

OCCUPATIONAL HEALTH NURSES' SELF-EFFICACY IN IMPLEMENTING SMOKING  
CESSATION INTERVENTIONS FOR WORKERS: A MANUFACTURING COMPANY  
QUALITY IMPROVEMENT PROJECT

A Doctor of Nursing Practice Project Report

by

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Submitted in Partial Fulfillment of the Requirements for the Degree of

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This Doctor of Nursing Practice Project Report meets the standards for scope and quality of Texas A&M University-Corpus Christi College of Nursing and Health Sciences and is hereby approved.

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August 2018

## DEDICATION

I would like to dedicate this work to my grandchildren who I hope will face life with a thirst for knowledge and a desire to uniquely contribute to the world, to my daughters for their strength and balance, and to my husband, John, who has provided unending support.

## ACKNOWLEDGEMENTS

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## TABLE OF CONTENTS

CONTENTS	PAGE
DEDICATION.....	v
ACKNOWLEDGEMENTS.....	vi
TABLE OF CONTENTS.....	vii
LIST OF FIGURES .....	viii
LIST OF TABLES .....	ix
ABSTRACT.....	1
DNP PROJECT REPORT .....	2
Introduction.....	2
Methods .....	8
Results.....	13
Discussion.....	15
Conclusions and Implications for Practice .....	19
References.....	22
LIST OF APPENDICES.....	40

## LIST OF FIGURES

FIGURES	PAGE
Figure 1: Nurse Self-Efficacy Pre-and Post Total Scores.....	29
Figure 2. Smokers Pre-and Post-test Stages of Change Scores .....	30
Figure 3. Nurse Mean Change Scores Compared to Smoker's Mean Change Scores .....	31
Figure 4. Quality Improvement Process Change .....	32

## LIST OF TABLES

TABLES	PAGE
Table 1: Sample Characteristics.....	33
Table 2: Paired <i>t</i> -tests and Descriptive Statistics for Pre- to Post Interventionin Smoker’s Stages of Change .....	35
Table 3. Paired <i>t</i> -tests and Descriptive Statistics for Pre- to Post Intervention for Nurse’s Self- efficacy.....	366
Table 4: Pearson Correlations.....	37
Table 5. Mean Change Scores Correlating Nurse and Smokers.....	39



## ABSTRACT

The purpose of this study was to improve the delivery and quality of care to smokers at work who are poorly motivated to quit and to explore the concepts of self-efficacy for enhancing this care process within a manufacturing company. This quality improvement (QI) project aimed to educate occupational health nurses (OHN's) by providing them with theory-based training and incentives to recruit poorly motivated smokers. Nurses practiced their skills in worker health promotion recruitment and motivational interviewing (MI) with smokers who had previously declined smoking cessation counseling. As the project evolved, theory-based applications brought OHN's and smokers together in a new paradigm resulting in positive changes for both the OHN's self-efficacy and smokers' stages of change toward quitting. Paired *t*-tests detected statistically significant difference in OHN's pre-and post-intervention self-efficacy scores ( $t(4) = -4.46, p < .001$ );  $d = 2.92$ ) and smokers' pre-and post-intervention stage of change toward quitting scores ( $t(10) = -9.07, p < .001$ );  $d = 2.09$ ) suggesting the education intervention and motivational interviewing intervention were extremely effective in increasing OHN self-efficacy and smokers' stage of motivation to change. Results from this pilot project indicate smokers who are poorly motivated toward quitting can be successfully recruited and counseled using motivational interviewing techniques, while simultaneously improving OHN self-efficacy toward helping these patients. Secondary findings revealed success in an innovative recruitment method of flipping the nurse-patient relationship from nurses helping patients to patients helping nurses.

Key Words: Occupational Health Nurse, self-efficacy, smoking cessation, motivational interviewing, theory-based training, quality improvement, flipping nurse-patient relationship.

## **DNP PROJECT REPORT**

### **Occupational Health Nurses' Self-Efficacy in Implementing Smoking Cessation Interventions for Workers: A Manufacturing Company Quality Improvement Project**

#### **Introduction**

The necessity of smoking cessation intervention (SCI) is unparalleled as a preventative health measure. Smoking has been the most influenceable health determinant for several generations and is the dominant contributor to the increasing global health burden which is expected to kill about five million people annually (WHO, 2015). In the U.S., the smoking problem is an insidious cause of chronic disease with reports of tobacco-use accounting for 33% of cardiovascular disease, 50% of cancers and 60% of chronic respiratory disease (CDC, 2015). While U.S. workers continue to have a greater than expected rate of smoking (Chinn, Hong, Gillen, Bates, & Okechukwu, 2012) it was found that blue-collar production workers had the highest prevalence of daily smoking (88%) compared to professional workers (68%) (Pinsker, 2015). A disparity among U.S. workers was reported by Halldin, Doney, and Hnizdo (2015) who found chronic obstructive lung disease (COPD) was associated with male smokers, lower education, and occupational dust and fumes. The CDC (2015) reported 1.5 million workers die or suffer from smoking-related disability and employers spend \$300 billion in lost productivity and medical expenses each year. These staggering statistics indicated an urgent need to further explore SCI.

#### **Review of the Literature**

A literature review on SCI resulted in several studies, many of which focused on factors such as who, how, when, and where the intervention was delivered as factors determining

treatment success. Nurses are an important component in delivering SCI to their patients and advice and counseling given by a nurse resulted in better smoking cessation outcomes when compared to other counselors (Rice, Hartmann-Boyce, & Stead, 2013). When nurses provide intensive patient interventions smokers are more likely to quit (Zwar et al., 2015). Extended counseling was shown to be more effective than brief advice (Stead, Buitrago, Preciado, Sanchez, Hartmann-Boyce, & Lancaster, 2013), and more effective when delivered during healthcare visits (West, Raw, McNeil, Stead, Aveyard, Bitton, & Borland, 2015). Individual, face-to-face encounters were found more effective with smokers (Aveyard, Begh, Parsons, & West, 2012) and when counseling was patient-centered using motivational interviewing (MI) quit rates increased (Hettema & Hendricks, 2015). It was shown that poorly motivated smokers moved closer to quitting when patient self-efficacy was reinforced (Catley et al., 2015; Taniguchi et al., 2017). Community settings, particularly in the workplace, were effective in facilitating smoking cessation programs (Cahill & Lancaster, 2014). In a study by Knowlden, Ickes, and Sharma (2014), the workplace was found to be three times more effective than other community settings for delivering SCI. Knowledge of these findings in SCI provided guidance and a broad evidence-base for developing nurses as effective smoking cessation agents.

Although nurses were effective when SCI was provided, a problem existed in the nurse delivery of SCI. A large systematic review by Rice, Hartmann, and Stead (2013) discovered nurses did not consistently provide evidence-based techniques for SCI counseling. Several barriers existed for nurses when providing or attempting to provide SCI. Some of these barriers included lack of time and organizational support (Leitlein, Smit, De Vries, & Hoving, 2013), lack of role identification (Rice et al., 2013), personal health-related behaviors (Neall, Atherton, & Kyle, 2015), ease of SCI referral (Houston et al., 2015), nurses' knowledge of SCI and

perceived confidence (Fore, Karvonen-Guiterrez, Talasma, & Duffy, 2013; Leitlein et al., 2013; Rice et al., 2013).

Occupational health nurses (OHNs) are a specialty group of nurses who deliver healthcare services directly to patients at work. OHNs are an integral component in the workplace (American Board of Occupational Health Nurses, 2014) and they can play a key role in providing SCI to smoking workers. An integrative literature review discovered there was limited information specific to OHN's implementation of SCI and self-efficacy. One study surveyed members of the American Academy of Occupational Health Nurses Association and reported 96.5% of OHNs believed practice guidelines were effective and that delivering SCI was an important clinical role in the workplace (Ganz, Fortuna, Weinsier, Campbell, & Furmanski, 2015). Ganz et al., 2015 found the greatest barrier in implementing SCI was worker resistance to their advice (51.5%). Another study by Chatdokmaiprai, Kalampakorn, McCullagh, Lagampan, and Keeratiwiriaporn (2017) reported OHN attitude ( $r = 0.37; p < .01$ ), training ( $r = 0.17; p < .01$ ), employer support ( $r = 0.11; p < .01$ ), and policy ( $r = 0.02; p < .01$ ) were mediators that positively influenced self-efficacy ( $r = 0.51; p < .01$ ); and that self-efficacy was the single most significant factor for OHN's providing SCI (Chatdokmaiprai et al., 2017).

### **Feasibility**

The quality improvement (QI) project aligned with company goals and objectives for improving employee health by reducing the smoking rate and minimizing those associated costs. The project director and the health programs manager introduced the project idea to the leadership team as an adjunct to a recently introduced web-based quit smoking program. Three months prior to project implementation, workers who smoked could sign-up for a company-sponsored online quit program to avoid a health insurance surcharge. Smokers who did not sign-

up for the company quit program were a concern for leadership and business owners. These non-motivated smokers were the initial focus group of the project. The QI pilot project would be conducted at the manufacturing facilities where OHNs are located throughout the U.S. There were no costs associated with training OHNs because the education was part of regular in-service. A \$50-dollar gift card was awarded for smoker participation which was considered a nominal cost by leadership for the health improvements gained. The time spent per OHN was less than six hours and less than two hours for the smoker. The time-line for conducting the QI project was approximately three months beginning in March and ending in May of 2018. The significance of assisting these poorly motivated smokers to quit by utilizing the OHN was noncomparable to the small associated project costs of less than one thousand dollars.

### **Conceptual Framework**

Concepts of self-efficacy and situational confidence was first introduced by Bandura (1991). The constructs of self-efficacy evolved around an individual's own perceived abilities to perform, organize and execute an action to achieve a goal. In the Theory of Self-efficacy, a person's motivation to perform a given task is dependent on how confident they feel about performing the task (Bandura, 1991). Self-efficacy comes from four sources: actual behavior performance, watching others perform the behavior, verbal persuasion, and emotional arousal. The practice of a behavior had the strongest influence on self-efficacy (Darkwah, Ross, Williams, & Madill, 2011) The project was developed on a framework for increasing OHN self-efficacy and the training was based on these concepts which incorporate interactive discussions, situational polling questions, YouTube demonstrations, and practice sessions with smokers.

The Transtheoretical Model (TTM) was developed in the 1980's as an integrative theory utilizing the constructs of self-efficacy and intentions for change (Miller & Rollnick, 2009). The

TTM has been used effectively in SCI therapy (Prochaska, Redding, & Evers, 2008). Central to The TTM is the “Stages of Change’ which fall under the constructs of motivational readiness to change (Prochaska et al., 2008). The TTM was used as a framework to develop interventions for the smokers. Motivational interviewing (MI) is a client-centered counseling approach based on the concepts of TTM. MI addresses behavior change through interviewing techniques that work within the smoker’s own motivation for change (Miller & Rollnick, 2013). The TTM provided a conceptual model for the nurses’ understanding of the change processes and MI were the basic skills learned and practiced to assist the smokers with moving through stages of change toward quitting.

There are four elements to MI which include partnership, acceptance, compassion, and evocation. These interrelated counseling components are combined with the processes of MI to include: engaging, focusing, evoking, and planning to sequentially build a relationship and to establish acceptance of the smoker. Communication skills include open-ended questions, affirmation, reflection, summarization, and providing information or advice with permission to assist smokers in behavior change (Miller & Rollnick, 2013). MI is based on four guiding principles to assist the nurse with knowledge of decisional balance and advancing smokers through stages of change. First, avoid the righting reflex and resist advising or telling the smoker to quit. The second principle is understanding what motivates the person to change, and thirdly reflective listening to confirm understanding. Empowerment is the final principle of MI and guides the nurse to assist the smoker to explore health-related behavioral improvements (Rollnick, Miller, & Butler, 2008). MI can be an effective tool for helping smokers amplify personal discrepancies when they are not ready to quit. A meta-analysis demonstrated that smoking cessation rates increased using MI compared to usual care (Lindson-Hawley,

Thompson, & Begh, 2015) and that multiple, brief, 20-minute sessions were effective (Aveyard, Begh, Parsons, & West, 2012). MI skills were taught to the OHN's preparing them with strategic questions using empathetic listening to help the smokers resolve ambivalence about changing behaviors (Miller & Rollnick, 2013). The TTM and MI have been effective theories for health promotion and behavior change in smoking (Miller & Rollnick, 2013) and have guided the development, interventions, and evaluation of the project.

### **Nurse Self-Efficacy**

Reoccurring factors were found in the literature that affect nurse self-efficacy in implementing SCI which include training (Choi & Kim, 2016; Rosvall & Carlson 2017; Sarna, Bialous, Kralikova, Kmetova, & Felbrova, 2014; Taniguchi et al., 2016), educational level (Juranic et al. 2017; Katz et al., 2016), and the nurses' perceived social and personal influence on the smoker (Choi & Kim, 2016; Leitlein, Smit, De Vries, & Hoving, 2013). Acknowledgement of these factors affecting nurse implementation of SCI has guided the development of this QI project aimed at improving OHN self-efficacy for motivating smokers to quit.

### **Project Goals**

The goals for this project are to increase OHN self-efficacy in providing SCI and to move smokers closer to quitting by 10%. This is a Likert point increase of seven points for the nurses and ten points for the smokers of their pre-survey scores. For this project, the OHN will receive education in MI techniques and concepts in motivational change; the smokers will receive MI interventions provided by the nurses. Currently, in this manufacturing company, nurses do not provide MI techniques to smokers, but they do provide health promotion and disease prevention education to workers as needed. The company's strategic plan is to reduce the smoking rate of workers which aligns with the primary goals of this project

## **Problem Statement, Purpose and PICO Question**

A problem exists in providing optimal healthcare to smoking workers because OHNs, who are effective and accessible to these smokers, are not consistently delivering the message. This QI project will address indications for a needed change in this clinical practice setting. The purpose of this project is to improve the delivery and quality of care provided to workers who are poorly motivated to quit smoking, and to determine whether OHNs would be a significant resource for managing and enhancing that care process within a company's manufacturing facilities. The PICO question guiding this work is: Will OHN self-efficacy in SCI improve after theory-based training and practice? And will the OHN affect change in the smoking worker by moving them toward quitting?

## **Methods**

The project used a quasi-experimental one-group pre-test, post-test design. Two types of participants were involved in the project. OHN's ( $n=5$ ) who were measured in self-efficacy before and after SCI training and practice, and workers who smoked (smokers) ( $n=11$ ), who were measured for stages of change toward quitting before and after three MI counseling sessions with the OHN.

## **Setting**

This QI pilot project was conducted at one company's U.S. manufacturing facilities where OHN's provide routine occupational health services to workers. The smoking participants are laboring workers in the maintenance and production areas. They are required to climb ladders, lift, carry, and perform other physical tasks. The Texas A&M University-Corpus Christi



Office of Research Compliance Institutional Review Board deemed this project as QI and not human subjects research (see Appendix A for IRB letter). The project director (PD) presented an overview of the QI project to the company leadership and OHN's ( $n=8$ ). The company leaders announced their support of the project (see Appendix B for letter of support) and a cash incentive was offered to OHN's who participated and recruited three or more smokers. The OHN's ( $n=5$ ) were located at the various manufacturing facilities who would recruit smokers at the worksite clinics from their knowledge and health record searches. If the smoker had not enrolled in a company-sponsored quit program, the OHN would ask the smoker if they would be part of a QI project. The OHN's were provided a script explaining the study is designed to "help" the nurse practice skills with a smoker in MI techniques. (see Appendix C for nurse script for recruiting smokers).

### **Sample and Recruitment**

A convenience sample of the company's OHNs ( $n = 5$ ) were recruited by the project director during a regular business team meeting. The OHNs were adult women of middle age and of predominantly Caucasian ethnicity. They had a diverse education and licensure attainment which ranged from high school diploma/LVN to master's degree/APRN. There was an average of almost 18 years' experience in occupational health nursing. (see Table 1 for detail on sample characteristics).

The smoking participants ( $n = 11$ ) were a convenience sample and recruited by the nurses through personal clinic encounters. The nurses determined whether the smoker had opted out of the company-sponsored quit program by asking if they had enrolled. If they had not enrolled, the OHN used a script that was prepared to ask the poorly motivated smoker to participate in the project. The smokers were adult manufacturing workers (mean age = 40.73, SD = 11.9) who

reported total previous years smoked ( $M = 22.82$ ,  $SD = 10.4$ ); current packs per day smoked ( $M = 1.18$ ,  $SD = 0.51$ ); previous attempts quitting ( $M = 2.55$ ,  $SD = 1.44$ ). The participants were predominantly men and included Caucasians ( $n = 8$ , 72.7%) and Hispanics ( $n = 3$ , 27.27%). (see Table 1 for detail on sample characteristics).

### **Interventions**

Two groups, nurses and smokers received an intervention. The OHN intervention was an educational training session given to the nurses ( $n=5$ ) during a scheduled team meeting. The training included a PowerPoint presentation, interactive polling questions, group discussions, and a YouTube demonstration. The 90-minute training session contained the following: (1) significance and background of the problem; (2) evidence-based clinical practice guidelines; and (3) motivational interviewing (MI) techniques (ACS, 2017; Furmanski & Sullivan, 2015; PCBS, 2017). Over the next three months, OHN's then practiced newly learned SCI skills with poorly motivated smokers. The intervention for participating smokers ( $n=11$ ) were three 20-minute MI counseling sessions or "talks" with the OHN at the on-site health clinic. Each nurse recruited their own smoking participants and the workers attended these sessions while they were at work.

### **Barriers**

The company OHN's were initially unwilling to participate in the project due to several barriers. The nurses unanimously expressed concerns as lack of time and competing priorities that would interfere with their participation in the study. They were also concerned that poorly motivated smokers would not be interested in the project. This hesitancy to begin the project required further exploration and project adjustments. For instance, the company OHNs claimed they were too busy with medical testing to meet for four sessions with multiple smokers for 30-minute. The original time proposed was shortened to 20-minutes and a total of three sessions for

one to three smokers. Aveyard et al (2012) found that brief, 20-minute sessions have been effective for SCI. The company leaders met with the OHNs and announced their support of the project and indicated the project aligned with top business strategies. Leadership also provided a cash incentive for nurse participation. Another barrier were the attitudes nurses had about their smokers. The nurses felt discouraged and had counseled their smokers about quitting on multiple occasions. They stated, “I’ve already talked to my smokers, and they won’t quit.” These barriers were addressed by the project director through personal follow up and listening to the nurses’ concerns. Motivational counseling, organizational support, and allowing fewer and shorter nurse-smoker sessions helped to alleviate these barriers.

## **Instruments**

The measurement instrument used to measure OHN self-efficacy was the modified *Self-Efficacy and Behavior for Smoking Cessation Counseling Survey* developed for hospital nurses in SCI. This survey was modified from the self-efficacy and behavior for smoking cessation counseling survey and has been tested for content reliability and validity (Barta, 2005). In a study by Preechawong, Vathesathogkit, and Suwanratsamee (2011), the Cronbach’s alpha coefficient for the instrument was 0.89. The tool has 14 questions related to the nurses’ confidence in providing SCI; examples include “*I can regularly ask patients about their smoking*” and “*I can be effective in changing a smoker’s behavior*”. The answers are on a 5-point Likert scale ranging from not at all confident to very confident. The instrument was designed to assess the nurses self-perceived capabilities in delivering SCI. OHN’s completed this survey as a pre-test before their training and again after training and skills practice with their smokers. For confidentiality, an alphanumeric code was assigned to each OHN’s survey and pre- and post-test data were collected in Qualtrics. (see Appendix D for nurse self-efficacy survey;

see Appendix E for letter of permission to use the survey). The goal is to increase the OHNs post-test score by an overall minimum of seven points on the Likert scale.

Once the smoker agreed to participate in the study a pre-test was administered by the OHN to determine the stage of change for quitting using the *Process of Change Questionnaire: Smoking Version (PCQSV)* (UMBC, 2018). This questionnaire was developed using TTM and has been tested for reliability and validity in adult male smokers. A study by Sarbandi, Niknami, Hidarnia, Hajizadeh, and Montazeri (2013) provided evidence the PCQSV was an appropriate tool for measuring SCI (alpha coefficient 0.60 and 0.84) and to what extent interventions could have on changing people's behavior. The goal is to increase the post-test score from their pre-test score by 10 points overall on the Likert scale. (see Appendix F for smoker's Stages of Change Survey; see Appendix G for permission to use this survey). Sample questions for the smokers include "*I tell myself I can quit if I want to*" and "*I get upset when I think about my smoking*". The survey was designed to help the nurse determine the smoker's stage of change.

## **Analysis**

Data were analyzed using the Statistical Program for Social Sciences (SPSS), version 19.0. Quantitative data were obtained from Likert scale answers to pre-and post-test for two types of participants (nurses and smokers) receiving interventions. A paired t-test was used to determine a difference in pre-and post-test-outcomes for nurse self-efficacy and smoker's stage of change for quitting. Pearson's correlations determined relationships between nurses' total self-efficacy change scores and smokers' total Stage of Change scores. The p-level used to detect significance was  $p < .05$ .

The hypothetical questions, methods, and goals of this project were analyzed using applications of the conceptual framework. The hypothesis is tested when OHN self-efficacy

increased after theory-based training. As the nurse practices MI skills, the smoker is affected, increasing their stage of change toward quitting. In the Theory of Self-Efficacy, the nurses' self-perceived abilities to perform a task are dependent on how confident they feel about performing the task. The nurses' confidence level will be observed after the educational intervention. According to the TTM, the smoker's behavioral change, which is dependent on an individual's own motivation to change, will be observed after the nurse intervention of MI counseling.

## **Results**

### **Smoker Comparisons**

Paired sample *t*-tests were conducted on smoking participants to detect a statistically significant difference between pre-nurse MI intervention smoker stages of change scores and post-intervention scores. There was a significant difference in the smokers' pre-intervention stages of change scores ( $M = 46.63$ ,  $SD = 10.80$ ) and post-intervention ( $M = 68.18$ ,  $SD = 9.78$ ) stages of change scores  $t(10) = -9.07$ ,  $p < .00$   $d = 2.08$ ). These results suggest that the nurse-led MI smoking cessation counseling intervention provided to the smokers had a significant and large effect on their movement toward readiness to quit smoking. (see Table 2 for results of paired *t*-tests and descriptive statistics for smoker's Stages of Change).

Pearson's correlation were used to detect relationships between smoking participants' demographic variables and their stages of change survey score. There was a significant correlation between smoker survey change scores and ethnicity  $r(9) = .744$ ,  $p = .009$ ; and age  $r(9) = .698$ ,  $p = .017$ . With age, the negative correlation suggests the younger the smoker, the greater the change in stages of change. There were also significant associations between change in stages of change scores and smokers' number of attempts at quitting  $r(9) = -.761$ ,  $p = .007$ ; and number of years smoked  $r(9) = -.645$ ,  $p = .032$ . For ethnicity, Hispanic smokers, who had

more attempts at quitting and fewer years smoking, had a greater change in stages of change scores. (see Table 4 for results of Pearson Correlation for smokers).

### **OHN Comparisons**

Paired *t*-tests were conducted on self-efficacy survey data from nurse participants. There was a significant difference in the nurses' pre-intervention self-efficacy scores ( $M = 44.8$ ,  $SD = 13.8$ ) and post-intervention ( $M = 73.4$ ,  $SD = 0.894$ ) self-efficacy scores;  $t(4) = -4.46$ ,  $p = .011$ ;  $d = 2.91$ ). These results suggest that the education provided to nurses on MI techniques and the practice they received through application of MI techniques to nurse-recruited smokers, had a significant and very large effect on their self-efficacy. Specifically, results suggested that MI education and the practical application of MI techniques provided to OHN greatly increased their self-efficacy in implementing SCI. (see Table 3 for results of paired *t*-tests and descriptive statistics for change in nurse's self-efficacy).

Pearson's correlation was conducted on nurses' demographic variables and stages of change scores. There were no significant correlations between demographic variables and change in self-efficacy scores for nurses. There were no significant correlations of mean change scores of smokers by nurse and nurses' mean change scores  $r(3) = .463$ ,  $p = .433$ . There were no significant correlations between the nurses' post-intervention self-efficacy score and the nurses' change score  $r(3) = .523$ ,  $p = .366$ . The relationship between the nurse's pre-intervention self-efficacy score and their change scores were strongly and inversely (negatively) related  $r(3) = -.998$ ,  $p < .01$ . This suggests that the lower the nurses' self-efficacy, pre-intervention the greater their change or improvement in self-efficacy was post-intervention, which supports the great need for and effectiveness of the intervention. OHN empowerment is an important finding of this project. (see Table 4 for results of Pearson Correlation for nurses).

## **Discussion**

The 10% goal of increasing points on the Likert scale for both smokers' and nurses' surveys exceeded expectations. Increases by Likert points for nurses ranged from 16 to 42 (10-point goal) (see Figure 1 for nurse self-efficacy pre-and post-total scores). Smokers' points increased from 13 to 39 (7-point goal) (see Figure 2 for smokers pre-and-post total scores). At the start of the project, the barriers were addressed and intervention frequency and duration were shortened. Research studies were found with similar objectives for duration and frequency in MI delivery. Lundahl, Kunz, Brownell, Tollefson, and Burke (2010) looked at MI delivery time and number of sessions in treatment success and found a significant positive relationship when MI sessions were compared to groups with fewer interventions. This means that more MI sessions could lead to better outcomes. Lundahl et al. (2010) also found that sessions lasting more than twenty minutes could be more successful than interventions of twenty minutes or less. But there were overlapping confidence intervals suggesting the extended length of sessions were not significant. VanBuskirk and Wetherell (2014) discovered the total time for an MI session was not a significant moderator of effect size for substance abuse groups. Limiting the MI intervention to three 20-minutes sessions did not impact the outcomes of this project and total overall mean change scores increased for both nurses and smokers (see Figure 3 for nurse mean change to respective smoker change; see Table 5 for mean change scores correlating nurse and smokers).

There could be inconsistencies with nurse delivery in SCI by the varied backgrounds, education and experience levels. A similar research study looked at consistency in MI delivery and compared methods. Prochaska et al. (2008) found no significant differences between interventions based on the TTM of Health Behavior Change and MI interventions. While these

were two different interventions the outcomes were similar. This lack of standardization in MI counseling did not cause significant differences in the intervention outcomes. Nevertheless, even with the variable nurse demographics and possible inconsistencies in delivery, the goals and expected outcomes of this project were still met.

The very large effect sizes seen in both groups, smokers and nurses, were very important findings in this study. The nurses' post-intervention self-efficacy scores substantially increased, indicating the education and the practical application of MI techniques provided to OHNs greatly increased their SCI. The smokers' post-intervention stage of change scores substantially increased indicating the counseling provided by the OHNs changed their change in motivation toward quitting. This means that providing nurses with training and education can make a substantial difference in smokers change toward quitting.

The results of this QI project suggest that education and practice using MI skills significantly improves OHNs' self-efficacy; the nurse's use of MI techniques during intervention significantly improved the smoker's motivation to quit. No matter where the nurse began in her level of self-efficacy, low or high, there was a statistically significant and very large positive change in all nurses, supporting that MI education and practice can increase nurses' self-efficacy in implementing successful SCI. The differences in the nurses' pre-intervention self-efficacy scores could be related to demographic variables such as age, licensure, education, experience levels and personal attitudes; however, no significant associations were found in this small sample. Regardless of the nurses' pre-self-efficacy scores, there was an overall high level of improvement in self-efficacy scores post-intervention meaning all nurses regardless of self-efficacy in SCI can benefit from education and training.



There was not a significant association between the nurse's pre-intervention self-efficacy score and the smoker's change in motivation score. This suggests that education and skills practice improved nurse's self-efficacy scores enough so that, regardless of how low their pre-intervention self-efficacy scores were, they could gain enough self-confidence to provide successful MI counseling. This means that providing nurses with training and education can make a difference in smokers change toward quitting.

### **Paradigm Shift**

The substantial change in smokers' motivation to quit could be attributed to the design of the project. The initial steps in this project are different from the traditional nurse adversarial role when encountering smokers who have been resistant to quitting. Traditionally, the nurse approaches the smoker by advising they quit, providing information, and offering assistance. In this project, the nurse asked the smoker to be part of a QI project that was mandatory for the nurse to do, thus the nurse asked the worker to help her rather than telling the smoker, "Let me help you to stop smoking". This flipped process of health promotion aids the nurse to improve her skills, and in this new paradigm, the nurse is the focal point of need, not the smoker. A flipped student-teacher scenario in nursing education found nursing students performed better and were more satisfied when their roles were reversed (Betihavas, Bridgman, Kornhaber, & Cross, 2016).

This initial change in the process alleviates the nurse from the ask-advise-assist model, (Agency of Healthcare Research and Quality, 2015) which defuncts the "spirit of MI" and demotivates thoughts and feelings for behavior change. The QI project or any situation in which the nurse becomes the focus of change and not the patient, permits the freedom of behavioral change to begin unharnessed when the nurse is positioned to begin MI while avoiding phrases

such as ‘Let me help you quit’ or ‘I can assist you in quitting’. Righting and resisting, common pitfalls in MI, are side-stepped as the nurse begins using MI without the common roadblocks encountered in telling the person they need smoking cessation counseling. Is it possible the large positive effects from this study stem from the initial steps of an intervention aligned with a theory-based framework? The smoker experiences a role reversal when they agree to be a participant in a study to help the nurse with her skills. This flipped relationship could open doors for more receptivity, allowing the forces of MI to take effect with smokers.

### **Role of Motivational Interviewing in Flipping the Nurse-Patient Relationship**

The elements of MI include partnership and acceptance of the smoker, which is an interrelated counseling component of MI. Once a partnership was established with the smoker, the nurse could begin the MI processes of engaging, focusing, evoking and planning using skills to build on the stages of change. The trained nurse is only influential if she can meet and talk with the smoker. Nurses discovered that smokers were much more receptive to them when they were recruited to help the nurse. The usual advice a smoker receives from the nurse in SCI, may have been met with less resistance because the nurse was asking for their help and they did not feel the pressure to change. The smoker was asked for their assistance and in exchange, were valued as a participant in a project aimed at the nurse’s improvement, not their own improvement. This reverse nurse-patient relationship led the smokers, perhaps unknowingly, to more openly engage with the nurse, and the nurse, who was trained to empathetically listen using MI, to establish a closer kinship with the smoker. To the smoker, the intervention by the nurse was more acceptable due to feelings of professional connectivity rather than neediness which could create resistance to combat feelings of lesser self-efficacy. The transformation of these reversed roles between the nurse and the smoker could be the reason for the large effect size.

## **Limitations and Strengths**

This project had limitations that should be considered when evaluating results. The sample size was small OHN ( $n=5$ ) smokers ( $n=11$ ) as this was a pilot project in anticipation of repeating similar studies on a larger scale in settings where OHN's provide health services to employees at their workplace. Biases could occur when participants self-report, where OHN's report their knowledge level in SCI and counseling ability that do not accurately reflect their skill. Smokers could desire to have the nurse believe they can quit or they could perceive there are employment penalties for smoking. A study by Thea, F. M. (2008) found that 43% of self-reported responses were biased due to social desirability. Project strengths included the survey tools used for the nurses and the smokers. The tool used for the smokers has been tested repeatedly for reliability on smokers' stages of change. The nurses' survey tool has been tested for reliability and was previously used for OHN's. Future studies could include larger participant sample size to validate the strong effect size of this pilot project.

## **Conclusions and Implications for Practice**

The initial questions: Will OHN self-efficacy in SCI improve after theory-based training and practice? And will the OHN affect change in the smoking worker by moving them toward quitting? were answered regarding the improvement of OHN self-efficacy in SCI which positively affected change in the smoking worker by moving them closer toward quitting. Collectively, the nurses were trained and invited smokers to participate in a study built on theory-based concepts of self-efficacy and change. The doorways to the intervention structure opened differently, creating less resistance from the smoker and more opportunity for the nurses to listen and talk with their smoking patients. A processes diagram of this QI project models the interventions, the participant dynamics and the process movement. In the Quality Improvement

Change Process Model (see Figure 4), the intervention arrows are orange, indicating nurse training and nurse provided MI counseling with the smoker. The nurses were surprised at the change in resistance from the smokers when they were asked to help the nurse as opposed to being asked to help themselves. Smokers who had initially shown resistance to SCI, agreed to participate. So, was flipping the need for assistance from the smoker to the nurse, a different method for approaching smokers? This QI project used theory-based applications in the first steps when the nurse was removed from the adversarial role and asked the smoker to partner with her in developing her skills. This shift in the nurse-patient relationship aligned with the spirit of MI where the nurse partners with the smoker. When the nurse asked the smoker to help, this resulted in improved receptivity as seen in the top green arrow. The nurse then applied the MI intervention techniques, guiding and listening, and the smoker moves upward in the motivation to change scale while the nurse also advances in self-efficacy to produce a change. From these somewhat unexpected findings, future studies may look at not only providing nurse MI training to improve SCI, but using flipped nurse-patient recruitment methods to improve smoker's reception of the SCI and more effectively move smokers closer to quitting, ultimately increasing the odds of improving healthcare outcomes, through this recruitment style innovation.

Quality improvement work in the occupational health setting can be pivotal for applying effective SCI at work and discovering influences affecting a smoker's change toward quitting. The extensive positive changes demonstrated in this QI project, could direct future research studies and QI work on training OHN's. Furthermore, MI techniques can greatly affect health-related behavior change, not only in smoking workers, but in all avenues of health promotion necessary to maintain the health and well-being of workers. Future work should focus on OHN self-efficacy and projects designed to flip the doorways to improve worker health making them

more willing to enter. This QI project, if repeated in greater numbers by OHN's, could provide more data to determine if this approach should be a process change for quality healthcare improvement.

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Figure 1: Nurse Self-Efficacy Pre-and Post Total Scores

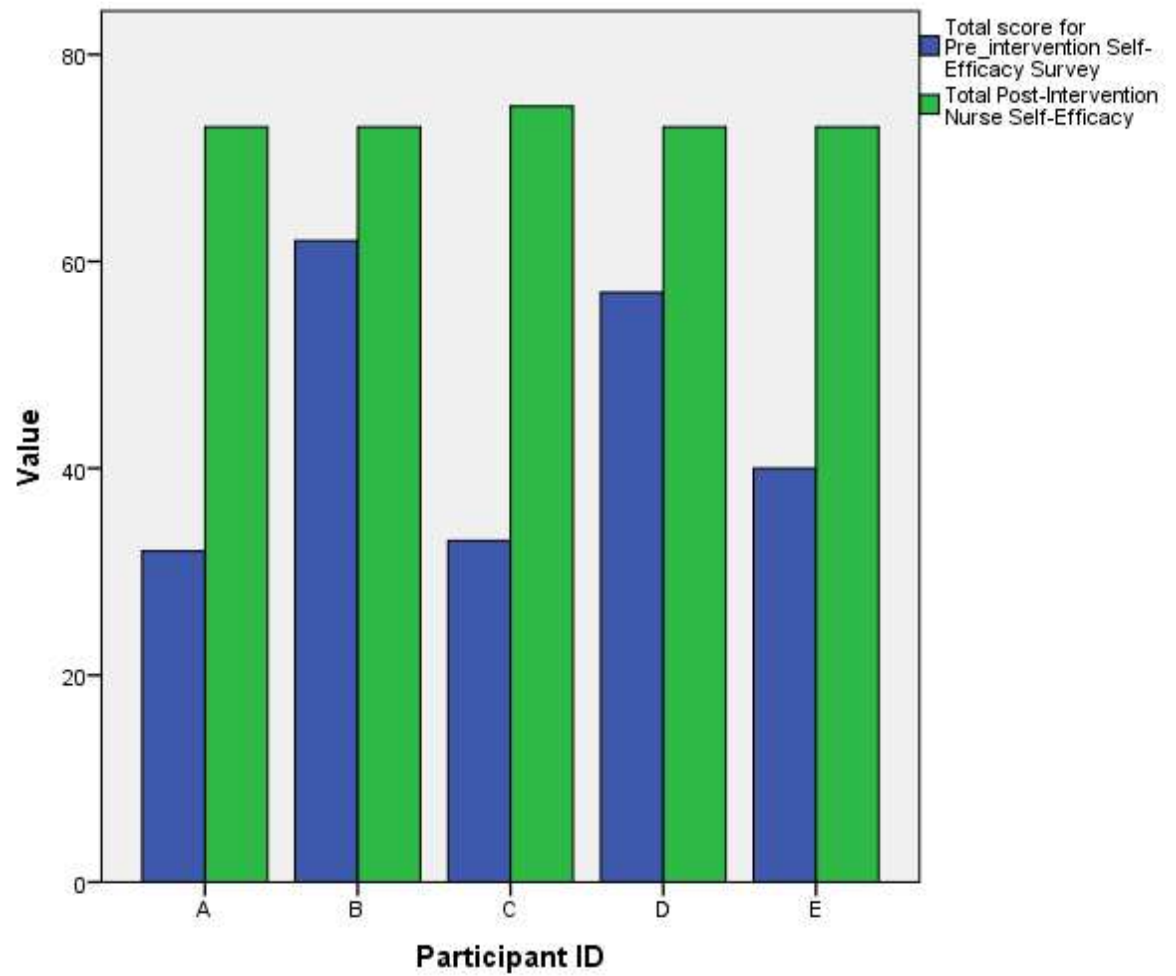


Figure 2. Smokers Pre-and Post-test Stages of Change Scores

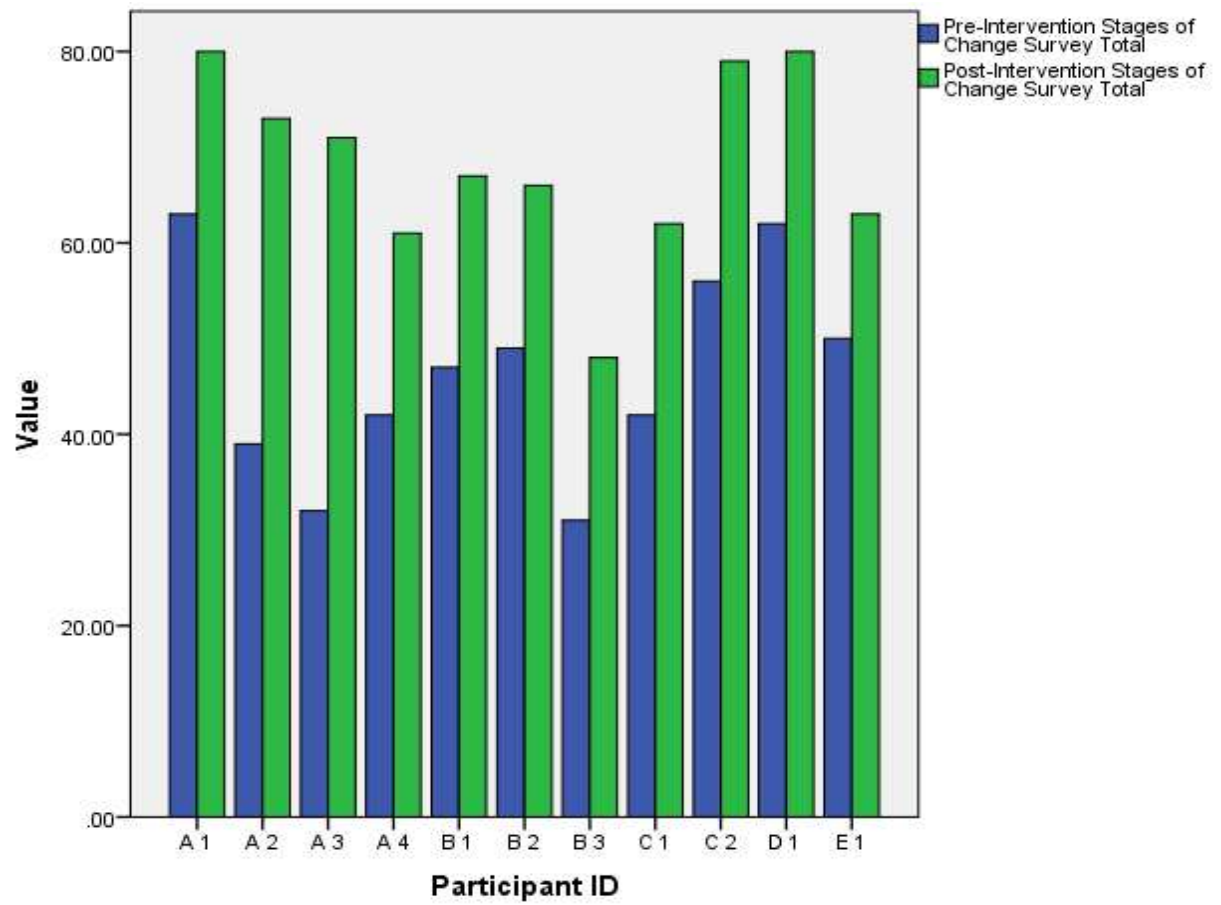


Figure 3. Nurse Change Scores Compared to Smoker's Change Scores

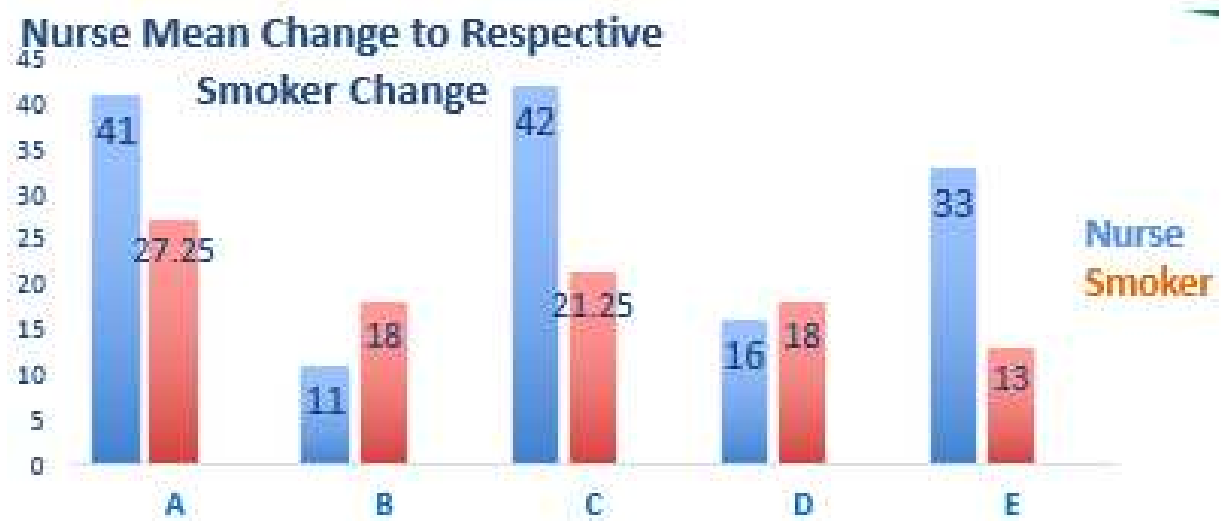


Figure 4. Quality Improvement Process Change Model





Table 1: Sample Characteristics

<b>Participants</b>	<b>Nurses (<i>n</i>=5) Mean (SD)</b>	<b>Smokers (<i>n</i>=11) Mean (SD)</b>
Age	57.4 (2.9)	38.2 (2.3)
Gender		
Male (%)	---	90.9
Female (%)	---	9.1
Ethnicity		
Caucasian (%)	80	72.7
Hispanic (%)	20	27.3
Education/Licensure (%)		
High School/LVN	20	---
ADN/RN	40	---
Bachelors/RN	20	---
Masters/APRN	20	---
Years' Experience OHN	17.8 (11.19)	---
Years of Smoking	---	22.82 (10.40)
Current No. Packs per Day	---	1.16 (.51)
Previous Attempts at Quitting	---	2.55 (1.44)
Total Pre-Intervention Self-efficacy	44.8 (13.8)	---

Total Post-Intervention Self-efficacy	73.4 (.89)	---
Total Pre-Intervention Stages of Change	---	46.64 (10.81)
Total Post-Intervention Stages of Change	---	68.18 (9.78)

Table 2: Results of Paired t-tests and Descriptive Statistics for Pre- to Post-Intervention Changes in Smoker's Stages of Change

N = 11	Pre- Intervention		Post- Intervention		95% CI for Mean Difference	<i>t</i>	<i>df</i>	<i>d</i>
	Mean	SD	Mean	SD				
Smoker's Stages of Change	46.64	10.81	68.18	9.79	-26.8, -16.25	-9.07**	10	2.08

\*Correlation significant at  $p < .05$ , two-tailed.

\*\* Correlation significant at  $p < .01$ , two-tailed.

Table 3. Results of Paired t-tests and Descriptive Statistics for Pre- to Post-Intervention Changes in Nurse's Self-efficacy

<b>N = 5</b>	<b>Pre- Intervention</b>		<b>Post- Intervention</b>		<b>95% CI for Mean Difference</b>	<b><i>t</i></b>	<b><i>df</i></b>	<b><i>d</i></b>
	Mean	SD	Mean	SD				
Nurses' Change in Self-efficacy	44.8	13.8	73.4	0.89	-46.39, -10.81	-4.46*	4	2.91

\*Correlation significant at  $p < .05$ , two-tailed.

\*\* Correlation significant at  $p < .01$ , two-tailed.

Table 4: Pearson Correlations

Pearson's correlations (Significance; 2-tailed) N	Smoker's motivation (SOC) change score	Nurse's self- efficacy (SE) change score	Nurse's pre- intervention self- efficacy score
Smoker's age	-.698* (.017) 11	_____	_____
Smoker's Ethnicity	.744** (.009) 11	_____	_____
Smoker's reported years smoked	-.645* (.032) 11	_____	_____
Smoker's reported current packs smoked per day	-.361 (.276) 11	_____	_____
Smoker's reported previous attempts at quitting	-.761** (.007) 11	_____	_____
Nurse's education level	_____	-.095 (.879) 5	.054 (.932) 5

Nurse's years of experience in occupational health	_____	-.284 (.643) 5	.252 (.682) 5
Nurse's self-efficacy change score	_____	1  5	-.998** (.000) 5
Mean change scores of smokers (grouped by nurse)	_____	.463 (.433) 5	-.464 (.431) 5

\*Correlation significant at  $p < .05$ , two-tailed.

\*\* Correlation significant at  $p < .01$ , two-tailed

Table 5. Mean Change Scores Correlating Nurse and Smokers

Nurse	Nurse Increase in Self-Efficacy	Smoker's Increase in Stages of Change
A	41	27.25
B	11	18
C	42	21.5
D	16	18
E	33	13

## LIST OF APPENDICES

APPENDIX	PAGE
Appendix A: Office of Research Compliance Letter.....	41
Appendix B: Letter of Support .....	42
Appendix C: Nurses Script for Recruiting Smokers.....	43
Appendix D: Nurse Self-Efficacy Survey.....	44
Appendix E: Letter of Permission to Use Nurse’s Self Efficacy Survey .....	46
Appendix F. Smoker Stages of Change Survey.....	47
Appendix G: Letter of Permission to Use Stages of Change Survey .....	49



## Appendix A: Office of Research Compliance Letter



TEXAS A&M UNIVERSITY  
CORPUS CHRISTI

OFFICE OF RESEARCH COMPLIANCE  
Division of Research, Commercialization and Outreach  
8500 Ocean Drive, Unit 3544  
CORPUS CHRISTI, TEXAS 78404  
O 361.825.4497 • F 361.825.2

Human Subjects Protection Program		Institutional Review Board
Date:	January 16, 2018	
TO:	Amy Thornberry, RN, MSN, FNP-C, DNP student College of Nursing and Health Sciences, TAMU-CC	
CC:	Dr. Theresa J. Garcia, PhD, RN Assistant Professor, Doctor of Nursing Practice Program Coordinator  Elizabeth Sefcik, RN, PhD, CNP-BC Professor, College of Nursing & Health Sciences	
FROM:	Office of Research Compliance Institutional Review Board	
SUBJECT:	Not Human Subjects Determination	

Activities meeting the DHHS definition of research or the FDA definition of clinical investigation and involves one or more human subjects are subject to IRB review and approval.

On January 16, 2018, the Texas A&M University-Corpus Christi Institutional Review Board reviewed the following submission:

Type of Review:	Not Human Subjects Determination
Title:	Increasing Occupational Health Nurses' Self-Efficacy in Providing Smoking Cessation Interventions and Motivating Workers to Quit Smoking
Project Lead:	Amy Thornberry, RN, MSN, FNP-C, DNP student
IRB ID:	NHS 06-18
Funding Source:	None
Documents Reviewed:	Human Ethics Oversight Review Form dated 1/12/2018 Celanese Letter of Support dated 11/21/2017 Recruitment E-mail and Nurse Script

Texas A&M University-Corpus Christi Institutional Review Board determined that the proposed activity does not meet the DHHS definition of research or the FDA definition of a clinical investigation. Therefore, **this project does not require IRB approval.** You may proceed with this project.

This determination applies only to the activities described in the documents reviewed. **Any planned changes requires submission to the IRB to ensure that the research continues to meet criteria for a non-human subject research determination.**

Please do not hesitate to contact me with any questions at [Rebecca.Ballard@tamucc.edu](mailto:Rebecca.Ballard@tamucc.edu) or 361-825-2497.

Respectfully,  
Rebecca Ballard, JD, MA, CIP  
Director, Research Compliance  
Division of Research, Commercialization and Outreach

Page 1 of 1

## Appendix B: Letter of Support



November 21, 2017

Dr. Susan Dyess  
Associate Dean for Graduate Nurse Programs  
College of Nursing and Health Sciences  
Texas A&M University – Corpus Christi  
6300 Ocean Drive  
Corpus Christi, TX 78412

Dear Dr. Dyess,

The purpose of this letter is to provide Amy Thornberry, a Doctor of Nursing Practice student at Texas A&M University College of Nursing and Health Sciences, support in conducting a quality improvement project at the North American Manufacturing Facilities for the Celanese Corporation. The project, 'Increasing Occupational Nurses' Self-Efficacy in Providing Smoking Cessation Interventions and Motivating Workers to Quit Smoking'

The Smoking Cessation intervention for workers' entails providing WebEx trainings for Occupational Health Nurses (OHN) to increase their skill and confidence levels for assisting smokers in quitting in the workplace.

The purpose of this project is to reduce the employee smoking rate by using evidence-based guidelines and utilizing OHN's located at our facilities to provide direct, individualized therapies for advancing smoking employees through stages of change in quitting. The Celanese Corporation was selected for this project because of their commitment for supporting overall health and wellness for their employees. Amy Thornberry is employed at this institution, and has an interest in improving the care of the employees at all the North American facilities.

I, Sherry Rice, RN, ANP-BC, COHN-S, Celanese Health Programs Manager, do hereby fully and enthusiastically support Amy Thornberry in the conduct of this quality improvement project, 'Increasing Occupational Nurses' Self-Efficacy in Providing Smoking Cessation Interventions and Motivating Workers to Quit Smoking' at the Celanese Corporation.

Sincerely,

  
[Name of Administrator, Title]

## Appendix C: Nurses Script for Recruiting Smokers

I am working on a quality improvement project to assist the company nurses in developing motivational interviewing skills with smokers. If you participate you will complete a short pre-and post-survey and attend three 20-minute talk-sessions with me, the nurse, while you are at work as part of your employee health services. These “talks” will “help” me, the nurse practice training I have received and you will also benefit. Your participation is voluntary and if you decide to participate, your information will be kept confidential as part of your employee health record. Your participation or non-participation in no way affects your relationship with the company or with me, your nurse.

#### Appendix D: Nurse Self-Efficacy Survey

<b>Explanation:</b> The following questions are related to your confidence in providing smoking cessation interventions to employees. Please select the answer which indicates your level of confidence in each question: 1=Not at all confident; 2=Not very confident; 3=Neutral; 4=Confident; 5=Very confident					
I can regularly ask employees about their current smoking status	1	2	3	4	5
I can routinely provide information about the hazards of smoking to employees	1	2	3	4	5
I can assess an employee's readiness to quit smoking within the next 30 days	1	2	3	4	5
I can help employees who are ready to quit smoking in the next 30 days	1	2	3	4	5
I can provide learning material for smoking cessation to employees who want to quit smoking	1	2	3	4	5
I can advise the employee about nicotine replacement therapy, if needed	1	2	3	4	5
I can provide individualized counseling for smoking cessation	1	2	3	4	5
I can advise employees on how to manage nicotine withdrawal symptoms	1	2	3	4	5

I can recommend to smokers who are ready to quit how to get support from family and friends	1	2	3	4	5
I can be effective in changing a smoker's behavior with respect to smoking cessation	1	2	3	4	5
<p>To what extent do you agree with each of the following statements:</p> <p>1=Strongly Disagree; 2=Somewhat Disagree; 3=Neither Agree or Disagree</p> <p>4=Somewhat Agree; 5=Strongly Agree</p>					
In general, it is important for nurses to counsel patients on smoking	1	2	3	4	5
Smoking cessation is an effective use of my time as a nurse	1	2	3	4	5
I feel I have had enough training in Motivational Interviewing (MI) skills	1	2	3	4	5
I can identify the stage of change the patient is in to start applying MI	1	2	3	4	5

## Appendix E: Letter of Permission to Use Nurse's Self Efficacy Survey

January 24, 2018  
Mahido University, Thailand

Texas A&M University-Corpus Christi  
College of Nursing and Health Sciences  
6300 Ocean Drive  
Corpus Christi, Texas 78412

Re: Permission to Use Questionnaire: Self-efficacy Related to Smoking Cessation Services

Dear Dr. Surintorn Kalampakorn & Dr. Kannikar Charddokmaiprai

I am writing to request permission to use your research tool: **The Nurses' Self-Efficacy Scale**. I am a student at Texas A&M University Corpus Christi - College of Nursing and I am conducting a quality improvement project for my Doctor of Nursing Practice degree. The project includes measuring Occupational Health Nurses' self-efficacy in providing smoking cessation interventions and motivating workers to quit. The study is entitled *Increasing Occupational Health Nurses' Self-efficacy in Providing Smoking Cessation Interventions and Motivating Smokers to Quit*

My project's specific aims are two-fold: (1.) to advance poorly motivated smokers at work through stages for readiness to quit as evidenced by significant improvement on the *Process of Change Questionnaire: Smoking Version*; and (2) to improve OHNs' self-efficacy and confidence in providing motivational interviewing techniques. I am a current employee at the manufacturing company where the study will be conducted. My interests are in supporting the nurses at the different manufacturing locations throughout the U.S. and in providing education and practice to develop occupational health nurse skills. The survey will be conducted during February and May 2018 and will be kept confidential. I anticipate the study completion during the summer of 2018. Should this study be published, only pooled results will be documented and I will provide credit to you and your study. I greatly appreciate your permission and I would be happy to answer any questions or concerns that you may have. You may contact me at my email [amy.thornberry@celanese.com](mailto:amy.thornberry@celanese.com)

I graciously ask your permission to use the survey and request you forward a copy to me. Your survey would benefit my study for measuring the nurses' knowledge and confidence levels. Included is a copy of this request to my University Committee Chair, Dr. Elizabeth Sefcik. Please let us know if you have any questions.

If you agree, kindly sign below and return the signed, scanned form by email along with an attachment of the survey tool.

Sincerely,

Amy Thornberry, RN, MSN, COHN-S, FNP-C  
Celanese Occupational Health Programs  
Phone +1-361-584-6757  
Fax +1-361-584-6890

cc: Dr. Elizabeth Sefcik, Ph.D., RN, GNP, BC Research Advisor, Texas A&M Corpus Christi

Approved by:



Signature

 Jan 25, 2018

Date

## Appendix F. Smoker Stages of Change Survey

Processes of Change Questionnaire  
Smoking Version: Short Form

Client ID# \_\_\_\_\_  
Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
Assessment Point: \_\_\_\_\_

**INSTRUCTIONS:**

THE FOLLOWING EXPERIENCES CAN AFFECT THE SMOKING HABITS OF SOME PEOPLE. THINK OF ANY SIMILAR EXPERIENCES YOU MAY BE CURRENTLY HAVING OR HAVE HAD IN THE LAST MONTH. THEN RATE THE FREQUENCY OF THIS EVENT ON THE FOLLOWING 5-POINT SCALE.

THERE ARE FIVE POSSIBLE RESPONSES TO EACH OF THE ITEMS IN THE QUESTIONNAIRE:

- 1=Never
- 2=Seldom
- 3=Occasionally
- 4=Often
- 5=Repeatedly

PLEASE READ EACH STATEMENT AND CIRCLE THE NUMBER ON THE RIGHT TO INDICATE HOW OFTEN EACH EVENT OCCURS. REMEMBER THESE STATEMENTS REFER TO SITUATIONS OR THOUGHTS YOU MAY HAVE HAD DURING THE PAST MONTH.

	Never	Seldom	Occasionally	Frequently	Repeatedly
1) When I am tempted to smoke, I think about something else.	1	2	3	4	5
2) I tell myself I can quit if I want to.	1	2	3	4	5
3) I notice that nonsmokers are asserting their rights.	1	2	3	4	5
4) I recall information people have given me on the benefits of quitting smoking.	1	2	3	4	5
5) I can expect to be rewarded by others if I don't smoke.	1	2	3	4	5
6) I stop to think that smoking is polluting the environment.	1	2	3	4	5
7) Warnings about the health hazards of smoking move me emotionally.	1	2	3	4	5
8) I get upset when I think about my smoking.	1	2	3	4	5
9) I remove things from my home or place of work that remind me of smoking.	1	2	3	4	5

Processes of Change Questionnaire  
Smoking Version: Short Form

Client ID# \_\_\_\_\_  
Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
Assessment Point: \_\_\_\_\_

	Never	Seldom	Occasionally	Frequently	Repeatedly
10) I have someone who listens when I need to talk about my smoking.	1	2	3	4	5
11) I think about information from articles and ads about how to stop smoking.	1	2	3	4	5
12) I consider the view that smoking can be harmful to the environment.	1	2	3	4	5
13) I tell myself that if I try hard enough, I can keep from smoking.	1	2	3	4	5
14) I find society changing in ways that makes it easier for nonsmokers.	1	2	3	4	5
15) My need for cigarettes makes me disappointed in myself.	1	2	3	4	5
16) I have someone I can count on when I'm having problems with smoking.	1	2	3	4	5
17) I do something else instead of smoking when I need to relax.	1	2	3	4	5
18) I react emotionally to warnings about smoking cigarettes.	1	2	3	4	5
19) I keep things around my home or place of work that remind me not to smoke.	1	2	3	4	5
20) I am rewarded by others if I don't smoke	1	2	3	4	5



## Appendix G: Letter of Permission to Use Stages of Change Survey

January 24, 2018

Texas A&M University-Corpus Christi  
College of Nursing and Health Sciences  
6300 Ocean Drive  
Corpus Christi, Texas 78412

Re: Permission to Use Questionnaire:

Dear Dr. Carlo DiClemente,

I am writing to request permission to use your research tool: ***Process of Change Questionnaire: Smoking Version***. I am a student at Texas A&M University Corpus Christi - College of Nursing and I am conducting a quality improvement project for my Doctor of Nursing Practice degree. The study is entitled *Increasing Occupational Health Nurses' Self-efficacy in Providing Smoking Cessation Interventions and Motivating Smokers to Quit*

My project's specific aims are two-fold: (1.) to advance poorly motivated smokers at work through stages for readiness to quit as evidenced by significant improvement on the *Process of Change Questionnaire: Smoking Version*; and (2) to improve OHNs' self-efficacy and confidence in providing motivational interviewing techniques. I am a current employee at the manufacturing company where the study will be conducted. My interests are in supporting the nurses at the different manufacturing locations throughout the U.S. and in providing education and practice to develop occupational health nurse skills. The survey will be conducted during February and May 2018 and will be kept confidential. I anticipate the study completion during the summer of 2018. Should this study be published, only pooled results will be documented and I will provide credit to you for the use of your survey tool. I greatly appreciate your permission and I would be happy to answer any questions or concerns that you may have. You may contact me at my email [amy.thornberry@celanese.com](mailto:amy.thornberry@celanese.com)

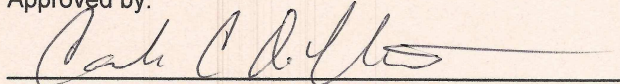
If you agree, kindly sign below and return the signed, scanned form by email. Included is a copy of this request to my University Committee Chair, Dr. Elizabeth Sefcik. Please let us know if you have any questions.

Sincerely,

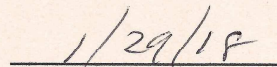
Amy Thornberry, RN, MSN, COHN-S, FNP-C  
Celanese Occupational Health Programs  
Phone +1-361-584-6757  
Fax +1-361-584-6890

cc: Dr. Elizabeth Sefcik, Ph.D., RN, GNP, BC Research Advisor, Texas A&M Corpus Christi

Approved by:



Signature



Date