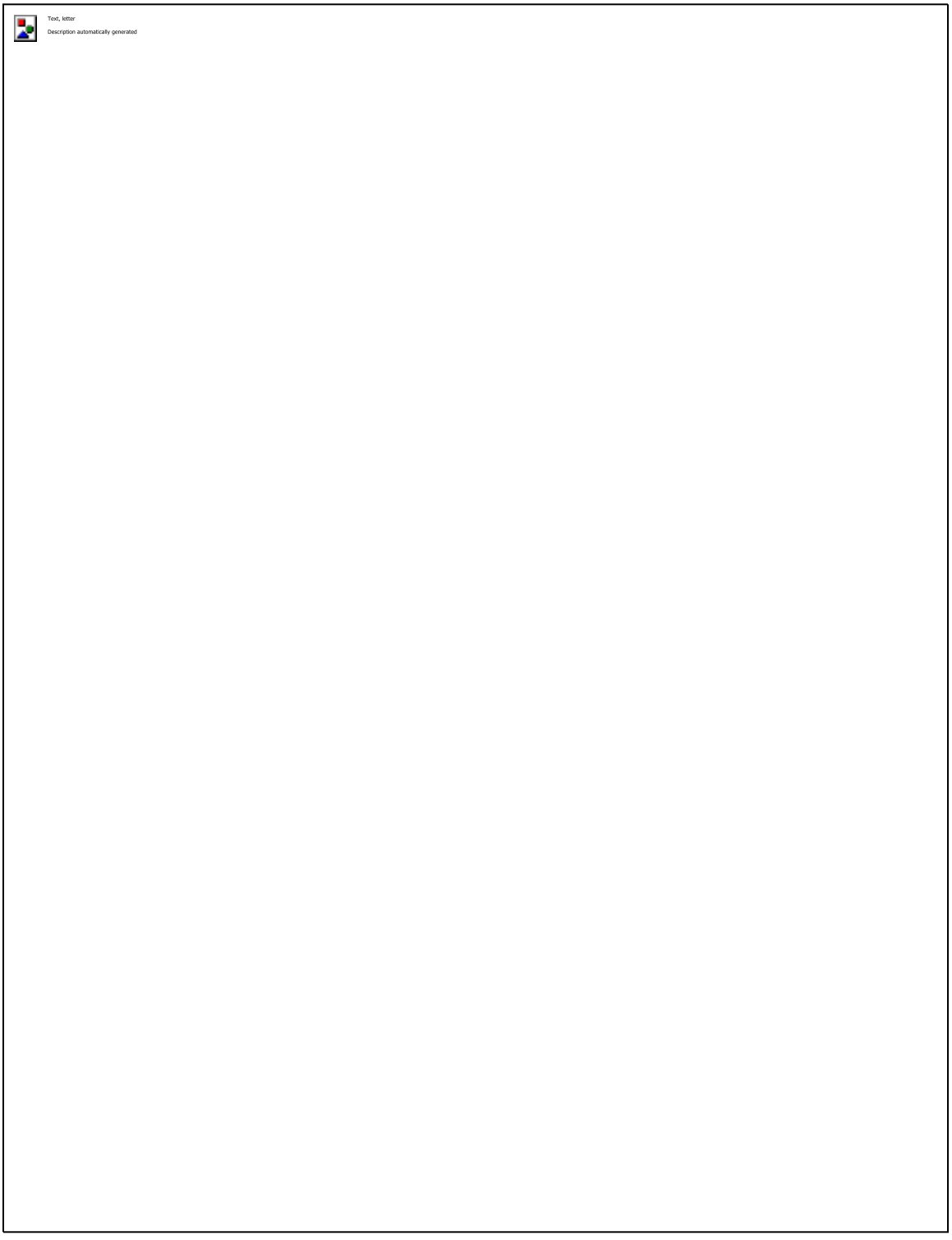
Appendix B: SURP-P Tool Used in Study



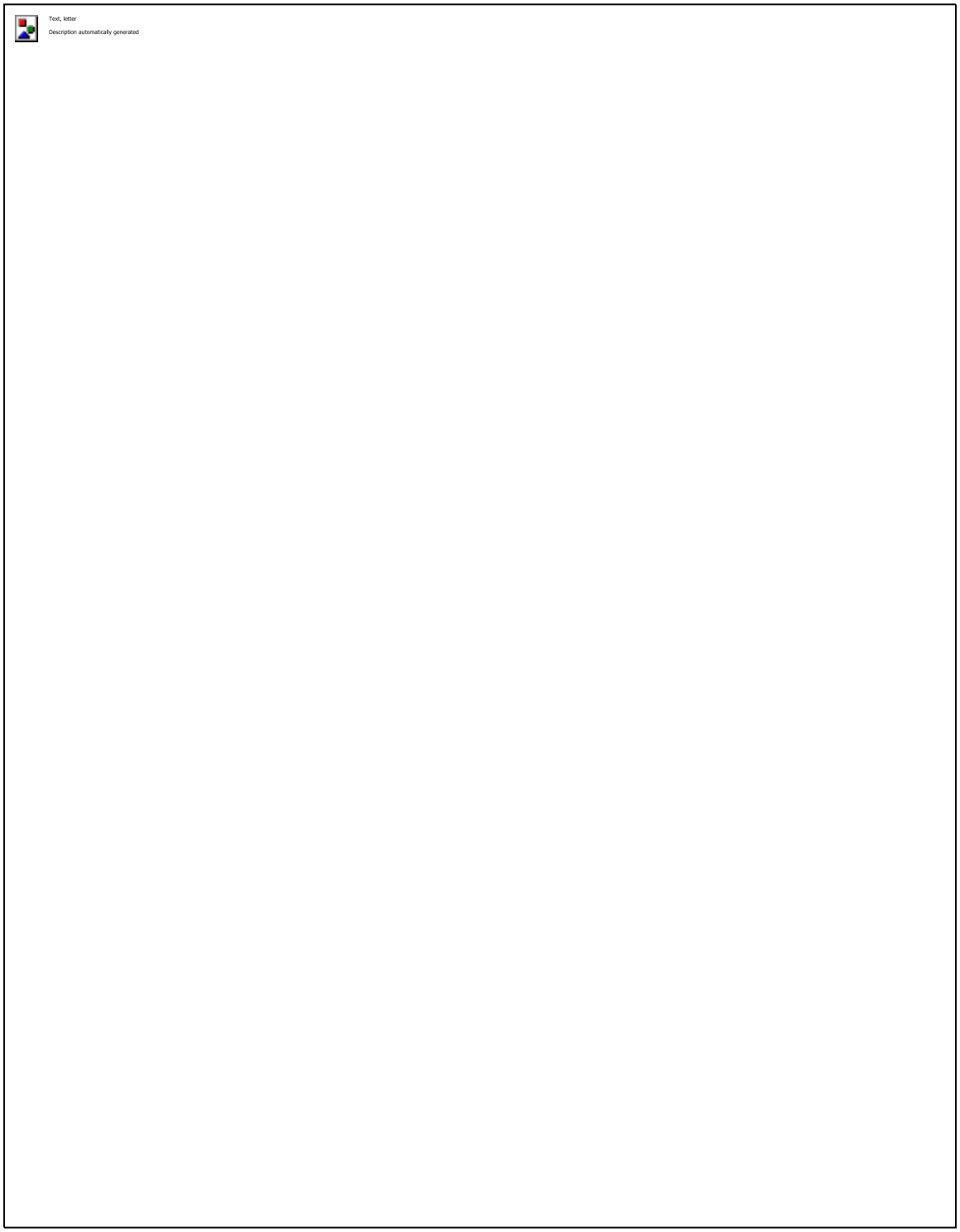
Appendix C: EPIC Questionnaire



Appendix D: Permission for SURP-P Tool



Appendix E: Letter of Support



Appendix F: MIECHV SURP-P Modified Tool