

LESSONS LEARNED FROM PILOTING AN INTERNET SURVEY  
TO NURSE PRACTITIONERS IN MONTANA ON  
ALCOHOL ABUSE AND EDUCATION

by

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## ABSTRACT

This purpose of this research study was to explore the perceptions of rural providers about alcohol misuse services and related formal education. A web-based self-report survey was developed and piloted to NPs in Montana about how important it is for rural NPs to be proficient in providing care clients with Alcohol Use Disorders (AUD) and alcohol detoxification needs, their proficiency in providing related services, and formal education received in these areas.

An invitational email with a hyperlink to the web-based survey was sent to 412 NPs in Montana through the use of a private marketing company over six launches. A total of five respondents started the survey and three completed it. Though the response rate was too small to reach significance, findings suggested that large scale future research replicating this survey would likely reveal important new information about rural health care that could inform policy and educational curriculum. Perceptions of proficiency were generally low yet all respondents agreed that rural NPs need to be proficient in providing AUD services and alcohol detoxification. Until this point, alcohol detoxification has been considered a specialty function. This appears to be new information that could impact policy and graduate nursing education curriculum for rural states. In addition, concerns for future research using internet surveys were discussed in the context of a low response for the survey administered in this study.

## CHAPTER ONE - IMPACT OF ALCOHOL MISUSE

### Introduction

Alcohol misuse has had devastating effects to society on many levels from ancient to current times (Heise, 2010; Mokdad et al., 2004; Nasser, 1987; Rehm et al., 2009). Globally, alcohol misuse is estimated to account for 4% of total mortality and is considered one of the greatest preventable risk factors for disease and death (Mokdad et al., 2004; Rehm et al., 2009). Nationally, it is estimated that approximately 2 million Americans exhibit alcohol withdrawal symptoms each year (Bayard, McIntyre, Hill, & Woodside, 2004) and approximately 60,000 deaths each year in the United States (U.S.) are due to alcohol consumption (Mokdad, Marks, Stroup, & Gerbending, 2004). Twenty-two million Americans were estimated to have a problem with drugs or alcohol in 2005 (US-DPHHS, Healthy People 2020). Scarcely populated states such as Montana are particularly impacted by the destructive effects of alcohol addiction (Heise, 2010). Finding and implementing cost-effective ways to improve alcohol misuse services in rural areas may have dramatic effects on the suicide rate, quality of life, and health of Montanans.

### Background and Significance

The term *alcohol misuse* will be used in this study to refer to alcohol dependence, alcohol abuse and risky drinking. Alcohol misuse is linked with multiple medical conditions and diseases that can lead to death and disability (DeAlba et al., 2004; U.S. Department of Health and Human Services [US-DPHHS], 2000). The estimated indirect

and direct cost of alcohol misuse in the U.S. in 1998 was over \$184 million (Harwood, 2000). In the United Kingdom, 12% of mental health beds are used for the purpose of alcohol withdrawal treatment and approximately 73% of alcohol detoxification beds are patient re-admissions (Cooper, 1995). In California, it has been estimated that problems related to alcohol consumption cost approximately \$38.5 billion in health services, work losses, criminal justice spending, property damage and costs of public programs (Rosen, Miller, & Simon, 2008). Despite high consequences, most people with a substance use disorder (SUD) do not seek care and are not identified by their medical providers (Substance Abuse and Mental Health Administration [SAMSHA], 2010).

Rural areas have higher rates of substance misuse (Heise, 2010), and disproportionately fewer health care services (Sawyer, Gale, & Lambert, 2002). Montana, a rural state, has a high rate of alcoholism, a shortage of inpatient mental health beds, and a shortage of related services, which are all risk factors for suicide (Rosston, 2008). Furthermore, Montana has ranked in the top five for states with highest suicide rate for the past 30 years (Rosston, 2008). In recent years Montana has been ranked 2<sup>nd</sup> in the nation for suicide (CDC, 2006).

Treatment for an alcohol use disorder (AUD) can greatly improve a person's health and longevity (May-Smith et al., 2004; Weisner et al., 2003). In addition to saving lives, treatment for a substance use disorder (SUD) can reduce the financial burden imposed on society (Wickizer et al., 2006). Alcohol detoxification and linkage to treatment has been shown to increase long-term sobriety, decrease the use of SUD treatment, reduce crime, and lessen the need for expensive acute medical care and

surgeries (Center for Substance Abuse Treatment [CSAT], 2006). Furthermore, SUD treatment services pay for themselves (Ettner et al., 2006; Wickizer et al., 2006) and in fact, SUD treatment in Washington State was determined to net a cost savings of approximately \$2,500 annually per person, a figure that approximated the cost of an episode of substance abuse treatment during that time period (Wickizer et al., 2006). Unfortunately, studies show that SUDs are often not identified and not treated (McGlynn, 2003).

A large percentage of the population with a SUD also has a comorbid mental disorder (CSAT, 2007). This population with co-occurring disorder (COD), defined as comorbid SUD and mental illness, provides financial and organizational challenges to health care providers (Cleary et al., 2008).

Conceptualization of SUD treatment in the US has shifted from a criminal model to a disease model over the last 10-20 years, and is now transitioning to an integrated care model (CSAT, 2006). A great deal of national attention has highlighted the need to shift care for individuals with COD to a more collaborative, integrated model of care delivery (Minkoff, 2001; Ziedonis et al., 2005). Communities are in different stages of transformation to provide this empathic, integrated care for their members with COD (CSAT, 2006).

Economically disadvantaged times and managed care have increased the emphasis on finding low costs solutions to providing SUD care (Bray, 2006). Lack of physicians (Foster et al., 2010; McGovern et al., 2006; Sawyer et al., 2002) and lack of skilled personnel (Brunette, et al., 2008; Ouimette et al, 2007) have been identified in

multiple studies as two of the greatest barriers to providing addiction treatment to people with COD.

### Problem

Though Nurse Practitioners (NPs) were found to be an effective means to extending access to primary care (Anderson & Hampton, 1999), recent research exploring specific barriers for rural NPs to providing AUD service in the U.S. is lacking (Armstrong & Holmes, 2005). A study conducted in 1998 found that NPs often fail to take a strong role filling in the gaps of care for SUD treatment because of a lack of education both during and after graduation and discomfort with the knowledge base needed (Arthur, 1998). More recently, a review of literature has shown that minimal classroom hours in undergraduate and graduate nursing schools are focused on SUD treatment (Howard, Walker, Walker, & Suchinsky, 2004). In addition, related clinical training is particularly lacking (Howard, et al. 2004). Nkowane and Saxena (2004) concluded that there are missed opportunities for nurses to take a bigger role in effective SUD care that could prove advantageous in economically challenging times.

One recent study conducted in New York State queried nurse practitioners concerning how much they engage in providing addiction services, the value they place on addiction related education, and the number of hours of related education received (Campbell-Heider et al., 2009). The impact from the Campbell-Heider et al.(2009) study was enormous and resulted in the addition of SUD curriculum to the family nurse practitioner (FNP) program at University at Buffalo so that all Family Nurse Practitioner graduates are eligible to take the exam for addictions certification (Campbell-Heider et

al., 2009). It is unknown to what degree the findings from the Campbell-Heider, et al. (2009) study, conducted in New York State, could be applied to rural states such as Montana.

### Purpose

The purpose of this study was to explore and describe perceptions of rural NPs about alcohol misuse services, related education received, and challenges specific to rural AUD care. Insight into the rural NP perspective may enlighten means for targeted improvement of AUD services in rural states.

### Nursing Theory Framework

Rural Nursing Theory (RNT), a mid-range theory initially developed by Long and Weinert (1989) from research conducted in Montana, was used to undergird this investigation. RNT developed out of the belief that the health care needs of people living in rural and frontier areas are different from those living in urban and suburban areas and are not well-served by policy that is derived for urban dwellers (Long & Weinert, 2010). This study incorporated questions that solicited information identifying challenges specific to the rural healthcare experience. RNT will be defined more thoroughly in Chapter Two of this study.

### Definitions

Alcohol (or Substance) Abuse: Alcohol (or substance) abuse is a recurrent and harmful pattern of alcohol (or substances) use that does not meet the criteria for

dependence and entails at least one of the following: 1) impaired role functioning, 2) physical endangerment, 3) legal problems, or 4) continued use despite recurrent negative social or personal consequences (APA, 2000, p. 199).

**Alcohol (or Substance) Dependence:** Alcohol (or substance) dependence is a recurrent and harmful pattern of alcohol (or substances) use that entails at least three of the following within the last year: 1) tolerance, 2) withdrawal, 3) alcohol (or substance) is taken in larger amounts or for a greater period than was intended, 4) there is a desire or failed attempts to decrease use, 5) a significant amount of time is spent acquiring, using or recovering from the effects of the alcohol (or substance), 6) important activities are missed or decreased due to use, and 7) use is continued despite physical or psychological repercussions from the use (APA, 2000, p. 197).

**Alcohol Withdrawal Syndrome:** Alcohol withdrawal syndrome (AWS) is defined as a sequelae of symptoms that sometimes occurs hours to days after the last drink by an individual who has developed a dependence on alcohol (American Society of Addiction Medicine [ASAM], 2010). AWS can sometimes lead to aggression, delirium, seizures, or death if effective medical management is not provided (ASAM, 2010).

**At-Risk Drinking:** At-risk (or heavy drinking) is defined for healthy men (up to 65 years of age) as consuming more than four standard drinks in a day (or exceeding 14 in a week) and for healthy women (or healthy men over 65 years of age) consuming more than three standard drinks in a day (or exceeding 7 in a week) (US-DPHHS, 2005, p. 4).

**Co-Occurring Disorder:** The term co-occurring disorder (COD) is often used interchangeably with dual-diagnosis and dual-disorders in literature to refer to an

individual with a concurrent mental illness and substance use disorder (SUD).

Furthermore, these phrases are sometimes used to refer to a comorbid medical disorder and a developmentally delayed diagnosis, or mental illness and developmentally a delayed diagnosis. For the purpose of this investigation, the term COD was used to refer to someone who has both a mental illness and an AUD or SUD.

Rural: In general terms, rural is defined as ‘sparsely populated’. Varying definitions have been used in literature and government for the term of rural with no one accepted definition nationally or internationally (US-DPHHS, 2011). Montana is widely accepted a rural state (US-DPHHS, 2011). There are 56 counties in the State of Montana. Based on the US Census Bureau’s population density definitions, 45 are considered frontier (less than 6 persons per square mile), 10 are considered rural (6-49 persons per square mile), and one (Yellowstone) is considered urban (50 or more persons per square mile) (US-DPHHS, 2011). The overall population density for the state is 6.8 per square mile for the state (US Census Bureau, 2010a). For the purposes of this study, the US Census Bureau population density definition of rural (6-49 persons per square mile) was be used, which puts the whole state ranking for Montana as rural bordering on frontier (US-DPHHS, 2011).

Standard Drink: A standard drink is defined as “equivalent to 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of 80-proof spirits” (US-DPHHS, 2005, p. 4).

Summary

As discussed, untreated AUD can have dire consequences for communities, families, and individuals (Mokdad et al., 2004; Rehm et al., 2009; Heise, 2020). Finding solutions for improving access to SUD services in rural areas for all who need it is a current priority for DPHHS (CSAT, 2002). NPs may be a potentially underutilized resource for providing this service to scarcely populated states such as Montana (Nkowane & Saxena, 2004). Understanding more about the perception of rural NPs related to alcohol misuse services, challenges to providing AUD care in rural states, and the amount of related formal education received, may provide guidance to improving care for individuals and families impacted by alcohol misuse in rural communities.

## CHAPTER TWO- LITERATURE REVIEW

### Introduction

As discussed in chapter one of this study, finding cost-effective ways to improve alcohol use disorder (AUD) services in rural areas, could potentially impact the suicide rate, quality of life, and the general health of people living in scarcely populated states such as Montana. Nurse practitioners (NPs), who have been shown to have prescriptive practices and health outcomes comparable to physicians, and equal to or greater patient satisfaction ratings, may be underutilized for providing AUD services in areas where physicians are limited (Hooker & McCaig, 1996; Hollinghurst et al., 2006; Mundinger et al., 2000; Reeves et al., 2004)). Gaining insight into the perception of rural NPs in Montana regarding alcohol misuse services and barriers may offer insights into missed opportunities for potentially improving the use of limited healthcare resources in rural areas. A thorough review of literature was conducted primarily using the search engines of CINAHL, PsychInfo, and Google Scholar to aid this study. References in the resources produced by these search engines were also reviewed for relevance.

### Rural Nursing Theory

As previously stated, the Rural Nursing Theory (RNT) is a mid-range theory originally developed by Long and Weinert (1989) from research conducted in Montana that has been expanded and modified over time by other investigators from other rural areas. RNT asserts that the healthcare needs of individuals living in rural areas vary significantly from those of urban dwellers and therefore are not well represented by urban

policy-makers (Long & Weinert, 2010). Over time, the RNT has evolved, as the people living in these areas have changed, and input from other national and international rural communities has been incorporated. RNT encompasses three main relational statements which are discussed in the following paragraphs.

The first relational statement of RNT states that rural inhabitants “define health primarily as the ability to work, to be productive, to do usual tasks” (Long & Weinert, 1989, p. 120). Winters et al. (2010) has suggested this be expanded to include “a holistic perspective in which optimal ability to function at work or play and to pursue desired activities is maintained” (p. 48). This indicates that healthcare services for rural dwellers should be designed to be provided locally whenever possible and fit within the rural work cycle (Shreffler-Grant & Reimer, 2010). The implications for this investigation suggest that finding ways to provide AUD services locally that fit within the rural work cycle may improve the health of Montanans. NPs may be a means to accomplish this task.

The second relational statement of RNT is “Rural dwellers are self-reliant and resist accepting help or services from those seen as ‘outsiders’ or from agencies seen as national or regional ‘welfare’ programs” (Long & Weinert, 1989, p. 10). Winters et al. (2010) have suggested that this may be changing as the accessibility of varied knowledge sources increases (p. 25). Dramatic progress in information technology in recent years has made the latest evidenced-based practices more accessible than ever before to many remote areas in Montana.

The third relational statement of RNT states that nurses in rural areas “must deal with lack of anonymity and much greater role diffusion than providers in urban or

suburban settings” (Long & Weinert, 1989, p. 120). In essence, rural health care providers are expected to know a great deal about many areas and often must function as generalists. This directly pertains to the issue of healthcare providers in Montana and the need for fewer service providers to address a larger range of needs than their urban counterparts. If a rural or frontier area has only one generalist provider and that provider does not address AUD services, it may not get addressed.

### Montana, AUD, and Health Care Services

Montana, a large and scarcely populated state with varied terrain (MT-DPHHS, 2011), ranks 50<sup>th</sup> in population density and has only 6.8 persons per square mile compared to the U.S. average of 87.4 persons per square mile (US Census Bureau, 2010a). According to the US Census Bureau (2010b), most of Montana qualifies as rural. Montana’s population is mostly white (90.3%), with American Indian the largest minority (6.4%) (US Census Bureau, 2009). Low density population presents unique challenges. Montana has a high percentage (17.1%) of people who are without health insurance, due to the fact that most businesses have 10 or less employees and cannot afford to offer health insurance (MT-DPHHS, 2008).

Problems related to alcohol misuse are significant for the State of Montana. Data on the states extracted from the 2004 National Survey on Drugs and Alcohol, identified Montana as having the highest rate of alcohol dependence or abuse in the U.S. (17.6%) for ages 12 or older (Hughes, Sathe, & Spagnola, 2008). The National Institute on Alcohol Abuse and Alcoholism (US-DPHHS, 2011) reported that the State of Montana had an all alcoholic beverage intake in 2009 that was the 7<sup>th</sup> highest in that nation.

According to Casey Blumenthal, Vice President of Montana Hospital Association, “In 2010, KXLF in Butte reported that 61 percent of Montanans are social drinkers and about 5 percent are heavy drinkers-and that a national study puts Montana in the top five percentage of people 12 and over who are addicted to alcohol in 2006-2007, with just over 4 percent of Montanans being alcohol dependent” (personal communication by email, 3/24/11).

Montana has a dearth of mental health professionals (MHPs), both inpatient and outpatient, difficulty recruiting and retaining MHPs, funding challenges for both Medicaid and uninsured, and budget shortfalls with which to contend (Casey Blumenthal, VP of MTHA, personal communication by email, 3/24/11). Midlevel practitioners (APNs and PAs), the majority of which are generalists, handle all the primary care in some of the rural communities in Montana when there is not a physician onsite (MTHA, 2011). Specialty health care providers are especially lacking in rural areas (Rivard, 2009). In addition, health care providers that work at rural American Indian clinics in Montana reported much less access to specialty care than rural providers who were not American Indian and cited financial constraints as the primary barrier (Baldwin, 2008).

Primary care physicians and midlevel practitioners are often the first and sometimes the only contact that rural dwellers have with health care providers (Rivard, 2009). They are responsible for assessment, referral, and/or treatment of their clients (Rivard, 2009). In recent years, the US has been experiencing increased demand and an inadequate supply of primary care physicians which has worsened in most rural areas (Rivard, 2009).

Currently, Montana does not have a medical school that offers degrees for physicians but it does have a contract through the Wyoming, Washington, Alaska, Montana, Idaho Program (WWAMI) to allow the first year of medical school to be completed at Montana State University and subsequent years at the University of Washington for the cost of instate tuition (MSU, WWAMI Medical Education Program, n.d.). The WWAMI program has been successful in many aspects. For example, 61% of graduates choose to practice within the five-state area and close to half the graduates become employed in primary care. However, according to Lipp-Sirota et al (as cited in Rivard, 2009), WWAMI will only accept one slot per 46,000 people of state population which is significantly below the national average. The primary care physician-to-patient population ratio in Montana is actually slightly better than the national average, however, it is not evenly distributed and primary care physicians often take on expanded duties due to a lack of specialists and cover a larger geographical range (Rivard, 2009). According to a report by Newman of the Montana Office of Rural Health (as cited in Rivard, 2009), 9 out of 52 counties in Montana had no physicians, 12 had no primary care physicians, and 7 had no hospitals in 2009.

Midlevel practitioners have been successfully utilized to help bridge the gaps between primary care and certain specialties in Montana (Larsson & Zulkowski, 2002; Rivard, 2009). PAs emerged as a profession in the 1960s and are licensed to practice medicine under the supervision of a physician but those supervision requirements can vary and may only require telephone supervision or monthly site visits in remote practice areas (He at al., 2009). The required medical supervision of PAs may increase their cost

and decrease their impact at extending prescriptive services when compared to NPs. PAs are educated under the medical model, which focuses on making a diagnosis and treating symptoms (He et al., 2009).

In Montana, NPs, a type of advanced practice registered nurse (APRN), are licensed by the Montana Board of Nursing (BON) and do not require physician involvement for any aspect of practice per their license, though certain employers may require it (Phillips, 2011). NPs going into clinical practice in Montana are required to complete a master's degree in nursing, obtain national certification, and have a BON-approved quality assurance program utilizing 15 charts or 5% of their practice before beginning practice as an NP (Phillips, 2011). Additionally, NPs with prescriptive privileges are required to renew their license every two years after meeting mandatory continuing education requirements (Phillips, 2011).

NPs are trained in the nursing model, with a holistic focus, which may be ideally suited for providing integrated COD care (Larsson & Zulkowski, 2002). Montana currently has 738 advanced practice nurses (APNs), with 502 of them NPs, (Cynthia Gustafson, Executive Director of Montana Board of Nursing [MT-BON], personal communication, 3/29/11).

Advanced Practice Nurses (APNs), including PAs, that meet the criteria for education, are eligible to become authorized to prescribe controlled substances II-V in the state of Montana using their own DEA number (Pearson, 2009; Phillips, 2011). Benzodiazepines, which are commonly used for alcohol detoxification (Casher et al.,

2011) are a schedule II medication (Stahl, 2009) and can be prescribed by NPs in the state of Montana.

PAs tend to work more in hospitals, under the supervision of physicians, and NPs tend to work more in independent rural practice (Larsson & Zulkowski, 2002). Montana hospital administrators reported APNs and PAs successfully increased the types and amount of services that their hospital could provide because they were cost effective, not because of lack of physicians (Larsson & Zulkowski, 2002).

This study will focus on the optimal use of NPs to provide AUD services in rural states such as Montana. It is unclear how generalizable this study will be to PAs since their focus for patient care delivery, and degree of independent practice is different from PAs.

### Neurobiology of Addiction

Alcoholism is a disorder that is greatly influenced by genetics, and understanding how genes influence the neurobiology of addiction may lead to reduced stigma and more effective treatments (Johnson, 2011; Koob, 2011; Sellmen, 2011). AUD has been a medical mystery in the past but recent advances in brain imaging technology have been increasing the existing knowledge base about the underlying neurobiology involved in addictions (Gilpin & Hoob, 2008). The reward pathways of the brain integral to the development of an addiction are now known to entail the basal forebrain (ventral striatum and the extended amygdala and what it links to) and involve primarily the neurochemicals, dopamine and opiod peptides (Koob, 2011). Serotonin may also play an

important role in mediating mood, impulsivity, and appetite which are critical in alcohol use (Johnson, 2011).

Addiction to alcohol or any major drug of abuse, has three hallmark characteristics as follows: 1) a compulsion to acquire the drug of choice, 2) decreased control over ability to limit one's own use of the substance, and 3) the eventual development of a dysphoric mood state (e.g., anxious and irritable) (Koob, 2011). In the early stages of alcohol use and abuse, pleasurable reinforcement is associated with alcohol use but later, negative reinforcement becomes more prominent as the dysphoric mood state takes over, in addition to withdrawal symptoms that may be manifested when the person experiences abstinence (Gilpin & Hoob, 2008). The neurochemicals that create the negative reinforcement phase of addiction are decreased GABA and increased glutamate during withdrawal, recruitment of the stress systems of norepinephrine and corticotrophin-releasing factor, and dysfunction of the anti-stress systems which involves the neuropeptide Y (Koob, 2011).

Chronic alcohol consumption can result in long-term changes to the brain's neuronal circuitry associated with pleasure, arousal, and stress and may also result in an altered reward set point (Gilpin & Hoob, 2008; Koob, 2011). The net effect produces tolerance and withdrawal which are characteristic of alcohol dependence and leave the person susceptible to relapse long after abstinence has been obtained (Gilpin & Hoob, 2008; Koob, 2011). Animal studies have identified specific genes that encode for the neurochemicals involved in the brain reward and stress systems which may cause susceptibility to addiction (Koob, 2011). Variation at the serotonin transporter gene is

currently being studied for sensitivity to alcohol craving and may indicate likelihood for a positive response to ondansetron, a new medication not yet commercially available in the U.S. (Johnson, 2011).

### AUD and Treatment

#### Assessment, Recognition, and Brief Interventions for AUDs

Brief interventions by primary care providers have been shown to significantly reduce alcohol use by high risk drinkers (Ockene et al., 1999; Reiff-Hekking et al., 2005). The National Institute on Alcohol Abuse and Alcoholism (NIAAA) has published a physician's guide for primary care providers and mental health clinicians entitled, "Helping Patients Who Drink Too Much", that thoroughly explains current evidenced-based best practice recommendations for the generalist primary care provider to conduct effective brief interventions for risky drinking and AUD (US-DPHHS, 2005; Willenbring et al., 2009). This 30-page guide and other resources such as 2-page pocket guide, medication updates, online training with free CME/CEs, a slide show, preformatted progress notes, and medication management support templates are available at the NIAAA website (<http://www.niaaa.nih.gov/guide>).

Due to the limited time availability of most primary care providers, NIAAA suggests that all prescribers should ask the one question prescreening, "Do you sometimes drink beer, wine, or other alcoholic beverages?", of all clients seen for any medical care (US-DPHHS, 2005, p.2). The precise wording of this prescreening question is empirically supported, as some people do not consider beer and wine an alcoholic

beverage (US-DPHHS, 2005). It can be used alone or in conjunction with the Alcohol Use Disorders Identification Test (AUDIT), CAGE, or other commonly used AUD screening questionnaires (Ewing, 1984; Reinert & Allen, 2002). A flow-chart of interventions is mapped out in the NIAAA guide which can serve as a one-stop resource for primary care providers in the realm of evidenced-based screening and brief intervention for at-risk drinkers (US-DPHHS, 2005). It includes recommendations on what to say, what labs to draw, how to relate the lab results to motivational talk points, other medical conditions that can be affected, strategies for reducing alcohol intake, and the use of medications to support recovery (US-DPSHHS, 2005).

Three oral medications (naltrexone, acamprosate, and disulfiram) are currently approved for treating alcohol dependence to help reduce drinking, or avoid relapses (US-DPHHS, 2008, p.1). These three meds should be used after abstinence has been obtained. Additionally, studies have shown that topiramate, a medication used for treating seizures and migraines, significantly increases abstinent days in participants who were currently drinking, but has not yet been approved by the Federal Drug Administration (FDA) for this indication (Johnson et al., 2003; Johnson et al., 2007). Though it has been found helpful for those who are still drinking, topiramate may also be more effective than naltrexone or acamprosate for people who have already achieved abstinence when starting the medication (US-DPHHS, 2008). Topiramate is believed to accomplish efficacy by acting on the GABA<sub>A</sub> receptors (a non-benzodiazepine site) and antagonism of glutamate, and is considered to be generally well-tolerated, especially at lower doses that may be effective for reduction of cravings (Johnson, 2011). Naltrexone

is available orally or in extended-release injectable, and has been shown to increase the efficacy in patients who have abstained for at least four days prior to starting the medication, where as disulfiram is contraindicated in people who are not currently abstinent (US-DPHHS, 2008, p. 2).

### Detoxification

Alcohol withdrawal syndrome (AWS) is a sequelae of events that can potentially develop in many individuals with AUD when abstinence occurs abruptly (Becker & Semrow, 2006). Medical management of AWS involves the monitoring and gradual taper of medications that are cross tolerant with alcohol, in order to lessen the negative physiological effects (Becker & Semrow, 2006). Most individuals with AWS will experience mild to moderate discomfort including such symptoms as nausea, agitation, and tremors that make abstaining from alcohol difficult (Becker & Semrow, 2006). In addition, 1-5% of people with AWS experience severe physiological symptoms such as seizures, delirium tremors (DTs), or even death, with greater risk for those who have a history of complicated AWS, multiple medical illnesses, or elevated blood pressure upon initiation of detoxification (Fiellin, O'Connor, Holmboe, & Horwitz, 2002). Some studies say as many as one-third of individuals with AWS develop seizures (Doyle, 2010).

AWS typically lasts up to five days with the first 24-48 hours being the highest risk period for DTs (characterized by clouding of sensorium and delirium) (Williams, 2001). Long-acting benzodiazepines are the preferred class of medications used for alcohol detoxification; however, they are addictive and may have negative drug

interactions for people who continue to drink alcohol (Ait-Daoud et al, 2006; Doyle, 2010; Mayo-Smith, 1997; Weaver et al, 2006). These traits of benzodiazepines can be particularly bothersome in rural areas where inpatient facilities and hospitals may be unavailable, and outpatient detoxification may be the only option. Since long-acting benzodiazepines have a greater risk of complications in individuals who have liver damage, shorter-acting benzodiazepines such as lorazepam or oxazepam, which have fewer active metabolites, may sometimes be used with certain individuals (Weaver, Hoffman, Johnson, & Mauck, 2006). Detoxification agents are most commonly given in either a fixed dosing schedule that tapers the medications over a 4-14 day regime or on an as needed basis for withdrawal symptoms using an alcohol withdrawal symptoms assessment tool, such as the Revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) (Weaver et al, 2006; Williams, 2001).

A growing base of evidence is developing to support the use of certain non-addictive anticonvulsant medications, such as divalproex sodium or carbamazepine, either alone or in conjunction with other medications used in alcohol detoxification (Ait-Daoud, Malcolm, & Johnson, 2006; Reoux et al., 2001; Soyka et al., 2006). These agents may hold particular promise for outpatient detoxification, especially in rural areas where inpatient detoxification resources may be scarce or difficult to access.

When the individual is exhibiting mild to moderate alcohol withdrawal symptoms, has a safe home environment and adequate supports, outpatient detoxification has been shown to be safe, effective, and financially advantageous (Abbott et al, 1995; Hayashida et al, 1988; Soyka & Horak, 2004; Stockwell et al, 1991; Williams, 2001).

However, more medically complicated individuals, or those with a prior history of seizures or DTs, will likely need hospitalization during detoxification from alcohol (Fiellin et al., 2002; Williams, 2001). In fact, some researchers recommend that outpatient detoxification is acceptable in most cases and hospital detoxification should be utilized only in extreme cases (previous history of seizures, delirium tremors [DTs], or serious complications such as fulminant heart disease, or uncontrolled diabetes) (Johnson, 2011, p. 86). Though inpatient is the most common treatment modality for alcohol detoxification and rehabilitation, outpatient detoxification provided in a highly structured format has been shown to be effective and safe when the detoxification needs are mild to moderate (Soyka & Horak, 2004).

It is noted that the NIAAA (2005) guide for primary care and mental health clinicians on “Helping Patients Who Drink Too Much” goes into depth about brief intervention techniques for AUD and prescribing to prevent AUD relapse but says very little about prescribing for alcohol detoxification. It appears this guide may be geared for care in settings where detoxification specialists are presumed available. In addition, to our knowledge, no studies to date have been conducted on how generalist NPs in rural and frontier areas of the US perceive their proficiency at providing care related specifically to alcohol detoxification along with what pressures a rural environment may place on generalists NPs to provide alcohol detoxification services. This study will therefore address these issues from a rural NP perspective.

### Psychosocial Interventions

Psychosocial interventions, such as cognitive behavioral therapy, motivational interviewing, individual and group therapy, educational groups, and support groups such as Alcoholic Anonymous (AA), are the mainstay of treatment for AUD in both inpatient or outpatient modalities (US-DPHHS, 2005). The advent of the Comprehensive Continuous Integrated System of Care (CCISC), the Transtheoretical Model (TTM), and Motivational Interviewing, have been the focus in recent years for consensus best practices for individuals with COD (Center for Substance Abuse Treatment [CSAT], 2007; Miller & Rose, 2009; Minkoff, 2005; Velasquez et al, 2005 ). CCISC incorporates the principles of welcoming, accessibility, and continuous, comprehensive integration of COD services (Minkoff, 2005). TTM incorporates use of change-based interventions (Velasquez et al., 2005). Motivational interviewing utilizes techniques for effective communication with under-motivated individuals (Miller & Rose, 2009). These three practices used in concert are considered best-practice care for individuals with COD (CSAT, 2007).

Stigma about mental illness and substance abuse may contribute to the scarcity of providers comfortable with caring for this population and result in the inefficient use of already limited resources in scarcely populated areas such as Montana (CSAT, 2007). Additionally, lack of awareness of evidenced-based care for COD assessment and treatment, is a known barrier to care (CSAT, 2007). Therefore, this study will include a question about proficiency with Motivational Interviewing and stage-matched interventions.

### AUD Education and Prescribers

AUD is considered by doctors to be extremely relevant to the practice of generalists (Wilson, Eagles, Platt, & McKenzie, 2007). Additionally, the national health care goals for the current 10 year period established an objective to increase the proportion of health care providers who screen for SUDs by 10% (US- DPHHS, Healthy People 2020).

More broadly based training programs for surgeons were found to increase the likelihood that physicians will choose to work in rural areas, and too few hours of SUD training in medical schools was determined as a factor in the dearth of physicians involved in the care of clients with COD (Brewster et al, 1990; Doty et al, 2006; Ewan & White, 1982). In 2001, the Accreditation Council for Graduate Medical Education (ACGME), (as cited in Renner, 2004), stipulated that a one-month minimum of supervised clinical hours in SUD was required for all psychiatric residency programs.

In addition to workforce shortages, a lack of commitment to evidenced-based COD care in the majority of community psychiatrists still exists, despite their administrators reporting the facility as COD capable (Chambers, Connor, Boggs, & Parker, 2010). Furthermore, physicians have been found to assess for SUDs less than half the time (CASA, 2000; Weisner & Matzger, 2003). The existence of an education deficit related to evidenced-based co-occurring care with physicians was established as a priority issue by the Institute of Medicine (2005).

In 2008, a multidisciplinary team of expert clinicians and leaders in professional organizations and academic medical centers met to address the education deficit with

physicians and addictions care (O'Connor et al., 2011). The five main recommendations that came out of that 3-day meeting were as follows: 1) core competencies for managing SUDs in primary care should be integrated into medical school curricula, 2) SUD education should be afforded the same priority as other chronic illnesses, 3) faculty expertise in SUD care should be developed, 4) infrastructure related to SUD in academic medical centers should be established, and 5) screening/management for SUD should become routine in the new model for primary care practice (O'Connor et al., 2011, p. 56). The core competencies for SUD care by the generalist were defined by that work group as: 1) describing unhealthy substance use and SUD, 2) screening for risky substance use and SUD, 3) assessing for negative consequences of substance use (medical, behavioral, and social), 4) brief interventions and other counseling approaches to advise and assist regarding unhealthy substance use, 5) prescribing medications for SUD, and 6) referrals to SUD when appropriate (O'Connor et al., 2011, p. 57).

In their international review of literature, Nkowane & Saxen (2004) found that nurses at all levels often fail to take a strong role in filling the gaps of care for SUD treatment because of a lack of formal education both during and after graduation, and general discomfort with the knowledge base needed for effective care. Understanding if this pattern is being repeated in Montana and if so, to what degree, and in what specific areas of AUD care, may provide direction for finding solutions in the future.

Another qualitative study of advanced practice nurses (APNs) found widely varying approaches by APNs to AUD care (Vandermause, 2007). APNs described AUD assessment as difficult and expressed a concern about being perceived as judgmental,

offending the client, or fear that the client would not return if alcohol was addressed (Vandermause, 2007). They also expressed at times inability to acquire enough information from the client to make an accurate diagnosis and difficulties making the diagnosis even when symptoms were present (Vandermause, 2007). Vandermause (2007) also concluded, however, that most of the APNs in their study were able to respond to the “complexities and ambiguities of AUD assessment by developing particular interactive styles that fit the unique situations they encountered...and were able to gain the complicity with the patient, the agreement they felt necessary to the diagnostic process” (Vandermause, 2007, p.194). The ANPs in the Vandermause study (2007) expressed a commitment to providing care to their client’s with COD whether or not the client was able to accept help related to AUD. In addition, advanced practice nurses (APNs) have been acknowledged as utilizing a holistic approach that is ideal for the integrated care recommended by evidenced-based best practices for COD care and more willingness than physicians to deal with the COD population (Mistral & Velleman, 1999; Vandermause, 2007; Ziedonis et al., 2005).

One recent study in the US queried nurse practitioners about how much they engage in providing SUD services, how much they value SUD related education, and number of hours of related education received (Campbell-Heider et al., 2009). The Campbell-Heider et al. study was conducted in New York State and involved all addictions (Campbell-Heider et al., 2009). Questions relevant to providing detoxification services were excluded from the Campbell-Heider et al. (2009) study by the panel of experts that reviewed the proposed the survey tool because they deemed detoxification a

specialty and questions related to detoxification not appropriate not to ask of generalists NPs. The impact from the Campbell-Heider et al. (2009) study was impressive and resulted in the addition of SUD curriculum to the family nurse practitioner (FNP) program at University at Buffalo permitting all Family Nurse Practitioner (FNP) graduates to also be eligible for the examination to receive dual national certification as Certified Addictions Registered Nurse-Advanced Practice (CARN-AP). In some ways the current investigation could be considered a replication extension study of the Campbell-Heider et al. (2009) study in that it investigated NPs, their practices related to an addictive disorder, and the amount of related formal training they have received. The current study different from the Campbell-Heider et al. (2009) study, however, by incorporating a lesson learned by the Campbell-Heider et al. (2009) study of needing to simplify and shorten the survey tool in order to achieve a greater completion rate. Additionally, it focused on how NPs perceive their proficiency level with providing alcohol misuse services rather than just the degree to which they engage in these services. It also differed by narrowing the scope to only AUD instead of all addictions, and including questions relevant to the rural healthcare experience (such as availability of alcohol detoxification referral sources, proficiency with prescribing for alcohol detoxification, and whether or not knowledge providing alcohol detoxification services is perceived important for rural NPs in generalist roles to have).

### Summary

Rural areas have challenges to providing health care in general and AUD more specifically, that potentially, may be more fully met through the use of NPs.

Understanding more about these challenges may enlighten solutions for improving AUD services that are effective in rural states. The aim of this study is to describe what role graduate education is perceived to play in preparing NPs to handle the complexities of AUD care, how proficient NPs perceive themselves to be in providing this type of care, how important AUD care is perceived to be and what challenges currently exist to providing AUD services in the rural state of Montana. Better preparing NPs to manage AUD care may provide a means for greatly impacting the health and quality of life of Montanans and those living in other scarcely populated states.

## CHAPTER THREE- METHODOLOGY

### Introduction

The purpose of this study was to describe the viewpoints of Nurse Practitioners (NPs) in Montana related to alcohol misuse services and education. It also included questions relevant to understanding of the rural health care perspective on this subject. This chapter includes a discussion of the design, sample, instrumentation, data collection procedures, and data analysis that was used to generate and examine data for this study.

### Design

The underlying framework for a study influences the development of the research questions and variables (Norwood, 2010, p. 164). If the underlying framework is not identified, it may lead to missed opportunities for the application of the findings or further clarifications of the conceptual framework in future studies (p. 164).

This researcher started with the idea of examining what barriers existed to improving alcohol detoxification and other AUD services to individuals with co-occurring mental illness and substance abuse disorders (COD) in Montana. After conducting a literature review, determining gaps in the literature, and exploring design options, the scope of the research was refined to focus on AUD services from the NP perspective. The study was then further refined to include the rural nurse perspective through application of the RNT (Long & Weinert, 1989) including questions about availability of referral resources, and significance of detoxification proficiency to the rural, generalist NP.

Specific questions that this study addressed were:

- 1) How do NPs in a rural state perceive their proficiency in providing AUD related care?
- 2) How do NPs in a rural state perceive the adequacy of formal training they have received related to AUD and alcohol detoxification?
- 3) How much formal training have NPs in a rural state received related to AUD and alcohol detoxification?
- 4) What percentage of the clients of NPs in a rural state are reported to be “at risk drinkers” or have an AUD?
- 5) How do NPs in a rural state perceive the availability of alcohol detoxification referral sources?
- 6) What do NPs in a rural state identify as barriers to accessing inpatient alcohol detoxification or alcohol rehab for their clients?
- 7) How do NPs value NP proficiency with managing AUD and alcohol detoxification in rural states?
- 8) How willing are NPs in a rural state to provide AUD and alcohol services?

To capture data on these descriptors, this study utilized a quantitative, descriptive cross-sectional survey design (Ludenburg & Irby, 2008; Norwood, 2010). Quantitative research with descriptive statistics can add to the existing body of knowledge by allowing data to be collected, grouped and examined in meaningful ways such as measures of central tendency (Norwood, 2010).

This study employed the use of a self-report survey because it is the most simple and cost-effective design that could provide the desired data (Norwood, 2010).

Additionally, a self-report survey allowed for retrospective data to be collected about what has occurred in the past, such as estimated hours of instruction received in graduate school related to AUD care (Polit & Beck, 2008). It should also be noted that one potential weakness of this type of design is that it relies on the memory and truthfulness of the responder and responses may not accurately reflect reality (Polit & Beck, 2008).

A cross-sectional design involves the use of data collection on phenomena as it exists at this point in time. In other words, data was collected once from the sample (Norwood, 2009, p. 189). The tool that was devised to measure these descriptors will be discussed further in the section on instrumentation.

### Sample

The overall population is the whole aggregate of interest for a study (Polit & Beck, 2008). In this study, the overall population was all licensed NPs in the nation. The target population was NPs practicing in Montana, a rural state. NPs were included in the target population because, as previously discussed, they are a potentially underutilized resource for providing alcohol misuse related services.

According to the American Academy of Nurse Practitioners (AANP), there are over 135,000 practicing NPs in the nation (AANP, An Overview, n.d.). NPs have some degree of prescriptive privileges in all 50 states, can write prescriptions for controlled substances in all but three states, and have low malpractice rates (AANP, Nurse Practitioner Facts, n.d.). In a survey conducted by AANP in 2009-2010 stratified to

include only actively practicing NPs, 97.6% of NPs engaged in prescribing medications and wrote an average of 22 prescriptions per day (AANP, An Overview, n.d.). The average age was 50.8; 93.5% were women, 98.1% were White, 2.9% were African-American, 2.2% were Asian, 1.2% were American Indian, and 0.2% were Native Hawaiian/Pacific Islander (AANP, An Overview, n.d.). NPs practicing in rural areas comprised 17.8% of the respondents and 1.5% worked in areas with populations under 1,000 (AANP, An Overview, 2010).

A convenience sample was used due to the limited resources and time constraints of this study. The formula method of appropriate sample size devised by Krejcie and Morgan (1970) suggests that if the population is between 400-600, at least 50% of the population should be sampled. The current study sampled the 412 licensed NPs whose emails were available from a marketing company and 412 is over half of the total population of NPs in Montana, which is 502 (Cynthia Gustafson, Executive Director of Montana Board of Nursing [MT-BON], personal communication, 3/29/1).

Eligibility criteria for this study included all NPs who live in Montana, are licensed, currently employed, were willing and able to do the self-report survey, could read English, and whose email was available from the marketing firm used. There were no additional exclusionary criteria.

Although variable, the response rate of surveys that are distributed through the mail is typically 25% to 30% (Norwood, 2010, p. 280) and web-based surveys on average exhibit an 11% worse response than regular mail surveys (Manfreda et al., 2008). The larger the response rate, the more likely that it is representative of the sample population.

### Instrumentation

A 28 item tool containing 26 closed-ended questions and two open-ended questions was developed for this study. It was initially entitled “Questionnaire of AUD Services and Education” but broadened to “Survey of NP Services in a Rural State “after three launches to adjust for a low response rate as discussed in more detail in the Results Chapter of this report (see Appendix A). A Likert scale format with answer options of ‘strongly disagree’, ‘disagree’, ‘agree’, ‘strongly agree’, and ‘don’t understand the terms’ used was used for most non-demographic questions. A multiple choice format and two open-ended dropdown boxes format were also utilized.

Content validity, the extent to which an instrument measures what it says it measures, is established by expert judgment (Ludenburg & Irby, 2008). Much of the content for the survey tool of this research study was extracted from current evidenced-based recommendations for general practitioners (physicians and NPs) that was developed by the National Institute on Alcohol Abuse and Alcoholism in their publication “Helping patients who drink too much: A clinician’s guide” (US-DPHHS, 2005). Also permission was obtained and a few questions were added that were adapted from the survey tool used in the Campbell-Heider et al. (2009) study. Additional questions about availability of referral sources and possible barriers to providing AUD care incorporated concerns derived from previous relevant research discussed in the literature review of this study. The survey tool also incorporated lessons discussed in articles that surveyed either physicians or NPs about providing addictions care in

previous research as described below (Campbell-Heider et al., 2009; Mistral & Velleman, 2001).

In the survey utilized by Campbell-Heider et al. (2009), nurse practitioners were asked for both yes-no responses on whether they engaged in providing the particular service, and were asked to rate how often they performed the activity (daily, weekly, monthly, yearly) (p.4). Unfortunately, many participants did not rate the frequency aspect of the questions, thereby resulting in a large amount of missing data which limited the analysis (p. 7). Questions relevant to providing detoxification services were excluded from the Campbell-Heider et al. (2009) study by the panel of experts that reviewed the proposed survey tool because they deemed detoxification a specialty and questions related to detoxification not appropriate to ask of generalist NPs.

Incorporating lessons learned from the Campbell-Heider et al. (2009) study, the survey for the current study was designed to be brief, take approximately fifteen minutes or less to complete, and each question possess a simple format. Questions related to detoxification specifically were included in the current research questionnaire since, as previously stated, application of the RNT theorizes that rural health care needs may differ from urban settings (Long & Weinert, 1989), speciality services are missing in many rural areas (Rivard, 2009), and midlevel providers handle primary care in Montana when there is no local physician (MTHA, 2011).

The research by Mistral and Velleman (2001) that queried general practitioners in the United Kingdom about patients with addictions, services provided, difficulties encountered, and their willingness to provide services, found that terminology in the field

of addictions may be confusing and may lead to inaccuracy of measurement in the instrument. The terms ‘substitute’ and ‘maintenance prescriptions’ could have been misinterpreted, and greater clarity was needed in the questions that referred to ‘counseling’ or ‘brief interventions’ in the Mistral and Velleman (2001) study. The questionnaire for the current research refers to specific evidence-based AUD brief intervention practices incorporating lessons learned from the Mistral and Velleman (2001) study.

To further establish reliability and validity on the new tool, an Advisory Group of two local expert clinicians (one NP and one physician), and three APNs from the thesis committee were asked to review the questions for relevance, clarity bias, and content validity. After the tool was reviewed and any necessary revisions made, the online format of the tool was tested with the Advisory Group and the three APNs from the thesis committee prior to sending it out to NPs in Montana.

#### Data Collection Procedures

Data collection involved an email with a hyperlink to the survey sent via a private marketing company to the prospective participants that invited them to take part in a web-based survey. The email initially included only a brief invitation and hyperlink to the study. After three launches the in-depth description/consent for human subjects information that was on the first page of the survey was moved to the bottom of the invitational email as described in the Methods Chapter of this report (see Appendix B) suspecting that having to read a whole page of print at the start of the survey may have

been a deterrent for busy NPs. The survey was developed using web-survey software and utilized secure hosting.

The invitational email with Consent for Human Subjects Research (or first page of the survey for the first three launches) served as a consent form and consent was assumed if the potential participant chose to take the survey. The invitational email with Consent of Human Subjects Research (or first page of the survey for the first three launches) stated the topic of the survey, discussed how confidentiality and anonymity would be protected, and explained that it was voluntary. The survey contained no questions about direct identifiers such as name, birth date or social security number. A total of six launches of the invitational email with the hyperlink to the survey went out to the same 412 NPs in Montana through December and January (but skipped several weeks over the holidays).

The survey was closed one week after the final launch of the invitational email and the data was analyzed with simple descriptive statistics available from Survey Monkey (<http://www.surveymonkey.com>). The process for distributing, collecting, reviewing and data analysis took approximately 75 days.

### Data Analysis

Descriptive statistics were used to describe the sample and responses to the survey questions. Mean, range, and frequencies were determined for each item as appropriate. These tests were computed through Survey Monkey (available at [www.surveymonkey.com](http://www.surveymonkey.com)).

This study involved descriptive statistics, and measured the following descriptors as follows (see Appendix A):

- 1) Perceived proficiency in providing AUD care was described by seven questions (Section I).
- 2) Perceived adequacy of graduate school preparation related to AUD and alcohol detoxification was described by two questions (Section II).
- 3) Number of hours of formal AUD education received (instruction, clinical experience, or recent continuing education) was measured by two questions (Section III).
- 4) Perceived percentage of NPs' clients that are "at risk drinkers" or have an AUD was described in one question (Section IV).
- 5) Perceived availability alcohol detoxification referral sources was measured by four questions (Section V).
- 6) Perceived barriers to accessing inpatient alcohol detoxification or rehabilitation services was measured by one question and described by an additional question with opportunity for free form comments (Section VI).
- 7) Value placed on NP proficiency with management of AUD and alcohol detoxification was measured by two questions (Section VII).
- 8) Willingness of NPs to provide AUD and alcohol detoxification services assuming that they are proficient in this area was measured by two questions (Section VIII).

- 9) Any unforeseen comments were described by one question with a dropdown box for freeform comments (Section IX).
- 10) Demographics of the participants was described by five questions that discerned if the participant worked in a clinical position, had prescriptive privileges, whether or not they received their graduate nursing education in Montana, and how many years ago they completed their graduate education (Section VIII).

### Human Subjects Protection

Education was completed by this researcher with Collaborative Institutional Training (CITI) (CITI, n.d.) on human subjects research. Prior to administering the survey, an approval from the Montana State University (MSU) Institutional Review Board (IRB) was obtained (MSU, n.d.) A request was made for an exemption from a full board review since the design qualified for an exempt status as the survey design is not of a sensitive nature (C. Johnson, personal communication, November 29, 2010). The application for exempt status with the IRB at MSU is included as Appendix C (MSU, n.d.). It addressed alcohol abuse but only in the context of providing the service and education received on the subject, not the substance use of the practitioners or their individual patients. Additionally, consent from the IRB was obtained prior to making any changes during the course of administering the survey.

Data was delivered and stored in a protected manner. Anonymity of the participants was maintained and, as previously discussed, no direct identifiers were asked such as name, address, social security number, or name of the facility of employment.

The invitational email (or the first page of the survey in the first three launches) contained the Consent for Human Subjects Research and functioned as a consent form. Consent was assumed through the completion of the self-report survey (see Appendix B). The invitational email containing the Consent for Human Subjects Research (or first page of the survey in the first three launches) stated the importance of the survey, the voluntary and confidential nature of the survey, and the extent of involvement that was requested of the participant. The initial email containing the Consent for Human Subjects Research (or first page of the survey in the first three launches), included contact information for the researcher, and an estimated study completion date should the participants have wished to follow-up on the outcome of the research. In the introduction to the survey, it stated that participation was voluntary, and participants could choose to not answer any questions that they did not wish to answer, could stop at any time, or could choose not to participate.

### Summary

In conclusion, the purpose of this chapter was to outline the methodology that was used to describe the rural health care perspective of NPs in Montana about AUD services and education. This chapter discussed the development and design of the survey tool, the sampling process, and data analyses that were used in the process of this study. The following chapter will review the findings of the collected data and statistical tests.

## CHAPTER FOUR- RESULTS

### Introduction

As previously discussed, little is known about how Nurse Practitioners (NPs) in rural states perceive the importance of providing alcohol misuse services and the adequacy of their related graduate education or how they view their own proficiency with providing these services. In addition, Rural Nursing Theory (RTC) suggests that rural states may have needs that are unique from their urban counterparts. Gaining insight into the perspective of NPs from rural states regarding alcohol misuse services and related education may provide new data that could influence health care policies and preparatory education for rural states. A web-based survey on this topic was piloted to NPs in Montana to examine these perspectives.

### Results of the Survey

Email contacts for practicing NPs in Montana were accessed via a private marketing company, as no email list was available from the Montana Board of Nursing. Email invitations were sent to 412 nurse practitioners (NPs) to take a web-based survey over the course of six launches through the months of December and January, one per week but skipping several weeks over the holidays. The email contained a welcoming invitation to participate along with the survey link. In total there were 1168 opens of the invitational email, 24 clicks on the survey link, and five people who started the survey. Of the five who started the survey, one dropped out after the first page, another dropped out after the second page, and three finished the survey. This yields a response rate that

is too low to reach significance [N= 412, attempted surveys = 5 (1.2%), completed surveys = 3 (0.7%)]. Less than half the emails were opened and still only a small percentage (2.05%) of the respondents that opened the email actually clicked on the survey link.

### Demographics of Participants

Since the demographics were addressed on the last page of the survey there is only demographic data on the three respondents that finished the survey. One was in the age range of 30-44, one in the age range of 45-50, and one in the age range of 60 and over. Two (66.7%) of the three that finished the survey completed their graduate nursing education five years ago or less, and one (33.3%) completed his or her graduate nursing education 16 or more years ago. All three claimed that they had prescriptive privileges, and all three reported that they currently see and treat patients. There were no questions that addressed the area of expertise that they worked in or the age range of their clients. Two (66.7%) of the three respondents reported that they did not complete their nursing graduate education in Montana and one (33.3%) reported that he or she did.

Table 1a. Respondent Demographics

	YES	NO	Did not answer the question
Do you currently see and treat patients?	100% (3)	0	2
Do you have prescriptive privileges?	100% (3)	0	2
Did you complete your graduate nursing education in Montana?	33.3% (1)	66.7%(2)	2

Table 1b.

	5 or less	6-10	11-15	16 or more
How many years ago did you complete your graduate nursing education?	66.7% (2)	0	0	33.3% (1)

Table 1c.

	29 and under	30-44	45-59	60 and over	Did not answer the question
What is your age range?	0	33.3% (1)	33.3% (1)	33.3% (1)	2

An invitational email to participate in this study was initially sent in early December by a private marketing company to 412 NPs via email containing a hyperlink to the survey. The survey had a total of six launches, three in early December and three in January.

Two changes were made to the survey midway in an attempt to obtain a larger response rate due to the small response rate observed halfway through the launches. The link to the survey had a total of 22 clicks from those three initial launches but only two people actually started the survey. The two that started the survey also completed it. The reason for the lack of response to the first three launches is unknown. To account for the possibility that the lack of response may have been influenced by the proximity of the winter holidays the remaining launches were saved until January when the holidays were over. The last three launches were also moved from Wednesday to Thursday which is the day that produced the two completed surveys from the first three launches. The survey initially included the phrase “alcohol misuse services” in the title, which was conjectured

to have possibly deterred NPs who did not have much familiarity with this population or who may have perceived they were being asked about personal alcohol use. Because of this, the title of the survey for the last three launches was broadened to “Survey of NP Services in a Rural State”. Another format change was made for the last three launches to move the Consent for Research information to the bottom of the invitational email instead of on the first page of the survey. It was conjectured that seeing a full page of print to read before starting the survey may have been a deterrent to NPs with little available free time. The last three launches in January yielded three more participants that started the survey with only one of those completing it. Of note also, at least three people responded to the invitational email with a return email stating that they were not nurse practitioners in Montana, and one person called on the telephone from out of state to say that she was not a nurse practitioner in Montana.

Due to only five people starting the survey and three finishing it, there was not a large enough response rate to reach significance or make inferences. Since this is a pilot study, these results were examined for suggestions regarding revision of this survey for future research.

Research Question #1: Perceived Proficiency  
In Providing Alcohol Use Disorders (AUDs) Care

All five of the respondents completed this page of the survey. Four (80%) respondents agreed that they routinely utilize a prescreening question for AUD with all their clients and one (20%) disagreed. Two (40%) respondents agreed that that they were proficient with medication management for AUD, two (40%) disagreed, and one (20%) didn't understand the terms. Three (60%) respondents agreed that they were proficient

with prescribing medication for alcohol detoxification and two (40%) disagreed. One (20%) strongly agreed that they were proficient with distinguishing between normal behavior, at risk drinking, alcohol abuse, and alcohol dependence, three (60%) agreed, and one (20%) disagreed. Three (60%) agreed that they were proficient with managing Alcohol Withdrawal Syndrome (AWS), one (20%) disagreed, and one (20%) strongly disagreed. One (20%) participant strongly agreed that they were proficient with using labs and other data to discuss the impact of drinking alcohol, two (40%) agreed, one (20%) disagreed, and one (20%) strongly disagreed. Two (40%) respondents agreed that they were proficient with using Motivational Interviewing and stage-matched interventions, two (40%) disagreed, and one (20%) strongly disagreed.

Table 2. Perceived Proficiency in Providing AUD Care

	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Understand the Terms	Did not answer this question
Routinely prescreening for AUD	0	20% (1)	80% (4)	0	0	0
Proficient with med management for AUD	0	40% (2)	40% (2)	0	20% (1)	0
Proficient with prescribing for alcohol detox	0	40% (2)	60% (3)	0	0	0
Proficient with distinguishing between normal behavior, at risk drinking, alcohol abuse, and alcohol dependence	0	20% (1)	60% (3)	20% (1)	0	0

Table 2 Continued

Proficient with managing AWS	20% (1)	20% (1)	60% (3)	0	0	0
Proficient with using labs/other data to discuss impact of drinking alcohol	20% (1)	20% (1)	40% (2)	20% (1)	0	0
Proficient with using MI	20% (1)	40% (2)	40% (2)	0	0	0

Research Question #2: Perceived Adequacy of Graduate School Related to AUD/Detoxification

All five of the respondents who initiated the survey answered the questions on this content. Three (60%) respondents agreed that their nursing graduate school adequately prepared them to provide assessment and detection, brief intervention, medication management, and referral for AUD, one (20%) disagreed, and one (20%) strongly disagreed. Two (40%) respondents agreed that their graduate school adequately prepared them to prescribe alcohol detoxification medications, one (20%) disagreed and one (20%) strongly disagreed and one (20%) one didn't understand the terms.

Table 3. Perceived Adequacy of Graduate School Related to AUD/Detoxification

	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Understand the Terms	Did not answer this question
Nursing graduate school adequately prepared me to provide assessment and detection, brief intervention, medication management, and referral for AUD	20% (1)	20% (1)	60% (3)	0	0	0
Graduate school adequately prepared me to prescribe alcohol detox meds	20% (1)	20% (1)	40% (2)	0	20% (1)	0

Research Question #3: Number of  
Hours of Formal AUD Education Received

One participant dropped out of the survey prior to this content therefore there were four respondents for this content. One (25%) of the respondents reported that they received zero hours of continuing education or on-the-job training related to AUD in the last three years, one (25%) reported that they received 1-3 hours, and two (50%) reported that they received 4-8 hours. Two (50%) respondents reported that they received zero hours of classroom instruction in graduate school related to AUD or Co-Occurring Disorders (COD), and two (50%) reported that they received 4-8 hours. Two (50%) reported that they received zero hours of clinical experience in graduate school with clients who have AUD or COD, one (25%) responded reported they received 4-8 hours,

and one (25%) reported that they received 8-16 hours which was the highest category available to choose from.

Table 4. Number of Hours of Formal AUD Education Received

	0 hours	1-3 hours	4-8 hours	8-16 hours	Did not answer this question
Hours of continuing education hours or hours of on-the-job training related to AUD in the last 3 years	25% (1)	25% (1)	50% (2)	0	1
Hours of classroom instruction in grad school related to AUD or COD	50% (2)	0	50% (2)	0	1
Hours of clinical experience with AUD or COD	50% (2)	0	25% (1)	25% (1)	1

Research Question #4: Perceived Percentage of NPs' Clients That Are "At Risk Drinkers"/AUD

There were four respondents for this content. Two (50%) respondents reported that less than 20% of their clients were either "at risk drinkers" or have an AUD, one reported 20-40%, and one reported that he or she does not currently work in a clinical position.

Table 5. Perceived Percentage of NPs' Clients That Are "At Risk Drinkers"/AUD

	Unknown because I don't screen	Less than 20%	20-40%	Over 40%	I don't currently work in a clinical position	Did not answer this question
How many clients in your practice are either "at risk drinkers" or have an AUD	0	50% (2)	25%	0	25% (1)	1

Research Question #5: Perceived Availability of Alcohol Detoxification Referral Sources

One additional participant dropped out prior to this content therefore there were only three respondents for this set of questions. Two (66.7%) respondents agreed that alcohol detoxification services are readily available for their clients, and one (33.3%) strongly disagreed. Two (66.7%) agreed that the closest hospital is responsive with providing alcohol detoxification services to the individuals with recurrent AUD or COD needs, and one (33.3%) disagreed. Two (66.7%) agreed that the alcohol detoxification needs of their clients were being met and one (33.3%) disagreed. Two (66.6%) agreed that licensed addiction counselors are readily available and accessible as referral sources for their clients, and one (33.3%) disagreed.

Table 6: Perceived Availability of Alcohol Detoxification Referral Sources

	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Understand the Terms	Did not answer the question
Alcohol detox services are readily available for my clients	33.3% (1)	0	66.7% (2)	0	0	2
Closest hospital is responsive with providing alcohol detoxification services to individuals with recurrent AUD or COD needs	0	33.3% (1)	66.7% (2)	0	0	2
The alcohol detoxification needs of my clients are getting met.	0	33.3% (1)	66.7% (2)	0	0	2
LACs are readily available and accessible as referral sources.	0	33.3% (1)	66.6% (2)	0	0	2

Research Question #6: Perceived Barriers to Accessing Inpatient Alcohol Detoxification or Rehabilitation Services

Only three participants answered this question. Two (66.7%) respondents answered “No” and one (33.3%) answered “I don’t know” regarding whether there are any barriers to accessing inpatient alcohol detoxification or rehabilitation services for their clients. No respondents filled in information in the two drop down boxes that were provided as an opportunity to include freeform information about possible barriers or any additional information related to this topic.

Table 7. Perceived Barriers to Accessing Inpatient Alcohol Detoxification or Rehabilitation Services

	Yes	No	I don't know	Did not answer the question
Are there any barriers to accessing inpatient alcohol detox or rehab services for your clients	0	66.7% (2)	33.3% (1)	2

Research Question #7: Value Placed on NP Proficiency With Management of AUD and Alcohol Detoxification

Only three participants answered the questions in this section. All three (100%) of the respondents agreed that it is important for NPs in rural states to be proficient in management of AUD. All three (100%) of the respondents agreed that it is important for NPs in rural states to be proficient in the management of alcohol detoxification.

Table 8. Value Placed on NP Proficiency With Management of AUD/Alcohol Detoxification

	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Understand the Terms	Did not answer the question
It is important for NPs in rural states to be proficient in management of AUD	0	0	100% (3)	0	0	2
It is important for NPs in rural states to be proficient in management of alcohol detox	0	0	100% (3)	0	0	2

Research Question #8: Willingness to Provide  
AUD and Alcohol Detoxification Services

Only three respondents answered the questions in this section. Two (66.7%) respondents agreed that they would be willing to provide alcohol misuse related services assuming they felt proficient in this area, and one (33.3%) disagreed. Two (66.7%) respondents agreed that they would be willing to provide alcohol detoxification services (inpatient, outpatient, or social) for their clients as is appropriate for their setting assuming they felt proficient in this area, and one (33.3%) disagreed.

Table 9. Willingness to Provide AUD and Alcohol Detoxification Services

	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Understand the Terms	Did not answer the question
Willingness to provide AUD services	0	33.3% (1)	66.7% (2)	0	0	2
Willingness to provide alcohol detox services	0	33.3% (1)	66.7% (2)	0	0	2

## CHAPTER FIVE- DISCUSSION

### Introduction

The literature review for this research revealed a dearth of recent studies regarding the perceptions of NPs in rural states related to alcohol misuse and detoxification services, formal education, and their competency at providing related services. The theoretical underpinning for this study, Rural Nursing Theory (RNT), proposes that health care policy based on data from urban regions is not adequate for rural or frontier areas due to the unique needs of the rural health care environment (Long & Weinert, 2010). Research that provides data about health care in rural states could potentially improve health care policy and education.

A web-based survey was piloted for this study to examine the perceptions of NPs in Montana related to alcohol misuse services and detoxification, related formal education, and their perceived proficiency at providing these services. Invitational emails that contained a hyperlink to the web survey were sent via a private marketing company to 412 NPs in the State of Montana using six launches. As previously discussed, the total number of respondents who started the survey was five with only three of those completing the survey.

### Evaluation of the Results

The small sample size [N= 412, attempted surveys = 5 (1.2%), completed surveys = 3 (0.7%)] of this study precluded inferences on the topic of Nurse Practitioners (NPs) and their perceptions of Alcohol Use Disorder (AUD) services and training. However,

much can be garnered related to refining the survey tool and suggestions for future research. In addition, since less than half the emails were opened and only a small percentage (2.05%) of the respondents that opened the email actually clicked on the survey link, discussion about the use of internet surveys for academic research is also pertinent.

Information from the respondents that completed the demographic section revealed that 100% had prescriptive privileges, and 33.3% completed their graduate nursing education 16 years ago or more. If this pattern were to continue with a large scale replication study, insight may be discerned regarding the demographics of NPs in rural states, suggestions for improving education or supports, and data about the age of the rural workforce.

On the topic of perceived availability of alcohol detoxification services, one (33.7%) respondent indicated that alcohol detoxification services and services of Licensed Addiction Counselors are not readily available in his or her area and that the closest hospital is not responsive with providing alcohol detoxification services to individuals with recurrent AUD or Co-Occurring Disorder (COD). This is congruent with research from the literature review that found specialty services lacking in rural areas (Rivard, 2009) and rural nurses needing to take on more specialty tasks in their roles as “generalist” nurses (Long & Weinert, 2010). This may also explain the perception of the respondents in the current survey that it is important for rural NPs to be proficient in alcohol detoxification.

As previously discussed, data extracted from the 2004 National Survey on Drugs and Alcohol found Montana to have the greatest amount (17.6%) of alcohol dependence or abuse in the U.S. (excluding the milder criteria of “at risk drinking”) for ages 12 or older (Hughes, Sathe, & Spagnola, 2008). It would then be logical to assume that the percentage of Montanas with “at risk drinking” in addition to alcohol dependence and abuse is also much higher. In the current research, one (25%) respondent reported that 20%-40% of the clients in his or her practice were either “at risk drinkers” or have an AUD, two (50%) reported that less than 20% of his or her clientele were, and one (25%) reported that he or she did not currently work in a clinical position. In comparison, the Cambell-Heider et al. (2009) study reported that approximately one quarter of the clients of the NP respondents from New York had an addiction (not just limited to alcohol addiction). As stated, research has shown that rural areas often have higher rates of substance misuse than their urban counterparts (Heise, 2010). The actual figure of clients of the NP respondents in the current study who were either “at risk drinkers” or have an AUD may have been even higher than reported if the respondents were not proficient at detecting and treating alcohol misuse problems in their clients. Additionally, no question on the survey addressed the area of clinical focus of the respondents so it is unclear, for example, if the respondents provided services for only children, specifically for alcohol rehabilitation, or the general adult population. These areas of clinical focus could vary greatly in the reported rate of alcohol misuse among the client populations of the respondents.

A large percentage (n=X) of respondents to this survey indicated that they were not proficient in providing AUD care (20%-60%), with the lowest ratings of proficiency in the areas of medication management of AUD, prescribing for alcohol detoxification, managing Alcohol Withdrawal Syndrome (AWS), using labs/other data to discuss the impact of drinking alcohol, and using Motivational Interviewing (MI). Furthermore, 100% of respondents agreed that it was important for NPs in rural states to be proficient with providing both AUD and alcohol detoxification services. This shows that the NPs who responded to this survey believed that rural NPs need to be proficient in providing both AUD and alcohol detoxification services, and yet 20%-40% of them reported that they were not. This perceived need for rural NPs to be proficient in alcohol detoxification may indicate a unique quality of rural health care that is not being met with current health care policy and education. This is highlighted by the Cambell-Heider et al. (2009) study which deleted content from their survey related to detoxification because experts deemed it to be a specialty function. It is also implied by Healthy People 2020 Objectives (US-DPHHS, Healthy People 2020) which provide a national consensus of evidenced-based health objectives, including many that address alcohol misuse. There are many objectives that address alcohol such as “Increase the proportion of persons who need alcohol and/or illicit drug treatment and received specialty treatment for abuse or dependence in the past year” but there are no objectives that address the need to increase the amount of outpatient generalist prescribers that perform alcohol detoxification (US-DPHHS, Healthy People 2020).

The perceived need by the respondents in this survey for rural NPs to be proficient in alcohol detoxification is congruent with the generalist nurse concept of RNT and affirms that rural environments have health care needs that are different from their urban counterparts.

A majority of respondents (66.7%, n=X) received their graduate education in states other than Montana and these states may not accommodate for the needs of rural health care. If the findings of this study are replicated with valid research, assuring that both in-state and out-of-state APNs are adequately trained in rural health care needs should become a priority for rural states. The addition of intensive addiction and detoxification curriculum to in-state Family Nurse Practitioner (FNP) and Psychiatric Mental Health Nurse Practitioner (PMHNP) programs plus requiring all nurses that migrate to the state to have a certain amount of documented educational hours in both AUD and alcohol detoxification within their first year of employment in Montana may be warranted.

#### Study Limitations

Using a private marketing company to administer the invitational email was fraught with problems. It was assumed accurate at the outset, yet following the small response rate, the question of the accuracy of the email addresses was formed, whether a significant portion were filtered out by a SPAM detection apparatus, and whether concerns over internet security deterred potential respondents from opening an email that was delivered via a private marketing company. Research indicates that web-based survey response rates vary greatly based on method of invitation, use of incentives, and

topic but in general web-based surveys likely have a lower rate of return than traditional hard copy surveys (Couper, 2007). Research also shown that response rates for nursing specific web-based surveys have been declining in recent years to below 60% (VanGeest & Johnson, 2011). Some research has shown general web-based surveys to exhibit an 11% lower return rate than hard copy surveys (Manfreda et al., 2008) which averages a 25% to 30% response rate (Norwood, 2010). This, however, does not approach the minimal rate of return received in this survey (0.7% completed surveys). A little less than half of the respondents opened the survey and .02% of the respondents that opened the survey clicked on the link. In comparison, 20.8% of the respondents that clicked on the survey link did at least start the survey. Studies have indicated that the use of SPAM detection devices are increasingly being used to restricting email contact (Fan, W. & Yan, Z., 2010) which might account for a little less than half of the emails getting opened.

The marketing company in this research would not provide information about how the sample was acquired nor was there a means to independently verify that the emails were sent to nurse practitioners in Montana as claimed. In addition, three returned email messages and one phone call were received by potential participants stating that they had received the email invitation but did not meet the criteria of being a nurse practitioner in the state of Montana. This is only one less than that the total number of respondents who initiated the survey which further suggests the question of how many of the emails reached the targeted population. Additionally, the title of the survey was changed halfway through, as previously discussed, which could have resulted in

duplication of participants starting the survey since they may not have recognizing the title therefore not realized that they had already taken the survey.

The reliance on the respondents' memories to answer the questions about the amount of education received in nursing graduate school related to AUDs was also a limitation of this study. One of the respondents reported completing graduate school 16 or more years ago. It is unclear if the respondent would remember correctly how many hours of education in graduate school was spent on this subject with so many years having passed.

#### Improving the Questionnaire

Adding questions on the age range of the client population and field of employment focus of the respondents may render the question "Approximately how many of the clients in your practice are either "at-risk drinkers", or have an Alcohol Use Disorder (abuse or dependence)?" more useful. Respondents who work with young children or with specialty populations may have appropriately varied responses. Being able to tie the population's employment focus to the answer on the amount of clients who are at risk drinkers or have an AUD in their practice may provide more useful information. Changing the answer options on how many clients were at-risk for alcohol misuse disorders to include an answer of "10%" (instead of the lowest being "20%") may also supply more helpful information since Montana had been previously identified as having a rate of alcohol dependence of 17.6% for ages 12 or older (Hughes, Sathe, & Spagnola, 2008).

Furthermore, adding a question about the respondent's proximity to a town of 50,000 may add insight into the questions addressing availability of referral sources and alcohol detoxification services. Strictly acquiring a percentage of the clients who have poor availability of referral sources and detoxification services may not provide much meaningful information since they could all be from a large population area or all from a remote area of the state. Knowing how close the respondent is to a large population can provide information on how well the sample accurately reflects the whole state population.

Another revision suggestion is to move the questions on demographics to the start of the survey. This will serve the purpose of beginning with questions that are easily answered, and help to assure that demographic data has been addressed if the respondent drops out of the survey prior to finishing.

Shortening the survey is also an option for revision since time constraints have been suggested as the most important barrier to lower response rates by nurses (VanGeest & Johnson, 2011). The fact that two of the five respondents dropped out early may have indicated that this survey was too lengthy for rural NPs to fit into their busy schedules. If future researchers were to take this approach, it may be helpful to focus on one aspect that is likely to yield the most important results.

One out of three respondents indicated that they would not be willing to provide alcohol misuse services and detoxification to their clients as is appropriate for the setting they work in assuming that they were proficient in these areas. Comparing this with the amount of formal training they received on these topics may yield a relationship between

exposure to the topics in graduate school and willingness to provide services in their practice and/or willingness to seek continuing education on this topic.

### Suggestions for Future Research

In addition to ways to revise the survey tool, the piloting of this survey tool has resulted in suggestions for improving the research process, and further research. Ways to increase the sample size should be considered such as surveying more than one rural state, expanding the survey to include all midlevel practitioners or at least all advanced practice nurses (APRNs), or attempting to increase the response rate with the use of an incentive (an option that was ruled out for this study due to financial limitations).

Having email lists of NPs made readily available to student researchers in rural states such as Montana may increase the availability of evidenced-based care. Web-based research is potentially well-suited to student researchers at the Masters level due to the low delivery cost of web-hosting, fast delivery time, and the ease of data extraction that computers can provide (Couper, 2007; Fan & Yan, 2010). The Board of Nursing in Montana keeps a data base of addresses of nurse practitioners in Montana which can be purchased for a small fee, however, an email list is not available. This researcher was unable to access an email list of NPs in Montana except through a private marketing company which maintains control of the email list and allows for the possibility of greater sampling bias. Conducting an online survey when the researcher has control of the email list could lead to more accurate information about the demographics of the sample. However, it is unclear how many NPs in rural parts of the state have emails or if SPAM filters would prevent them from receiving the emails. Studies show that

individuals with internet access tend to be more affluent, younger, and European and Asian Americans, and that respondents to web surveys tend to have personalities that are more conscientious, agreeable, and open to new experiences which may skew the results (Fan & Yan, 2010). The use of an online open recruitment format using a link to web survey advertised on a nursing site such as the Montana Board of Nurse or advertised in hard copy printed publications is also a consideration although the return rate is typically low for online open recruitment surveys (Couper, 2007). This would likely require a larger sample size than is available in one rural state of NPs to reach significance. Perhaps, currently the best way to survey NPs in Montana is still through hard copy mail unless an accurate and complete email list of NPs in Montana is made available through a non-profit agency.

In this pilot survey, all three of the NPs that addressed the questions on this content agreed that it is important for NPs in rural areas to be proficient in the management of alcohol detoxification. If this trend of response continued in a large scale study, it would indicate new information that has not yet been elucidated in literature.

### Summary

The literature review of this study revealed that midlevel providers may be relied on to provide primary care in rural states when physicians are not available, that specialty services may not be readily available, and that rural practitioners often assume the role of a “generalist” which frequently includes functions traditionally attributed to specialties services in urban health care. Furthermore, the literature review suggested that some aspects of care for alcohol misuse services such as alcohol detoxification may be widely

viewed as specialty services. The amount of formal instruction received on alcohol services and alcohol detoxification, availability of related referral sources, and importance of knowledge of these services as perceived by NPs in a Montana has been largely unexplored. This study piloted a web-based survey to query NPs in Montana about their views regarding alcohol misuse related services, related formal education, and availability of referral sources. The method of delivery of the survey had many problems and yielded a response rate that was too small to reach significance.

Use of a hard copy delivery method is recommended for a replication of this study at this time unless an accurate email listing of NPs in Montana becomes available (without using a private marketing company for delivery of the email invitation) and a method of avoiding SPAM filtering can be employed. In addition, development of an accurate email data base of NPs in rural states that is available for academic research may facilitate the acquisition of evidenced-based practice indications for rural states. Further research on how NPs in rural states view the importance of midlevel proficiency with providing alcohol detoxification services is likely to yield data of particular significance for rural health care policy and education.

REFERENCES CITED

- Abbott, P.J., Quinn, D., & Knox, L. (1995). Alcohol withdrawal syndrome. *American Family Physician*, 69(6), 1443-1450.
- American Academy of Nurse Practitioners. (n.d.). *2009-2010 AANP National NP Sample Survey: An Overview*. Retrieved from [http://www.aanp.org/NR/rdonlyres/0952E2EF-CE8F-4B26-AC00-19041F1B8E59/0/OnlineReport\\_General2.pdf](http://www.aanp.org/NR/rdonlyres/0952E2EF-CE8F-4B26-AC00-19041F1B8E59/0/OnlineReport_General2.pdf)
- American Academy of Nurse Practitioners. (n.d.). *2009-2010 AANP National NP Sample Survey: Nurse Practitioner Facts*. Retrieved from [http://www.aanp.org/NR/rdonlyres/0952E2EF-CE8F-4B26-AC00-19041F1B8E59/0/OnlineReport\\_General2.pdf](http://www.aanp.org/NR/rdonlyres/0952E2EF-CE8F-4B26-AC00-19041F1B8E59/0/OnlineReport_General2.pdf)
- American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision. Washington, DC, American Psychiatric Association, 2000.
- American Society of Addiction Medicine, (2010). *Management of Alcohol Withdrawal Delirium: An Evidence-Based Practice Guideline*, by the Working Group on the Management of Alcohol Withdrawal Delirium, Practice Guidelines Committee. *Archives of Internal Medicine*, vol. 164, 1405-1412.
- Anderson, D., & Hampton, M. (1999). Physician assistants and nurse practitioners: Rural-urban settings and reimbursement for services. *Journal of Rural Health*, 15(2), 252-263.
- Armstrong, M. & Holmes, E. (2005). Frequency of nurse practitioner screening for substance use disorders. *Journal of Addictions Nursing*, 16(3), 125-129.
- Arthur, D. (1998). Alcohol-related problems: A critical review of the literature and directions in nurse education. *Nurse Education Today*, 18, 477-487.
- Baldwin, L., Hollow, W.B., Casey, S., Hart, G., Larson, E.H., Moore, K.,...Grossman, D. (2008). Access to specialty health care for rural American Indians in two states. *National Rural Health Association*, 24(3), 269-278.
- Bayard, M., McIntyre, J., Hill, K., & Woodside, J. (2004). Alcohol withdrawal syndrome. *American Family Physician*, 69(6), 1443-1450.
- Becker, K., & Semrow, S. (2006). Standardizing the care of detoxification patients to achieve quality outcomes. *Journal of Psychosocial Nursing*, 44(3), 33-37.
- Bray, J. W. & Zarkin, G. A. (2006). Economic evaluation of alcoholism treatment. *Alcohol Research and Health*, 26(1), 27-33.

- Brewster, J.M., Single, E., Ashley, M.J., Chow, Y.C., Skinner, H.A., & Rankin, J.G. (1990). Preventing alcohol problems: Survey of Canadian medical schools. *Canadian Medical Association Journal*, *143*, 1076-1078.
- Brunette, M. F., Asher, D., Whitley, R., Lutz, W. J., Wieder, B. L., Jones, A. M., & McHugo, G. J. (2008). Implementation of integrated dual disorders treatment: A qualitative analysis of facilitators and barriers. *Psychiatric Services*, *59*(9), pp. 989-995.
- Bushy, A. (2003). Rural minority health resource book. Rockville, MT: ORHP, HRSA, US DHHS.
- Campbell-Heider, N., Finnell, D. S., Feigenbaum, J. C., Feeley, T. H., Rejman, K. S., Austin-Ketch, T....Schmitt, A. (2009). Survey on Addictions: Toward curricular change for family nurse practitioners. *International Journal of Nursing Education Scholarship*, *6*(1), 1-18.
- CASA. (2000, April). Missed opportunity: National survey of primary care physicians and patients on substance abuse.
- Casher, M. I., Daniel, G., Bess, J. D. (2011). Benzodiazepines and stimulants for patients with substance use disorders. *Current Psychiatry*, *10*(5), 59-66.
- Center for Disease Control. (2006). USA state suicide rates and rankings by gender. WISQARS website "Fatal Injury Reports," Accessed at <http://www.cdc.gov/injury/wisqars/index.html>
- Center for Substance Abuse Treatment. (2002). SAMHSA: Report to congress. *Substance Abuse and Mental Health Services*. U.S. DHHS. Accessed at <http://www.samhsa.gov/reports/congress2002/chap4hrp.htm>
- Center for Substance Abuse Treatment. (2006). Quick guide for administrators, based on TIP 45, Detoxification and Substance Abuse Treatment, *Substance Abuse and Mental Health Services Administration*, U.S. DPHHS. Accessed at [http://www.samhsa.gov/csatsdisasterrecovery/featuredReports/02-QG%20Administrators\\_Tip%2045.pdf](http://www.samhsa.gov/csatsdisasterrecovery/featuredReports/02-QG%20Administrators_Tip%2045.pdf)
- Center for Substance Abuse Treatment. (2007) *Overarching Principles to Address the Needs of Persons With Co-Occurring Disorders*. COCE Overview Paper 3. DHHS Publication No. (SMA) 07-4165 Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Center for Substance Abuse Treatment. (2007). Substance abuse treatment for persons with Co-Occurring Disorders inservice training. *Substance Abuse and Mental Health Services Administration*. U.S.DPHHS. Accessed at <http://store.samhsa.gov/product/SMA08-4262>

- Cleary, M., Hunt, G. E., Matheson, S., & Walter, G. (2008). Views of Australian mental health stakeholders on clients problematic drug and alcohol use. *Drug and Alcohol Review, 28*, 122-128. DOI: 10.1111/j.1465-3362.2008.00041.x
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2<sup>nd</sup> ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Collaborative Institute Training (CITI), (n.d.). *Human Subjects Research Training Module*. Retrieved from <https://www.citiprogram.org/default.asp?language=english>
- Cooper, D. B. (1995). Alcohol Home detoxification: A way forward. *British Journal of Nursing, 4*, 1315-1318.
- Couper, M.P (2007). Issues of representation in ehealth research (with a focus on web surveys), *Am J. Prev Med, 32*(5S).
- DeAlba, I., Samet, J., & Saitz, R. (2004). Burden of medical illness in drug and alcohol dependent persons without primary care. *American Journal on Addictions, 13*(1), 33–45.
- Ettner, S. L., Huang, D., Evans, E., Ash, D. R., Hardy, M., Jourabchi M., & Hser, Y. (2006). Pub: *Health Services Research, 41.1* (Feb 2006): p162 (22). (preferred citation)
- Ewan, C.E., & Whaite, A. (1982). Training health professionals in substance abuse: A review. *International Journal of Addictions, 17*, 1211-1229.
- Ewing, J.A. (1984). Detecting alcoholism—the CAGE questionnaire. *Journal of the American Medical Association, 252*, 1905–1907.
- Fan, W., & Yan, Z. (2010). Factors affecting response rates of the web survey: A systematic review, *Computers in Human Behavior, 26*, 132-139, doi:10.1016/j.chb.2009.10.015
- Fiellin, D.A., O'Connor, P.G., Holmboe, E.S., & Horwitz, R.I. (2002). Risk for delirium tremens in patients with alcohol withdrawal syndrome. *Substance Abuse, 23*(2), 83-94.
- Foster, S., LeFauve, C., Kresky-Wolff, M., & Rickards, L. D. (2010). Services and supports for individuals with co-occurring disorders and long-term homelessness. *The Journal of Behavioral Health Services & Research, 37*(2), pp. 239-251.

- Gilpin, N.W., Koob, G.F. (2008). Neurobiology of alcohol dependence: focus on motivational mechanisms. *Alcohol Research & Health*, 31(3), 185-95
- Harwood, H. (2000). Updating estimates of the economic costs of alcohol abuse in the United States: Estimates, update methods, and data. Report prepared by the Lewin Group for the National Institute on Alcohol Abuse and Alcoholism. Accessed at <http://pubs.niaaa.nih.gov/publications/economic-2000/index.htm>
- Hayashida, M., Alterman, A., McLean, T., Mann, S., Maany, I. & O'Brien, C. (1988). Is inpatient medical alcohol detoxification justified: results of a randomized, controlled study. *NIDA Research Monograph*, 81, 19-25.
- Heise, B. (2010). Healthcare system use by risky alcohol drinkers: A secondary data analysis. *Journal of American Academy of Nurse Practitioners*, 22, 256-262.
- He, X.Z., Cyran, E., & Salling, M. (2009). National trends in the United States of America physician assistant workforce from 1980 to 2007. *Human Resources of Health* 2009, 7(86). Doi:10.11886/1478-4491-7-86
- Hollinghurst, S., Horrocks, S., Anderson, E., & Salisbury. (2006). Comparing the cost of nurse practitioners and GPs in primary care: Modeling economic data from randomised trials. *British Journal of General Practice*, 56, 530-535.
- Hooker, R.S., & McCaig, L. (1996). Emergency department uses of physician assistants and nurse practitioners: A national survey. *American Journal of Emergency Medicine*, 14, (3), 245-249.
- Institute of Medicine (2005). Improving the quality of health care for mental and substance-use conditions: quality chasm series.
- Howard, M.O., Walker, D.R., Walker, P.S., and Suchinsky, R.T. (2004). Alcohol and drug education in schools of nursing, *Journal of Alcohol & Drug Education*, 42(3), 54-90.
- Hughes, A., Sathe, N., & Spagnola, K. (2008). *State Estimates of Substance Use from the 2005–2006 National Surveys on Drug Use and Health* (DHHS Publication No. SMA 08-4311, NSDUH Series H-33). Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies.
- Johnson, B. A. (2011), Medication treatment of different types of alcoholism, *Focus, a Journal of Lifelong Learning in Psychiatry*, IX(1), 79-87, available at [focus.psychiatryonline.org](http://focus.psychiatryonline.org)
- Johnson, B. A., Ait-Daoud, N, Bowden, C. L., Diclemente, C. C., Roache, Lawson, K.,...Ma, J. Z. (2003). Oral topiramate for treatment of alcohol dependence: A randomised controlled trial. *The Lancet*, 361(9370), 1677-1685.

- Johnson, B. A., Rosenthal, N., Capece, J. A., Wiegand, F., Beyers, K., McKay, A.,...Swift, R. M. (2007). Topiramate for Alcoholism Advisory Board and the Topiramate for Alcoholism Study Group. "Topiramate for treating alcohol dependence: A randomized controlled trial". *Journal of the American Medical Association*, 298(14), 1641-1651.
- Koob, G. F. (2011). Neurobiology of addiction. *Focus, the Journal of Lifelong Learning in Psychiatry*, IX (1), 55-63, available at focus.psychiatryonline.org
- Krejcie, R. V. & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30,608.
- Larsson, L.S. & Zulkowski, K. (2002). Utilization and scope of practice on nurse practitioner and physician assistants in Montana. *Journal of American Academy of Nurse Practitioners*, 14(4), 185-190.
- Long, K.A. & Wienert, C. (1989). Rural nursing: developing the theory base. *Scholarly Inquiry for Nursing Practice*, 3, 113-127.
- Long, K.A., & Weinert, C. (2010). Rural nursing theory: Developing the theory base. In C.A. Winters & H.J. Lee (Ed.), *Rural Nursing: Concepts, Theory, and Practice* (3<sup>rd</sup> ed.) pp. 3-17.
- Ludenburg, F. C., & Irby, B. J. (2008). *Writing a Successful Thesis or Dissertation*. Thousand Oaks, CA: Corwin Press, Inc.
- Manfreda, K. L., Bosnjak, M., Berzelak, J., Haas, I., Vehovar, V. (2008). Web surveys versus other survey modes. *International Journal of Market Research*, 50(1), 79-104.
- Mayo-Smith, M.F. (1997). Pharmacological management of alcohol withdrawal. A meta-analysis and evidenced-based practice guideline. *American Society of Addiction Medicine Working Group on Pharmacological Management of Alcohol Withdrawal*. JAMA, 278, 144-151.
- Mayo-Smith, M. F., Beecher, L. H., Fischer, T. L., Gorelick, D. A., Guillaume, J. L., Hill, A., . . Melbourne, J. (2004) Management of alcohol withdrawal delirium. By the Working Group on the Management of Alcohol Withdrawal. *Archives of Internal Medicine*, 164, July, 1405-1412.
- McGlynn, E. A. Asch, S. M., Adams, J., et al?? (2003). The quality of health care delivered to adults in the United States. *New England Journal of Medicine*, 348(26), 2635-2645.

- McGovern, M. P., Xie, H., Segal, S. R., Siembab, L., & Drake, R. E. (2006). Addiction treatment services and co-occurring disorders: Prevalence estimates, treatment practices, and barriers. *Journal of Substance Abuse Treatment* 31, pp. 267-275.
- Miller, W. R. & Rose, G. S. (2009). Toward a theory of motivational interviewing. *American Psychologist*, 64(64), 527-537.
- Minkoff, K. (2001). Developing standards of care for individuals with co-occurring psychiatric and substance Use disorders. *Psychiatric and Substance Use Disorders*, 5(2), 597-599.
- Minkoff, K. (2005). *Comprehensive Continuous Integrated System of Care (CCISC): Psychopharmacology Practice Guidelines for Individuals with Co-occurring Psychiatric and Substance Use Disorders*. (Based on the psychopharmacology guidelines in Minkoff, 2001), Service Planning Guidelines for Co-occurring Psychiatric and Substance Disorders, Illinois Behavioral Health Recovery Management Project, [www.bhrm.org](http://www.bhrm.org).
- Mistral, W. & Velleman, R. (1999). Are practice nurses an underused resource for managing patients having problems with illicit drugs? *Journal of Substance Use*, 4(2), 82-87.
- Mistral, W. & Velleman, (2001). Substance-misusing patients in primary care: incidence, services provided and problems. A survey of general practitioners in Wilshire. *Drugs: Education, Prevention and Policy*, 8(1), 61-71.
- Mokdad, A.H., Marks, J.S., Stroup, D.F., Gerbending, J.I. (2004). Actual Causes of Death in the United States, 2000. *Journal of American Medical Association*, 291(10), 1238-1245.
- Montana Department of Public Health and Human Services, Quality Assurance Division. (2008). Beyond Rural: Montana State Rural Health Plan. Accessible at <http://www.dphhs.mt.gov/qad/beyondrural.pdf>
- Montana Department of Public Health and Human Services, Quality Assurance Division. (2011). Montana's Rural Health Plan, July 2011. Accessible at [www.dphhs.mt.gov/qad](http://www.dphhs.mt.gov/qad)
- Montana Hospital Association...An Health Care Providers. (2011). *Rural health care delivery in Montana*, a slideshow presentation by Casey Blumenthal, VP of MTHA. [www.mtha.org](http://www.mtha.org)
- Montana State University, (n.d.). *Application Procedures of the IRB at Montana State University*. Retrieved from <http://www2.montana.edu/irb/applic.html>

- Nasser, M. (1987). *Psychiatry in ancient Egypt*. Bulletin of the Royal College of Psychiatrists, 11, December, p. 421. Retrieved from <http://pb.rcsych.org/cig/reprint/11/12/420.pdf>
- Montana State University, (n.d.). WWAMI Medical Education Program, retrieved 3/29/11 at <http://www.montana.edu/wwwwami/highschool.html>
- Munding, M. O., Kane, R. L., Lenz, E. R., Totten, A. M., Tsai, W., Cleary, P. D...and Shelanski, M. L. (2000). Primary care outcomes in patients treated by nurse practitioners or physicians: A randomized trial. *Journal of American Medical Association*, 283, 59-68.
- Nkowane, A.M., & Saxena, S. (2004). Opportunities for an improved role for nurses in psychoactive substance use: Review of the literature. *International Journal for Nursing practice*, 10, 102-110.
- Norwood, S. L. (2010). *Research Essentials: Foundations for Evidenced-Based Practice*. Upper Saddle River, NJ: Pearson Education, Inc.
- Ockene, J.K., Adam, A., Hurley, T.G., Wheeler, E.V., & Herbert, J.R. (1999). Brief physician- and nurse practitioner-delivered counseling for high-risk drinkers: Does it work? *Arch Internal Medicine*, 159, 2198-2205.
- O'Connor, P., Nyquist, J. G., & McLellan, T. (2011). Integrating addiction medicine into graduate medical education in primary care: The time has come. *American College of Physicians*, 154(1), 56-60.
- Quimette, P., Jemelka, R, Hall, J., Brimmer, K., Krupski, A., & Stark, K. (2007). Services to patients with dual diagnosis: Findings from Washington's mental health service system. *Substance Use and Misuse*, 42, pp. 113-127.
- Pearson, L.J. (2009). Pearson Report: The annual state-by-state national overview of nurse practitioners legislation and health issues. *The American Journal for Nurse Practitioners*, 13(2). Retrieved at [http://npfreebies.com/ajnp\\_pearson09.pdf](http://npfreebies.com/ajnp_pearson09.pdf)
- Phillips, S.J. (2011). 23<sup>rd</sup> annual legislative update: As healthcare reforms NPs continue to evolve, *The Nurse Practitioner*, 36(1), 30-52.
- Polit, D. F., & Beck, C.T. (2008). *Nursing research: Generating and assessing evidence for nursing practice* (8<sup>th</sup> Ed.). Philadelphia, PA: Lippincott Williams & Wilkins.
- Reeves, L. M., Hermens, r. Brespenning, J., Grol, R., & Sibbald, B. (2004). Substitution of doctors by nurses in primary care. *Cochrane Database of Systematic Reviews*, 4, No.: CD001271. DOI: 10.1002/14651858.CD001271.pub2.

- Rehm, J., Mathers, C., Popova S., Thavorncharoensap, M., Teerawattananon, Y., & Patra, J. (2009). Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders, vol 373, June, pp.2223-2233. accessed at [www.thelancet.com](http://www.thelancet.com)
- Reiff, Hekking, S., Ockene, J.K., Hurley, T.G., Reed, G.W. (2005). Brief physician and nurse practitioner-delivered counseling for high-risk drinking. *Journal of General Medicine*, 20(1), 7-13.
- Reinert, D. F., & Allen, J.P. (2002). The Alcohol Use Disorders Identification test (Audit): A review of recent research. *Alcohol Clin Exp Res*. 26(2), 272- 279.
- Reoux, J.P., Saxon, A.J., Malte, C.A., Baer, J.S. & Sloan, K.L. (2001). Divalproex sodium in alcohol withdrawal: A randomized double blind placebo-controlled clinical trial. *Alcoholism Clinical and Experimental Research*, 25(9), 1324-1329.
- Rivard, S.M. (2009). *Montana's primary workforce*. Census Bureau, Montana Department of Labor and Industry Business Standards Division, [montanaruralhealthinitiative.com](http://montanaruralhealthinitiative.com)
- Rosen, S.M., Miller, T.R., & Simon, M. (2008). The cost of alcohol in California. *Alcoholism: Clinical and Experimental Research*, 32(11), DOI: 10.1111/j.1530-0277.2008.00777.x
- Rosston, K. (2008). Montana Strategic Suicide Prevention Plan. *Department of Public Health and Human Services*, a PDF file retrieved from <http://www.dphhs.mt.gov>
- Sawyer, D., Gale, J., & Lambert, D. 2002). Rural and frontier mental and behavioral health care: Barriers, effective policy strategies, best practices. *National Association for Rural Mental Health., Project Officer: Blanca Fuertes* accessed at [http://www.contracosta.networkofcare.org/library/Rural%20and%20Frontier%20Mental%20Health\\_Barriers\\_2006.pdf](http://www.contracosta.networkofcare.org/library/Rural%20and%20Frontier%20Mental%20Health_Barriers_2006.pdf)
- Sellman, D. (2011). The 10 most important things know about addiction, *Focus, the Journal of Lifelong Learning in Psychiatry*, IX (1), 99-104, available at [focus.psychiatryonline.org](http://focus.psychiatryonline.org)
- Soyka, M. & Horak, M. (2004). Outpatient alcohol detoxification: Implementation efficacy and outcome effectiveness of a model project. *European Addiction Research*, 10, 180-187.
- Soyka, M., Schmidt, F, & Schmidt, P. (2006). Efficacy and safety of outpatient alcohol detoxification with a combination of tiapride/carbamazepine. Additional Evidence. *Pharmacopsychiatry*, 39(1), 30-34.

- Stahl, S. M. (2009). *The Prescriber's Guide: Stahls' Essential Psychpharmacology*, 3<sup>rd</sup> Ed. San Diego: Cambridge Universtiy Press.
- Substance Abuse and Mental Health Services Administration. (2010). Results from the 2009 National Survey on Drug Use and Health. Volume I: Summary of national findings. Retrieved at [www.oas.samhsa.gov/NSDUH/2k9NSDUH/2k9resultsp.pdf](http://www.oas.samhsa.gov/NSDUH/2k9NSDUH/2k9resultsp.pdf)
- Stockwell, T., Bolt, L., Milner, I., Russell G., Bolderston, H., & Pugh, P. (1991). Home detoxification from alcohol: its safety and efficacy in comparison with inpatient care. *Alcohol and Alcoholism*, 26(5-6), 645-650.
- U.S. Census Bureau. (2010a) Census Data. Retrieved at <http://2010.census.gov/2010census/data/>
- U.S. Census Bureau. (2010b) Census Urban and Rural Classification and Urban Area Criteria. Retrieved from <http://www.census.gov/geo/www/ua/2010urbanruralclass.html>
- U.S. Census Bureau, 2009 State & County QuickFacts. Retrieved at <http://quickfacts.census.gov/qfd/states/3000.html>
- U.S. Department of Health and Human Services. National Institutes of Health. (2000). *The 10th Special Report to the U.S. Congress on Alcohol and Health*. Accessed at <http://pubs.niaaa.nih.gov/publications/10report/intro.pdf>
- U.S. Department of Health and Human Services, National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism. (updated 2005 ed.). *Helping patients who drink too much : A clinician's guide*. (NIH publication no. 07-3769). Retrieved at [http://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/clinicians\\_guide.htm](http://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/clinicians_guide.htm)
- U.S. Department of Health and Human Services. National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism. (Updated October 2008). *Medication Update. Excerpt from "Helping Patients Who Drink Too Much: A Clinician's Guide"*. NIH publication 07-3769. Retrieved at <http://www.niaaa.nih.gov/Publications/EducationTrainingMaterials/Documents/PrescribingMeds.pdf>
- U.S. Department of Health and Human Services. Healthy People 2020. (n.d.). Retrieved at <http://healthypeople.gov/2020/>
- U.S. Department of Health and Human Services. National Institute on Alcohol Abuse and Alcoholism. (2011). *Surveillance Report #92. Apparent Per Capita Alcohol*

*Consumption: National, State, and Regional Trends, 1977-2009*. Retrieved from <http://pubs.niaaa.nih.gov/publications/Surveillance92/CONS09.pdf>

- Vandermause, R.K. (2007). Assessing for AUD disorders in women: Experiences of advanced practice nurses in primary care settings. *Journal of Addictions Nursing, 18*: 187-198.
- VanGeest, J. & Johnson, T.P. (2011). Surveying nurses: Identifying strategies to improve participation, *Evaluation & the Health Professionals, 34*(4), 487-511.
- Velasquez, M. M., Sternberg, K., Dodrill, C. L., Kan, L. Y., & Parsons, J. T. (2005). The transtheoretical model as a framework for developing substance abuse intervention. *Journal of Addictions Nursing, 16*, 31-40.
- Wickizer, T.M., Krupski, A., Stark, K.D., Mancuso, D., & Campbell, K. (2006). The effect of substance abuse treatment on Medicaid expenditures among GA clients in WA State. *Milbank Quarterly, 84*(3), 555-576.
- Weaver, M.F., Hoffman, H.J., Johnson, R.E. & Mauck, K. (2006). Alcohol withdrawal pharmacotherapy for inpatients with medical comorbidity. *Journal of Addictive Diseases, 25*(2), 17-24.
- Weisner, C., Matzger, H., and Kaskutas, L. A. (2003). How important is treatment? One-year outcomes of treated and untreated alcohol-dependent individuals. *Addiction, 98*, 901-911.
- Weiss, R.D., & Matzger, H. (2003). Missed opportunities in addressing drinking behavior in medical and mental health services. CESAR FAX. University of Maryland, College Park. (1p.pdf online) <http://www.cesar.umd.edu>
- Willenbring, M. L., Massey, S. H., Mardiner, M. B. (2009). Helping patients who drink too much: An evidenced-based guide for primary care physicians. *American Family Physicians, 80*(1), 44-50.
- Williams, S. (2001). Introducing an in-patient treatment for alcohol detoxification into a community setting. *Journal of Clinical Nursing, 10*, 635-642.
- Wilson, S., Eagles, J.M., Platt, J.E., & McKenzie, H. (2007). Core undergraduate psychiatry: What do non-specialists need to know? *Medical Education, 41*, 698-702.
- Winters, C.A., Thomlinson, E.H., O'Lynn, C., Lee, H.J., McDonagh, M.K., Edge., D.S. & Reimer, M.A. (2010). Exploring rural nursing theory across borders. In C.A. Winters & H.J. Lee (Ed.), *Rural Nursing: Concepts, Theory, and Practice (3<sup>rd</sup> ed.)* pp. 41-54. New York: Springer.

- WWAMI Program, (n.d.). UW Medicine, Seattle. Retrieved at <http://uwmedicine.washington.edu/Education/WWAMI/Pages/default.aspx>
- VanGeest, J. & Johnson, T.P. (2011). Surveying nurses: Identifying strategies to improve participation, *Evaluation & the Health Professionals*, 34(4), 487-511.
- Ziedonis, D.M., Smelson, D., Rosenthal, R.N., Batki, S.L., Green, A.I., Henry, R.J.,... Weiss, R.D. (2005). Improving the care of individuals with schizophrenia and substance use disorders: Consensus Recommendations. *Journal of Psychiatric Practice*, 11(5), 315-338.

APPENDICES

APPENDIX A

SURVEY OF NP SERVICES IN A RURAL STATE

## SURVEY OF NP SERVICES IN A RURAL STATE

(Web-based format.)

Thank you for agreeing to participate in this study. Your time and willingness to share your perspectives are most appreciated. Please only take this survey if you are a Nurse Practitioner working in the state of Montana. Please only take this survey once for the integrity of the research.

Participation is voluntary. You can choose to not answer any question that you do not want to answer, and you can stop at anytime.

---

### I. SECTION ONE

**Please rate how true the statement is for you:**

**Disagree**  
**Strongly disagree**

**Agree**  
**Strongly agree**

**Don't understand the terms**

- 1) I routinely prescreen all my clients for an alcohol use disorder by asking the one question prescreening "Do you sometimes drink beer, wine, or other alcoholic beverages?" or use another screening tool (such as CAGE or AUDIT).
- 2) I am proficient with medication management for prevention of relapse in Alcohol Use Disorders (such as acamprosate, disfilurim, naltrexone, or topiramate).
- 3) I am proficient with prescribing medication for alcohol detoxification (inpatient, outpatient or social detoxification).
- 4) I am proficient with distinguishing between normal behavior, at risk drinking, alcohol abuse, and alcohol dependence.
- 5) I am proficient with managing Alcohol Withdrawal Syndrome.

- 6) I am proficient with using labs or other data to discuss the impact of drinking alcohol with a client who has a possible Alcohol Use Disorder.
  - 7) I am proficient with using Motivational Interviewing and “stage-matched interventions” to effectively communicate with clients who have an Alcohol Use Disorder.
- 

## II. SECTION TWO

**Please rate how true the statement is for you:**

**Disagree  
Strongly disagree**

**Agree  
Strongly agree**

**Don't understand the terms**

- 8) My nursing graduate school adequately prepared me to provide assessment and detection, brief intervention, medication management, and referrals for Alcohol Use Disorders.
  - 9) My nursing graduate school adequately prepared me to prescribe alcohol detoxification medication.
- 

## III. SECTION THREE

- 10) How many continuing education hours or hours of on-the-job training related to Alcohol Use Disorders (AUD) have you had in the last three years (include Motivational Interviewing, AUD screening & assessment, AUD medication management, AUD referrals, alcohol detoxification, or AUD relapse prevention, etc.)?

**0                      1-3                      4-8                      8-16                      17 or more**

11) Approximately how many hours of classroom instruction did your nursing graduate program spend on preparing you to provide care for clients with Alcohol Use Disorders (AUD) or co-occurring disorders (AUD and mental illness)?

**0                      1-3                      4-8                      8-16                      17 or more**

**IV. SECTION FOUR**

12) Approximately how many of the clients in your practice are either “at-risk drinkers”, or have an Alcohol Use Disorder (abuse or dependence)?

**Unknown because I don’t screen      less than 20%      20-40%      Over 40%      I don’t currently work in a clinical position**

**V. SECTION FIVE**

**Please rate how true the following statements are for you.**

**Disagree    Agree                      Don’t understand the terms**  
**Strongly disagree    Strongly agree**

13) Alcohol detoxification services are readily available as referral sources for my clients.

14) My local (or closest) hospital is responsive with providing alcohol detoxification services to individuals with recurrent Alcohol Use Disorders (AUD) or co-occurring mental health/AUD needs.

15) The alcohol detoxification needs of my clients are getting met.

- 16) Licensed addiction counselors are readily available and accessible as referral sources for my clients.

---

**VI. SECTION SIX**

- 17) Are there any barriers to accessing inpatient alcohol detoxification or alcohol rehab services for your clients?

**Yes No I don't know**

- 18) If there are any barriers to accessing inpatient alcohol detoxification or alcohol rehab services for your clients, please describe them in the box below:\_\_\_\_\_.

---

**VII. SECTION SEVEN**

**Disagree  
Strongly disagree**

**Agree  
Strongly agree**

**Don't understand the terms**

- 19) It is important for nurse practitioner (NPs) in rural states to be proficient in management of Alcohol Use Disorders.
- 20) It is important for NPs in rural states to be proficient in management of alcohol detoxification.

---

**VIII. SECTION EIGHT**

**Please rate how these statements are for you.**

**Disagree  
Strongly disagree**

**Agree  
Strongly agree**

**Don't understand the terms**

- 21) Assuming I felt proficient in these areas, I would be or am willing to assess and provide the alcohol misuse related services for my clients as is appropriate for the setting I work in.
- 22) Assuming I felt proficient in this area, I would be or am willing to provide alcohol detoxification services (inpatient, outpatient, or social) for my clients as is appropriate for the setting I work in.

---

**IX. SECTION NINE**

- 23) Please use this space to share any additional information you think is important for us to know about your experiences as an NP providing care to clients with alcohol misuse behaviors in a rural state:\_\_\_\_\_.

---

**X. SECTION TEN**

- 24) Do you currently see and treat patients? **Yes No**
- 25) Do you have prescriptive privileges? **Yes No**
- 26) Did you complete your graduate nursing education in Montana? **Yes No**
- 27) How many years ago did you complete your graduate nursing education?  
**5 or less 6-10 11-15 16 or more**
- 28) What is your age range?  
**29 and under 30-44 45-59 60 and over**

Thank you for participating in this survey.

Special thanks is given to the Campbell-Heider et al. (2009) study which piloted a similar survey of family nurse practitioners in New York State. A couple questions were adapted from that survey tool. Additionally, much of the content for this survey was extracted from an evidenced-based guide for primary care providers and mental health clinicians entitled "Helping Patients Who Drink Too Much" (US-DPHHS, 2005). These references are listed below.

Campbell-Heider, N., Finnell, D. S., Feigenbaum, J. C., Feeley, T. H., Rejman, K. S., Austin-Ketch, T....Schmitt, A. (2009). Survey on Addictions: Toward curricular change for family nurse practitioners. *International Journal of Nursing Education Scholarship*, 6(1), 1-18.

U.S. Department of Health and Human Services, (updated 2005 ed.). National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism. Helping patients who drink too much : A clinician's guide. NIH publication no. 07-3769. Retrieved at [http://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/clinicians\\_guide.htm](http://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/clinicians_guide.htm)

APPENDIX B

INVITATIONAL EMAIL AND SUBJECT CONSENT FORM

Dear Nurse Colleague,

I am writing to ask you to participate in a research study. My study explores how rural NPs perceive their preparatory education, availability of resources, proficiency, and willingness to treat clients with alcohol misuse behaviors. This may help provide a better understanding of ways to improve health care services in Montana. Please consider taking less than 15 minutes to complete the following survey.

If you choose to participate, the following link will take you directly to a short questionnaire (you may need to copy and paste the following link).

(link to questionnaire at here)

Your submission of the questionnaire will imply consent and your responses will be returned anonymously to me. Thank you in advance for your time. I am very grateful for your assistance.

Sincerely,  
Amy Skordal, RN BSN

#### SUBJECT CONSENT FORM FOR PARTICIPATION IN HUMAN RESEARCH AT MONTANA STATE UNIVERSITY

Dear Nurse Colleague,

You are being asked to participate in a research study that explores how rural nurse practitioners (NPs) perceive their preparatory education, availability of resources, proficiency, and willingness to treat clients with alcohol misuse behaviors. You were selected because you are an NP working in the state of Montana. This study is being conducted as part of my thesis requirement in the graduate nursing curriculum at Montana State University. Your input in this study may help provide a better understanding of ways to improve health care services in Montana.

I anticipate the total time to complete this 28 question survey to be less than 15 minutes. There are no identifiable risks or costs to you other than the time it takes to take the survey, nor are there direct benefits to you. Participation is voluntary and your electronically completed questionnaire will serve as consent to participate. You are free to decide not to participate in the study, and can choose to not answer any questions you do not want to answer and/or stop at any time without adversely affecting your relationship with the investigators or Montana State University College of Nursing.

Your identity will be protected and no personal identifiers will be used. This survey is kept on a secure website managed by Survey Monkey and questionnaire data will be returned anonymously so that electronic responses cannot be tracked to the

sender. The information obtained in this study may be published in professional journals or presented at professional conferences but your identity will be protected.

The estimated date of completion for the study is the end of February, 2011. You are asked to complete this study in the next two weeks if you consent. If you have any questions about the research, or wish to follow up on the results of the survey you may contact me at (406)443-6022 or my thesis chair, Dr. Susan Luparell at (406)771-4459 or [luparell@montana.edu](mailto:luparell@montana.edu).

Thank you in advance for your time.

Sincerely,

Amy Skordal, RN, BSN  
Graduate Nurse Student  
Email: [amyskordal.rn@bresnan.net](mailto:amyskordal.rn@bresnan.net)

APPENDIX C

IRB EXEMPTION APPROVAL



**INSTITUTIONAL REVIEW BOARD**  
**For the Protection of Human Subjects**  
**FWA 00000165**

960 Technology Blvd. Room 127  
 Immunology & Infectious Diseases  
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 Bozeman, MT 59718  
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*Chair:* Mark Quinn  
 406-994-4707  
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*Administrator:*  
 Cheryl Johnson  
 406-994-4706 or 6783  
 cherylj@montana.edu

**MEMORANDUM**  
 .....

**TO:** Amy Skordal and Susan Luparell

**FROM:** Mark Quinn, Ph.D. Chair *Mark Quinn*  
 Institutional Review Board for the Protection of Human Subjects

**DATE:** November 16, 2011

**SUBJECT:** "Viewpoints of Nurse Practitioners in Montana Related to Alcohol Misuse Services, Detoxification, and Education" [AS111611-EX]

The above research, described in your submission of November 15, 2011, is exempt from the requirement of review by the Institutional Review Board in accordance with the Code of Federal Regulations, Part 46, section 101. The specific paragraph which applies to your research is:

- (b)(1) Research conducted in established or commonly accepted educational settings, involving normal educational practices such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
- (b)(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.
- (b)(3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if: (i) the human subjects are elected or appointed public officials or candidates for public office; or (ii) federal statute(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.
- (b)(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available, or if the information is recorded by the investigator in such a manner that the subjects cannot be identified, directly or through identifiers linked to the subjects.
- (b)(5) Research and demonstration projects, which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs.
- (b)(6) Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed, or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the FDA, or approved by the EPA, or the Food Safety and Inspection Service of the USDA.

Although review by the Institutional Review Board is not required for the above research, the Committee will be glad to review it. If you wish a review and committee approval, please submit 3 copies of the usual application form and it will be processed by expedited review.