

Training and Experience of Public Health Nurses in Using  
Behavior Change Counseling (BCC)

A Dissertation Submitted

By

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## Abstract

Title: Training and Experience of Public Health Nurses in Using Behavior Change Counseling (BCC)

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**Background:** The success of individuals in changing complex health behaviors is critical both to preventative health care and to the management of chronic diseases. The opportunities of public health nurses for interaction with clients provides an opportunity to facilitate behavior change.

**Purposes:** The purposes of this study were to evaluate the training, feasibility, and usefulness of brief interventions using Behavior Change Counseling (BCC), which is based on Motivational Interviewing, to facilitate behavior change in patients encountered by nurses in their public health nursing practices.

**Methods:** Twelve rural public health nurses were trained in the use of a brief intervention based on BCC (Dunn & Rollnick, 2003). Initial training was provided in a one-day workshop. Nurses were asked to try to use BCC in their usual practice situations and were provided two follow-up phone calls over the course of eight weeks. To measure training effectiveness, three taped interactions using BCC were scored using the Behavior Change Counseling Index (BECCI), and interviews were conducted with the nurse participants to understand their experience with training and use of BCC.

**Results:** All of the nurses found the training workshop very helpful. BCC was a good fit with the past background and training of the nurses and provided helpful tools for practice. Nurses felt that additional training and practice, specific to the types of patients encountered in rural public health practice, would help them develop the skills and confidence to increase their use of BCC. Training incorporated into the work environment would allow busy rural public health nurses, who often serve in multiple capacities, a more realistic possibility of becoming proficient in using BCC.



## Chapter 1 Introduction

### Description

The success of individuals in changing complex health behaviors is critical both to preventative health care and to the management of chronic diseases. Nurses interact with patients in a variety of health care settings on a daily basis. This contact provides an opportunity to facilitate behavior change. Nurses typically talk with patients about a range of health care behaviors. For example, a hospital nurse might talk to a patient about managing diet and exercise to control diabetes. A school nurse might counsel a student about preventing pregnancy. A public health nurse might provide information about the importance of immunizations, preventing sexually transmitted infections, or exercising regularly. It is important to optimize time spent interacting with patients in ways that have the potential to facilitate behavior change.

The main purpose of this study is to contribute to the body of knowledge that would provide a means for busy nurses in rural public health settings to facilitate behavior change in clients. This initial study proposes to train public health nurses to incorporate brief interventions aimed at behavior change into daily practice and to evaluate the practicality and usefulness of incorporating these interventions into their practice settings.

### Specific Aims

The specific aims of this study are to:

1. Customize and evaluate the training of public health nurses for a brief intervention based on the major tenets of Motivational

Interviewing and guided by Behavior Change Counseling as developed by Dunn & Rollnick (2003).

2. Evaluate the feasibility and usefulness of brief interventions using BCC to facilitate behavior change in patients encountered by nurses in their public health nursing practice.

#### Significance of the Problem

Importance of behavior change.

The ability to facilitate behavior change is important to both primary and secondary prevention. According to the Centers for Disease Control (U.S. Preventative Services Task Force, 1996), the most promising role for prevention lies in changing a handful of personal health habits before disease develops. The task force estimated that half of all deaths could be attributed to health habits such as tobacco use, diet, exercise, and sexual practice choices. These behaviors contribute to the leading causes of death: heart disease, cancer, stroke, lung disease, and HIV infection. The Office of Disease Prevention and Health Promotion (ODPHP) has outlined 10 leading health indicators in Healthy People 2010 (<http://www.health.gov/healthy>):

- |                                |                           |
|--------------------------------|---------------------------|
| 1. Physical activity           | 6. Mental Health          |
| 2. Overweight and Obesity      | 7. Injury and Violence    |
| 3. Tobacco Use                 | 8. Environmental Quality  |
| 4. Substance Abuse             | 9. Immunizations          |
| 5. Responsible Sexual Behavior | 10. Access to Health Care |

Nurses and other health providers in public health can play an important role in each of these areas.

Behavior change is also important in the area of secondary prevention. Chronic conditions often require complex systems of self-care that involve considerable need for behavior change. Diabetes, for example, requires multiple behavior changes involving the self-administration of medications, dietary patterns, exercise habits, and complex systems of self-monitoring. Each of these areas of self-care requires modifications in behavior, many times significant modifications, and each contributes to the total health of the individual. Exercise serves as a good example. Regular physical activity is not only fundamental to preventing disease, but it has been shown to reduce mortality and morbidity from many chronic illnesses including diabetes (U.S. Department of Health and Human Services, 2002).

Health habits also influence the cost of health care. Following through with the example of exercise, it is estimated that increasing physical activity could decrease direct health care costs by 90 billion dollars in the United States alone (Pratt, Macera, & Wang, 2000).

Assisting individuals to change health behaviors such as exercise is challenging. The effectiveness of traditional patient education programs, which most often have focused on information and technical skills, has been limited (Bodenheimer, T., Lorig, K., Holman, H., & Grumbach, K, 2002). Behavior change is central to successful self-management needed to maintain health or control chronic illness (Pfister-Minogue, 1976, 1983, 1993).

Role of behavior change in public health.

The health of the population has always been the focus of public health. Public health nurses intervene related to all of the leading health indicators outlined in Healthy People 2010 (<http://www.health.gov/healthy>). With the changing health care system and issues of cost containment, the role of public health nursing is expanding further into health promotion. Health promotion strategies in public health may be directed at individuals or populations. Strategies at the individual level may depend on patients becoming personally involved in adopting a proposed program of health promotion that might include smoking cessation, exercise regimens, or decreasing calories. The role of public health nurses is to motivate and facilitate behavior change.

In order to meet the challenge of this role, public health nurses must have interpersonal skills that can be used to motivate individuals to move towards optimal health (Shinitzky & Kub, 2001). The education of nurses typically includes training in communication and listening skills. Though there has been a lot of recent interest in the concepts of shared decision-making and patient centered approaches, the approach to patient education often remains focused on the provision of information. Communication skills needed for the development of a patient centered approach and shared decision-making are often lacking (Lane, Johnson, Rollnick, Edwards, & Lyons, 2003).

In their pilot study, Lane and colleagues studied nurse behavior before and after training in behavior change counseling. Initially, the six diabetes nurse educators that participated were using more of a didactic and nurse centered approach. After the training, all of the nurses were using skills more aligned with

behavior change counseling. Studies such as this demonstrate the gaps in expertise in behavior change counseling skills that exist for nurses. The identification of these gaps in expertise have prompted theoretical discussions about the potential of brief interventions using motivational interviewing to provide nurses, including public health nurses, with additional skills to facilitate behavior change (Duran, 2003; Shinitzky & Kub, 2001).

#### Summary

In summary, the success of individuals in changing complex health behaviors is critical both to preventative health care and to the management of chronic diseases. The Centers for Disease Control have made the call to health providers to contribute to facilitating behavior change by outlining priorities for interventions that target unhealthy behaviors in Healthy People 2010. Nurses interact with patients in a variety of health care settings on a daily bases. This contact provides an opportunity to facilitate behavior change. Public health nurses have a particular focus on health promotion. It is important that these nurses have the best tools and skills to promote behavior change. Changes in practice behavior are needed to help facilitate behavior change outcomes in patients. This study thus proposes evaluating the training and usefulness of brief intervention based on the basic tenants of Motivational Interviewing and guided by Behavior Change Counseling (Dunn and Rollnick, 2003).

## Chapter 2 Review of the Literature and Conceptual/Theoretical Framework

### Introduction

While there is not much disagreement on the value of behavior change to health, it remains challenging to effect behavior change in individuals and in the population. A program to help patients with complex behavior changes is ideally planned using a systematic approach based on the most robust theories to guide behavior change. The range of theories available provides a large selection of tools that need to be carefully selected for their usefulness in explaining and assisting to change health behavior (Kegler, Crosby, & DiClemente, R, 2002).

Behavior Change Counseling, BCC, (Dunn & Rollnick, 2003) was used in this study. Three of the main strengths of BCC that make it a good choice for brief interventions in health care settings are that:

1. BCC is adapted from Motivational Interviewing, MI, an evidence based counseling style (Miller and Rollnick, 2002).
2. MI and BCC are consistent with major behavior change theories for which there is good supporting evidence.
3. BCC describes a practical way to apply MI in health care settings.

This chapter begins with a brief description of Motivational Interviewing (MI) and of Behavior Change Counseling (BCC). This is followed by a discussion of the theoretical support for choosing a brief intervention based on MI to change health behavior. The strengths of MI related to its fit or consistency with several prominent theories/models related to changing health behaviors are addressed. These include provider/patient relationship, health beliefs, and self-efficacy.

Following this, a review of the literature focused on brief interventions based on MI in community health and medical settings will be presented. The review is not limited to BCC since studies using BCC are still limited in number. Though particular attention was paid to studies using nurses as the interventionist, this review is not limited to nurses. Finally, the importance of customizing and evaluating the training of nurses and of evaluating the feasibility and usefulness of BCC in the practice of public health nursing as a first step and precursor to a clinical trial using BCC will be addressed.

#### Introduction to Motivational Interviewing and Brief Interventions Based on Motivational Interviewing

Motivational Interviewing (MI) is an effective evidence based approach to overcoming ambivalence about behavior change. Much of the initial research using MI focused on addictive behaviors, most notably alcohol use. More recently public health and medical professionals have become interested in applying MI to a variety of other health behaviors such as smoking, diet, exercise, and diabetes control. There are several important differences in the use of MI applications for other health behaviors. One of these differences is in the pattern of change required. In addictions work, the goals include abstinence and relapse prevention, while in work with other health behaviors, modifying rather than eliminating a behavior is often necessary. This may require different resources. Another difference is that in addiction counseling, the client has often presented for their condition. In public health and medical settings, the clients may be presenting for another condition. For example, during a periodic check-up, the

practitioner may raise issues related to sexual behaviors, smoking, diet, or exercise. A third difference is the time limitation that is present in many public health and medical settings. Early uses of MI in addictions work would involve a full session focused on the behavior. In typical public health settings, there is not the same time available to explore ambivalence or engage in lengthy reflective listening. Finally, the interventionists in early MI uses were typically psychologists, psychiatrists, and social workers with extensive backgrounds in counseling (Miller & Rollnick, 2002).

These conceptual and pragmatic differences resulted in the development of a variety of brief interventions based on motivational interviewing. These brief interventions went by a variety of names including, brief motivational interviewing, brief negotiation, motivational enhancement therapy, motivational consulting, motivational intervention, and motivationally informed intervention (Miller & Rollnick, 2002). Project MATCH (Project MATCH Research Group, 1998) provides an example of a large clinical trial using one of these brief interventions, Motivational Enhancement therapy (MET) for alcohol use. This study, though it did not use a valid measure of intervention fidelity, demonstrated that shorter MI training and intervention time could be successful.

Miller and Rollnick (2002) recognized the need to clarify and improve the usage of terms related to MI and its adaptations to facilitate internal validity and treatment fidelity in future research. To that end, they identified three kinds of behavior change counseling: (a) Brief Advice, (b) Behavior Change Counseling, and (c) Motivational Interviewing (Miller & Rollnick, 2002, p.274). The technique



used should be chosen based on the needs of the practice setting. They emphasize the importance of training, assuring practitioner competence after training, and monitoring delivery of the intervention.

#### Description of Motivational Interviewing.

According to Miller and Rollnick (2002), positive change is a process. People change with or without assistance, however it is possible to speed or facilitate change. Miller and Rollnick (2002) emphasize the importance of intrinsic motivation for change, noting that clients may be experiencing a great amount of suffering, and yet they may not change until some intrinsic motivation for change occurs. Ambivalence, or mixed feelings about change, are common and stand in the way of change. The metaphor of decisional balance is used to illustrate ambivalence and demonstrate the pros and cons of both sides of a conflict. Motivational interviewing is defined as “a client centered, directive method for enhancing motivation to change by exploring and resolving ambivalence” (Miller & Rollnick, 2002, p. 25). Ambivalence is influenced by social context as social context influences the interpretation of pros and cons. Work in the area of addictions demonstrates that motivation for change may be a more important factor than dose (or duration) of interventions to promote change. Even relatively brief interventions, under certain circumstances, trigger change.

Miller and Rollnick (2002) observed that faith and hope in one's ability to change, often called self-efficacy, is important to change. In their work related to addictions research, they also noted that different counselors in similar settings experienced dramatic differences in outcomes of behavior change counseling.

They noted that the way in which one interacts with people to be very important. An accepting empowering atmosphere makes it safe for individuals to explore change.

The early work of Carl Rogers in articulating and testing a theory related to critical counselor skills provides the early foundation for MI. According to Carl Rogers (Miller & Rollnick, 2002), a client centered interpersonal relationship is central to the provision of an environment that is supportive of change. Three key elements of this relationship are accurate empathy, non-possessive warmth, and genuineness.

Miller and Rollnick emphasize the fundamental spirit of motivational interviewing as essential to the use of the techniques of MI. The spirit of motivational interviewing includes collaboration, evocation, and autonomy. Collaboration is characterized by developing a partnership with a client or patient. Authoritarian or confrontational approaches are avoided. Evocation refers to promoting intrinsic motivation for change by drawing the motivation out from the person. Autonomy refers to a non-authoritarian approach that affirms an individual's right and capacity for self-direction. Informed choices are a goal.

Four principles guide the MI process (Miller & Rollnick, 2002). They include:

1. Express empathy
2. Develop discrepancy
3. Roll with resistance
4. Support self-efficacy

An empathetic counseling style is fundamental to MI. The underlying principle of empathy is acceptance. Reflective listening is used to understand the client's feelings. Ambivalence is accepted as normal. Developing discrepancy means to amplify the difference between current behavior and the person's goals (from their perspective). With the individual's permission, information regarding change may be shared. This can help to overcome inertia related to change. The counselor may use decisional balance or assistance with weighing the costs versus the benefits of a decision. Rolling with resistance refers to avoiding direct opposition to a person. The person is invited to reevaluate a situation and be involved in problem solving. The last principle, supporting self-efficacy, refers to enhancing an individual's confidence in their ability to change. A person may be encouraged by the belief on the part of the counselor that they can change or by success of others or their own past success.

In summary, MI holds that empathy, reflective listening, avoidance of confrontation, and provision of objective feedback that establishes the discrepancy between goals and behavior are important factors in the interaction with the patient (Emmons & Rollnick, 2001). The key goal of MI is assisting individuals to work through ambivalence about a behavior change (Miller & Rollnick, 2002). Attempts to dismantle denial, confront irrational or maladaptive behavior, or convince or persuade are generally avoided. Rather, clients are assisted to express their own feelings for or against change as well as to discuss how their current behavior may conflict with their own goals. Supporting self-

efficacy is seen as a crucial element of the intervention. Considering readiness to change is also important.

#### Behavior Change Counseling (BCC)

BCC is an AMI, an adaptation of motivational interviewing. BCC draws on the skills of MI. One of the major differences between BCC and MI is that BCC is purposefully geared towards brief interaction in settings where briefer contact times with patients are typical (Dunn & Rollnick, 2003). An intervention would typically last 5 to 30 minutes. It also might be used in a series of encounters lasting a minute or two. The “spirit” of BCC is evidenced by the collaborative conversation that occurs about the behavior change (Dunn & Rollnick, 2003).

BCC is defined as “any deliberate effort to use counseling skills to discuss behavior (including medication use) with patients that encourages them to consider for themselves the why and how of changing their behavior” (Dunn & Rollnick, 2003). Skillful counseling (discussed later) is the cornerstone of the intervention.

Dunn and Rollnick (2003) define behavior change as “any reduction in frequency or intensity of unhealthy behavior or an increase in frequency or intensity of healthy behavior”. There is a wide range in the magnitude of behavior change that might occur, and small changes over time can collectively produce health gains.

Skillful consultation is important to BCC. Key concepts to BCC include:

1. Listening
2. Flexibility

3. Readiness, Importance, Confidence
4. Advice Giving
5. Avoiding Arousing Resistance

Listening is a key element of BCC. Decreasing clinician domination of the interaction with the patient is important. Listening allows the patient to have more control and it aids in the assessment of the most useful intervention at a given point in time (Stott, Rees, Rollnick, Pill, & Hackett, 1996)

Flexibility is needed because there is not a quick fix for behavior change, and one approach will not work for everyone. Aids to flexibility include (Dunn & Rollnick, 2003):

1. Using open questions. Why? How? What?
2. Using long and short summaries: Providing summaries refers to the provider gathering his or her understanding of the situation and sharing it with the patient. Summaries have the benefit of making the patient feel understood as well as facilitating movement of the conversation to the task of making a plan for change.
3. Elicit-Provide-Elicit (E-P-E): The first Elicit assesses what the patient knows as well as what the patient wants to know. Information is provided based on this, and then the second Elicit is used to gain an understanding of the patient's reaction.
4. Handling resistance and avoiding debate: Resistance is patient behavior that occurs in the encounter that indicates unwillingness of the patient to go along with suggestions. Careful inclusion of the

patient in the process helps to avoid resistance. Summarizing, giving the patient the freedom of deciding what to talk about next, checking with the patient to be sure you have not offended him or her, and reminding the patient that he or she is in charge of any decisions about change are helpful to avoiding resistance.

5. Advice giving: Advice should be carefully timed to be sure that the patient is ready and willing to hear it. Leaving space, listening, and emphasizing freedom of choice are important in the process of giving advice.

6. Offering multiple solutions: This technique allows room for choice.

Using open questions allows the patient to be control and allows the practitioner to better evaluate the patient's strengths and weaknesses in supporting change.

Many times health providers use a directive style of interaction. The importance of guiding rather than directing is an essential element of the interaction style needed in brief interventions (Rollnick, Butler, Kinnerley, Elwyn, Resnicow, 2005; Stott, Rees, & Rollnick, 1996). When giving advice, negotiating goals and solutions is helpful (Rollnick, Butler, & Stott, 1997).

Elements of MI and BCC Supported by Other Major Behavior Change Theories

Provider-patient relationship.

As discussed, MI and BCC are not just a simple group of skills to apply in clinical settings. The "spirit" of MI and BCC define the critical nature of the way a practitioner should relate to a patient. The spirit is based on collaboration and mutuality. The individual patient is the ultimate decision maker. Many studies

directed at the influence of the provider-patient relationship on behavior change have evidenced the importance of these aspects of relationship. Some examples are shared in the list that follows:

- Case studies demonstrated the importance of genuine interest, non-judgmental attitude, and an enduring relationship to changing health behaviors. Obtaining specific information about patient's life style and health situation, mutually define goals, mutual problem solving and decision making, assistance with accessing resources and overcoming barriers were also important (Pfister-Minogue, 1976, 1983, 1993)
- Early qualitative studies demonstrate importance of elements of Caring Theory including the importance of mutuality in the relationship, valuing others, being authentically present, cultivating a sensitivity to one's self and others, supporting both positive and negative feelings, and focusing on the patient's need (Swanson, 1999; Watson, 1999, 2002, 2003).
- The degree of partnership building was found important in a review of studies on the influence of physician behavior on "compliance" (Hall, Roter, Katz, 1988)
- Nurse/client alliance characterized by mutual goals, negotiation, active work, supportive relationship considered important to assisting clients to change (Madden, 1990)

- The client advocacy model and nurse coaching are based on mutual work to change behavior (Lewis & Zalis, 1997).
- Nurse/client alliance and partnering are important to helping people change (Wills, 1996).
- Self-management education requires a collaborative partnership with patient that includes assistance with problem solving and decision making (Bodenheimer, et al, 2002; Lorig & Holman, 2003).
- Importance of goal setting, problem solving, and an individualized approach identified as important to exercise behavior change in randomized trials related to exercise (Wing, Venditti, Polly, & Lang, 1998; Dunn et al., 1999).
- Critical reflection that fosters participation in care, self-help, active decision-making, and attempts to improve mind set were important to behavior change (McWilliam et al., 1999).

#### Self-efficacy.

Promoting self-efficacy is an important part of MI and BCC. Self-efficacy, a central construct of Social-Cognitive Theory (SCT), is a well-known construct in health behavior change. According to SCT, human functioning is explained in terms of behavior, cognitive and other personal factors, and environmental events that are reciprocal in nature. Individuals are described as having symbolizing forethought, vicarious, and self-regulatory capabilities. People regulate their behavior through internal standards and self-evaluative reactions to their own behavior (Bandura, 1986). Among the different aspects of self-



knowledge self-efficacy is the most influential. Bandura (1997) defines self-efficacy as the conviction that one is able to carry out a behavior. Bandura says that social structures both impose constraints and provide resources for personal development. Given the same environmental conditions, people who are efficacious, or have high levels of self-efficacy related to a specific issue, will change and adapt more readily. Efficacy beliefs are developed and best altered by four things: (a) Direct mastery experiences that serve as indicators of capability, (b) Verbal persuasion and/or social evaluations by significant others, (c) Vicarious experiences that alter beliefs through comparison of attainment with similar others, and (d) Changes in physiologic states (Bandura, 1997).

Self-efficacy, when related to a specific behavior, consistently emerges as a powerful predictor of behavior change (Calfas, Sallis, Oldenburg, & French, 1997; Strecher, McEvoy, Devellis, Becker, & Rosenstock, 1986; Holden, 1991; Keller, Fleury, Gregor-Holt, & Thompson, 1999; McAuley, Courneya, Rudolph, & Lox, 1994).

#### Health Beliefs.

Dunn and Rollnick (2003) discuss the value of exploring the importance of a behavior change with an individual. This includes working with the individual to explore the pros and cons of a behavior change. Health Belief Model addresses the importance of assessing the pros and cons of behavior change to making a behavior change. Health beliefs are perceptions regarding aspects of health, illness, and health care. In terms of influencing health behavior, health beliefs are the perceived positive and negative consequences of performing a

specific behavior. Interventions based on health beliefs are clinically practical and their importance in shaping health behavior has been supported in the literature. Becker and Maiman (1975), in some of the earlier work on health beliefs, described a value expectancy model wherein compliant behavior was viewed as predictable based on the expectation that an action would result in a good outcome weighed against the costs, burdens, and side effects of taking that action. Later, Rosenstock's (1985) Health Belief Model identified three kinds of health perceptions that determine whether an individual will follow professional advice: (a) the individual's perceptions of his or her susceptibility or vulnerability to a negative consequence, (b) the probable seriousness of the consequences of the illness, and (c) the benefits versus costs or barriers involved in following the health advice.

The predictive effects of health beliefs on various behaviors such as diet and exercise have been reported from several studies (Ferrini, Edlestein, and Barrett-Connor, 1994; Mirotznik, Feldman, & Stein, 1995; Oldridge & Streiner, 1990).

In summary, perceptions of benefits, costs of performing a behavior as well as barriers to a behavior have historically been demonstrated as significant predictors of health behavior particularly in the area of exercise adherence.

Weighing the pros and cons of a behavior change is part of the MI intervention.

#### Theoretical Basis for Using MI and BCC in Health Care Settings

As addressed earlier, MI has been widely used, and there is good evidence for its usefulness in the treatment of alcohol and drug addictions (Burke, Arkowitz, & Dunn, 2002; Dunn, Deroo, Frederick, & Rivara, 2000). It is a

complex intervention, which, until recently, was delivered largely by trained psychologists. More recently, MI has been studied in the area of health promotion to decrease smoking, increase exercise, promote healthy nutrition, and promote behaviors to control diabetes.

There are only a few studies that specifically use BCC. The studies reviewed in the following paragraphs are not limited to the use of BCC, but cover a variety of brief interventions based on MI. There are many variations in training, the dose of the intervention, and in measurement of intervention fidelity. The studies reviewed focused on a variety of health habits including smoking cessation, exercise, diet, and self-monitoring. Some were focused on more than one behavior. For discussion purposes, they have been separated by their behavioral focus.

#### Smoking cessation studies.

Support for the efficacy of MI when used for smoking cessation varies with the population studied and has been more useful in the general population than with prenatal smokers. In Project CARES (community-nurse assisted research and education on smoking) (Borrelli, Novak, & Hecht, 2005), home health nurses delivered in a smoking cessation treatment based on MI as a part of routine home health visits. It was called ME (motivational enhancement). This was a randomized study of 104 home health nurses from RI home health that was designed to deliver one of two interventions to individuals in their population who smoked. One group received a self-help quit smoking manual and a 20-minute discussion, while the other group received the self-help manual and discussion

plus 3 motivational enhancement interventions and 1 phone call. Biochemically verified abstinence rates (using expired CO<sub>2</sub>) at 12 months were 4.2% for standard care and 8.7% for ME. ME also reported more quit attempts, and significantly less cigarettes per day, at all follow-ups through 12 months post treatment. Measures included self-report and biochemical confirmations of the absence of tobacco with expired air CO<sub>2</sub> measures. This was a well-designed study implemented in a routine practice setting by nurses. Forty-six nurses were trained for the intervention in groups of ten. Acquisition of MI skills was determined by pre/post test evaluations in simulated patient interviews. The tool used for this was not mentioned. The trainers were one nurse and one psychologist who were MI trained.

Another study involving a smoking intervention (Stotts, Declemente, & Dolan-Mullen, 2002) was designed to test the effects of MI on smoking cessation in pregnant women who were 28 weeks gestation and still smoking after receiving clinical advice and handouts related to quitting. Study participants included 269 pregnant women who were 28 weeks gestation who were divided into two groups. The study group received two MI sessions delivered by phone and individualized feedback letter that was based on stages of change related to smoking, while the control group received no further intervention. Forty-three per cent of the women receiving the intervention were not smoking at 34 weeks gestation compared to 34% of the control group. Additionally, 21.1% were non-smokers or only occasional smokers 6 weeks post-partum compared to 14.6% of controls. Self-reports were substantiated with nicotine urine samples. Master's

prepared counselors or nurse educators who were trained in MI using a protocol delivered the intervention. Intervention fidelity was assured by evaluation of live or audiotaped sessions using the protocol.

A randomized controlled trial of home based motivational interviewing by trained midwives was conducted to determine whether motivational interviewing helps pregnant smokers to quit (Tappin, D.M., Lumsden, M. A., Gilmour, W. H., Crawford, F., McIntyre, D., Stone et al., 2005). The participants were 762 pregnant women who were regular smokers at antenatal appointments in several clinics in Glasgow. All of the participants received standard health promotion information for pregnant women (which included information about smoking). The intervention group received two to five additional home visits of 30 minutes each from the same study midwife. The nurse midwives were given five days of training in MI followed by one day a month of further training during the study. All 625 home visits were tape recorded, and a random sample of 10% of the visits was transcribed and subjected to a content analysis using the motivational interviewing skills code (MISC). This well-designed study did not find differences in smoking cessation between the groups as measured by self-report and verified by plasma or salivary cotinine concentration. The authors suggested that it is likely that the study population probably included heavier more dependant smokers than in the general pregnant population. It is possible that most women who quit smoking for reasons related to pregnancy already have done so prior to antenatal appointments.

A brief motivational intervention was used in an intervention targeting smoking in adolescent patients aged 14 to 16 years old recruited from a hospital outpatient clinic and an emergency department (Colby, Monti, O'Leary, Barnett, Spirito, Rohsenow, et al., 2005). In this randomized study, the study group received a motivational interviewing session of about 35 minutes duration in a clinic setting. The intervention included six sections: establishing rapport, exploring pros and cons, personalized feedback, imaging the future, setting goals, and increasing self-efficacy. The control group received brief advice that included a pamphlet and the advice "Quitting smoking is the most important thing you can do to protect your current and future health". Interventionists were seven bachelors to master's trained staff with 1 to 4 years of research experience. Training included reading assignments, and 40 hours of intensive workshops, led by a clinical psychologist. Each element of the intervention was practiced. Each session of the delivery of the intervention was rated on 15 "essential " elements of the intervention by patients and interventionists. Results indicated that changes in smoking were small. Self-report of 7 day abstinence rates were higher in the MI group by self-report. Cotinine levels at 3 months indicated significantly decreased smoking in the MI group, but a small reduction in smoking for both groups at 6 months. The participants were paid which may have influenced self-report data. Though this study shows promise, perhaps the dose of the intervention was too small. More than one MI session might improve results.

Emmons, Hammond, and Velicer (2001) conducted a randomized trial to reduce passive smoking exposure in low-income households with young children. Participants included 291 parents or caregivers who had children younger than 3 years recruited through primary care settings in Boston. The sample consisted of racially and ethnically diverse low-income families. The study was a randomized controlled intervention using two groups. The intervention group received an MI intervention while the comparison group received self-help materials. The MI condition consisted of a 30 to 40 minute motivational interviewing session at the participants home followed by 4 follow-up phone calls. The self-help group received a copy of the smoking cessation manual, a tip sheet, and a resource guide by mail. The interventionist was a trained health educator. Intervention fidelity measures were not discussed. The results showed significant reductions in nicotine levels for the MI group and no significant changes for the self-help group. Measures included household air nicotine assessments and participants' carbon monoxide levels. This type of intervention might have potential for use by public health nurses doing home visits.

The Kaiser Permanente prenatal smoking trial (Ershoff, Quinn, Boyd, Stern, Gregory, Wirtschafter, 1999) recruited 390 subjects for a study to test the effects of brief counseling delivered by 17 prenatal nurse educators. Participants were randomized to one of three groups: (a) receipt of a self-help booklet tailored to smoking patterns, stage of change, and lifestyle, (b) the booklet plus access to a computerized telephone cessation program based on interactive voice

response technology, or (c) the booklet plus proactive counseling from nurse educators using motivational interviewing techniques and strategies. Overall, 19.9% of the participants were biochemically confirmed quitters with no differences between groups. The number of cigarettes smoked per day predicted success. For women who smoked five or more cigarettes per day, the confirmed quit level was 6.1% compared to 32.9% for those smoking four or fewer cigarettes per day. Participant satisfaction with the computerized intervention was low, while over 80% of the group receiving motivational interviewing were highly satisfied. In 10 cases, competing clinical demands had some impact on the ability of the nurses to implement the intervention. Intervention phone calls were semi-structured using a protocol. The clients who participated received at least one phone call. The average number of phone calls was 4 with an average duration of 10 to 15 minutes. Training of the nurse interventionists was accomplished in a 6-hour session led by nationally known experts, a two-hour small group meeting, and an 85-page reference manual, with up to eight hours of salary support for self-study. No measures of intervention fidelity were discussed. This study did demonstrate the potential for delivering the intervention using practicing nurses. Though competing clinical demands resulted in challenges, it appears that for the most part, the nurses were able to deliver the intervention. Measures of intervention fidelity and knowledge regarding the experience of the nurses would be useful in a future study.

Interventions aimed at physical activity.



A randomized controlled trial of 800, 40 to 79 year old patients in 42 rural and urban general practices in New Zealand demonstrated that counseling based on the “green prescription”, which is based on MI, in general practice, resulted in significant changes in physical activity and quality of life over a 12 month period (Elley, Kerse, Arrol, & Robinson, 2003). The intervention also decreased blood pressure 1-2 mm Hg. The intervention was determined to be sustainable in general practice. Measures included self-report of exercise, a quality of life scale (SF 13), blood pressure recordings, and cardiovascular risk measures (Framingham and D’Agnostino equations). Primary care clinicians and exercise specialists were involved in the delivery of the intervention. Primary care clinicians received 4 hours of training in MI. The primary care clinicians discussed physical activity and set goals with the patients who then received a “green prescription” to a local sports foundation. Exercise specialists from this foundation made three 10 to 20 minute phone calls over the following 3 months to support the patients. Training of exercise specialists was not discussed. No measures of intervention fidelity were discussed. While this study demonstrates the potential usefulness of an MI based intervention in general practice, it is limited by the lack of specifics of the intervention and also any measures of intervention fidelity. Additionally, the study does not try to separate the effects of the components of the intervention (ie those by the primary clinician vs the exercise specialist).

The Newcastle exercise project describes a randomized controlled trial of methods (including MI) to promote physical activity in primary care (Harland,

White, & Drinkwater, 1999). This study examined effectiveness of MI in promoting physical activity in adults aged 40-64 years recruited from general medical practice. Five hundred and twenty three participants were randomized to 1 of 4 groups or a control group. The four intervention groups were: (a) A brief intervention (one session) based on MI, (b) An intensive intervention (6 sessions) based on MI, (c) A brief intervention plus a financial incentive, and (d) An intensive intervention plus a financial incentive. Six sessions in the intensive intervention plus financial incentives was the most effective for promoting adoption of exercise at 12 weeks. No intervention promoted long term adherence to exercise at 12 months. The background of the MI counselor was not mentioned. The counselor was described as a health visitor who was trained in MI. Interviews lasted 40 minutes and took place either in a general practice office or in a local leisure center.

Brodie and Inoue (2005) conducted a randomized trial to promote physical activity in people with chronic heart failure. This study was a randomized trial in which patients 60 or older who had a diagnosis of chronic heart failure were assigned to one of three groups: (a) (both) received standard care from a specialist nurse who advised patients to participate in a structured exercise program and a behaviorally based, motivational interviewing program from the researcher on how to increase energy by integrating physical activity into their daily lives, (b) (standard care) received standard care only, and (c) (Motivational interviewing) received motivational interviewing only from the researcher. Groups that received both or MI received 8 sessions lasting about one hour each. The

components of the MI intervention were described along with some specifics of application related to exercise. The interventionist delivering the MI was the author of the article and also a PhD prepared professor in the area of health studies. Training in MI was not discussed, although specifics of the interventions were described. Intervention fidelity via monitoring the intervention was not discussed. The nurse delivering the standard care was a heart failure specialist nurse. The results demonstrated that both the group receiving the standard care plus MI and the group receiving MI alone increased their energy expenditure by 2-3 kcal/kg/day and 2-4 kcal/kg/day respectively (based on a self-report measure). The distance walked, as measured by a 6-minute walk test, increased in all groups. A major difference in the MI intervention was the emphasis on skill building and on the integration of a wide variety of moderate intensity activities over the day rather than bouts of exercise as in the standard intervention. It is possible that the content of this specific instruction to increase the daily activities was responsible for the increased self-reports of activity rather than just the MI intervention. Any confusion related to this could be resolved by making the content of the information shared the same in all groups. Intervention fidelity could be improved in a future study by describing the training and by monitoring the intervention itself for application of MI.

Interventions aimed at diet.

A large clinical trial, Eat for Life, conducted in black churches demonstrated significantly greater fruit and vegetable intake in the group receiving motivational interviewing via the telephone as part of the intervention

(Resnicow, Jackson, Wang, De, McCarty, Dudley, & Baranowski (2001). African American church-goers from 14 churches (1011 participants) were randomly assigned to 3 treatment conditions: (a) A comparison group. (b) A group receiving a self-help intervention consisting of an educational packet focused on 5 a day message plus one cue call (to encourage use of materials) and (c) A group that received everything as in group 2 plus a form of MI that was delivered via 3 telephone counseling calls to promote fruit and vegetable intake.

This randomized trial conducted in a public setting (churches) was well done. The counselors who delivered the intervention were registered dietitians or dietetic interns. The MI training included three 2-hour sessions by Resnicow. At least two counselor sessions were observed to certify training using a protocol adapted from Rollnick. The components of the intervention were specified. Readiness to change was assessed and barrier reduction was a part of the intervention. The group who received the educational package plus 2 phone MI sessions self-reported the most change in fruit and vegetable intake. Three pre/post measures of dietary intake were used along with total serum carotenoids as an objective measure.

Body and Soul (Resnicow, Kramish Campbell, Carr, McCarty, Wang, Periasamy, Rahotep, Doyle, Williams, & Stables, 2004) was a collaborative effort of two research universities to combine two successful interventions to increase fruit and vegetable intake in black churches. The intervention combined the use of environmental changes that increased the availability of fruits and vegetables and education regarding fruit and vegetable intake (Campbell, Motsinger, &

Ingram, 2000) with the intervention described in the study above (Resnicow, et al., 2001). This time college educated (and preferably involved in health care) lay individuals received 1½ days of training to deliver the MI intervention. The effect size in the intervention group for fruit and vegetable intake was smaller than in either parent study. This study was not designed to differentiate the effects of individual aspects of the intervention (such as MI). It is of interest in demonstrating the successful adaptation of multi-faceted research based interventions in the community setting.

Interventions aimed at diet and exercise in individuals with diabetes or hyperlipidemia.

Clark and Hampson (2001) conducted a randomized controlled trial of a lifestyle intervention aimed at both diet and exercise behavior to control diabetes. This was a feasibility study that had the goal of delivering a brief intervention based on motivational interviewing that had the potential to be integrated into usual care to assist people to make life style changes. One hundred people aged 40 to 70 with the diagnosis of diabetes were randomized to two groups. The control group received usual care. The key features of the intervention were assessment of the patients eating and activity habits (via questionnaires), patient participation in goal setting, selection of personalized strategies to overcome barriers, and problem solving. The principles of brief motivational interviewing as described by Miller and Rollnick were used and ambivalence regarding behavior change was explored. The interventionist was a research psychologist. Intervention fidelity was not discussed. The intervention consisted of an initial

meeting in person followed with phone calls at 1, 3 and 7 weeks (about 10 minutes per phone call) after the first meeting. Results based on self-report indicated that 82% of patients reached their dietary goal all of the time at the one week follow up and 83% of the time at the 3 week follow-up. The physical activity goal was reached 68 % of the time at 1 week and 65% of the time at 3 weeks. A patient satisfaction questionnaire indicated that the participants found the program to be highly satisfactory. Though other data (including objective data) was collected, it was used only descriptively in this feasibility study. This feasibility study shows promise for the intervention and further study using additional outcome measures would be useful. In order to more fully evaluate the usefulness in the clinical practice setting, the study would have to be repeated training nurses or health professionals that might typically work with patients. Additionally, this study was done in the UK. The practicality of phone call follow-up in the US in the typical practice setting may not be feasible due to the lack of reimbursement.

A pilot study of twenty-two 50 years old or older obese women with NIDDM (Smith, Heckemeyer, & Christine, 1997) was undertaken to examine the effects of adding motivational interviewing to a behavioral intervention to promote weight loss and glucose control. This study compared a 16 week behavioral weight control program to the same program with the addition of 3 MI sessions. The target behaviors were diet, exercise, and self-monitoring of blood glucose. A team of interventionists delivered the intervention. Psychologists experienced in MI delivered the MI portion. Results demonstrated increased self-monitoring and

increased glucose control in the MI group. Both groups lost weight. Both objective (weight, BMI, HbA1c, and class attendance) and subjective (diaries) measures were used. The content of the intervention was described.

Weaknesses of this study are that the specific training of the psychologists was not discussed and no measures were used to ensure treatment fidelity. Additionally, the sample size was small. Results do support the need for a larger clinical trial.

A pilot study (Smith & Gregory, 2003) was undertaken to determine the impact of motivational interviewing on glycaemic control, well being, and self-care in a group of 22 adolescents ages 14 to 18 years who were pre-determined to be in contemplation, preparation or action in terms of stages of change. This was a 6-month intervention in which participants decided on the location and frequency of their appointments. The researcher was trained via workshops and individual supervision. Individual supervision was continued throughout the intervention using taped sessions. No specific evaluation tool was mentioned. The results indicated a decrease in HbA1c from 10.8 to 9.7. No reduction in HbA1c was observed in a comparison group. The comparison group was not described. These results indicate that motivational interviewing might be useful to help adolescents with glycaemic control. A larger randomized trial with better specification of the intervention and the control group is indicated to further test the effects of MI on glycaemic control.

The goal of another study aimed at diet and exercise behaviors was to examine the effects of motivational interviewing on physiological outcomes

related to hyperlipidemia (Kreman, Yates, Agrawal, Fiandt, Briner, & Shurmur, 2006). This was a small randomized study involving 24 participants, aged 39 to 67, with elevated lipids, recruited from a lipid screening clinic conducted in livestock auction markets in a rural frontier area. The study compared two groups. The AC group received educational materials plus a follow-up phone call lasting 45 minutes to clarify materials. The MI group received the educational materials plus one 30 to 45 minute follow-up phone session based on MI. Both interventions were delivered 2 weeks after the written materials were mailed. The written materials were fairly extensive, providing information about cholesterol and its affects along with detailed information about the influence of diet and exercise as well as detailed suggestions for changing diet and exercise. The interventionist was an advanced practice nurse who was trained in the use of MI. Measures to assess the delivery of the intervention were not mentioned, but the MI sessions followed 7 key points of MI. The training of the interventionist for the follow-up phone call in the AC group was not discussed. The intervention was provided via a scripted review of written materials mailed. Questions were answered, but no attempts at motivation or resolution of ambivalence were made. The MI intervention was significant in reducing total cholesterol and low-density lipoprotein cholesterol, but did not show changes in VO2 max. The MI group was able to decrease LDL-C by 28.33 mg/dl, which corresponds to a 17% reduction in clinical event rates. Measures included lipid profiles and the Rockport Walk Test. Of particular interest is the delivery of a similar length phone intervention not using MI as the comparison group. The use of a phone session



was selected because of potential transportation issues in the rural area involved. This study was a preliminary study. A larger study training additional interventionists and using measures to assure delivery would improve the ability to generalize results.

#### Summary.

The studies using MI in health care settings described above are summarized in Appendix # A (Brief Interventions/Motivational Interviewing in Health Care Settings). MI appears to hold substantial promise for health behavior change particularly in the areas of exercise, diet, and smoking. The success of interventions for smoking cessation seem to vary with the population studied, being more effective with the general population and less effective with prenatal smokers, particularly if the study addresses more resistant smokers such as those who still have not quit after receiving prior support and information. Heavier smokers have more difficulty quitting. Addiction to nicotine is likely an issue for heavier smokers. Studies may need to use available measures of nicotine addiction to assess its potential impact. Nicotine replacement and the antidepressant bupropion might be a potential adjunct therapy in heavier smokers, although their usage might be questionable as alternatives for pregnant smokers.

Most of the studies with a target behavior of diet, exercise, or diet and exercise demonstrated behavior change in terms of self-reports and physiological measures. Though some of these studies were pilot studies, several were larger clinical trials. It is difficult to conclude the ideal dose of the MI intervention. The

dose of MI delivered was varied. The range was one to eight sessions. Most of the interventions using 1 to 3 sessions were followed with 1 to 4 follow-up phone calls. Stotts and colleagues (2001) delivered an effective intervention for resistant smokers using trained nurses and counselors that used one 30-minute session with one follow-up phone call. It appears that MI interventions with more than one session or with follow up interventions may be better than in a single session of MI. The ideal amount of MI may vary when adjunct interventions are used. Several studies distributed self-help materials along with the MI intervention. Sometimes these included detailed suggestions related to overcoming barriers or supporting change. Such materials could significantly alter the outcome or needed amount of MI. For example, Kreman and colleagues (2006) demonstrated significant physiologic changes using a one-time telephone intervention accompanied by a fairly extensive information package.

The MI interventions varied in terms of who delivered the intervention. Interventionists included nurses, primary care providers, dieticians, psychologists, health educators, and trained lay people (often educated or with degrees related to health). One study (Elley, Kerse, Arroll, & Robinson, 2003) trained primary providers to deliver part of the intervention and exercise specialists from an area sports foundation provided 3 follow-up phone calls. While a team approach offers an alternative in busy clinics, hiring such a team may not be as practical in typical rural practice settings.

Five of the studies reviewed used trained nurses to deliver MI in the practice setting. Project CARES, (Borrelli, Novak, & Hecht, 2005) describes an

intervention incorporated by home health nurses into their typical practice. Additional time was not allocated for visits or phone calls. This study successfully demonstrated the efficacy of the use of nurses to deliver MI for smoking cessation in typical home health visits. This most closely mimics what might be possible for public health nurses. In the other studies nurse specialists such as midwives (Tappin et al., 2005), prenatal nurse counselors (Ershoff et al., 1999), nurse educators (Stotts et al., 2002), and an advanced practice nurse (Kremon et al., 2006) delivered the intervention. It might be possible for specialist nurses or other nurses who often have work time allotted for patient education to use similar interventions in typical practice. In Union County, for example, the public health department provides school based health at the area high school. It is possible to schedule high school students for nurse visits. There is no limit to the frequency or duration of visits.

Intervention fidelity was addressed in some way in most studies in terms of training, but not as well in terms of using a validated measurement tool to assess the delivery of the intervention. Though some studies did not address training, most stated the interventionist was trained in MI, and several described the components of the MI training and/or the length of the training. In terms of training involving nurses, only the study of Tappin and colleagues (2005) used a known validated tool, the MISC. Although Tappin and colleagues (2005) did not demonstrate a significant result of the MI intervention in a challenging group of prenatal smokers; they did demonstrate the ability to train nurse midwives in MI

and to deliver a home intervention using MI. After 5 days of training these nurses demonstrated the fidelity of the intervention with the use of MISC.

Stotts and colleagues (2001) delivered an effective intervention for resistant smokers using trained nurses and counselors. The length of training was not discussed, however intervention fidelity was demonstrated using taped interventions (no specific instrument was mentioned). Borrelli and colleagues (2005) trained 46 nurses. They did not discuss the content of the training however they did use a pre/post test in simulated patient interviews to assess skill acquisition. In the Kaiser study (Ersoff, et al., 1999), 17 nurses were trained in a six-hour session led by nationally known experts. This was followed by a two-hour small group meeting and accompanied by an 85-page manual and up to eight hours of salary support. No measures of intervention fidelity related to the delivery of the intervention were discussed. Kreman and colleagues (2006) stated their trained advanced practice nurse was trained in MI following 7 key points of MI. No discussion of fidelity of the delivery of the intervention was addressed.

The findings in the studies reviewed demonstrate the potential for brief interventions using MI to change health care behavior. Variability and lack of specificity in terms of specifics of the interventions and use of measures of intervention fidelity result in challenges in replicating the interventions. BCC has the advantage of being a defined technique for which there is a measurement tool, the BECCI. The results of these studies are presented in an evidence table

in Appendix A. The next section addresses what is known about the training process for BCC and skill acquisition related to BCC.

#### Training and Skill Acquisitions for use of Brief Interventions Using BCC

##### Training for MI and BCC.

The focus of the next section is a review of what is known about training and measuring skill acquisitions for MI and BCC. The discussion goes beyond basic training issues and incorporates what is known about what it takes to change practice behavior. Emmons and Rollnick (2001) advise that though it is not feasible to deliver a complex behavioral intervention in a perfectly standardized dose, it is crucial to construct rigorous evaluation of the competence of practitioners as well as the delivery of the intervention. This requires pilot work with specific practitioners and with the target client group. Process evaluation is needed to provide evidence of skill acquisitions and intervention fidelity.

It is important to recognize the essential elements for training. Miller and Rollnick (2002, pp. 185-198.), emphasize the importance of the spirit of MI as essential not only to applying the techniques of MI (including in brief interventions such as BCC) but also to the training process. Just as collaboration and a partner like relationship are essential to the success of motivational interviewing, they are also useful to teaching MI. In discussing the guiding principles for teaching motivational interviewing, Miller and Rollnick describe trainers and students becoming engaged in a collaborative exploratory process that has the same “spirit” as that of implementing motivational interviewing. They emphasize the

following points: 1. It is important to be open to the learners' needs and to respect individual differences in the learner. This includes tolerance for disagreement and ambivalence in the learners of MI. 2. "Listening in advance" to learners needs is important. This would facilitate understanding their experiences and challenges in the real world. 3. It is important not to fall into the "expert trap". A presentation related to concepts and skills will teach about the method, but discussion and practice will help with the practical issues related to considering it for use as well as using it. 4. Trainees may be more willing to adapt MI if their concerns about its relevance and potential practicality are addressed. 5. Get close to the everyday experiences of the learner. 6. Keep the training as simple and straight forward as possible. 7. Practice with feedback and role-play facilitate learning.

Miller and colleagues (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004) recognized the importance of understanding how well training transfers to practice. They argued that the question of "Does training work?" is too simplistic. They conducted a clinical trial to help answer a broader question related to what training methods, offered by whom, will be effective in changing clinical practice behaviors. They conducted a randomized clinical trial to determine the effects of systematic feedback and of expert coaching, two established principles of learning, on changing practice behavior. One hundred and forty licensed substance abuse professionals were assigned to one of 5 training conditions: (a) a W group that received a 2-day clinical training workshop, (b) a WF group that received the workshop plus personal feedback on practice tapes at baseline and

post training, (c) a WC group, that received the training workshop plus up to 6 individual coaching sessions with an expert trainer in MI in the following 4 months, (d) a WFC group that received all of the above training interventions, and (e) a STC group assigned to a waiting list control that received the therapist manual and videotapes to use on their own for 6 months. The two-day workshop was divided evenly between didactic presentations and demonstration and direct practice of skills by trainees.

The participants were licensed professionals who volunteered for the training and for study participation. All had advanced degrees, and on average had 7.4 years of postsecondary education, relatively equivalent to a master's degree. The average experience in practice was 14.7 years. The core outcomes were derived from the use of the Motivational Interviewing Skill Code (MISC) system (discussed later) applied to taped sessions, using actors portraying clients. Two independent coders evaluated three passes through each tape.

Relative to the control group, all four trained groups showed significantly larger gains in proficiency of MI use than the self-directed learning group. The 2-day workshop produced large and immediate effects on MI proficiency. The addition of feedback and coaching improved the retention of proficiency in MI after a 2-day workshop. The gains in skill from the 2-day workshop alone declined at 4-month evaluation. The measures of client change talk, which have been found to be predictive of behavior change, though increased to some degree in all of the trained groups, showed significant increases in the fully trained group receiving both coaching and feedback. The wait list control group,

receiving the interventions of feedback and coaching 4-months after the workshop, never reached the proficiency level of the study groups.

This study indicates the value of feedback and coaching in maintaining MI skills in this well educated professional group. Feedback from several participants indicated an increased valuing of MI as a more client-centered approach. The increased valuing of a client-centered approach led several participants to seek new less authoritarian work environments.

Another study, addressing training in MI in a group of family medicine students, compared the use of role-playing with standardized patients vs student colleagues on skill acquisition. They found no differences in skill acquisition as measured by taped sessions using an adaptation of the MISC, the Motivational Interviewing Treatment Integrity scale (MITI) (Mounsey, Bovbjerg, White, & Gazewood, 2006).

The feasibility of integrating MI based communication skills into everyday practice is another important question related to training. Rollnick and colleagues (Rollnick, Kinnerley, & Butler, 2002) examined the effects of a context bound training approach to communication skills on the ability of practitioners in 3 group practices to managing difficult consultations about antibiotic prescriptions for individuals with respiratory infections. They delivered the training in the clinician's place of work and used simulated practice scenarios that were based on difficult patient cases reported by the clinicians. Clinicians consulted with simulated patients (three different times); subsequently they were able to review transcripts of the encounters to evaluate their own consultations. Following this they had



three lunchtime meetings with other clinicians and the trainer to discuss cases (clinicians had used the same simulated cases). They then discussed lessons learned. They found this method to be acceptable to clinicians in a range of clinical situations as evaluated by interviews.

Rollnick and colleagues (Rollnick, Butler, Kinnersley, Elwyn, & Resnicow, 2005) provided a practical description of some of the core skills (with case examples) to help health care providers with behavior change counseling. Their discussion and case examples focus on guiding rather than directing. Asking, informing, and listening are addressed as core skills to use in general practice.

Another study (Rubak, Sandbeck, & Rollnick, 2006) evaluated general medical practitioners (GP's) perceptions of the usefulness of brief interventions based on MI. These GP's were involved in intensive treatment of patients with newly diagnosed non-insulin dependant diabetes mellitus. Ninety five percent of the GP's that were randomized to a course in MI stated they had used the specific methods in general practice. In this case, MI consisted of a 1.5-day course with 2-half day follow-ups provided over the first year.

Only one study was found that was directed to the training and skill acquisitions of nurses in their practice setting. Lane and colleagues (Lane, Johnson, Rollnick, & Lyons, 2003) designed a pilot course to study the effects of training 6 specialist diabetes nurse educators in BCC within the context of their work environment. The goal was to influence the incorporation of BCC skills into everyday practice.

The training protocol used by Lane and colleagues (2003) was developed based on work with general practitioners (described above), all of whom showed changes in real consultation situations using this training (Rollnick, Kinnersley, & Butler, 2002; Rollnick, Seale, & Kinnersley, 2002).

The training course was conducted over a 6-week time period and consisted of: a 20-minute briefing meeting, two 45-minute seminars, a 20-minute debriefing meeting, and four audiotaped simulated consultations (with an actor) lasting 10 to 15 minutes. The simulated consultations were designed to be like the challenging consultations that the nurses described in the initial 20-minute briefing meeting. For the first audiotaped simulation, each nurse participant was taped in an interaction with an actor simulating a patient who characterized the situation the nurses had shared in the briefing meeting. The nurses were then provided with a transcript of the interaction to analyze. Following this the nurses met in the first seminar group to share reflections about how they might improve consultations. At this first seminar, a beginning discussion of MI principles was conducted. This included determining readiness to change, encouraging patient participation, open questions, and summarizing. A week later nurses were taped in a second consultation, using the same patient scenario. Nurses were provided with a transcript of these tapes and were encouraged to self-reflect and self-evaluate. A week later, a third taped consultation of a different patient scenario was conducted. This was followed by the second seminar. Advanced BCC skills such as rolling with resistance and overcoming reluctance were discussed. This was followed in one week by a 4<sup>th</sup> audiotaped consultation that repeated the

second scenario. Nurses were again encouraged to self-evaluate transcripts. A final debriefing meeting was held to discuss the acceptability of the course.

Quantitative and qualitative techniques were used to analyze the results. The results of the BCC training, as rated on the Behavior Change Counseling Index (BECCI) (specifics related to BECCI discussed later), indicated that all nurse participants had a higher score on the replay of each case scenario and five of the six participants showed a higher score at the end of the course. Audiotaped semi-structured interviews were used six weeks after the course to determine how nurses found the course. The nurse who did not score higher on the BECCI at the end of the course stated she did not think she had learned new skills, however she thought that it did provide ideas for use, particularly with difficult patients.

The main themes arising from the interviews are as follows:

1. Nurse specialists in diabetes had little or no prior communication training.
2. BCC was perceived by nurses to be very important to future diabetes care.
3. Though there were initial reservations about being taped, it was felt to be a positive experience.
4. Some nurses felt that the use of actors was artificial.
5. Nurses felt that placing the simulated consultations in their work environment made it seem more realistic.

6. All participants found the opportunity to reflect on taped transcripts helpful, some would have like individualized feedback.
7. All participants felt the course changed their communication styles and felt better equipped to address lifestyle issues with patients.

Interview questions related to suggestions for improvement indicated that all of the nurses would have liked individual feedback, more training, and a longer course.

Measuring skill acquisitions.

Measuring skill acquisition is another important aspect of preparing practitioners to deliver interventions based on MI. The Motivational Interviewing Skill Code, MISC, a standard in the field, was developed to study practitioner proficiency before and after MI training in MI. It was designed to measure the various aspects of the delivery of MI using audio or video taped recordings (Miller, & Rollnick, 1991). The procedures for its use have been well established and used to demonstrate proficiency in MI before and after training. The MISC uses global ratings in several areas, and evaluators use several passes at taped recordings to rate each area. The MISC provides three types of information; global ratings of counselor proficiency in MI, behavioral counts of MI consistent and inconsistent behavior, and relative talk time of the counselor and client (motivationalinterview.org, 2006). The MISC has shown good inter-rater reliability and factor structure (Moyers, Martin, Catley, Harris, & Ahluwalia, 2003).

The MISC, though it has good reliability and validity, was specifically designed to assess intervention fidelity for MI. It measures full-blown MI behavior

(rather than focusing on the essentials of brief interventions), and is cumbersome to use in practice situations.

Since the development of the MISC, several other measures of MI competence and adherence have been developed in an attempt to measure intervention fidelity. These include the Yale Adherence and Competence Scale (YACS), Motivational Interviewing Process Code (MIPC), Motivational Treatment Integrity Scale (MITI), and the Motivational Interviewing Supervision and Training Scale (MISTS). These were mostly used with psychotherapy clinical trials. They are extensive and complex. Additionally, issues related to reliability and validity point to the need for further development of the measures (Madson & Campbell, 2006).

A more practical tool for use with brief interventions defined by BCC has been developed and tested. This new measure, the Behavior Change Counseling Index, BECCI, was used to measure the practitioner's skill in BCC. This instrument was tested for construct and content validity. The psychometric properties include good internal consistency ( $\alpha = 0.71$ ), and levels of inter-rater reliability of  $R = 0.73$  to  $0.98$ . (Lane, et al., 2003).

#### Conclusion.

Persuading patients to change health care behavior that is damaging to health is difficult. Developing expertise in behavior change interventions is consistent with the call of the CDC for enhanced work with behavior change to address the health issues we face. Health care workers, including nurses, have the opportunity to change health behavior in their practice environments. Helping

patients to change behaviors that threaten health should be a routine component of nursing interactions with patients. The following points illustrate both what is known about the clinical effectiveness of BCC and other brief interventions based on MI in changing health behaviors and what this study adds.

What is already known about this topic?

- Several studies have supported the success of brief interventions using MI in changing a variety of behaviors including smoking, diet, exercise, and diabetes self-management skills.
- A few small studies support the efficacy of a brief intervention based BCC to help physicians and specialist nurses to support behavior change in busy clinical practice settings.
- A variety of lengths of training have resulted in practitioner behavior change. Studies using more than one training session were more effective.
- Training methods that include a significant amount of the educational time spent practicing techniques, using role-playing or reflecting on relevant practice samples have proven useful. Feedback and coaching are important aspects of this and may provide a better way to effect more long-term practitioner behavior change.
- BCC provides a way to deliver a well-defined brief intervention based on MI in typical practice settings.
- The BECCI provides a valid measurement tool that is matched to BCC.

What Does This Study Add?

- Further evidence related to the type of training needed for nurses to achieve the behavior change counseling skills delineated by BCC for brief counseling interventions in clinical practice.
- Evidence of the potential for public health nurses involved in a variety of areas in rural public health to incorporate BCC into routine practice environments.
- Information about training and issues related to application of BCC in the practice needed for a future randomized intervention trial to study the clinical effectiveness of BCC.

## Chapter 3 Research Design and Methods

### Study Methods

The main purpose of this study was to contribute to the body of knowledge that would provide a means for busy nurses in rural public health settings to facilitate behavior change in clients. The aims of this study were accomplished with use of qualitative and quantitative methods in a quasi-experimental within subject pre/post design.

### Design Overview

Specific aims.

The specific aims of this study were to:

1. Customize and evaluate the training of public health nurses for a brief intervention based on the major tenets of Motivational Interviewing and guided by Behavior Change Counseling as developed by Dunn & Rollnick (2003).
2. Evaluate the feasibility and usefulness of brief interventions using BCC to facilitate behavior change of patients encountered by nurses in their public health nursing practice.

Aim #1 was accomplished in the following ways. An expert trainer trained the nurse participants in the use of BCC in a daylong workshop following the BCC Training Guidelines (Appendix # D). This initial training was customized using the input and case examples of the nurse participants from the Demographic and Practice Information Questionnaire (Appendix # C). The nurse participants were encouraged to practice the techniques learned in the training in



their clinical practice settings in the following weeks. Two individual telephone follow-up calls lasting 20 to 30 minutes each were conducted to provide additional practice and feedback. These telephone meetings were individualized to the practice experiences of the nurses.

In order to assess the effectiveness of the training, the BECCI was used to rate three 10-minute audio taped sessions using simulated practice experiences. These occurred prior to training, at the end of the initial training, and at the end of the third training. Audiotapes of the first two of these sessions served the dual purpose of providing feedback to nurse participants. The nurse participants used the BECCI to help them to reflect on their own practice as they reviewed their taped sessions. Interview data gathered after the third session was used to elicit further information about the training experiences of the nurse participants.

Aim # 2 was accomplished using specified questions in semi-structured taped interviews with each of the nurse participants at week eight. The nurse researcher analyzed the taped interviews. The main goals of the interview were to answer two questions: 1. To what degree did the nurses feel they were able to learn the BCC methods in the training experiences? 2. What was the experience of the nurses in applying BCC in their clinical practices? Specific questions are further described in Appendix H.

#### Sample and Setting

A minimum of twelve and a maximum of twenty nurses were recruited from two rural public health clinics from two towns in Eastern Oregon, La Grande

and Pendleton. All nurses in the public health clinics who provided patient care were invited to participate.

#### Recruitment Procedures

Following approval by the Institutional Review Board (IRB) at Oregon Health & Science University, the public health nursing administrators of the participating clinics distributed a description of study participation to all nurses involved in direct patient care. The administrators of these two clinics agreed to allow the public health nurses who were interested in participating work time to be involved in the study in exchange for both the resultant training in MI that the nurses would receive and for the potential benefit to the populations the clinics serve. The nursing administrators at the two rural clinics provided time for the nurse researcher to explain the study and details of participation, as well as answer any questions, at a regular nursing meeting. Nurses who were interested in participating were asked to sign a consent form (see Appendix # B). They were also asked to fill out a brief questionnaire, Demographic and Practice Experience Information Questionnaire (Appendix # C) to elicit demographic and practice information. This included their gender, age, educational background, work experiences, a brief description of their expectations from the workshop, and a description of an example of a clinical nursing situation that they found challenging.

Nurses potentially interested in participating, who were unable to attend the meeting, were provided a description of the study and given a phone number to call with questions. A second visit to the clinics was made for the purpose of

obtaining both consent to participate and the demographic and practice information from the nurses who were absent from the meeting but were interested in participating in the study. The consent form is available in Appendix B.

#### Procedures for Aim #1

The first aim, to customize and evaluate the training of public health nurses for a brief intervention based on the major tenets of Motivational Interviewing and guided by Behavior Change Counseling as developed by Dunn & Rollnick (2003) was accomplished in the following manner. An experienced MI trainer from the OHSU School of Nursing who is a part of a network of MI trainers (MINT) provided the initial training of the nurse participants. The trainer was familiarized with the protocol for BCC training as specified in the BCC training guidelines (Appendix D) and on the training videotape (available at OHSU). The trainer was provided with the information from the Demographic and Practice Information Questionnaire (Appendix C) filled out by the nurse participants. This information was used to design practice and learning experiences that were customized to the typical situations of the public health nurses. Initial training was accomplished in a daylong training session. The nurses spent approximately 50% of the initial training time in practicing BCC, using role-playing as a part of the learning experience.

At the beginning of the training, a summary of the expectations and practice experiences provided by the Demographic and Practice Information Questionnaire (Appendix C) was shared with the participants. The participants

were informed that the experiences were used to guide practical experiences used in the training. Time was provided for the participants to further discuss expectations and practice experiences.

Audiotapes were used to record each nurse in a 10-minute interaction. The nurses were instructed to assist an individual to make a change in a particular behavior. The nurse participants were divided into triads for this activity. One nurse participant (client) was asked to share a simple behavior that they would like to change. A second nurse (interventionist) conducted a 5-10 minute session with the first nurse with the instruction that they should help this person in changing the behavior. The third nurse in the triad (observer) observed and critiqued the interaction in terms of how helpful they thought it was to the client. The client was also asked to discuss the helpfulness of the interaction. These roles were rotated so that each nurse in the triad accomplished each role. In the weeks following the training, a member of the OHSU MI network of trainers scored the audio taped interactions using the Behavior Change Counseling Index, BECCI, (Appendix E). The evaluation process followed the guidelines in the Behavior Change Counseling Index Manual (Appendix F).

The initial interactive experience was followed by didactic presentation of MI and BCC interspersed with short practice opportunities. The general content is outlined in the BCC Training Guidelines found in Appendix D. At the end of the first training day, the nurses repeated the initial activity, practicing 5-10 minute interactions in triads applying BCC techniques. This time the nurse observer in the triad used the BECCI (Appendix E) to evaluate the interaction and to guide

feedback provided to the interventionist. These interactions were audio taped for later evaluation by a member of the OHSU MI network of trainers using the BECCI.

Taped interactions were used for two purposes, (a) to evaluate learning and (b) to provide feedback to participants. Nurse participants were provided with a copy of their BECCI scores from the interactions in which they were involved during the first training day. Though the original plan was to provide this feedback within one week of the training, the scores were not available until three weeks following the training.

For the following 8 weeks, nurse participants were asked to use the BCC techniques in their everyday interactions with patients involving patient education. They were encouraged to discuss case situations with each other.

Further training and evaluation occurred concurrent with the practice applications of the nurses. Nurse participants received two 25 to 30-minute follow-up phone calls during weeks 3 and 7. The content of these phone discussions was guided by the needs of the nurses. They typically included a discussion of case examples presented by the nurses, further didactic information, and practice opportunities. Phone call follow-up (as opposed to in person interaction) was chosen to minimize time away from work, providing a more realistic training possibility for public health nurses.

During week eight, nurse participants were again evaluated for their ability to use BCC. Arrangements were made by the researcher to meet with the nurses in groups of two in their practice settings to repeat an interaction using BCC with

each other. These were audio taped. As with the first two audio taped interactions, a member of the OHSU MI network of trainers scored the interactions using the Behavior Change Counseling Index, BECCI, (Appendix E). The purpose of this third audio taped interaction was to ascertain whether nurses gained additional proficiency in using BCC after practice in their work environments and after having the opportunity for additional feedback.

Individual 10 to 20 minute interviews (described under aim #2), were also used to contribute to evaluating the responses of the nurses to the training process.

#### Procedures for Aim #2

The second aim, to evaluate the feasibility and usefulness of brief interventions using BCC to facilitate behavior change of patients encountered by nurses in their public health nursing practice, was evaluated as described below. During week 8, the researcher conducted individual 10 to 20 minute semi-structured telephone interviews with the nurses to gather qualitative data about their experiences using BCC in their practice settings. A semi structured interview process was chosen to allow a more open-ended format for participant responses (Payne, 1999). The interviews were audio taped. The interviews were scheduled to best suit the schedules of the nurses. The main goals of the interview were to answer two questions: 1. To what degree did the nurses feel they were able to learn the BCC methods in the training experiences? 2. What was the experience of the nurses in applying BCC in their clinical practices? Questions designed to meet these goals are described in the Interview Guide for

the BCC (Appendix H). The interview process was guided by the Procedures for the Participant Interview (Appendix G) and the Interview Guide for the BCC (Appendix H). The Interview Coding Form BCC Training (Appendix I) was used to summarize the findings.

To increase the reliability of the interview process, a random selection of twenty per cent of the audio taped interviews was evaluated by a member of the dissertation committee for consistency of interpretation of themes. This process for content analysis was guided by the Procedures for Increasing the Reliability of the Interview Process (Appendix J) and the Procedures for Increasing the Reliability of the Interview Process: Instructions for the Reviewer (Appendix K).

Table #1 Study Procedure Summary for Nurse Participants

Time	Nurse Participant Schedule	Responsible person
Pre-intervention	Receive study information Sign consent Complete Demographic and Practice Information Questionnaire	By the researcher
Initial Training Study Week #1	Attend a one day training workshop on BCC  First 10-minute taped interaction completed at beginning of the session  Second 10-minute taped interaction completed at the end of the training day	Experienced MI Trainer  By the researcher  By the researcher
Study Week #2	Receive feedback via tape of interactions obtained during initial training	Provided by researcher
Study weeks #1,2,3	Apply BCC on their own in clinical practice setting	Nurse participants
Study Week 3	Receive first follow-up phone call	Experienced MI trainer
Study Weeks #4,5,6	Apply BCC on their own in clinical practice setting	Nurse participants
Study Week 8	Be taped in interaction using BCC with another nurse participant	Nurse researcher

	Participate in a 10 to 20 minute telephone interview	
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## Measures

Demographic and Practice Information Questionnaire: This questionnaire (Appendix C) was designed to provide demographic information including gender, age, educational background, and work experiences from participants. The participants were asked to provide a brief description of their expectations of the workshop and a description of an example of a clinical nursing situation involving a patient behavior, for which they were involved in providing information or advice and that they found challenging.

BECCI: The BECCI, Behavior Change Counseling Index (Appendix E), is a new measure for evaluating practitioner competence in behavior change counseling, BCC (Lane, Huws-Thomas, Hood, Rollnick, Edwards, & Robling, 2005). It is aimed at assessing change in practitioner behavior before, during and after training and at providing information about the standard of BCC delivered in studies. The BECCI is an 11-item measure that uses a 5 point Likert scale. Not every item is considered applicable in every interaction. Items are considered individually. The calculation of a total score can be done and is described in the Manual for Coding Behavior Change Counseling (Appendix F). The mean is calculated by using the mean of the essential items and using mean substitution for items scored as not essential or applicable in the encounter.

Several steps were taken by Dr. Claire Lane and colleagues (2005) to establish reliability and validity of the BECCI. Items on the BECCI were



developed based on the theoretical constructs and divided into four domains: agenda setting and permission seeking, how and why of behavior change, the consultation as a whole, and talk about targets. Nine of 12 invited experts rated the items relationship to BCC. This resulted on 20 items that were further tested and piloted and reduced to 11 items. Construct explication was used to contribute to construct validity. Reliability was addressed in terms of internal consistency using inter-item correlations, item total correlations, and Cronbach's Alpha. Items were divided into core and non-core with descriptive statistics being used for non-core items. Inter-rater reliability was addressed using two researchers independently coding interactions (related to two types of consultation-smoking and diabetes) using a coding manual. Levels of inter-rater reliability were  $R = 0.73$  (smoking cessation) and  $R = 0.98$  (diabetes consultations) (Lane, et al., 2003). It is noted that this instrument was tested for construct and content validity using simulated patients. The sensitivity of the BECCI to change before and after training was reflected in an SRM of 1.76. This indicates a clear shift in practitioner performance before and after training. The manual for scoring the BECCI is available in Appendix F. A training video is also available.

Semi-Structured Exit Interview: The specific questions and guidelines for this interview are found in Appendix H. The coding form for the interview can be found in Appendix I, and the procedures for conducting the interviews and increasing the reliability of the interviews are in Appendix J and K.

## Data Analysis

Data analysis for Aim #1, to customize and evaluate the training of public health nurses for a brief intervention based on the major tenets of Motivational Interviewing and guided by Behavior Change Counseling as developed by Dunn & Rollnick (2003), was based on three applications of the BECCI to taped interactions occurring at baseline, after initial training, and after follow-up training and practice. Due to the small sample size and the nature of this study as a feasibility study, I used descriptive statistics. Changes in the mean of the scores on the BECCI over time were graphed. The 11 items on the BECCI were considered separately with changes in the scores for each item graphed. A total score on the BECCI was also calculated. I examined means at baseline, after initial training, and after further practical application and follow-up training. I measured effect size using means of the total BECCI scores pre training and after training and follow-up week 8. Effect size was computed using Cohen's *d*.

To further establish the reliability of the BECCI, I had two coders score all of the audio taped interactions. Both coders were experts in terms of being trained in motivational interviewing and in behavior change counseling. They were asked to follow the coding guidelines in Manual for Coding Behavior Change (Appendix F). I measured the degree of intercoder reliability using Cohen's Kappa.

Data analysis for aim #2, which was to evaluate the feasibility and usefulness of brief interventions using BCC to facilitate behavior change in patients encountered by nurses in their public health nursing practice, was based

on interview data. The procedure for developing the interview schedule used the guidelines of Walz, Strickland, and Lenz (1984, pp. 310-330.) as described in Appendix H. I categorized and summarized qualitative data from the audio taped interviews under the semi-structured questions. A second reviewer, a member of the dissertation committee, listened to 25% of the taped interviews and also categorized responses. This was done to contribute to reliability in interpretation of themes.

#### Summary of Findings That Guided Study Design

The training plan was guided by information from the review of the literature in Chapter 2. The following list summarizes findings that were applied in the design of the BCC training in this study.

1. Miller and Rollnick 's (2002) discussion of the guiding principals for teaching motivational interviewing as described in chapter 2 were used to plan the training. The issue of the trainers and students becoming engaged in a collaborative exploratory process that has the same "spirit" as that of implementing motivational interviewing was a key element. The elements are repeated here for clarity: (a) It is important to be open to the learners' needs and to respect the individual differences in the learner. This includes tolerance for disagreement and ambivalence in the learners of MI. (b) They advise some "listening in advance" to learners needs. This would include their experiences and challenges in the real world. (c) It is important not to fall into the "expert trap". A presentation of concepts and skill will teach about the method, but discussion and practice will help with

the practical issues related to considering it for use as well as using it. (d) Trainees may be more willing to adapt MI if there concerns about its relevance and potential practicality are addressed. (e) Get close to the everyday experiences of the learner. (f) Keep the training as simple and straight forward as possible. (g) Practice with feedback and role-play facilitate learning.

2. Feedback and role-playing received particular attention in the design, both related to the desires of participants identified in studies related to training and to the influence on patient outcomes demonstrated in studies (Rollnick, Seale, & Kinnersley, 2002; Lane, Johnson, Rollnick, & Lyons, 2003; Miller, Yahne, Moyers, Martinez, & Pirritano, 2004 ).
3. The plan included practice using nurse colleagues since a past study demonstrated no differences in skill acquisition using colleagues as opposed to standardized patients (Mounsey, Bovbjerg, White, & Gazewood, 2006), and it is more practical to use colleagues in a training setting.
4. Decisions regarding the length of the initial training and the follow-up sessions were made consistent with the literature on the length of training as well as on practical ways to allow for practice and feedback that could fit into a typical work routine. Although counselors may be able to demonstrate MI skills under ideal training conditions, they also need to learn how to translate the delivery of these skills into the less predictable practice setting (Hecht, Borrelli, Breger, Defrancesco, Ernst, & Resnicow,

2005). One purpose of the follow-up sessions was to allow for discussion and problem solving related to practice experiences in order to facilitate translation to practice.

5. The BECCI was chosen as an evaluation as well as a feedback method because, though new, it has reliability and validity data. It is the only established tool for evaluating a brief intervention using BCC, and it is practical to use.
6. The rationale and guidelines for the use of interviews to evaluate the response of nurses to training follows. First, using semi-structured interviews provides an open-ended way to evaluate the response of the nurses to training and to using BCC in practice that is consistent with the spirit of motivational interviewing. Second, having some specific questions helps to assure that the main goals of the interviews are accomplished while offering more opportunity for participants to bring up a variety of issues. The procedure for developing the interview schedule and for evaluating the interview process used guidelines of Walz, Strickland, and Lenz (1984, pp. 310-330). The details are found in Procedures for the Participant Interview in Appendix G.

## Chapter 4 Results

### Description of Participants

Twelve public health nurses from two rural public health clinics participated in this study. All of the nurses in these clinics were invited to participate in this study, and all but one nurse chose to participate. Educational background of the nurses was varied. On entry into practice, four nurses were ADN prepared; six were BSN prepared, and two were diploma prepared. One of these nurses also had an advanced nursing degree or MSN. The range of experience in public health nursing was two to eleven years. There was a difference in both educational background and public health nursing experience in the nurses at the two sites. All of the nurses at one of the sites (Site 1) were BSN prepared (one of these with an MSN), while the nurses at the second site (Site 2) were all ADN or diploma prepared. This may be related to the educational programs available in each location. Additionally, the nurses at Site 1 had all worked in a public health setting for a much longer duration. A summary of these findings is located in Table 1 and in Table 2.

Table 2 Educational Background and Nursing Experience of Participants at Site 1

Educational Background				Nursing Experience	Public Health Experience
ADN	Diploma	BSN	MSN		
		X		3	3
	X		X	41	17
		X		7	7
		X		2	2
		X		15	6
		X		11	11
		X		13	2

Table 3 Educational Background and Nursing Experience of Participants at Site 2

Educational Background				Nursing Experience	Public Health Experience
ADN	Diploma	BSN	MSN		
X				16	6
X				<1	<1
X				2	2
X				29	2
X				?	1

#### Informed Consent

Trips were made to four individual practice sites to explain the study and to obtain informed consent for participation. A Demographic and Practice Information Questionnaire (Appendix C) providing educational and practice information was obtained.

#### Study Results Aim #1

The first aim of this study was to customize and evaluate the training of public health nurses for a brief intervention based on the major tenets of Motivational Interviewing (MI) and guided by Behavior Change Counseling (BCC) as developed by Dunn & Rollnick (2003). To accomplish this aim twelve public health nurses were trained in the use of basic MI concepts and BCC.

Summary of the training process.

- An experienced trainer trained the nurse participants in the use of MI and BCC in a one-day workshop following the BCC Training Guidelines (Appendix D).
- The trainer was provided practice information related to the participants from the Demographic and Practice Information Questionnaire (Appendix C) to assist with customization of the training.

- The nurse participants were encouraged to practice the techniques learned in the training in their clinical practice settings in the following eight weeks.
- Two individual follow-up telephone calls lasting 15 to 30 minutes were provided by the trainer to allow opportunity for additional practice and individualized feedback. The goal was to answer questions and discuss specific case examples from the practice of each nurse. During the first call, nurses were asked to think about the steps for using BCC.

#### Description of the training workshop.

The first half of the workshop focused on a description of MI, a brief review of literature, and an overview of the major principles. The Spirit of MI as client centered and directive was emphasized. The importance of empathy, and use of OARS (open ended questions, affirmations, reflections, and summaries) were addressed. The basic structure of a session was outlined, including establishing rapport, setting the agenda, exploring the issue, building motivation, strengthening commitment, and closing and summarizing. The issues of when and how to give advice, how to use reflections, and how to roll with resistance were covered. Multiple videoclips of practitioners and clients provided examples of the MI techniques. At intervals through out the training, the workshop participants were divided into groups of two or three to practice the MI skill set by role-playing situations with each other. During the second half of the training the key concepts of Behavior Change Counseling (BCC) including listening, flexibility, assessing readiness, importance, and confidence, advice giving, and



avoiding arousal of resistance were discussed. The eleven steps of the Behavior Change Counseling Index (BECCI) (Appendix E) were discussed. Participants shared some typical case examples of the types of patients with whom they interact as well as some of the clinically challenging situations they encounter related to helping clients change behaviors considered negative to their well-being.

Training effectiveness: results of quantitative analysis.

Training effectiveness was assessed using the Behavior Change Counseling Index (BECCI) coding tool to rate three 10-minute audio-taped sessions in which nurse participants were asked to use a real life situation for a health coaching session in which a behavior change was desired. The nurses were asked to choose situations that were not highly personal. These sessions occurred prior to training (in the clinical settings), at the end of the initial training day (in the workshop setting), and following eight weeks of independent practice and two follow up phone calls (again in the clinical settings of the nurses). At the time of the third taped interaction, many of the nurses modified the protocol on their own and chose to role-play a clinical example from their practice situations. This was in contrast to the instructions for real play of a situation from their life. The original plan was to use audiotapes of the first two of these sessions to serve the dual purpose of measuring BCC proficiency and providing feedback to nurse participants by helping them to reflect on their own practice. Due to an unanticipated delay in scoring the first two audio-taped sessions, participants did not receive this feedback until week six.

To further establish the reliability of the BECCI, two coders scored all of the taped interactions. The main coder, who was blinded to participant identity and time period of tapes, scored all of the audio taped interactions. It was not possible to blind this coder to time 3 because the pre and post 1 tapes were used to give feedback to participants during the course of the intervention. A second coder (the trainer) also coded all of the tapes. The main coder is a nationally recognized MI trainer. She was trained in the scoring of the BECCI by Dr. Claire Lane, the originator of the BECCI, and she had previous experience in using this coding methodology. Both coders are considered experts in MI. Both coders were asked to follow the coding guidelines in Manual for Coding Behavior Change.

Descriptive statistics were used to reflect changes in the BECCI scores. The 11 items on the BECCI are considered separately and changes in mean BECCI scores for each of the 11 BECCI items are presented in the tables below. The scores reflect three points in time, pre training, post 1 (immediately following the one day workshop, and post 2 (after follow-up phone calls and 8 weeks post workshop).

Table 4 Means for Each of the 11 Items on the BECCI, Pre Training, Post 1. and Post 2.

Item #	Pre-training	Post 1	Post 2
# 1 Practitioner invites the patient to talk about behavior change	2.8	3.5	3.2
# 2 Practitioner demonstrates sensitivity to talking about other issues	.25	1.33	2.64
# 3 Practitioner encourages patient to talk about current behavior or status quo	1	1.16	1.8
# 4 Practitioner encourages patient to talk about change	2.58	3.08	3.7
#5 Practitioner asks questions to elicit how patient thinks and feels about the topic	1.5	1.5	2.4
# 6 Practitioner uses empathic listening statements when the patient talks about the topic	.33	1.25	2.4
# 7 Practitioner uses summaries to bring together what the patient says about the topic	.58	1.0	1.5
#8 Practitioner acknowledges challenges about behavior change that the patient faces	.33	1.0	1.5
#9 When the practitioner provides information, it is sensitive to patient concerns and understanding	.75	1.63	1.7
# 10 Practitioner actively conveys respect for patient choice about behavior change	.83	1.66	1.1
# 11 Practitioner and patient <i>exchange</i> ideas about <i>how</i> the patient could change current behavior ( <i>if applicable</i> )	1.33	1.36	2.1

(Note: The scores are based on a 0 to 4 point Likert scale)

Definitions:

Pre-training or baseline is prior to any training

Post 1 is after the initial one-day training workshop

Post 2 is 8 weeks following the initial training and subsequent to 2 follow-up phone calls and opportunity for practice.

A total BECCI score was also calculated. The scores for each participant are presented in Table # 5. Ten of the twelve participants demonstrated

increased scores on the BECCI from time Pre to Post 1. The other two participants demonstrated decreased scores from Pre to Post 1. Ten participants completed the third and final taped interaction. Two of the 12 participants chose not to complete the Post 2 interaction and recording. One of them had left the public health department and taken another job, and the other stated she lost her tape and did not have the time to do it again. The 10 participants completing the Post 2 recording all demonstrated small increases in scores from Pre to Post 2. Both of the participants that demonstrated decreased scores from Pre to Post 1, demonstrated increased scores from Pre to Post 2.

Table 5 BECCI OVERALL SUMMARY SCORES

Code Name	Pre	Post 1	Post 2
1	2.73	1.09	2.9
2	1.0	1.64	3.3
3	.64	1.91	2.82
4	1.27	1.73	2.45
5	.56	.91	1.4
6	1.1	1.6	2.6
7	1.64	1.27	2.4
8	.45	1.0	1.1
9	.91	2.3	1.3
10	.73	.82	1.5
11	.82	2.8	M
12	1.0	2.73	M

Pre is prior to training

Post 1 is directly after the one-day workshop

Post 2 is at the end of eight weeks

M missing

Effect size was calculated using Cohen's d. Effect sizes were calculated for Pre to Post 1, Post 1 to Post 2, and Post 2 to Post 3. The effect size was .94

for the changes from the Pre tape to the Post 1. The effect size from Post 1 to Post 2 was 1.69. The effect size from Post 2 to Post 3 was .80.

A second rater, who was also the trainer, rated the taped interactions using the BECCI. Cohen's kappa was used to compute interrater reliability. The table below describes the findings.

Table 6 Interrater Reliability-Cohen's Kappa Values

Kappa time	Agreement	Expected Agreement	Kappa	Std. Err.	z	Prob>Z
Pre r1 to Pre r2	78.33%	70.94%	0.2543	0.0587	4.33	0.0000
Post r1 to Post r2	65.00%	62.36%	0.0702	0.0447	1.57	0.0583
Post 2 r1 to Post2 r2	61.36%	54.95%	0.1423	0.0459	3.10	0.0010

#### Study Results Aim # 2

The second aim of this study was to evaluate the feasibility and usefulness of brief interventions using BCC to facilitate behavior change of patients encountered by nurses in their public health nursing practice. This aim was accomplished with the use of specified questions in semi-structured taped interviews with each of the nurse participants at the end of the 8<sup>th</sup> week. The main goals of the interview were to answer two questions: (a) To what degree did the nurses feel they were able to learn the BCC methods in the training

experiences, and (b) What was the experience of the nurses in applying BCC in their clinical practices?

Nurse participants were visited in their clinical settings and a taped interview was conducted. The interview was guided by a set of questions that had been reviewed for relevance and appropriateness to the aims of the study. The qualitative data from the audio taped interviews were categorized under the semi-structured questions and the findings summarized. To contribute to reliability in interpretation of themes, a member of the dissertation committee served as a second reviewer. He independently categorized responses on 25% of the taped interviews. This analysis was compared and discussed and there were no discrepancies in themes identified.

Qualitative analysis: results of final interviews.

All twelve participants completed the final taped interviews. Responses to the interview questions are summarized below. The first set of questions was designed to gain an understanding of the degree to which the nurses felt they were able to learn BCC methods in the training experiences. The training experiences discussed included the initial one-day workshop, time allowed for application in clinical practice, and two follow up phone calls by the trainer. The responses of the nurses are discussed under each question.

The first question was, how helpful did you find the training you received related to BCC? Comments from the nurses regarding the initial training day included the following:

“I am glad I went to this. It’s really going to increase my communication skills”.... “It will help me stretch a lot especially with my new population...It’ll be really important because I’ll be working with inmates”.

“I really enjoyed the workshop. I think she was a great trainer”.

“I really enjoyed the training. I liked a lot of the ideas we discussed”.

“I think it was a great training”.

“The initial day was very helpful. I discovered that the techniques that I was using and thought were appropriate were more persuasive than reflective with the client...so I really had to change how I approached things.”

One nurse commented, “It was actually ego deflating”. She had envisioned that she was more collaborative with clients than the practice sessions suggested.

In summary, all of the nurses found the initial training day very helpful. Everyone said that the training workshop and the trainer were excellent. Most said they came away with helpful tools. Two nurses said that the training reinforced skills they felt they had already been using. It reminded them to be client-centered and to do more listening and less talking. Several were surprised to learn how directive and persuasive they were in their interactions.

There were mixed reports related to the follow up phone calls. The nurses with specific case examples from their practice to discuss found the follow up call very helpful. Many felt they did not have the opportunity to apply the techniques in practice. Sometimes this was because of the job roles at that point in time. For

example, a few nurses had spent much of their time addressing a pertussis outbreak.

It seemed that several of the nurses did not make the transition to seeing BCC as a part of educational interactions with their clients. They identified it more as something to use with resistant or difficult clients.

One important result of the follow up phone calls was that the nurses said it reminded them to use the BCC techniques. This was helpful both to those nurses who had tried to apply BCC and to those who had not found the time to do so.

The second question asked was, "What were the most helpful aspects of the training?" The specific aspects of the training day identified as most helpful were the practice examples provided in the video tapes (especially the one most directly related to a medical practice situation), and the presentation and discussion of the steps of the process. Most of the nurses found that practicing BCC by role playing scenarios with their peers very helpful, while one nurse found the role playing "uncomfortable" and another "not real". One nurse said, "having my interview technique critiqued was very helpful".

The third question was, "What advice would you give to make the training better?" Many of the nurses felt they would have liked longer training. They felt that what was covered in a day was overwhelming. A few nurses expressed that they did not feel very confident about being able to apply all of the information. They felt they needed more training and practice. Suggestions included a two-day workshop and/or a way to get together in groups to discuss cases and learn



from each other. They felt this would be best done if it were accomplished in work time specifically set aside for application. Two nurses suggested more examples that were specific to their practice, versus the addiction case examples.

The second goal of the interviews was to gain an understanding of the experience of the nurses in applying BCC in their clinical practice. The first question related to this goal was, “How useful did you find BCC to your everyday practice?”

Generally nurses felt BCC was useful but challenging to use. Several nurses found that they could use “bits and pieces” in practice. Examples included identifying ambivalence or resistance in clients, using ideas from BCC to encourage the client to talk, providing information in a less directive way (“without pinpointing the client”), and learning to use open-ended questions. Many said that the training led them to be less directive and to let the clients express more about what they needed. One nurse said,

It reminds you to be more client-centered and to make sure your agenda doesn't overpower what you should be doing. I've had training that encourages similar communication. This is a great technique”....I think you identify people as a nurse—you just want to fix everything. It's hard to focus on small behavior changes.

This nurse also said that short time frames for interacting with clients often cause nurses to be more direct to cover a certain amount of information.

Another nurse said,

I really had to change a lot how I approached things. It was helpful to me to realize how I was coming across. I've really been working on letting the client lead the discussion a little bit more, talking more about how they are feeling about the change, if its easy or hard----letting the client lead the discussion more. Before it was much more like I knew what they needed to do and was trying to persuade them.

One nurse expressed,

Sometimes I feel like when I'm visiting with someone I stumble over a lot of thing---just the one day training helped me get away from that . Sometimes when you say things in a certain way, you feel like you are psychoanalyzing, and you don't want the patient to feel that. I almost wished we could have had more than one day training-that would have helped me a lot, just because I don't feel very confident I guess.

The second question under goal two was, "How easy or difficult was it to use BCC?" One of the most common findings was that nurses felt that time constraints made it difficult to apply BCC. Three of the nurses expressed that they felt they needed more skill in the basic techniques before they could apply it very well in a brief intervention. One of these said, " I'm not skilled at it. Until I get more skilled, I don't think it's a brief technique. I know it will come with time". Two nurses said they already practice in a way that was similar to BCC. One nurse said it was hard to give up her own goals for the client and to be less directive.

Another nurse commented, “I’ve actually used it more on my teenage son. I haven’t had clinic visits where there was an opportunity”.

Though more difficult to use in a short time frame, one nurse identified the need “to be a little more focused”, “to catch high-risk behaviors” helpful. She said, “hopefully we can catch things as we are going through flow sheets—finding out how many partners, whether they are using condoms ...”. She also said it helped to ask two questions, “What could I help this person reduce risk in today?” and; “What is the one thing she might be more receptive to?”

One nurse expressed that sometimes she felt her high school aged clients were resistant rather than ambivalent. She reflected that some of the things that nurses see as important to the health of teenagers are sometimes not seen as important to the teenager. Nurses, typically working with time constraints, and must balance trying to achieve clinical goals that they have been educated to see as very important to the client health with goals and priorities of the client. This can pose challenges for the nurse. One key concept in using BCC is that of avoiding raising resistance. Though important, it can be challenging to apply without some practice. A clinical case example from one of the sites exemplifies this.

A 19-year-old female entered the public health center for a follow up for an abnormal pap smear. She reported having discontinued the use of her contraception. She said that she wanted to have a baby. Medical history was significant for two recent culposcopies for high-grade lesions on her pap smears. She had not yet had a normal follow-up pap smear. Psychosocial history

included that she has recently finished her GED. She was unemployed. She recently finished a drug rehabilitation program and had been clean for 1 month. She and her male partner were living with her uncle. Her partner was also unemployed. He was still using drugs. The thought of the public health nurse was that there were several reasons that this was not good timing for a pregnancy. The nurse felt a need to try to convince this client to delay her decision to become pregnant.

In this situation, a nurse comfortable with using BCC might try to avoid direct confrontation because this would increase resistance on the part of the client. The client might be unlikely to hear her concerns. Applying one of the principles of BCC for rolling with resistance, an ideal initial response might be, "What would be the most wonderful thing about having a baby now?" This comment would put the nurse in a neutral position and allow for exploration of the clients goals. The discussion might proceed to reviewing the pros and cons of the situation. Making this response however might be challenging for a busy nurse with limited experience using BCC. It would likely be less challenging for a nurse who had an opportunity to discuss many case examples and work through possible responses based on the principals of BCC. The nurse would also be likely to remember prior nursing training regarding aspects of communication related to being non-judgmental, and to building a partnership with the client.

One nurse expressed that the further she gets from the training day the harder it is to think about the steps of BCC. She said, "It would be helpful to get back together as a group ....to hear other peoples experiences". She felt this

would also help remind nurses to try to use it more in practice. Another nurse said, “After the training, if we could have a little get together—you review the training—give us some tips- that would help”. She suggested that if nurses could meet together, they could learn from each other. She said, “I learn better from others than on the phone”. She suggested that we, “increase the time frame and really give it what it should be worth”. This nurse also suggested that one has to have a good foundation in the skills needed for BCC in order to apply BCC in a short time frame.

One of the clinics had to manage a pertussis outbreak during the course of the study. In rural public health, the nurses typically wear many hats; for example during such an outbreak, the same nurses that manage family planning clinics are educating the public, providing testing for pertussis, and delivering immunizations both in area schools and at other community sites. At least four of the nurses at one site spent 2 to 3 weeks managing this situation which distracted them from practicing their BCC techniques.

The third question under the goal of understanding the nurses experiences was “To what degree do you think you will continue to use BCC in your everyday practice?”

All of the participants identified BCC as very useful and said they planned to continue to use BCC in practice. One nurse said, “There is a lot more buy-in with this technique”. Another nurse commented, “I’m going to try to use it as much as possible, especially if I hit a roadblock”. Many nurses expressed a desire for some continued support in using BCC. One nurse expressed concern

over the high turn over rate of nurses in her clinic and said, “It would be helpful to have a refresher course every so often”.

## Chapter 5

### Discussion, Summary and Implications Implications, and Limitations

#### Discussion

This exploratory study was a pilot for a larger trial of training and effectiveness of BCC in public health nursing practice. It demonstrated some of the important issues related to training nurses in the use of BCC. Researchers have been encouraged to study the content and process of skill acquisition by practitioners prior to conducting clinical trials to evaluate the effectiveness of interventions such as BCC in helping clients to change health behaviors (Emmons and Rollnick , 2001; Lane, C., Johnson, S, Rollnick, S, Edwards, K. & Lyons,M., 2003; Miller, Yahne, Moyers, Martinez, & Pirritano, 2004).

The one-day training workshop along with two follow-up phone calls resulted in improvements in BCC skills for nurse participants. The consultations using role played situations in a sample of 12 nurses rated with the BECCI by an expert trainer and rater showed that all nurses demonstrated improvement in BECCI scores from time 1 (Pre) to time 2 (Post1), and the 10 nurses that completed time 3 (Post 2) demonstrated changes both from Pre to Post 1 and from Post 1 to Post 2. The effect sizes reflected by the changes in scores on the BECCI are reported in Chapter 4. A discussion of the limitations of these results is presented below.

The effect sizes for the first coder are very good; however there are two limitations related to coding that must be acknowledged in interpreting the study

results. Inter-rater reliability between the main coder and the second coder was poor. Though prior study (Lane et al, 2003) showed good inter-rater reliability, this study demonstrates the need for further evaluation to further examine what type of training is needed to reliably code the BECCI. The main coder in this study is a national expert in MI and BCC training and has also received special training by the originator of the BECCI in coding the BECCI. Discussion with this individual, who was trained by Dr. Claire Lane, indicates a possible reason for differences in coding is that the MITI, which is used to rate the use of full MI, demands a higher level of skill from the practitioner than using BCC. The second coder had more experience in MITI-coding than in the BECCI-coding, which could have accounted for the discrepancy. The lack of interrater reliability indicates the need for further study related to the scoring of the BECCI and the training needed to reliably score the BECCI.

A second limitation of this study is that the main coder was aware of the hypothesis of this study. Because of her expertise, she is also serving as a member of the dissertation committee. This could potentially result in bias related to the scoring.

Analysis of qualitative interview data with the nurse participants indicates that all participants found BCC very useful and all wanted to continue to try to use it in practice. All also felt the need for continued training. Key points related to the interview data include:

- All of the nurses found the one-day training workshop very interesting and valuable in term of a way to approach assisting behavior change in clients.



- There were mixed responses to the value of follow-up phone calls. At a minimum they encouraged nurses to think about and use BCC.  
Participants who had practiced the BCC techniques and had specific case examples to discuss found the calls the most useful.
- Key points learned included the value of using a less directive approach and of using open ended questions
- Video taped examples of interactions using MI were useful, however examples more directly related to the clinical situations of the nurses as well as examples of applying BCC in brief interactions would be more helpful.
- Time constraints were a factor.
- All of the nurses felt they needed more training to be able to better apply the techniques in practice, particularly to fine tune skills for use in brief interventions
- Some nurses felt that BCC was a skill designed more for use with difficult or resistant patients as opposed to an everyday approach to nursing communication.
- All participants would like to continue to grow in their ability to use BCC in practice.
- Ideally, continued education and support for using BCC should be supported in clinical practice at the work site.
- Reminders to use BCC in the form of cue cards or staff meetings discussing client examples would be helpful

Observations about the training process.

Though I interacted some with the participants, my role at the workshop was one of observer. One way of covering educational programs for BCC is to begin with a discussion of MI because the interventions used for BCC are based on MI, and there is a lot more experience in educating individuals to use MI. In the case of the workshop used as training for this study, my observations are that the majority of the time was spent discussing MI, and that most of the videotaped examples were from encounters using MI. The reason for this is that the standard tapes available from experts such as Rollnick are focused on the skills of MI. Additionally, the example clients in many of the videotaped interactions were dealing with issues related to addictions since much of the early use of MI was in the addictions field, and thus many of the standard case examples of the experts using MI are in addictions. One case interaction did offer an example of a client with a chronic condition and addressed the issues of weight and exercise. Two of the nurse participants said that they found this case the most helpful. In this study, the steps of BCC as it relates to MI were presented in the afternoon after the discussion of MI and the use of examples and practice of MI skills. In the afternoon participants discussed some case examples from their clinical practice settings. There were however no video examples of brief interventions using BCC. Feedback from the interviews with the participants indicate that clinical examples that are very similar to those encountered in the practice environment may be very important to learning to use BCC.

In order to fund this study, the one-day workshop was also offered to mental health practitioners in one of the clinics. Though this choice made the study economically feasible, it also resulted in an important limitation. It was not possible to focus solely on the clinical situations of the nurses.

One important difference between the educational process in this study and in the studies using BCC conducted by Rollnick (2005) and Lane (2003) is that the steps of BCC were the focus of the training in their studies. Though the skills that were presented and practiced were ultimately skills originally from MI, they were presented in the context of BCC. The case examples they used were directly related to clinical situations in which the participants were involved. The focus of the discussions and examples may make a difference in learning and application when trying to work with fairly brief training times and to translate use to brief intervention times as well.

#### Conclusions and Study Implications

Public health nurses are in a position to assist many patients with a variety of health behaviors that may be negative to their well-being. Time constraints in practice situations indicate the need for brief interventions that might be helpful in facilitating behavior change. Brief adaptations of MI have been found useful to assist with behavior change in a variety of medical situations including smoking cessation, dietary changes, exercise habit change, diabetes management, and asthma follow-up care. Continued study is needed to specify the type of training needed for nurses to develop skills needed to deliver brief interventions in typical practice environments. Dr. Claire Lane (2003) suggests that both competence,

the ability to carry out skills, and performance, how well skills are carried out in clinical practice, are important aspects of evaluating effectiveness of training. The studies of Lane (2003) and Rollnick (2002, 2005) demonstrate that nurses and physicians demonstrated increased competence in using BCC skills in simulated consultations repeated before and after training that occurred in the practice settings of the providers. These studies used a clinically relevant example and repeated the same example for follow-up application. They did not address issues of extending the skills to other practice situations or to real life situations.

This study adds to the evidence for increased competence in using BCC skills after a one-day training and two follow-up phone calls, with time allowed to try techniques in practice for eight weeks. Rather than repeating a specific situation, the role played situations in this study used different scenarios selected by the participants each time. This study further addresses how nurses experience both training and attempting to implement the training in clinical settings. While all of the nurses in this study found the training, particularly in terms of the one-day workshop, interesting and useful; many did not feel confident in using BCC in everyday practice situations. Most felt continued education and support were needed. Rollnick says that in order for someone to be ready to change they need to both feel it is important to change and to feel confident that they can change (Rollnick, S., Butler, C. C., Kinnersley, Elwyn, G., & Resnicow, K., 2005).

As Emmons and Rollnick (2001) advise, better studies will include process evaluation about skill acquisition and about what actually happened in training.

Process evaluation provided by this study indicates training would likely be more efficient and effective if the case scenarios used for training were more directly related to case examples encountered in clinical practice setting. In this study, standard recordings available for MI training were used because they were available. Developing recorded examples of BCC would facilitate training. Developing simulated case examples similar to those nurses encounter for use in practicing skills would also be helpful. It would allow the nurses to experience successes in the use of BCC in a protected environment.

The competing priorities of nurse providers need to be considered. One way to accomplish this would be to have the follow up training more closely linked with clinical practice. This might be accomplished in the regular meeting times of nurses that could be expanded to allow for case reviews and discussion of case examples. This of course requires the support of administration. In this study situation, the interest generated by the training, would likely have supported this type of continued training.

The information gained in this study supports the need for longer training as well as clinical support from administration to allow for follow-up support in using BCC. As one nurse mentioned, she felt that using BCC could be very effective in clinical practice, however in the situation of high staff turn over, there would need to be administrative “buy in” to allow for both training of new nurses and for continued support in using BCC as a part of clinical practice.

The communication skills needed for a brief intervention take time to develop. Nurses in this study sometimes seemed to believe that BCC is reserved

for difficult patients or clients. If the communication skills needed were incorporated into a general approach to patient care, it would be possible to identify ambivalence to change sooner and take small steps to resolve ambivalence in brief interventions delivered over the course of time. This study suggests that the ideal training requires not only training in basic skills, but also follow up designed to be directly related to the clinical case examples encountered by public health nurses.

BCC is a good fit for use in public health nursing. Many nurses identify that aspects of the communications skills involved in using BCC are very familiar to them. Several said the training served as a reminder to use some of these skills. As the literature review for this study points out, aspects of MI and BCC are consistent with many theories related to behavior change that are familiar to nurses. Nurses, for example, are familiar with Carl Rogers (Miller & Rollnick, 2002) and the importance of client centered care. Caring relationships have been studied in nursing for some time. As pointed out in the literature review, the importance of partnership building, collaboration, mutuality, sensitivity, problem solving, and being present (Lorig & Hollman, 2003; Pfister-Minogue, 1976, 1983, 1993; Watson 1999, 2003, 2004) have been identified as important. Self-efficacy or the conviction that you can do something is important (Bandura, 1997). Health beliefs have long been studied in relationship to their importance to behavior change (Ferrini, Edlestein, & Barret-Connor, 1994, Feldman & Stein, 1995; Rosenstock, 1985). All of the concepts are consistent with MI and BCC. The advantage to BCC is that it packages concepts, many of which are very familiar

to nurses, in a way that they can be delivered as a standardized intervention for behavior change. The use of this package requires some practice.

In summary, I believe that this study evidences the potential for a strong role for the use of BCC and MI in rural public health nursing practice. While the professional goals of nurses are important to clients, all of the nurse participants in this study identified that increasing collaboration with clients and understanding the goals of the clients as important. Many of the nurses found BCC was a good fit with their previous training. All of the nurses found the one-day workshop helpful. Additional training and practice specific to the type of patients encountered in rural public health practice would help nurses develop the skills and confidence to increase their use of BCC in practice. To increase the effectiveness of training, future studies to train public health nurses should include guided practice with situations similar to those nurses encounter in practice. Ideally these should be incorporated into the work situation.

It is important to measure proficiency in the use of BCC. The BECCI provides the possibility of a measurement tool directly related to BCC, however future study in using the BECCI is needed to establish inter-rater reliability prior to clinical trials related to patient outcomes. The standards and training for scoring the BECCI need further study.

#### Summary of Limitations

There were several limitations to this study. They include:

1. Recruitment in rural areas is difficult. There are a small number of employees spread over a large geographic area. This makes it difficult to get adequate sample sizes for research.
2. The busy and unpredictable schedules of the nurses in rural public health nursing practice results in challenges in conducting research. For example, the pertussis outbreak that occurred in the midst of this study resulted in several nurses being unable to devote their attention to the use of BCC.
3. The challenge of finding funding for a small rural health setting posed a limitation. The nurse training in this study was opened to mental health practitioners to help fund the workshop. This resulted in the inability to focus the workshop specifically on the types of clients that public health nurses encounter.
4. The trainer had more expertise in MI than in BCC. A trainer with public health background, very experienced in using brief interventions, might more quickly relate to the situations typically encountered by public health nurses,
5. Problems with interrater reliability in using the BECCI, previously discussed, limited the evaluation of the use of BCC by the nurses. This study indicates the need for further evaluation in the training and scoring of the use of the BECCI.



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## Appendices

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## Appendix A Evidence Table for Brief Interventions Based on MI

### Brief Interventions/Motivational Interviewing in Health Care Settings

Study	Purpose and target behavior(s)	Description: Participants and MI use	MI counselors and MI Training	Conclusions /measures
Home health nurses as a new channel for smoking cessation treatment: Outcomes from project CARES (community-nurse assisted research and education on smoking (Borrelli, Novak, Hecht, 2005).	Target Behavior: smoking. Purpose: To ascertain the effects of home health care nurses (during the course of regular home health visits) administering a motivational enhancement intervention (based on MI) to assist home health patients to stop smoking	Randomized study of 104 home health nurses from RI home health to deliver one of two interventions to individuals in their population who smoked: 1. self-help quit smoking manual and 20 min discussion; 2. Manual and discussion plus 3 Motivational enhancement interventions and 1 phone call	46 nurses were trained in groups of ten. Acquisitions of skills determined by pre/post test in simulated patient interviews. Tool not mentioned. Trainers, 1 nurse and 1 psychologist, were MI trained	Biochemically verified abstinence rates at 12 months were 4.2 for standard care and 8.7% for ME. The ME group also reported more quit attempts, and significantly less cigs per day, at all F/U through 12 months post treatment. Results measured via self-report and Biochemically confirmed with expired air CO2 measures.
Randomized controlled trial of home based motivational interviewing by midwives to help pregnant smokers quit or cut down (Tappin, Lunsden, Gilmore et al., 2005)	Target Behavior: smoking Purpose: to determine whether motivational interviewing helps pregnant smokers to quit.	A randomized controlled trial of home based motivational interviewing by trained midwives was conducted on 762 pregnant women who were regular smokers at antenatal booking in several clinics in Glasgow. All of the participants received standard health promotion information for pregnant women	Nurse midwives were given five days of training in MI followed by one day a month of further training during the study. All 625 home visits were tape recorded, and a random sample of 10% of the visits was transcribed and subjected to a content analysis using the motivational interviewing skills code (MISC). The	This well-designed study did not find differences in smoking cessation between the groups as measured by self-report and verified by plasma or salivary cotinine concentration. The authors suggested that it is likely that the study population

		(which included information about smoking). The intervention group received two to five additional home visits of 30 minutes each from the same study midwife.	same midwife delivered all of the interventions to an individual patient.	included heavier more dependant smokers than in the general pregnant population. It is possible that most women who quit smoking for reasons related to pregnancy already have done so prior to maternity booking.
Brief motivational intervention for adolescent smokers in medical settings (Colby, Monti, O'Leary et al., 2005).	Purpose: To evaluate the effects of a brief motivational interviewing intervention to reduce smoking in adolescent patients. Target Behavior: Smoking	This was a randomized study of 85 adolescent patients aged 14 to 1 recruited from a hospital outpatient clinic or Emergency Department where history identified them as smokers. The study group received a motivational interviewing session of about 35 minutes duration in a clinic setting. The intervention included six sections: establishing rapport, exploring pros and cons, personalized feedback, imaging the future, setting goals, and increasing self-efficacy. The control group received brief advice that	Interventionists were seven bachelors to masters trained staff with 1 t 4 years of research experience. Training included reading assignments, and 40 hours of intensive workshops, led by a clinical psychologist. Each element of the intervention was practiced. Patients and interventionists rated each session on 15 "essential " elements.	Results indicate that changes in smoking were small. Self-report of 7 day abstinence rates were higher in the MI group by self-report. Cotinine levels indicated significantly decreased smoking in the MI group at 3 months, but a small reduction in smoking for both groups at 6 months. The participants were paid which may have influenced self-report data. Of interest, 81% of the participants indicated no immediate plans to quit smoking at the

		included a pamphlet and advice "Quitting smoking is the most important thing you can do to protect your current and future health".		beginning, 78% had prior quit attempts, 97% reported withdrawal symptoms during the most recent quit. These data were gathered at baseline
A Motivational Intervention for Resistant Pregnant Smokers. (Stotts, Declemente, Dolan-Mullen, 2002)	Target Behavior: Smoking Purpose: Randomized pilot study to determine the efficacy of an intensified late pregnancy smoking intervention (28 weeks gestation), using MI on decreasing smoking in resistant pregnant smokers	269 pregnant woman (from 21 metropolitan clinic locations) still smoking at 28 weeks gestation were given two MI sessions (the first was 20 to 30 minutes long, the length of the second not specified), delivered by phone. A stages of change feedback letter was mailed between the two phone calls. Prior to the intervention both control and study groups had received a self study book at the first prenatal visit, one 3-5 minute phone call (not based on MI) and seven booklets mailed weekly. The study began at 28 weeks gestation. The control group received no further intervention	Master's level counselors and nurse educators were trained in MI by two the authors. 7% of the interventions were monitored in person or via audiotapes. A protocol was used to guide training and also to assess intervention fidelity.	43% of women receiving MI intervention were not smoking (confirmed with urine nicotine levels) at 34 <sup>th</sup> week gestation compared to 34% of controls. At six weeks post partum 27.1% of experimental group were non smokers compared to 14.6% of control group. No differences were noted at 3 and 6 months post partum. Even though this was a randomized study, the experimental group were heavier tobacco users at baseline. Measures included cotinine testing, self-report, and a stages of change measure

<p>A randomized trial to reduce passive smoking exposure in low-income households with young children. (Emmons, Hammond, Velicer, 2001) (Project KISS-keeping infants safe from smoke)</p>	<p>Purpose: To test a MI intervention to reduce passive smoke exposure by reducing household smoking Target behavior: smoking</p>	<p>Participants included 291 parents or caregivers who had children younger than 3 years recruited through primary care settings in Boston. The sample consisted of racially and ethnically diverse low income families. The study was a randomized controlled intervention assigned to the MI intervention or a self-help comparison group. The MI condition consisted of a 30 to 40 minute motivational interviewing session at the participants home followed by 4 follow-up phone calls. The self-help group received a copy of the smoking cessation manual, tip sheet, and a resource guide by mail.</p>	<p>The interventionist was a trained health educator. Intervention fidelity measures not discussed.</p>	<p>Results showed significant reductions nicotine levels for the MI group and no significant changes for the self-help group. Measures included household air nicotine assessments and participant's carbon monoxide levels.</p>
<p>The Kaiser Permanente prenatal smoking cessation trial When more isn't better, what is enough? (Ershoff, Quinn, et al., 1999)</p>	<p>Purpose: To test the effects of brief counseling delivered by 17 prenatal nurse educators. Target behavior: smoking</p>	<p>390 participants were recruited from initial prenatal appointments. Participants were randomized to one of three groups: (a) self-help booklet tailored to</p>	<p>Interventionists were 17 prenatal nurse counselors Training of the nurse interventionists was accomplished in a 6-hour session led by nationally known experts, a two-hour small</p>	<p>Overall, 19.9% of the participants were biochemically confirmed quitters with no differences between the groups studied. The number of</p>

		<p>smoking patterns, stage of change, and lifestyle, (b) the booklet plus access to computerized telephone cessation program based on interactive voice response technology, or (c) the booklet plus proactive counseling from nurse educators using motivational interviewing techniques and strategies. The clients who participated received at least one phone call. The average number of phone calls was 4 with an average duration of 10 to 15 Minutes. Intervention phone calls were semi-structured using a protocol.</p>	<p>group meeting, and an 85-page reference manual with up to eight hours of salary support for self-study. No measures of intervention fidelity were discussed.</p>	<p>cigarettes smoked per day predicted success. For women who smoked five or more cigarettes per day, the confirmed quit level was 6.1% compared to 32.9% for those smoking four or fewer cigarettes per day. Participant satisfaction with the computerized intervention was low, while over 80% of the group receiving motivational interviewing were highly satisfied. The study demonstrated the ability of practice nurses to carry out the intervention though in 10 cases, competing clinical demands had some impact on the ability of the nurses to implement the intervention.</p>
<p>Motivational Interviewing to promote physical activity for people with chronic heart failure. (Brodie &amp; Inoue, 2005)</p>	<p>Purpose: To compare, over a 5-month period, the effects of two different methods of increasing physical activity for people</p>	<p>This study was a randomized trial in which patients 60 or older who had a diagnosis of chronic heart failure were</p>	<p>The interventionist delivering the MI was the author of the article and also a PhD prepared</p>	<p>The results demonstrated that both the group receiving the standard care plus MI and</p>



	<p>with chronic heart failure. Target Behavior: Exercise</p>	<p>assigned to one of three groups: (a) (both) received standard care from a specialist nurse who advised patients to participate in a structured exercise program and a behaviorally based, motivational interviewing program from the researcher on how to increase energy by integrating physical activity into their daily lives, (b) (standard care) received standard care only, and (c) (Motivational interviewing) received motivational interviewing only from the researcher. The components of the MI intervention were described along with some specifics of application related to exercise. Groups that received standard care plus MI and MI alone received 8 sessions lasting one hour each.</p>	<p>professor in the area of health studies. Training in MI was not discussed though specifics of the interventions were described. Intervention fidelity via monitoring the intervention was not discussed. The nurse delivering the standard care was a heart failure specialist nurse.</p>	<p>the group receiving MI alone increased their energy expenditure by 2-3 kcal/kg/day and 2-4 kcal/kg/day respectively (based on a self-report measure). The distance walked, as measured by a 6 minute walk test, increased in all groups. A major difference in the MI intervention was the emphasis on skill building and on the integration of a wide variety of moderate intensity activities over the day rather than bouts of exercise as in the standard intervention. It is possible that the content of this specific instruction to increase the daily activities was responsible for the increased self-reports of activity rather than just the MI intervention. Any confusion related to this could be resolved by</p>
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				making the content of the information shared the same in all groups. Intervention fidelity could be improved in a future study by describing the training and by monitoring the intervention itself for application of MI.
The Newcastle exercise project: a randomized controlled trial of methods to promote physical activity in primary care. (Harland, White, Drinkwater, 1999)	Target behavior: Physical activity Purpose: Examined effectiveness of MI in promoting physical activity in adults aged 40-64 years attending general medical practice.	523 participants were randomized to one of 4 groups or a control group. The MI interventions included consideration of stage of change and were brief (one session) or intensive (6 sessions over 12 weeks). These options were delivered with and without a financial incentive.	The background of the MI counselor was not mentioned. The counselor was described as a health visitor who was trained in MI. Interviews lasted 40 minutes and took place in a general practice office or a local leisure center.	Six sessions plus vouchers was the most effective for promoting adoption of exercise at 12 weeks. No intervention promoted long term adherence to exercise at 12 months. The main measure was a self-reported physical activity score based on a shortened version of the National Fitness Survey (England)
Effectiveness of counseling patients on physical activity in general practice: cluster randomized controlled trial. (Elley, Kerse, Arroll, Robinson, 2003)	Target Behavior: Exercise Purpose: To assess the long term effectiveness of the "green prescription" (based on MI)	A randomized controlled trial of 800, 40 to 79 year old patients in 42 rural and urban general practices in New Zealand	The intervention was delivered by both primary care clinicians and exercise specialists. Primary care clinicians received 4 hours of training in MI. The primary care clinicians discussed	Results: significant changes in physical activity and quality of life over a 12 month period. The intervention also decreased blood pressure

			<p>physical activity and set goals with the patients who then received a "green prescription" to a local sports foundation. Exercise specialists from this foundation made 3 ten to 20 minute phone calls over the following 3 months to support the patients. Training of exercise specialists was not discussed. No measures of intervention fidelity were discussed.</p>	<p>1-2 mm Hg. The intervention was sustainable in general practice. Measures included self-report of exercise, a quality of life scale (SF 13), blood pressure recordings, and cardiovascular risk measures. While this study demonstrates the potential usefulness of an MI based intervention in general practice, it is limited by the lack of specifics of the intervention and also any measures of intervention fidelity.</p>
<p>A motivational interviewing intervention to increase fruit and vegetable intake through black churches: results of the eat for life trial. (Resnicow, Jackson, Want, 2001)</p>	<p>Target behavior: diet Purpose: To determine whether MI via telephone intervention promote fruit and vegetable intake?</p>	<p>African American church-goers from 14 churches (1011 participants) were randomly assigned to 3 treatment conditions: (a) a comparison group, (b) self-help intervention plus one cue call (to encourage use of materials), (c) MI counseling calls. In the third group, a form of</p>	<p>Counselors were registered dietitians or dietetic interns. Training included 3- 2 hour sessions by Resnicow. At least two counselor sessions were observed to certify training. Used a protocol adapted from Rollnick. They asked level of motivation for change of fruit and vegetable</p>	<p>The group who received the educational package plus 2 phone MI sessions self-reported the most change in fruit and vegetable intake. Three pre post measures of dietary intake were used along with total serum carotenoids.</p>

		MI was used for the 3 telephone counseling calls to promote fruit and vegetable intake. (the educational package focused on 5 a day message).	intake on scale of 1 to 10. Participants were asked why they did not choose higher or lower numbers. Participants reasons were summarized by counselor. Solutions to reduce barriers were used. When possible a contract for change made.	
Body and Soul a dietary intervention conducted through African American Churches. Resnicow, Kramish Campbell, Carr, 2004)	Target Behavior: fruit and vegetable intake. Purpose: Body and Soul was constructed based on Resnicow, Jackson, Watt (2001) eat for life trial. The goal was to determine whether a research based intervention could be adapted and implemented under real world conditions using volunteer staff.	Church wide nutrition activities plus self-help materials were part of the core program. The study compared the use of these with and without the addition of MI interventions. An MI intervention, delivered by 2 phone calls by trained volunteers was compared to church wide nutrition activities and self-help materials alone.	A total of 82 volunteer advisors were recruited –most with a college education and background in a helping profession. The 1.5 days of training provided skills in asking open- ended questions and reflective listening as well as strategies to elicit discussion about fruit and vegetable intake. Experienced MI staff used audio-taped sessions to code 17 skills	Aggregate results demonstrated positive changes in fruit and vegetable intake by self-report. Two measures of fruit and vegetable intake were used. Scales were used for motivation, self- efficacy, and social support. Age, gender, and income were considered. MI delivered by lay personal showed promise, however it was not the design of this study to separate the effects of MI from the other elements of the intervention.
Motivational Interviewing to Improve Adherence to	Purpose was to examine effects of the addition of	Participants were twenty-two 50 years or older	Team of interventionists. MI portion	Weight loss did not differ between

Behavioral Weight Control Program in Older Obese Women with NIDDM: A Pilot Study (Smith, Heckemeyer, Christine, 1997)	Motivational Interviewing to a behavioral intervention to promote weight loss and glucose control. Target behaviors were diet, exercise, and self-monitoring of blood glucose.	obese women with NIDDM. Compared 16 week behavioral weight control program to same with addition of 3 MI sessions	delivered by psychologists experienced in MI. Specific training not identified. No measures were used to evaluate therapist delivery of MI. Use of MI included exploring ambivalence, formulating goals, and problem solving related to barriers to change. analyzing cost vs benefits, promoting self-efficacy, and avoiding direct confrontation were included.	groups. MI group attended more sessions, had increased self-monitoring and better glucose control. Both groups lost weight. Body weight, BMI, and GHb were used as outcome measures. Treatment adherence was measured by diaries turned in at sessions, recorded exercise frequency, and number of days glucose recorded. Short follow-up and small sample size limit conclusions. Fuller trial warranted
A pilot study of motivational interviewing (Smith & Gregory, 2003)	The topic was diabetes self-care. A pilot study (Smith & Gregory, 2003) was undertaken to determine the impact of motivational interviewing on glycaemic control, well being, and self-care in a group adolescents	Study participants were 22 adolescents ages 14 to 18 who were pre-determined to be in the contemplation or action phases of change related to diabetes. MI specifics not described. The intervention was delivered	The MI counselor's credentials were not shared. The individual received training via workshops and role-playing and was supervised weekly via audiotapes. No specific coding tool was mentioned.	The Hmg1c was decreased from 10.8 to 9.7. The comparison group values were not discussed. The study group also showed a reduction in fear of elevated glucose and an increase in

		<p>over 6 months with the number and frequency of session determined by the participant. A comparison group was used but not described.</p>		<p>a living with diabetes score (measure not described). On a seven-point scale, 79% rated helpfulness of the intervention at 6 or 7. There were no significant changes in measures of well being, diabetes self-care, family behaviors, family process or diabetes knowledge. This was a complex intervention that holds promise related to the use of MI. A larger controlled trial would be helpful. Further data about the measures used would be indicated to help evaluate the results including that used for intervention</p>
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Implementing a psychological intervention to improve lifestyle self-management in patients with Type 2 diabetes (Clark & Hampson, 2001)	Purpose: This was a randomized controlled feasibility study of a brief lifestyle intervention based on motivational interviewing aimed at both diet and exercise behavior to control diabetes. Another part of the goal was that the intervention would be able to be integrated into usual care.	The participants were one hundred 40 to 70 year old patients in a Diabetes Center in the UK with Type 2 diabetes. The intervention consisted The intervention was guided by specific protocol based on MI, and it consisted of an initial meeting in person followed with phone calls at 1, 3 and 7 weeks (about 10 minutes per phone call) after the first meeting.	The interventionist was a research psychologist. Specifics of training and Intervention fidelity was not discussed	fidelity.. Results based on self-report indicated that 82% of patients reached their dietary goal all of the time at the one week follow up and 83% of the time at the 3 week follow-up. The physical activity goal was reached 68 % of the time at 1 week and 65% of the time at 3 weeks. A patient satisfaction questionnaire indicated that the participants found the program to be highly satisfactory. Though other data (including objective data) was collected, it was used only descriptively in this feasibility study.
The effects of motivational interviewing on physiological outcomes. (Kreman, Yates, Agrawal, et al., (2006)	Purpose: To examine the effects of motivational interviewing on physiological outcomes among hyperlipidemic persons.	This was a small randomized study involving 24 participants, aged 39 to 67, with elevated lipids recruited from a lipid screening clinic conducted in livestock auction markets in a rural frontier	The interventionist was an advanced practice nurse who was trained in the use of MI. Measures to assess the delivery of the intervention were not mentioned, but the MI	The MI intervention was significant in reducing total cholesterol and low-density lipoprotein cholesterol, but did not show changes in VO2 max.

		<p>area. The study compared two groups. The AC group received educational materials plus a follow-up phone call lasting 45 minutes to clarify materials. The MI group received the educational materials plus one 30 to 45 minute follow-up phone session based on MI. Both interventions were delivered 2 weeks after the written materials were mailed. The written materials were fairly extensive, providing information about cholesterol and its affects along with detailed information about the influence of diet and exercise as well as detailed suggestions for changing diet and exercise.</p>	<p>sessions followed 7 key points of MI.</p> <p>The training of the interventionist for the follow-up phone call in the AC group was not discussed. The intervention was provided via a scripted review of written materials mailed. Questions were answered, but no attempts at motivation or resolution of ambivalence were made.</p>	<p>The MI group was able to decrease LDL-C by 28.33 mg/dl which corresponds to a 17% reduction in clinical event rates. Measures included lipid profiles and the Rockport Walk Test. Of particular interest is the delivery of a similar length phone intervention not using MI as the comparison group. The use of a phone session was selected because of potential transportation issues in the rural area involved. This study was a preliminary study. A larger study training additional interventionist s and using measures to assure delivery would improve the ability to generalize results.</p>
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## Appendix B Consent Form



Consent Form

Oregon Health &amp; Science University

IRB#: \_\_\_\_\_

Protocol Approval Date: \_\_\_\_\_

*[Ensure the initial/annual approval date is inserted into the stamped approved consent form from the IRB]*

**OREGON HEALTH & SCIENCE UNIVERSITY**  
**Consent Form**

**TITLE:** The Experience of Nurses in Public Health Using a Brief Intervention to Change Health Behavior

**PRINCIPAL INVESTIGATOR:** Catherine Salvesson, BSN,MSN,PhD (503) 494-3448

**CO-INVESTIGATORS:**

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9637903  
[list name and degree(s)] (503) 494-####  
[list name and degree(s)] (503) 494-####  
[list name and degree(s)] (503) 494-####

*The Principal Investigator (PI) must be listed on the consent form and must be the same PI listed on the IRQ. It is recommended that no more than 5 additional personnel be listed, but others may be listed if required by the sponsor. The phone number(s) should match the phone number(s) on the HIPAA Research Authorization (HRA) and IRQ.*

**SPONSOR:** None

**PURPOSE:**

The purpose of this study is to contribute to understanding ways for nurses in rural public health settings to help patients change health behaviors. This will be accomplished by training public health nurses in the use of motivational interviewing and by evaluating both the training and the usefulness of using motivational interviewing in practice. You have been invited to be in this

research study because you are a public health nurse involved in patient care. This study includes a one-day workshop, a request that you try using motivational interviewing in your practice, two (20 to 30 minute) supportive follow-up phone calls, and a 20 to 30 minute telephone interview. This will be completed over 8 weeks. Between 12 and 20 nurses from the public health departments in Union, Baker, and Umatilla counties will be enrolled in the study.

**PROCEDURES:**

Initially you will be asked to fill out a background questionnaire describing your background, including your education and practice experience. Following this you will attend a one day workshop in which you will receive training and practice in using brief interventions based on Behavior Change Theory (BCC) to help change health related behaviors in your patients. BCC is a brief form of intervention based on Motivational Interviewing (MI). A trainer from the OHSU School of Nursing, who is a certified MI trainer (MINT), will provide the training. The trainer will be provided the information from your questionnaire to help make the training experience specific to your clinical situation and needs.

For one of the activities, you will be divided into groups of three. One nurse participant (client) will be asked to share a simple behavior that they would like to change. A second nurse (interventionist) will conduct a 5-10 minute session with the first nurse with the instruction that they should help this person in changing the designated behavior. The third nurse in the triad (observer) will observe and critique the interaction in terms of how helpful they thought it was to the client. The client will also be asked to discuss the helpfulness of the interaction. These roles will be rotated so that each nurse in the triad

accomplishes each role. We ask that the situation you share not be too personal. An alternative will be provided if you are not comfortable sharing a situation of your own.

During the course of the day, two of your practice experiences will be audio taped. These tapes will be used to evaluate your learning and to give you feedback. They will not be shared with anyone. Each member of your practice group of three nurses will receive a personal copy of the audiotape of their practice sessions. An evaluation of the interaction by a motivational interviewing trainer will be provided individually to each nurse participant (not shared with other nurse participants). This will occur 1 week after the training.

For the following 8 weeks, you will be asked to use the brief intervention techniques in everyday interactions with patients involving patient education. You will be encouraged to discuss situations with others participating in the training. Individualized training and follow-up will be provided. You will be asked to participate in two 20 to 30-minute follow-up phone calls during weeks 3 and 7. The content of these phone discussions will be guided by your needs. The phone follow-up may include a discussion of case examples you present, further information to help your practice, and practice opportunities on the phone.

During the eighth week you will again be asked to participate in a 10-minute experience using the brief interventions based on BCC. Arrangements will be made for you to practice with other nurses in the study, in groups of two or three in your practice settings, at a time convenient to you. These will be audio taped, and will require 30 minutes of your time. As with the first two audio taped

interactions, a member of the OHSU MI network of trainers will score your interactions and provide you with a copy of the tape and feedback and suggestions.

Finally, during week 8, you will be asked to participate in a telephone interview with the researcher. The purpose of the questions that you will be asked in the telephone interview are to understand the degree to which you felt you were able to learn the behavior change counseling methods in the training experiences and to learn about what your experience in applying the techniques in practice was like. This confidential interview will be audio taped for later review by the researcher.

The practice audio tapes will be shared with your group of three nurses (those involved in interacting with you). This is to allow personal feedback. Copies of the audio tapes that are used for research purposes will be kept confidential. You will never be personally identified when results of the study are shared.

#### Study procedure summary for nurse participants

Time	Nurse Participant Schedule	Responsible person
Pre-intervention	Receive study information Sign consent Complete Demographic and Practice Information Questionnaire	By the researcher Kathy Pfister-Minogue
Initial Training Study Week #1	Attend a one day training workshop on BCC	Certified MI Trainer from the national MINT trainers group. The name of the person will be added when the study start date can be specifically identified (after IRB approval)

	<p>First 10-minute taped interaction completed at beginning of the training</p> <p>Second 10-minute taped interaction completed at the end of the training day</p>	<p>and the obtaining funding)</p> <p>By the researcher Kathy Pfister-Minogue</p> <p>By the researcher Kathy Pfister-Minogue</p>
Study Week #2	Receive feedback via tape and scoring of interactions obtained during initial training	Scored by a certified MI trainer (name added when available (see above) and provided by researcher-Kathy Pfister-Minogue
Study weeks #1,2,3	Apply BCC on your own in clinical practice setting (as you see useful)	Nurse participants
Study Week 3	Receive first follow-up phone call	Certified MI trainer (see above)
Study Weeks #4,5,6	Apply BCC on their own in clinical practice setting	Nurse participants
Study Week 8	Be taped in interaction using BCC with another nurse participant Participate in a 10 to 20 minute telephone interview	Nurse researcher-Kathy Pfister-Minogue

If you have any questions regarding this study now or in the future, contact  
Kathy Pfister-Minogue (541-963-7903 or 541-910-7903

**RISKS AND DISCOMFORTS:**

The risks related to this study are low. It is possible that some individuals may experience discomfort from sharing a situation they would like to change with other nurses; however nurses who are participating will be advised not to share experiences that are very personal to them. There will also be options for nurses not wanting to share any personal information in the practice interactions.

**BENEFITS:**

The main benefit of participating in this study is the opportunity to learn a state of the art technique (Behavior Change Counseling/Motivational Interviewing) to help facilitate behavior change in the patients with whom you work.

**ALTERNATIVES:**

You are free to choose whether or not you wish to participate in this study. Your nursing supervisors have agreed to allow you to take paid time off of work to make it easier for you to participate in the one day workshop on September 13<sup>th</sup>. Regularly scheduled workshifts will continue for those of you who choose not to participate.

**CONFIDENTIALITY:**

We will not use your name or your identity for publication or publicity purposes. The nurse researcher, Kathy Pfister-Minogue, will be able to identify you on documents with your name on them, such as the Demographic and Practice Information Questionnaire. This information will be protected with a unique number (code) when shared with the MI trainers to help them individualize the training. Audio tapes of the interactions in which you practice MI will be identified with a confidential number assigned to your name. This is done so that you will not be identified by name on the audio-tapes that are sent to a certified MI trainer to score your interactions and to provide you with feedback about your use of MI. The tapes will be stored in a locked cabinet in the Oregon Health and Science University (OHSU) School of Nursing in La Grande. They will be sent by registered mail to the person who will be scoring them on the OHSU campus in

Portland. Research records may be reviewed by the OHSU Institutional Review Board.

**COSTS:**

This training will be paid for by the researcher or other funding source for which the researcher has applied. Your employer (public health agency) has agreed to pay for your time for the initial one-day training workshop. There are no costs to you except the time involved in your follow-up phone calls and interview.

**LIABILITY**

If you believe you have been injured or harmed while participating in this research and require immediate treatment, contact Kathy Pfister-Minogue at 541-963-7903 or 541-910-7903.

The Oregon Health & Science University is subject to the Oregon Tort Claims Act (ORS 30.260 through 30.300). If you suffer any injury and damage from this research project through the fault of the University, its officers or employees, you have the right to bring legal action against the University to recover the damage done to you subject to the limitations and conditions of the Oregon Tort Claims Act. You have not waived your legal rights by signing this form. For clarification on this subject, or if you have further questions, please call the OHSU Research Integrity Office at (503) 494-7887.

**PARTICIPATION:**

If you have any questions regarding your rights as a research subject, you may contact the OHSU Research Integrity Office at (503) 494-7887.

You do not have to join this or any research study. If you do join, and later change your mind, you may quit at any time. If you refuse to join or withdraw early from the study, there will be no penalty or loss of any benefits to which you are otherwise entitled.

You may be removed from the study if the investigator stops the study.

We will give you a copy of this signed form.

**SIGNATURES:**

Your signature below indicates that you have read this entire form and that you agree to be in this study.

LEAVE 4 INCHES BETWEEN THE LAST PARAGRAPH OF THIS PAGE AND THE  
SIGNATURE LINES.

APPROVAL/EXPIRATION STAMP WILL GO HERE.

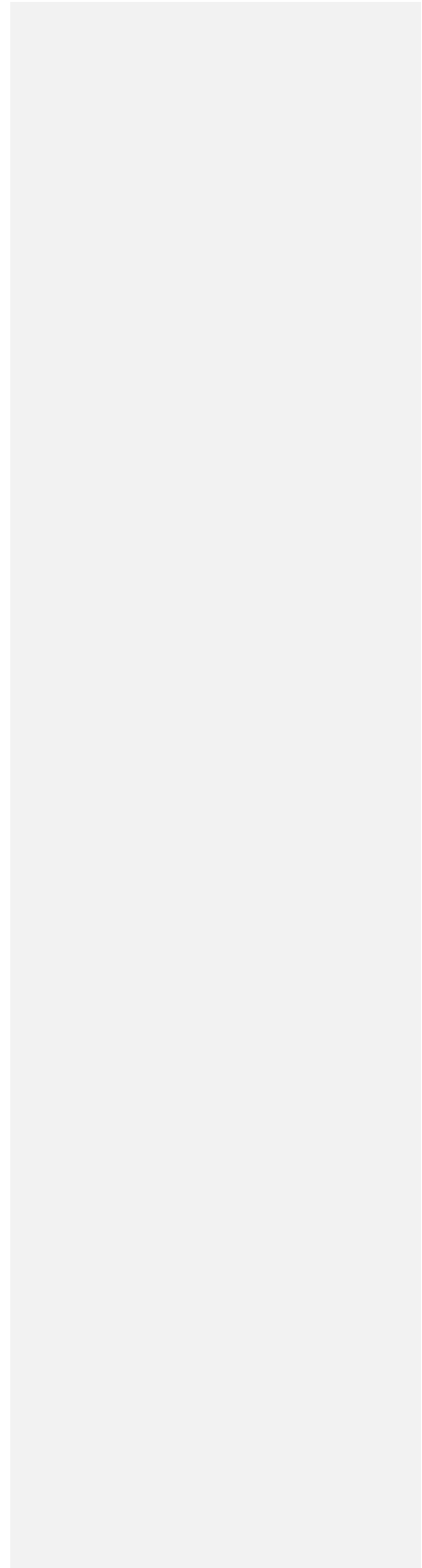


Participant Signature:

Date:

Person Obtaining Consent: Print Name:  
Sign Name:

Date:



### Appendix C DEMOGRAPHIC AND PRACTICE INFORMATION

<b>LAST NAME</b>		<b>FIRST NAME</b>	
Address		City and State	Zip
Gender: Circle one: Female    Male		Age:	

<b>EDUCATIONAL BACKGROUND</b>		
<b>EDUCATIONAL INSTITUTION</b>	<b>DEGREE OR CERTIFICATIONS</b>	<b>DATE EARNED</b>

<b>EMPLOYMENT HISTORY</b>		
<b>PLACE OF EMPLOYMENT</b>	<b>POSITION/JOB DESCRIPTION</b>	<b>DATES OF EMPLOYMENT</b>

**PLEASE DESCRIBE WHAT YOU HOPE TO LEARN OR GAIN FROM THIS TRAINING**

**PLEASE DESCRIBE AN EXAMPLE OF A CHALLENGING CLINICAL NURSING SITUATION INVOLVING A PATIENT BEHAVIOR FOR WHICH YOU WERE INVOLVED IN PROVIDING INFORMATION OR ADVICE IN HOPES OF HELPING TO CHANGE A BEHAVIOR**

## **Appendix D**

### **BCC Training Guidelines**

BCC is considered to be an AMI, an adaptation of motivational interviewing. BCC draws on the skills of MI. One of the major differences between BCC and MI is that BCC is more task-oriented and is purposefully directive. There is a difference in the intention of the use of the skills. BCC spirit is implemented in the light of behavior change tasks. As mentioned previously, It is designed to be implemented in practice settings where briefer contact times with patients are typical. An intervention would typically last 5 to 30 minutes. It also might be used in a series of encounters lasting a minute or two (Dunn & Rollnick, 2003). The “spirit” of BCC is evidenced by the collaborative conversation that occurs about the behavior change.

BCC is defined as “any deliberate effort to use counseling skills to discuss behavior (including medication use) with patients that encourages them to consider for themselves the why and how of changing their behavior” (Dunn & Rollnick, 2003). Skillful counseling (discussed later) is the cornerstone of the intervention.

Dunn and Rollnick (2003) define behavior change as “any reduction in frequency or intensity of unhealthy behavior or an increase in frequency or intensity of healthy behavior”. There is a wide range in the magnitude of behavior change that might occur, and small changes over time can collectively produce health gains.

Skillful consultation is important to BCC. Key concepts to BCC include:

1. Listening
2. Flexibility
3. Readiness, Importance, Confidence
4. Advice Giving
5. Avoiding Arousing Resistance

Listening is a key element of BCC. Listening allows the patient to have more control and it aids in the assessment of the most useful intervention at a given point in time. .

Flexibility is needed because there is not a quick fix for behavior change, and one approach will not work for everyone. Aids to flexibility include:

1. Using open questions. Why? How? What?
2. Using long and short summaries: Providing summaries refers to the provider gathering his or her understanding of the situation and sharing it with the patient. Summaries have the benefit of making the patient feel understood as well as facilitating movement of the conversation to the task of making a plan for change.
3. Elicit-Provide-Elicit (E-P-E): The first Elicit assesses what the patient knows as well as what the patient wants to know. Information is provided based on this, and then the second Elicit is used to gain an understanding of the patient's reaction.
4. Handling resistance and avoiding debate: Resistance is patient behavior that occurs in the encounter that indicates unwillingness of the patient to go along with suggestions. Careful inclusion of the

patient in the process helps to avoid resistance. Summarizing, giving the patient the freedom of deciding what to talk about next, checking with the patient to be sure you have not offended him or her, and reminding the patient that he or she is in charge of any decisions about change are helpful to avoiding resistance.

5. Advice giving: Advice should be carefully timed to be sure that the patient is ready and willing to hear it. Leaving space, listening, and emphasizing freedom of choice are important in the process of giving advice.

6. Offering multiple solutions: This technique allows room for choice.

Using open questions allows the patient to be control and allows the practitioner to better evaluate the patient's strengths and weaknesses in supporting change.

## Appendix E

### Behaviour Change Counselling Index (BEC CI)

BEC CI is an instrument designed for trainers to score practitioners' use of Behaviour Change Counselling in consultations (either real or simulated). To use BEC CI, circle a number on the scale attached to each item to indicate the degree to which the patient/practitioner has carried out the action described.

Before using BEC CI, please consult the accompanying manual for a detailed explanation of how to score the items. As a guide while using the instrument, each number on the scale indicates that the action was carried out:

- 0. Not at all
- 1. Minimally
- 2. To some extent
- 3. A good deal
- 4. A great extent

The Topic: \_\_\_\_\_ ☐

Item	Score
1. Practitioner invites the patient to talk about behaviour	not at all      a great extent 0    1    2    3    4
2. Practitioner demonstrates sensitivity to talking about other issues	not at all      a great extent 0    1    2    3    4
3. Practitioner encourages patient to talk about current behaviour or status quo	not at all      a great extent 0    1    2    3    4
4. Practitioner encourages patient to talk about change	not at all      a great extent 0    1    2    3    4
5. Practitioner asks questions to elicit how patient thinks and feels about the topic	not at all      a great extent 0    1    2    3    4
6. Practitioner uses empathic listening statements when the patient talks about the topic	not at all      a great extent 0    1    2    3    4
7. Practitioner uses summaries to bring together what the patient says about the topic	not at all      a great extent 0    1    2    3    4
8. Practitioner acknowledges challenges about behaviour change that the patient faces	not at all      a great extent 0    1    2    3    4
9. When practitioner provides information, it is sensitive to patient concerns and understanding <input type="checkbox"/>	not at all      a great extent 0    1    2    3    4
10. Practitioner actively conveys respect for patient choice about behaviour change	not at all      a great extent 0    1    2    3    4
11. Practitioner and patient <i>exchange</i> ideas about <i>how</i> the patient could change current behaviour ( <i>if</i>	not at all      a great extent 0    1    2    3    4

**Practitioner BECCI Score:** \_\_\_\_\_

**Practitioner speaks for (approximately):-**

More than half the time ☐  
time

About half the time ☐

Less than half the time ☐

## APPENDIX F

# Change Counselling Index (BECCI)

## Manual for Coding Behaviour Change Counselling



## MANUAL FOR CODING BEHAVIOUR CHANGE COUNSELLING

### Rationale

#### *Behaviour change counselling*

Behaviour change typically involves changes in lifestyle and medication use, but can also apply to other behaviour change like using a new hearing aid, keeping liquid intake down (renal medicine) or adopting new ways of looking after ones feet (diabetes care). It is based on the principles of patient or client-centred counselling.

*Behaviour change counselling* has been described in Rollnick et. al. (2002). It involves using a wider range of skills than for *brief advice*, but not as wide as those involved when using *motivational interviewing*. Essentially, the practitioner encourages the patient to make their own decisions about behaviour change. A constructive and trusting atmosphere is used to explore the patient's feelings about the why and how of change. "The roles of the practitioner and recipient are more egalitarian than in the brief advice session. The practitioner using behaviour change counselling operates as an advisor to a client who is an active and engaged participant. The encounter is more collaborative than typically observed with brief advice, and greater attention is placed on building rapport. However, this does not necessarily require the intensity of relationship building essential to the good practice of motivational interviewing. Behaviour change counselling often has a 'task oriented flavour'. (Rollnick et al, 2002).

There is no single text on behaviour change counselling. The practical guidelines in *Health Behaviour Change: A Guide for Practitioners* (Rollnick et al 1999) merely provide one example of this counselling style. It was constructed in 2002 by a consensus group of trainers and practitioners in motivational interviewing, to describe those adaptations of motivational interviewing that embrace the patient-centred method for use in brief consultations (not therapy sessions) in healthcare and other settings. This was in response to a concern about an ever-increasing number of names being given to methods that had more similarities than differences. Behaviour change counselling was thought to be a suitable general term for attempts to conduct *a constructive conversation about change in which the practitioner tries to understand how the patient feels about change, by using mostly open questions and sometimes empathic listening statements*. Less emphasis is placed on exploring personal values, the directive use of empathic listening and deploying discrepancy, more characteristic of motivational interviewing.

#### *BECCI*

This was constructed as an initial effort to measure the skills involved in behaviour change counselling. Our goal was to help the trainer as well as the researcher. Hence the small number of items on the checklist, designed to help trainers evaluate skills acquired in training by examining recordings of consultations. It might even be used in training itself, as a springboard for discussion and practice.

#### *Who can use BECCI?*

To use BECCI, the rater should have a good basic knowledge of Behaviour Change Counselling and the checklist. To ensure this, raters should undertake background

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reading, watch a training video and gain an understanding of how the checklist works. The following tasks make up the minimum amount of training required before rating:

#### Reading

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- Rollnick S, Mason P, and Butler C (1999) *Health Behaviour Change: A Guide for Practitioners* Edinburgh: Churchill Livingstone, Parts 1 and 2 (pp. 3 – 129)
- Rollnick S, Allison J, Ballasiotes S, Barth T, Butler C, Rose G and Rosengren D (2002) *Variations on a Theme: Motivational Interviewing and its Adaptations* in Miller W and Rollnick S (2002) *Motivational Interviewing: Preparing People for Change (2<sup>nd</sup> Edition)* New York: Guilford Press, Chapter 18 (pp. 270 – 283)
- Miller W and Rollnick S (2002) *Motivational Interviewing: Preparing People for Change (2<sup>nd</sup> Edition)* New York: Guilford Press, Chapters 4 and 5 (pp. 33 – 51)

#### Training Video

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- Health Behaviour Change: A Selection of Strategies, An Aid for Trainers © Media Resources Centre, University of Wales College of Medicine 2001 (available from edwardske@cardiff.ac.uk)

#### BECCI

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- A copy of the manual and BECCI should be read thoroughly to ensure the rater understands how to use the checklist correctly.

#### Simulated versus ‘Real’ Consultations

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BECCI has been tested for reliability mainly on simulated consultations. It is hoped that in the future, it will be tested for robustness on ‘real’ consultations. Based on the minimal number of real consultations that have been rated, the simulated and real consultations appear to be very similar in nature, but it cannot be guaranteed that this will be the case in all simulated consultations. However, as BECCI is primarily an instrument for trainers, the likelihood is that in most cases the consultations will be simulated.

#### **Item choice**

BECCI contains items that concentrate mainly on practitioner behaviours. We realise that the main goal of BCC is to encourage the patient to talk about the how and why of change. However, the checklist is designed to assess the skills of practitioners, and it is not reliable to assess the practitioner’s performance based on the patient’s behaviour in the consultation.

We have deliberately restricted the selection of *practitioner behaviours* in a number of ways. Firstly, we have tried to steer clear of items that measure patient-centredness in its

pure or more general form. Thus, even the items that elicit judgements about the practitioner's handling of the consultation as a whole (Items 5, 6, 7, 8, 9 and 10) focus on talk about behaviour change. The rationale here is that if the practitioner succeeds in getting high scores for the items on behaviour change, the consultation will be a patient-centred one. BCC is a patient-centred method in itself. Secondly, we have selected a few key practitioner microskills to focus on (e.g. questions, empathic listening statements, summaries) rather than their combination into any of a large number of strategies, like pros and cons, assessment of importance and confidence, and so on.

*Invitation* does not occur in every consultation (where the practitioner invites the patient to talk about behaviour change). Sometimes because the practitioner does not do this, and sometimes because the practitioner does not get the chance. Therefore, item 1 is only scored when the practitioner has the chance, making a distinction between not being able to invite the patient to talk, and simply not doing it. It has been argued that either invitation occurs or it does not, leading some to believe that a dichotomous item rather than a scale would be more suitable for this item. However, it has been found during the development of the instrument that invitation can vary on a continuum of how well it is performed. There is a difference between the practitioner who asks if it is okay with the patient to talk about behaviour change and emphasises patient choice from the outset, the practitioner who says 'You've been sent here by your doctor. How do you feel about that?', and the practitioner who does not invite the patient to talk about behaviour change at all. Therefore, item 1 will remain a scaled item at this stage.

*Information exchange* again does not occur in all BCC consultations (sometimes because the patient does not request information, sometimes because it is not appropriate to give information), but when it does take place, we felt it was important to assess how skilfully this is done. Therefore, item 9 is only completed when it is applicable to the context

*Talking about targets* also does not occur in every consultation i.e. when the patient and practitioner talk about possible methods of how change can be achieved. Therefore, raters should only score item 11 when it is applicable to the context.

*Talk time* is a feature central to BCC. However, internal consistency reliability testing found that this item was not giving a reflective score of practitioner skill when correlated with the other items. As this feature is so important to the concept of BCC, we have chosen to exclude it from the scale to enhance its reliability, but include it as a separate ordinal item so that this information is still present and can be assessed by the trainer.

#### **Scoring**

While completing the checklist, each item is accompanied by a Likert scale to reflect the degree to which the action was carried out. As a guide, circling each number would indicate that the action was carried out: 0 = Not at all, 1 = Minimally, 2 = To some extent, 3 = A good deal, 4 = A great extent

The main purpose of the checklist is to provide trainers and practitioners with a window into their consulting. Looking at scores on individual items is thus at the heart of this activity.

However, should an overall score be required, the mean across item responses is taken to give a Practitioner BECCI Score. The mean should be calculated as follows:

1. Take the mean of all the applicable items (i.e. add up the total score of the applicable items, and divide by that number of items).
2. If all items are applicable in that particular consultation, this mean is the Practitioner BECCI Score. If any of the items were not applicable in the consultation, proceed to step 3.
3. A technique known as 'mean substitution' is used for any items scored as 'not applicable'. The mean of the applicable items is the score to be used for the not applicable items. So, for example, if the mean of all other items is 2.87, this is the score that should be given to any items scored as not applicable. Proceed to step 4.
4. Now you have the scores for any not applicable items, recalculate the mean for all the items. This will give you the practitioner BECCI score.

You will find that by taking the mean score, the Practitioner BECCI Score corresponds to the points given on the Likert scales on the checklist. For example, if the Practitioner BECCI Score is 2.94, you will see that they have been practicing BCC 'a good deal', or a practitioner scoring 1.62 has been practicing BCC somewhere between 'minimally' and 'to some extent'.

### **References**

1. Rollnick S, Mason P, and Butler C (1999) *Health Behaviour Change: A Guide for Practitioners* Edinburgh: Churchill Livingstone
2. Rollnick S, Allison J, Ballasiotes S, Barth T, Butler C, Rose G and Rosengren D (2002) *Variations on a Theme: Motivational Interviewing and its Adaptations* in Miller W and Rollnick S (2002) *Motivational Interviewing: Preparing People to Change* (2<sup>nd</sup> Edition) New York: Guilford Press, Chapter 18

## Domain 1: Agenda Setting and Permission Seeking

### 1. The practitioner invites the patient to talk about behaviour change\*

*\*NB This item does not need to be coded if it is not applicable to the context*

A high score: The practitioner explicitly asks the patient's permission to talk about behaviour change, making it clear that the patient is not obliged to make any decisions regarding their behaviour.

*Example: 'Before we start, I'd just like to make it clear that I am not here to tell you what to do or to force you to make decisions you don't feel ready to make. I am here to understand you. We don't have to talk about anything you don't want to talk about. Now I understand your GP has sent you here to talk about your smoking. Would it be okay with you if we had a chat about that now?'*

A low score: The practitioner fails to ask the patient about a willingness to talk about behaviour change and does not give them an opportunity to speak, giving the impression that the patient has little choice in the matter!

Not Applicable: The patient goes straight into the interaction, without giving the practitioner a chance to invite them to talk about behaviour change.

### 2. The practitioner demonstrates sensitivity to talking about other issues\*

*\*(An issue can be anything of concern to the patient, whether it is connected to the behaviour in question or not)*

A high score: The patient is given choice in what to talk about, because, for example, the practitioner goes through an agenda setting process in which the patient is encouraged to talk about other health behaviours, or other issues not immediately connected to behaviour change.

*Example: 'So, since you've had your heart attack you've been asked to make a lot of changes. That must seem quite a lot to deal with at the moment. I know you've been sent here to talk about your smoking, but I'm wondering if there is anything else bothering you that you would rather talk about today'.*

A low score: The practitioner does not give the patient any choice about what to talk about, and proceeds with the consultation discussing in turn what s/he feels are the most important issues.

## Domain 2: The Why and How of Change in Behaviour

### 3. Practitioner encourages patient to talk about current behaviour or status quo

A high score: The practitioner encourages the patient to talk freely about what they both like and/or dislike about their current behaviour/status quo. They may do this in a variety of ways, for example through asking open questions or using empathic listening statements, to gain an understanding of the patient's perspective.

A low score: The practitioner does not actively encourage the patient to talk about what they like and/or dislike about their current behaviour/status quo.

#### 4. Practitioner encourages patient to talk about behaviour change

A high score: The practitioner encourages the patient to talk freely about what they feel the positive and negative aspects of behaviour change would be for them. They may do this in a variety of ways, for example through asking open questions or using empathic listening statements, to gain an understanding of the patient's perspective.

A low score: The practitioner does not actively encourage the patient to talk about what they feel the positive and negative aspects of behaviour change would be for them.

#### 5. Practitioner asks questions to elicit how patient thinks and feels about the topic

A high score: The practitioner uses a range of (mainly open-ended) questions to draw as much information from the patient as possible about their thoughts and feelings towards the topic of behaviour change.

A low score: The practitioner does not ask the patient any questions regarding their thoughts and feelings about behaviour change, or asks only closed-ended questions that do not give the patient the opportunity to express their thoughts and feelings about the topic of behaviour change.

#### 6. Practitioner uses empathic listening statements when patient talks about the topic

A high score: The practitioner uses a range of empathic listening statements while the patient is talking about behaviour change to clarify whether s/he has understood what the patient has said, and/or to encourage the patient to amplify further.

A low score: The practitioner makes no empathic listening statements when the patient is talking about behaviour change.

#### 7. Practitioner uses summaries to bring together what the patient says about the topic

A high score: The practitioner summarises what the patient has said about behaviour change at several key points in the discussion to check their understanding of the patient's perspective.

*Example: 'OK, so just to recap on what we've spoken about so far, you feel that it's important to give up smoking for health reasons because you've had a heart attack. You also feel it's important to give up for your family to stop them worrying about you. On the other hand, you've smoked for many years and tried to give up before. You don't feel confident that you would be able to stop if you tried. You have a stressful life and you feel smoking helps to relieve your stress. Does that sound right?'*

A low score: The practitioner does not summarise what the patient has said about behaviour change.

### Domain 3: The Whole Consultation

#### 8. Practitioner acknowledges challenges about behaviour change that the patient faces

A high score: The practitioner regularly and explicitly acknowledges the challenges that may be facing the patient. This affirmation is done by focusing on the personal strengths that the patient has in the face of these challenges.

*Example: 'Goodness, I can see why it is so hard for you to give up. You have so much stress to deal with in your life right now. It must be really hard. But even though this is really difficult, you have already begun to make changes to your lifestyle following your heart attack, and you've managed to keep them up even though it's tough'.*

A low score: The practitioner does not make any explicit acknowledgment the challenges that face the patient, and does not focus on any of the personal strengths that the patient has.

#### 9. When practitioner provides information, it is sensitive to patient concerns and understanding\*

**\* This item does not need to be scored if it is not applicable to the context**

A high score: The practitioner tries to understand what the patient knows and wants to know, and also elicits their personal reaction to information provided.

A low score: The practitioner gives information to the patient without asking whether the patient wants or needs information. The personal relevance of the information is not drawn out of the patient, but provided by the practitioner. A low score would also be given if the patient requests information from the practitioner, and the practitioner does not provide any.

Not Applicable: There is no information requested or exchanged within the consultation.

#### 10. Practitioner actively conveys respect for patient choice about behaviour change

A high score: The practitioner openly acknowledges and accepts patient choice even if this does not fit in with practitioner's agenda. The practitioner does not put any pressure on the patient to change their behaviour.

*Example: 'At the end of the day, it's your choice. It's up to you if you want to make any changes, and it's about what is realistic and manageable for you. You don't have to do anything you don't want to do.'*

A low score: The practitioner does not acknowledge or accept patient choice.



## Domain 4: Talk about Targets

### 11. Practitioner and patient *exchange* ideas about *how* the patient could change current behaviour

*\*NB This item does not have to be coded if it is not applicable to the context*

A high score: The practitioner actively encourages the patient to brainstorm a number of strategies that may help them change their behaviour. With encouragement, the patient offers the most ideas, and the practitioner also makes suggestions.

A low score: The practitioner does not encourage the patient to brainstorm. There is no exchange about a range of possibilities. The patient does not suggest any. Instead, it is the practitioner only who suggests ideas for change.

Not Applicable: There is no discussion of targets within the consultation.

### Measure of Practitioner talk time

This indicator of practitioner talk time is there for information alongside the total BECCI score. Simply tick the box next to the item that best describes how much the practitioner talked within the consultation. As a guideline, the practitioner should be speaking approximately 50% of the time or less.

## **Appendix G**

### **Procedures for the Participant Interview**

The procedure for developing the interview schedule used the following guidelines (Walz, Strickland, & Lenz, pp. 310-330, 1984): 1. Determine the goals of the interview and the information to be sought. 2. Develop the questions to be answered. 3. Determine the sequence of the questions. 4. Draft the interview schedule including an introductory statement, describing the purpose as well as what will be done with the information. 5. Pilot-test the interview (This will be done using the expertise of the dissertation committee). 6. Train the interviewers. (Since the interviewer is the researcher, this step will be accomplished by a review the interview process with the dissertation committee). 7. Administer the interview. This process will include setting a short unrushed time in the clinical work site for convenience of the participants. 8. Code the interview. To increase the reliability of these interviews using open-ended questions, they will be taped and then coded by the researcher. A random selection of the taped interviews will be rated simultaneously by a member of the dissertation committee to allow for checks on inter-rater reliability.

The purpose, goals, questions and sequence of questions (items 1 through 4 above) are described in the Interview Guide for the BCC Training Experience (Appendix # B 7).

## **Appendix H**

### **Interview Guide for the BCC Training and Practice Experience**

The following introductory statements and explanation will be provided to participants. “I appreciate your time for this interview. The purpose of the interview is to help us to understand how the training in BCC was for you and to learn about whether you found it helpful to your clinical practice and the extent to which you were able to use the information. The information you share is confidential and will be analyzed along with information from other nurses who participated in this project. This will be shared as a summary.

The interview guide presents the two major goals of the interview along with the questions to be answered in semi-structured interviews that will be conducted with each participant at the end of the intervention.

The main goals of the interview are to answer two questions:

1. To what degree did the nurses feel they were able to learn the BCC methods in the training experiences?
  - (a) How helpful did you find the training you received related to BCC?
  - (b) What were the most helpful aspects of the training?
  - (c) What advice would you give to make the training better?
2. What was the experience of the nurses in applying BCC in their clinical practices?
  - (a) How useful did you find BCC to your everyday practice?

- (b) How easy or difficult was it to use BCC?
- (c) To what degree do you think you will continue to use BCC in your nursing practice?
- (d) Is there anything you would like the researcher to know about your experience as a participant in this research project?

## **Appendix I**

### **Interview Coding Form BCC Training**

1. To what degree did the nurses feel they were able to learn the BCC methods in the training experiences?

(a) How helpful did you find the training you received related to BCC?

(b) What were the most helpful aspects of the training?

(c) What advice would you give to make the training better?

2. What was the experience of the nurses in applying BCC in their clinical practices?

(a) How useful did you find BCC to your everyday practice?

(b) How easy or difficult was it to use BCC?

- (c) To what degree do you think you will continue to use BCC in your nursing practice?
- (d) Is there anything you would like me to know about your experience as a participant in this research project?

## **Appendix J**

### **Procedures for Increasing Reliability of the Interview Process (step 7).**

An expert reviewer (committee member?) will be asked to:

1. Review the goals of the interview.
2. Evaluate the interview questions.

Review a random selection of 20% of the taped interviews in order to rate the adequacy of the interview process and the concluding themes using the form entitled: Procedures for Increasing the Reliability of the Interview Process: Instructions for the Reviewer.

## **Appendix K**

### **Procedures for Increasing the Reliability of the Interview Process**

#### **Instructions for Reviewer**

You are asked to answer the following questions taken from the guidelines for interviews developed by Polit and Hungler (1995) to assess the skill of the interviewer.

1. Did the interviewer use the guideline questions?
2. Did the atmosphere created facilitate open discussion and response on the part of the participant?
3. Were neutral probes used? Examples of neutral probes include: (a) repeating the original question, (b) using a long pause to encourage a further answer and (c) encouraging a more complete response with a supplemental question such as, how is that?
4. Do you agree with the conclusions of the interviewer/ researcher related to the interview goals? (use summary of interview organized under each question).



