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UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

HUMAN IMMUNODEFICIENCY VIRUS SCREENING:
KNOWLEDGE, ATTITUDES, PERCEIVED NORMS,
AND CONTROL BELIEFS OF ADVANCED
PRACTICE REGISTERED NURSES
IN COLORADO

A Scholarly Project Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

Jennifer Berry

College of Natural and Health Sciences
School of Nursing
Nursing Practice

May, 2019

This Scholarly Project by: Jennifer Berry

Entitled: *Human Immunodeficiency Virus Screening: Knowledge, Attitudes, Perceived Norms, and Control Beliefs of Advanced Practice Registered Nurses in Colorado*

has been approved as meeting the requirement for the Degree of Doctor of Nursing Practice in College of Natural and Health Sciences in the School of Nursing, Program of Nursing Practice.

Accepted by the Capstone Research Committee

Kathleen N. Dunemmn, Ph.D., APRN, CNM, Research Advisor

Darcy Copeland, Ph.D., RN, Co-Research Advisor

Martha Levine, Ph.D., RNC-OB, C-EFM, Committee Member

Accepted by the Graduate School

Linda L. Black, Ed.D.
Associate Provost and Dean
Graduate School and International Admissions
Research and Sponsored Projects

ABSTRACT

Berry, Jennifer. *Human Immunodeficiency Virus Screening: Knowledge, Attitudes, Perceived Norms, and Control Beliefs of Advanced Practice Registered Nurses in Colorado*. Unpublished Doctor of Nursing Practice Scholarly Project, University of Northern Colorado, 2019.

The purpose of this evidence-based practice project was to increase the knowledge base to address the barriers preventing routine screening of the human immunodeficiency virus (HIV). The project consisted of a statewide survey to assess the knowledge, attitudes, perceived norms, control beliefs, barriers, and facilitators of advanced practice registered nurses (APRNs) across Colorado. A statewide assessment is important in the state of Colorado because APRNs are the primary providers in many rural areas. There were 66 responses to the survey. Knowledge of the Centers for Disease Control and Prevention (CDC; 2018) guideline for HIV screening was lacking. About one-third of the APRNs did not know the CDC guideline applied to all patients age 13 to 64 and was not just for high risk groups of which the Black/African American race and healthcare workers were not. The APRNs were influenced by actions of other APRNs but did not screen per CDC guidelines for many reasons. Although the APRNs were confident in HIV screening, they wanted resources for where they could get more information and where to send patients who might have a positive HIV test. This project provided the basis for future education interventions that could utilize a pre/post survey with an educational session either in the rural setting or via webinar.

DEDICATION

This project is dedicated to all people who feel marginalized by the healthcare system. I hope one day health care will be a safe place for all regardless of differences. I want to thank my family and friends for their endless support through this process, especially my wife, Chris, who kept me grounded. Thank you to my committee: Kathy Dunemn, Darcy Copeland, and Martha Levine. Thank you to all the others who supported this effort along the way: Linda Kottman, Brian Bost, Zach Hutzayluk, Natalie Talley, Vicki Wilson, and the APRNs who participated.

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CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

The potential to eliminate human immunodeficiency virus (HIV) in the United States is within reach. The director of the Centers for Disease Control and Prevention (CDC), Dr. Robert Redfield, announced at a CDC meeting in March, 2018 that he believed ending acquired immune deficiency syndrome (AIDS) in America is possible within three to seven years as the tools are available (Branswell, 2018). This Doctor of Nursing Practice (DNP) evidence-based practice project assessed differences of knowledge, attitudes, perceived norms, control beliefs, barriers, and facilitators of routine HIV screening between advanced practice registered nurses (APRNs) in urban and rural Colorado.

Background and Significance of Project

Human Immunodeficiency Virus Pathophysiology

Human immunodeficiency virus is a virus that lives within CD4 cells where it replicates (Cichocki, 2018). With the CD4 cell infected with HIV, the ability for the CD4 cell to trigger an immune response is blocked, thus allowing for infection to attack the body without any interference from the immune system. These opportunistic infections lead to death for people living with HIV.

Lab values important for monitoring HIV infection are HIV viral loads and CD4 counts. The HIV viral loads should be zero when HIV is properly treated with antiretroviral therapy (ART; Cichocki, 2018). When HIV levels are undetectable, the infection cannot be spread to others; therefore, it is important for ART to be started as soon as possible after a positive HIV test (Cook, 2018). Those persons treated with ART at the diagnosis of HIV have a higher chance of a normal lifespan (Cichocki, 2018). Patient CD4 counts are monitored to ensure the immune system is functioning properly. Normal values for CD4 counts are between 500-1,500 cells per cubic millimeter on blood (Cichocki, 2018). When those infected with HIV have a CD4 count below 200 and/or develop a serious infection, HIV is then classified as late stage HIV or AIDS. During AIDS infection, the body has a very low chance of fighting off infection and increasing CD4 counts back to a normal level (Cichocki, 2018). The early stage of HIV infection--called acute retroviral syndrome or primary HIV infection--is usually characterized by flu like symptoms including fever, swollen glands, sore throat, rash, muscle and joint aches and pains, and headache (“What are HIV and AIDS?”, 2017). The chronic or clinical latency stage is characterized by HIV infection without active symptoms. Antiretroviral therapy is used to keep HIV infection at bay and in the clinical latency stage to prevent the conversion to AIDS (“What are HIV and AIDS?”, 2017).

Human Immunodeficiency Virus in the United States of America

There are close to 40,000 new HIV infections in the United States each year (“U.S. Statistics,” 2017). The goal is to identify all new HIV infections through regular screening. The CDC (2018) recommends everyone between ages 13 and 64 be tested for HIV at least once in their lifetime or more if risk factors warrant it. The CDC showed

just under half of people who had HIV between ages 13 and 24 did not know their HIV status. After identification of HIV infection, appropriate treatment ensures those infected do not pass on the infection to others. High risk behaviors that increase the chance of HIV infection include men who have sex with men (MSM), intravenous (IV) drug users, and unprotected sex (CDC, 2018). Use of pre-exposure prophylaxis (PrEP) for those at higher risk also decreases rates of HIV (Ard & Makadon, 2012). Prior to PrEP and HIV treatment, there must be an HIV screening test, which is also strongly encouraged via the CDC guideline screening for HIV.

Many barriers still present that prevent regular screening for HIV are attached to stigma and homophobia beginning in the 1980s at the beginning of the AIDS crisis (Ard & Makadon, 2012). Although this stigma has decreased some, it is not gone. The literature review indicated barriers to appropriate HIV screening were stigma, education of providers (Ard & Makadon, 2012; Dorsen & Van Devanter, 2016; Johnson, 2015; Pennant, Bayliss, & Meads, 2009; Tidwell, 2017; Waterman & Voss, 2015), and patient knowledge on safe sex practices including PrEP (Johns Hopkins Medicine, n.d.; Krakower et al., 2017; Sexuality Information and Education Council of the United States [SIECUS], 2016). People living with HIV are often stigmatized and APRNs have a responsibility to advocate for health disparities facing this population.

Human Immunodeficiency Virus in Colorado

In 2017, 436 new cases of HIV were reported; of those, 130 were outside of the Denver metro area (Colorado Department of Public Health & Environment [CDPHE], 2017c). Close to two-thirds of men living with HIV in Colorado were exposed to HIV because of sexual encounters with men (CDPHE, 2017b). The human immunodeficiency

virus is not limited to MSM and IV drug users. Just under 20% of people diagnosed with HIV in Colorado between 2011 and 2015 did not have any identifiable risk factors (CDPHE, 2017b). Therefore, it is important to screen in all settings and all patients ages 13 to 64 regardless of risk.

The Colorado HIV/AIDS strategy puts forth the following objective: “Provide universal HIV prevention strategies for the general population in Colorado, which will impart factual information, generate support, reduce stigma, make HIV screening routine, and facilitate access to further information and services” (CDPHE, 2017c, p. 13). In Colorado, those with no identifiable risks only accounted for a minority of new HIV cases but of those, almost half were diagnosed with late stage HIV or AIDS (CDPHE, 2017b), meaning they were being diagnosed later in the disease. Therefore, it is important for health care providers to screen according to CDC (2018) guidelines.

Advanced Practice Registered Nurses and Colorado Population Density

Advanced Practice Registered Nurses in Colorado

There are four types of APRNs: nurse practitioners, certified registered nurse anesthetists, certified nurse midwives, and clinical nurse specialists. Of all APRNs, nurse practitioners are the most common. Nurse practitioners provide complete medical care while certified nurse midwives provide complete medical care focused on women’s health and obstetrics (Joel, 2018). Certified registered nurse anesthetists focus on anesthesia-related care and provide half of the anesthesia in rural areas across the United States (Joel, 2018). Clinical nurse specialists are the APRNs of quality improvement and

change (Joel, 2018). Their role includes many responsibilities, which might or might not include direct patient contact (Joel, 2018).

There are over 3,700 nurse practitioners in Colorado (Colorado Center for Nursing Excellence [CCNE], 2015). The role of nurse practitioners ranges from inpatient hospital care to outpatient care in the form of primary care services. An increasing reliance on nurse practitioners includes primary care services in the rural arena (CCNE, 2015). In Colorado, APRNs can practice independently, giving them the autonomy to provide quality care to many diverse populations. There are over 4,500 APRNs in Colorado; certified nurse midwives account for 7%, certified registered nurse anesthetists account for 9%, certified nurse specialists account for 13%, and nurse practitioners account for 71% (CCNE, 2015).

According to the 2015 CCNE report, 90 nurse practitioners account for 30-75% of primary care providers in 19 counties (see Figure 1). Additionally, in four counties in Colorado, nurse practitioners account for 75% or more of the primary care providers (CCNE, 2015). The role of the nurse practitioner in Colorado is also expanding as the population increases.

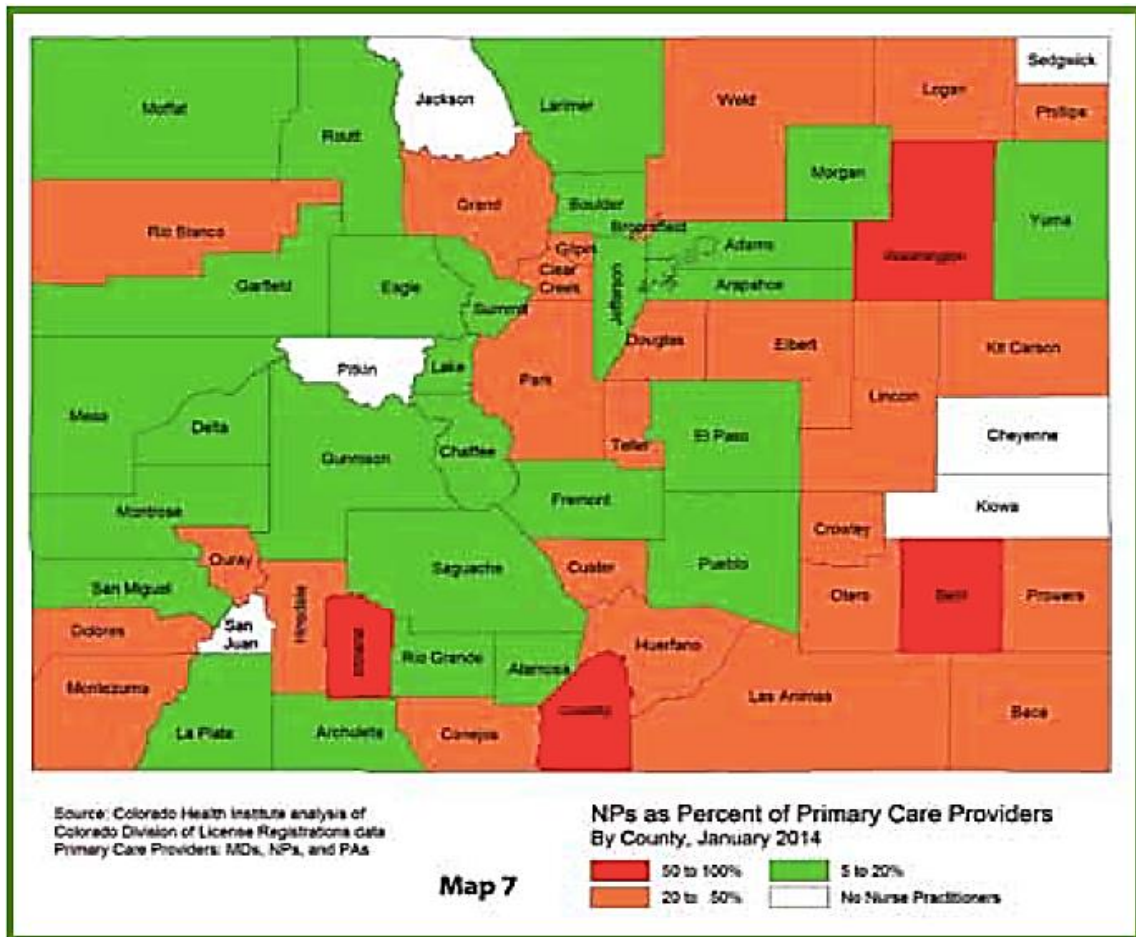


Figure 1. Percent of primary care providers by Colorado county (CCNE, 2015).

In rural and frontier Colorado, health centers funded by the Health Resources and Services Administration (2017) employ 165 full-time equivalent (FTE) nurse practitioners who are serving over 625,755 with over 1,700 people living with HIV. The role of APRNs in Colorado is significant, giving them the opportunity to address public health issues within their communities.

Population Density in Colorado

The population in Colorado in 2017 was over 5.6 million (World Population Review, 2018). The Colorado Rural Health Center (2018) categorizes counties as urban,

rural, and frontier. Urban counties have at least one metropolitan area with a population over 50,000, while rural counties do not have any metropolitan areas (Colorado Rural Health Center, 2018). Frontier counties are designated as fewer than five people per square mile (Colorado Rural Health Center, 2018). As seen in Figure 2, the differences among county population and healthcare center access could be a potential barrier for routine screening of HIV.

In alignment with the Colorado HIV/AIDS strategy (CDPHE, 2017c), this evidence-based practice project encouraged APRNs in Colorado to follow the CDC (2018) guideline to screen in urban, rural, and frontier settings. The APRN has the responsibility to follow CDC guidelines as the provider in all areas of Colorado.

This evidence-based practice project assessed knowledge, skills, attitudes, subjective norms, and perceived behavioral control as well as barriers and facilitators of HIV screening in APRNs in Colorado. Because “changing...behavior will require a clear understanding of the barriers to routine HIV screening...that likely contribute to both a knowledge–behavior and belief–behavior gap” (Bares et al., 2016, p. 325), this evidence-based practice project set out to assess those barriers.

Problem Statement

The purpose of this project was to assess the knowledge, attitudes, perceived norms, and control beliefs of APRNs in Colorado to increase routine HIV screening. A statewide assessment was important as APRNs are the primary providers in many rural areas of Colorado. Through a survey, this project identified differences among urban, suburban, and rural APRNs; their knowledge, skills, attitudes, perceived norms, and perceived behavioral controls; and the barriers and facilitators impacting screening of HIV.

Research Questions

- Q1 Do knowledge, attitudes, perceived norms, and control beliefs influence routine screening for HIV of APRNs who practice in Colorado? Are these different in urban, suburban, and rural settings in Colorado?
- Q2 What barriers and facilitators are impacting routine HIV screening by APRNs in Colorado? Are these different in urban, suburban, and rural areas?

Conceptual Frameworks

Stetler Model of Research Utilization

The first conceptual model chosen for this project was the Stetler (2010) model of research utilization. This model was chosen because it is a planned action theory with specific steps to evaluate evidence, translate it into useable form, and transform it into practice. The Stetler model has five phases: preparation, validation, comparative evaluation/decision making, translation/application, and evaluation (see Figure 3).

Phase one. Phase one focuses on the problem. The problem in this project was routine HIV screening in nurse practitioners in Colorado. The literature was reviewed and four studies and one dissertation were found.

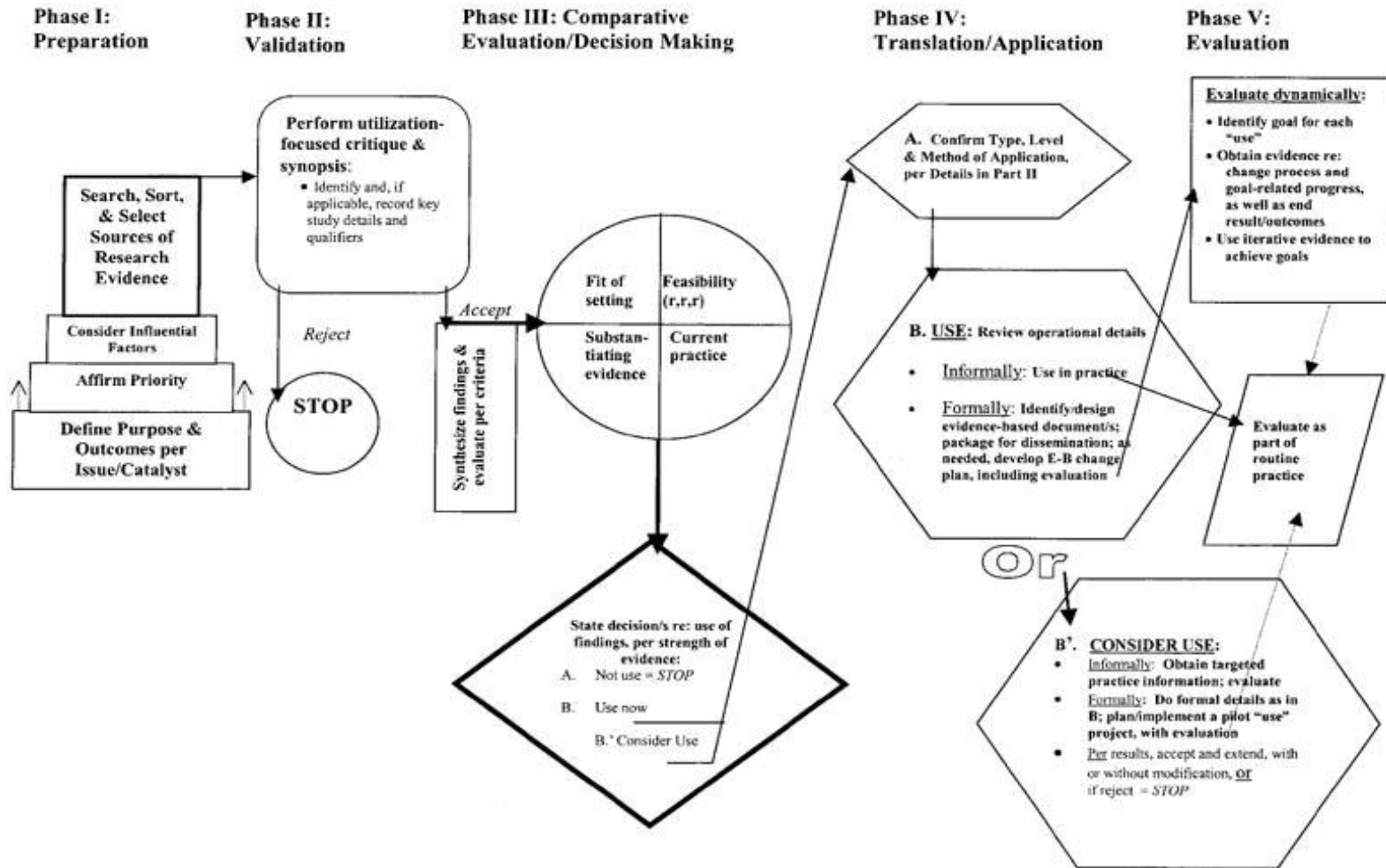


Figure 3. Stetler model of research utilization to facilitate evidence-based practice (Stetler, 2002).

Phase two. Phase two critically assesses the foundation of literature (see Appendix A: Methodological Factors); this project was based on methods by Stetler et al. (1998). Within the methodological factors table (see Table 1), the last column explains the levels of evidence. For example, Level I is meta-analysis of multiple controlled studies. Level II is individual experimental study. Level III is quasi-experimental study or matched controlled study. Level IV is case report or program evaluation. Lastly, Level V is opinion (Stetler et al., 1998). Quality is described from “A” to “D” based on quality. “A” is the highest, using high quality well-designed study. “D” is the lowest level with major flaws in design. For this project, only “A” and “B” evidence was included (Stetler et al., 1998).

Phase three. Phase three then evaluates the risk, resources, readiness, and current practice of either the organization or individual practitioners (Stetler, 2010; see Appendix B—Utilization Factors), which is also based on methods by Stetler et al. (1998). This project added to the present data and assessed current practice of nurse practitioners in Colorado.

Phase four. Phase four defines operational variables of use and methods for translation into practice (Stetler, 2010). For this project, information gathered via survey was considered for use in the future based on feasibility timeliness.

Phase five. Lastly, phase five evaluated research utilization to enhance credibility of evaluation data and plans for pilot evaluation of future practice changes (Stetler, 2010).

Table 1

Project Adherence to Stetler Model

Phase I—Preparation	Phase II—Validation	Phase III—Comparative Evaluation/Decision Making	Phase IV—Translation/ Application	Phase V--Evaluation
See methodological factors in Appendix A	In utilization table in Appendix B	Fit of Setting: All of United States is appropriate, began with Colorado	Consider use: Per results, accept and extend	Evaluate dynamically: Uses in urban, rural, frontier settings: 1. Attitudes 2. Skills 3. Knowledge 4. Perceived control 5. Subjective norms
Meta-analysis-2 Studies- 5 Dissertation-1 Other articles- 2	Synthesized in literature review	Feasibility: Time limitation		Obtain evidence to impact above uses
	Accept there is a gap in the literature	Substantiating evidence: In CDC guideline, Grade “A” evidence Current practice: Assessment of APRNs, knowledge, skills, attitudes, perceived control, subjective norm Perform complete assessment of APRNs in CO		Evidence in literature in Phase II Evaluate as part of routine practice as it should be according to CDC guideline for HIV screening

Source: Stetler (2010).

Theory of Planned Behavior

The second conceptual framework for this project was the theory of planned behavior (Ajzen, 2017). This theory was chosen because it addressed concepts related to human behavior toward a subject. This theory was not based in nursing but informed researchers about societal behaviors while addressing knowledge, attitudes, subjective norm, and perceived behavioral control about a given concept. The purpose of this theory was to identify and influence beliefs to promote positive intentions and behavior (Ajzen, 2017). According to this theory, behavior is influenced by three belief types: behavioral, normative, and control. These beliefs lead to intention, which leads to actual behavior. As seen in Figure 4, the background factors initially lead to the three belief types (Ajzen, 2017). These belief types lead to intention and actual behavior. The goal of this project was to identify how belief types influenced HIV screening. The researcher identified knowledge, skills, attitudes, subjective norms, and perceived behavioral control as they related to behaviors of HIV screening.

The variables within this theory are behavioral beliefs, normative beliefs, and control beliefs: behavior beliefs describe the attitudes, consequences, and outcomes of a behavior; normative beliefs describe the influence of group expectations and motivations regarding a behavior; and control beliefs describe systematic factors that influence the ability to perform the behavior (Ajzen, 2017). For the purposes of this project, normative beliefs are referred to as perceived norms as actual norms could not be assessed. The APRNs' perceptions of the norms were assessed.

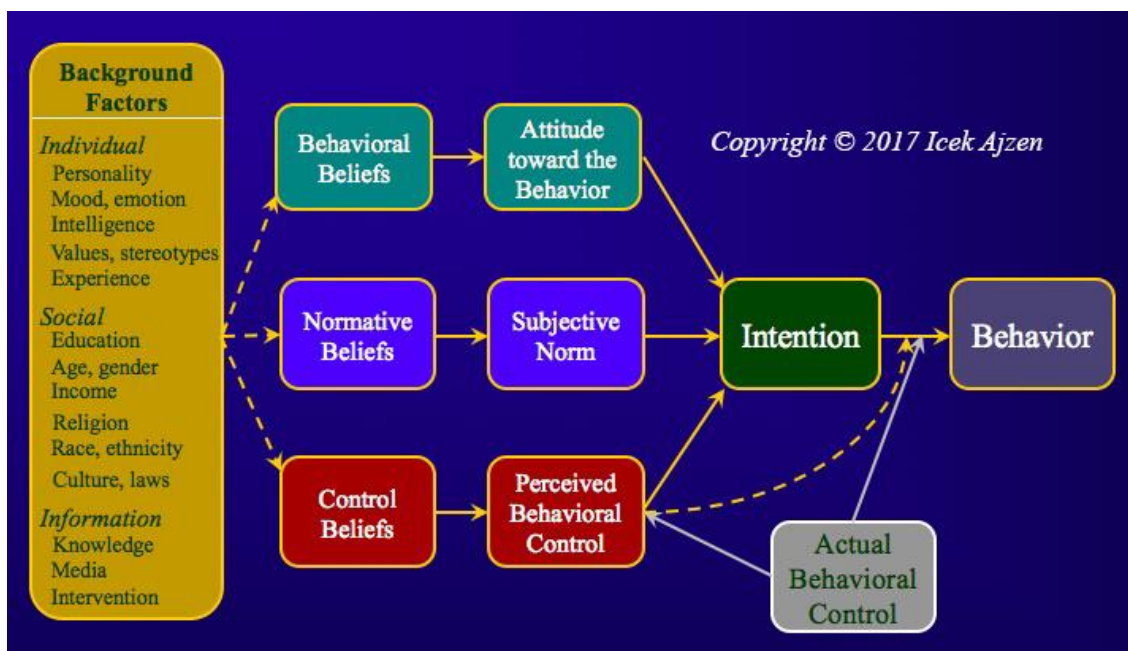


Figure 4. Theory of planned behavior with background factors (Ajzen, 2017).

The theory of planned behavior assumes beliefs can be changed and the more weight each belief carries, the more influence it has over intention and behavior (Ajzen, 2017). Ajzen (2017) continued to say this theory should be used to influence beliefs that have a potential to change. There must also be a direct and strong link between intention and behavior. The researcher assumed the subjects being surveyed had intention to perform HIV screening; yet, knowledge, attitudes, perceived norms, and control beliefs influenced their ability to do so on a regular basis. This assumption was based on the role of APRNs as care providers. A limitation of this theory was if a belief was already a positive highly weighted predictor of positive behavior, it would not be influenced (Ajzen, 2017).

The theory of planned behavior was the basis of the instrument used in this project (see Figure 5 for visual representation). This instrument is described in detail in

Chapter III. In their article, Goyal et al. (2013) created a survey of the providers in their practice to determine why routine HIV screening was not done by measuring providers' current practices, knowledge, and attitudes. Sutherland (2015) then used the survey created by Goyal et al. and combined it with Mansell, Salinas, Sanchez, and Abdolrasulnia's (2011) survey that measured nurse practitioner and physician assistant attitudes, perceived norms, and subjective norms regarding discussion of sexual health with premenopausal women. Sutherland received permission from Mansell et al. to adjust the wording of questions to fit routine HIV screening. Mansell et al. had used the theory of planned behavior as the basis of their survey. Sutherland's survey was named Nurse Practitioners' Perceived Social Norms toward HIV Screening (NPPSNHIVS).

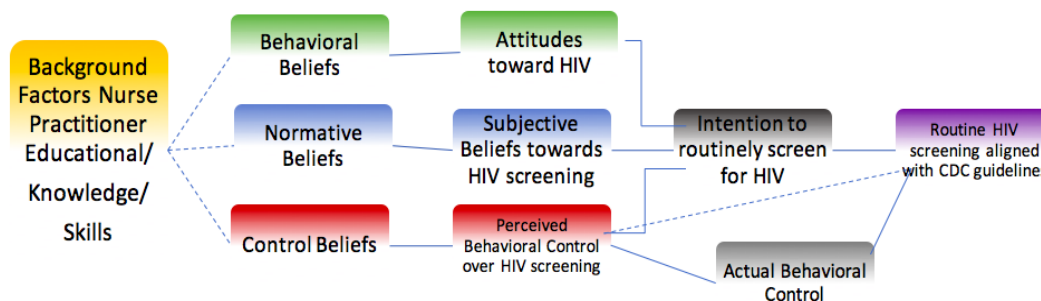


Figure 5. Visual representation of the theory of planned behavior.

Summary

The Stetler (2010) model and the theory of planned behavior (Ajzen, 2017) were the conceptual models for this project; both assess factors of potential adopters or current practice of an intervention/behavior and the practice environment/subjective norm/perceived behavioral control. They both aim to achieve a better outcome/behavior

change, although the Stetler model embraces evidence-based practice through critical assessment of evidence and current practice with precise implications for practice change. Both models consider social barriers/background factors that might influence an outcome. Knowledge, skills, attitudes, subjective norms, and perceived behavioral control influence behaviors especially in stigmatized concepts such as HIV. Within this project, beliefs regarding HIV screening had the potential to facilitate positive change in behavior. Via a critical literature review based on the Stetler model, this project assessed current practice of nurse practitioners in Colorado and future practice implications for best practice of routine HIV screening.

Literature Review

The following keywords were searched: HIV, AIDS, LGBT, guidelines, health disparities, screening, social justice, stigma, knowledge, skills, attitudes, cultural competency, nurse practitioners. Excluded keywords included pregnancy, cancer, and youth. Search engines consisted of Cumulative Index of Nursing and Allied Health Literature (CINAHL), Google Scholar, PubMed and Centers for Disease Control and Prevention (CDC). The initial search yielded 18,000 articles, many of which were unrelated. The search was then narrowed to English language and those published from 1980-2018. These were subsequently narrowed to two maps, six organizational reports, six systematic reviews, five guidelines, and 11 other studies including two dissertations and nine articles. Citations within articles led to more data beyond the use of Google scholar, PubMed, CDC, and CINAHL.

Literature Synthesis

As of June 31, 2017, close to 14,000 people were living with HIV/AIDS in Colorado (CDPHE, 2017a). Fewer than 50% of these people had viral suppression of less than 200 cells/mL (CDPHE, 2017a). Viral loads were decreased when patients who had HIV were adherent to antiretroviral therapy (ART). When viral loads were not suppressed, the risk of spreading infection was higher. When viral loads were undetectable, transmission did not occur. Across the United States, over 1.1 million people are infected with HIV (Avert, 2018). Less than 40% of these people are using ART, which gives them the potential to transmit HIV to others (Avert, 2018).

Because there is a higher incidence of HIV infection in men who have sex with men (MSM) population, search words were extended to include the lesbian/gay/bisexual/transgender (LGBT) population. Men who have sex with men are over 40% more likely to become infected with HIV over heterosexual counterparts (Butler et al., 2016). Over 63% of people infected with HIV/AIDS in Colorado were exposed to HIV via MSM (CDPHE, 2017a). As of January 2017, more than 4% of the U.S. population were in the LGBT population (“Gallup Identifying as LGBT,” 2017), which equates to over 13 million people. The LGBT population is inclusive of people who are not cisgender or heterosexual including queer, intersex, asexual, and pansexual. For the purposes of this evidence-based practice project, all MSM were included in the LGBT population even if they did not identify themselves in that population.

Behaviors that increase the risk of HIV transmission are substance abuse, drug use with needles, sex work, MSM, sexual encounters with someone known to be infected with HIV, sexual encounters with unknown partners, multiple sex partners, other current

sexually transmitted infection, inconsistent condom use and inconsistent use of ART/PrEP when appropriate (U.S. Department of Health and Human Services, 2017). It is impossible to know exactly how many people have had sexual contact with a person with increased risk of HIV. Themes throughout the literature review were stigma and discrimination, decreased access to care, lack of provider education, and decreased appropriate sex education from providers.

Human Immunodeficiency Virus Screening and Counseling

Human immunodeficiency virus screening. All adults 13-64 should have a one-time HIV screening test done (CDC, 2018). Cost for this blood test is covered under the screening portion of the Affordable Care Act. The CDC (2018) and the U.S. Preventive Services Task Force (USPSTF; 2013) gave this screening an “A”, the highest grade possible, meaning the benefit was highly substantial and recommended with little risk. Evidence supporting this guideline was based in well-performed studies in primary care settings and future studies would have little effect in the guideline (USPSTF, 2013).

The CDC’s (2018) recommendation for HIV screening is the standard. Although only 219 new cases of HIV/AIDS were discovered in Colorado during the first half of 2017, more cases might have been discovered if appropriate screening processes were in place (CDPHE, 2017a). Half of those identified as being infected with HIV had had the infection for longer than three years (CDC, 2018). It is important to screen early to prevent negative sequela from HIV infection.

Barriers. Although many barriers were identified in the literature review, stigma, lack of knowledge, and time constraints were among the most common. Bares et al. (2016) assessed familiarity with HIV guidelines, “attitudes toward testing, testing

practices, barriers and facilitators to routine testing” in 259 resident physicians (p. 320). Only half were aware of screening guidelines. Bares et al. also found attitudes of these residents to be positive; 98% agreed HIV testing was important for the patient and the community and almost 70% felt “HIV screening was not an unreasonable burden or a waste of health care resources” (p. 323). The barriers identified by Bares et al. were “competing priorities, not thinking of it during the clinical encounter, patient refusal, and insufficient time” (p. 323). Facilitators found were “institutional elimination of written consent form, electronic reminders, reminders from attending physicians or preceptors, and 2006 revision of CDC guidelines” (Bares et al., 2016, p. 323).

Changing physician behavior will require a clear understanding of the barriers to routine HIV screening, and our study suggests important barriers to adoption of routine screening that likely contribute to both a knowledge–behavior and belief–behavior gap. (Bares et al, 2016, p. 325)

Goyal et al. (2013) developed a HIV screening survey that assessed knowledge, attitudes, perceived norms, and control beliefs of pediatric providers. They surveyed 90 pediatric physicians and 11 pediatric nurse practitioners; only 11% screened all adolescents regardless of risk for HIV. Over one-third of those providers correctly answered the knowledge questions asked in the survey (Goyal et al., 2013).

Tan and Black (2018) performed a systematic review of routine HIV screening. They found 12 articles meeting inclusion criteria of routine HIV testing in the southern United States. All the articles examined barriers and facilitators of routine HIV screening by nurse practitioners, doctors of medicine, doctors of osteopathy, physician assistants,

registered nurses, administrators, and other staff in hospitals/clinics (Tan & Black, 2018).

Tan and Black found the following barriers:

Societal factors: financial, stigma, policy, resources, population characteristics,
 Organizational factors: clinic characteristic protocol/guidelines, referral,
 staff/administrative, Individual-provider factors: attitude/prioritization,
 discomfort, lack of knowledge, Individual-patient factors: perception of risk,
 attitudes, lack of education. (pp. 362-363)

Appendix C provides a full listing of barriers found by Tan and Black.

According to White et al. (2015), physicians in primary care tend to screen (for HIV) less because of perceived cost, time, stigma, population political views, lack of confidentiality, and rural geography. Another systematic review by Davies, Gompels, and May (2015) found similar barriers from the public of “stigma, fear, denial, and low perception of risk” and from providers of “lack of confidence or anxiety around offering a test, privacy and confidentiality, and insufficient knowledge/training in HIV” (p. 91). Lastly, Burke et al. (2007) found the following barriers in the prenatal, emergency room, and other medical settings: “insufficient time, consent process, lack of knowledge/training, language, lack of patient acceptance, pre-test counseling requirements, competing priorities [and] inadequate reimbursement” (p. 1620).

Stigma and discrimination. Discrimination and stigma are continual issues facing marginalized populations, which might lead to increased rates of HIV. The Colorado HIV/AIDS strategy reveals the impact of stigma:

In terms of HIV prevention service, stigma leads to delayed HIV testing, lower utilization of prevention services, and reluctance to access or remain in care and

treatment. Support services (psychosocial, legal, and economic) are also less likely to be accessed due to stigma. This leads to major impacts: lower quality of life, higher incidence and prevalence of HIV, and higher instances of avoidable morbidity and mortality. (CDPHE, 2017c, p. 35)

Recent laws have criminalized people for not disclosing HIV status, which might lead to decreased screening. “They predicted that a 7% decrease in testing could lead to a potential 18.5% increase in HIV infections among the community (Harrington-Edmans, 2018). Providers must recognize these laws and consider them when treating patients while adhering to strict confidentiality (Harrington-Edmans, 2018). These discriminatory policies had led to a decreased access to care. Of note, the Department of Defense produced a policy in 2018 that perpetuated the stigma associated with HIV (Baume, 2018). The Retention Policy for Non-Deployable Service Members says service members who have been deemed non-deployable for over 12 months will be separated from service beginning October 1, 2018 (Copp, 2018). A diagnosis of HIV prevents service members from being deployed due to lack of medical care access overseas. People living with HIV have always been non-deployable but this new policy now separates them from service in the Department of Defense (Copp, 2018). Current daily treatment for HIV should not prevent people from deployment. Those living with HIV have similar lifespans as those who do not have HIV when they are properly treated (Baume, 2018).

While providers are seen by the public as trustworthy, LGBT persons might not have trust in the healthcare system due to past experiences. While this might not happen

to all people, if they feel the potential of discrimination in the health care setting, they might not seek care when needed due to fear or stigma.

Provider education/knowledge. The literature review found education among providers was lacking (Ard & Makadon, 2012; Dorsen & Van Devanter, 2016; Johnson, 2015; Pennant et al., 2009; Tidwell, 2017; Waterman & Voss, 2015). While providers have good intentions, many might still have conscious or unconscious biases that affect patient care. “Often, health care providers lack the education, terminology, and basic understanding of LGBTQI culture, and this does not go unnoticed by pediatric or adult patients” (Landry, 2017, p. 343). Globally, providers feel ill-prepared to care for gay patients and cite religious beliefs as one of many barriers to delivering competent quality care (Boyles, 2017). Providers must be able to understand the behaviors of all patients, especially LGBT patients, to provide the correct education to decrease high-risk behaviors. Provider education must include sexual behaviors not limited to penile/vaginal intercourse. Lim, Brown, and Kim (2014) found medical school education included an average of seven hours dedicated to LGBT-specific health issues while schools of nursing have not dedicated any time for LGBT education. No data were available on education for physician assistants.

Safe sex. Safe sex is usually thought of as using condoms (Johns Hopkins Medicine, n.d.). Safe sex education includes all risky behaviors that lead to transmission of a sexually transmitted infection (STI) and unintended pregnancy. Johns Hopkins (n.d.) defined safe sex as sex with one partner where neither party has an STI. Counseling patients on safe sex should take place during annual exams and during any visit regarding STIs. This counseling should include using condoms every time one has sex (oral and

anal included), avoiding alcohol and drugs, not douching after sex, looking for signs of infection beforehand, and having regular medical exams to check for STIs--especially before each new partner (Johns Hopkins, n.d.). It should be noted that HIV can only be spread by semen, vaginal fluid and blood, rectal fluid, and breast milk. Condoms do not prevent transmission of all STIs but they do help. Providers should also educate patients on how to use condoms, both vaginally and rectally as appropriate. Dental dams might be discussed with patients who engage in oral sex to prevent disease transmission.

Safe sex also includes PrEP, post-exposure prophylaxis (PEP) and ART adherence. After appropriate screening for PrEP, it should be taken daily and liver function tested regularly. Post-exposure prophylaxis is for recent exposure or potential for recent exposure (U.S. Department of Health and Human Services, 2017). Pre-exposure prophylaxis is taken twice daily for 28 days within three days of exposure to prevent HIV infection. Patients should be educated that condoms should still be used (U.S. Department of Health and Human Services, 2017). Antiretroviral therapy is taken by those infected by HIV to suppress viral loads, which prevents the transmission to others.

Access to PrEP for HIV prevention is not common practice. In a study of 995 MSM, Parsons et al. (2017) found 65% were eligible for PrEP but only 9% were prescribed and maintained on appropriate PrEP regimens. The CDC (as cited in SIECUS, 2016) predicted less than 4% of eligible individuals were using PrEP. Primary care providers have a role in PrEP screening and education opportunities. Providers who specialize in LGBT and are familiar with PrEP are more likely to bring it up in discussion with patients but those providers who do not specialize in LGBT care and/or are not

familiar with PrEP tend to not bring it up in discussion or recommend PrEP for patients who might benefit from it (Krakower et al., 2017). This education disparity among providers leaves many at higher risk for HIV. The SIECUS (2016) advocates for the role of the primary care provider in PrEP utilization.

Lesbian/gay/bisexual/transgender care. When providers are culturally competent to care for LGBT patients, these patients have less stigma to fight within the health care system and will potentially have increase in quality of life and decrease in morbidity/mortality. This has the potential to decrease the disproportionate infection rates of HIV of MSM. Men who have sex with men should be tested annually for HIV and other STIs including syphilis, gonorrhea, and chlamydia of urine, rectum, and pharynx (Ard & Makadon, 2012). Many providers feel uncomfortable talking about high-risk sexual behaviors so screening MSM for HIV and other STIs occurs less frequently (Ard & Makadon, 2012).

According to Ceres, Quinn, Loscalzo, and Rice (2018), LGBT patients have a higher risk of cancer. Lesbian and bisexual women receive fewer screenings for breast and cervical cancer (Ceres et al., 2018). Some risks factors higher in the LGBT population might increase the risk for cancers including higher smoking rates, body mass index, alcohol abuse, unsafe sexual behavior, and mental illness (Ceres et al., 2018). Of more concern is the rate of HIV in Black MSM who have a one in two risk of contracting HIV in their lifetime (Green, 2018). In Colorado, MSM account for over 60% of the new cases of HIV each year (CDPHE, 2017a, 2017b).

Providers can also influence healthcare behaviors and conditions. Johnson (2015) supported screenings for LGBT patients at any opportunity because of the chances of

them getting these screenings was less. At episodic visits, in any setting, providers should offer screenings for HIV, STIs, and cervical cancer for patients in the LGBT population (Johnson, 2015). According to Lim et al. (2014), LGBTs should be talking to their providers about screenings for HIV, STIs, and hepatitis. Any opportunity for screening should be taken because it is possible patients might not return for regular visits.

Summary

It was evident that providers lacked knowledge to appropriately screen for HIV. This evidence-based practice project assessed barriers that restrict APRNs' ability to appropriately screen for HIV across Colorado.

CHAPTER II

PROJECT DESCRIPTION

Project Objectives

The primary objective of this project was to identify knowledge, attitudes, perceived norms, and control beliefs of advanced practice registered nurses (APRNs) across Colorado related to human immunodeficiency virus (HIV) screening.

Evidence-Based Project Plan Objectives

1. Assess knowledge, attitudes, perceived norms, and control beliefs of APRNs in Colorado. Analyze differences between urban and rural settings.
2. Assess barriers and facilitators impacting routine HIV screening by APRNs in Colorado. Analyze differences between urban and rural settings.

There were no responses from APRNs working in frontier settings. Therefore, differences between urban and rural settings were analyzed.

Congruence of Strategy to Project

This project identified knowledge, attitudes, perceived norms, and control beliefs to screening for HIV across Colorado. This project might establish new ways to influence knowledge, attitudes, perceived norms, and control beliefs within different urban and rural settings.

Timeline

- September 6, 2018--Committee formed: Kathy Dunemmn, Darcy Copeland, Martha Levine
- September 11--Proposal defense
- November 26--Submit project to University of Northern Colorado Institutional Review Board (IRB; Exempt)
- January 1-10, 2019--Print postcards, obtain stamps, prepare for U.S. Postal Service while awaiting IRB approval
- January 14--IRB approval
- January 15, 2019 through February 18, 2019--Sent surveys
- February 18-February 28--Review/analyze data
- March 1--Submit final project to committee for final review
- March 6--Doctoral Defense
- March 6--Sign signature page and deliver to Graduate School
- April 1--File scholarly project

Resources

Resources required for this project were personnel, survey tool (Qualtrics), and SPSS to evaluate data. Financial needs included postage, postcards, and \$50 Amazon gift card as incentive for one participant who provided email address; the researcher was responsible for all costs.

Statement of Agreement

This project utilized the 2013 DNP handbook. A statement of agreement was developed between the University of Northern Colorado and the student researcher (see Appendix D).

CHAPTER III

EVALUATION PLAN

Methods

This project was an evidence-based practice project of nurse practitioners in Colorado using descriptive methods in a survey sent via email. Participants were able to submit their email address at the end of the survey to be in a drawing for a \$50 Amazon gift card; the gift card was sent via email to the winner.

Instrument

The Attitudes and Perceived Behavioral Control Toward Human Immunodeficiency Virus (HIV) Screening and the Perceived Social Norms Questionnaire was available for use by the researcher with permission from the original author, Jodi Sutherland (see Appendix E). The survey was based on studies by Goyal et al. (2013) and Mansell et al. (2011). The instrument is under copyright by Sutherland (2015); however, no fee was associated with its use, no restrictions were placed on its use, and no explicit training was required for use of the instrument. The original instrument was designed to assess attitudes and perceived behavioral control of nurse practitioners in the United States of America (Sutherland, 2015). The purpose of this instrument was in alignment with the purposes of this evidence-based practice project.

The instrument has not been modified from its original form (see Appendix F). Sutherland's (2015) cross-sectional quantitative study was designed specifically for nurse practitioners to assess internal consistency, reliability and validity. The intended audience of this evidence-based practice project was APRNs so no modifications were needed.

The variables used in Sutherland's (2015) instrument were HIV screening knowledge, HIV screening attitude beliefs, HIV screening normative beliefs including norm priority and norm expectation, and HIV screening perceived control beliefs including facilitators and barriers. The same variables were used in this evidence-based practice project.

The sample size in Sutherland's (2015) study was 141 nurse practitioners who were members of the American Association of Nurse Practitioners: 12.9 % were certified in adult gerontology, 73.9 % were certified in family practice and 13.6% were certified in neither adult-gerontology nor family practice. The population intended for study in this evidence-based practice project was APRNs in Colorado. Thus, power analysis was performed, finding 271 participants were needed to prevent type II error (Sutherland, 2015). Surveys were sent to 1,000 AANP members with a sample of 140.

The instrument measured HIV screening priority and frequency (continuous-interval), attitudes toward routine HIV screening (continuous-interval), knowledge of HIV screening guidelines (categorical-nominal), perceived behavioral control (barriers) toward routine HIV screening (continuous-interval), perceived behavioral control (facilitators) towards routine HIV screening (continuous-interval), intention to routinely screening patients 13-64 years of age for HIV (continuous-interval), behavior--routine

HIV screening of patients 13-64 years of age (categorical-interval), key person's support toward routine HIV screening (continuous-interval), normative priority (continuous-interval), and normative expectation (continuous-nominal; Sutherland, 2015). The survey measured demographics of setting and education and could be repeated over time. The results of the study were mostly expected. Sutherland (2015) was surprised by the number of nurse practitioner who did not screen routinely. It was also unexpected to find not all practices had access to HIV testing (Sutherland, 2015). Appendix F describes each of the variables in the survey.

Design

A Qualtrics survey was sent via emails and via postcards.

1. Survey--anonymous computerized survey using Qualtrics (see Appendix F)
 - a. Participation in project
 - i. Institutional Review Board approval (see Appendix G) and consent for participation information (see Appendix H)
 - ii. Qualtrics survey email sent via email and U.S. Postal Service--Snowball effect in place
 - b. Demographics (Inclusion criteria--APRN currently practicing in Colorado)
 - i. What is your area of expertise?--fill in the blank i.e., family practice, infectious disease, indigent care, etc.
 - ii. Gender? Male/Female/Transgender/Choose not to answer
 - iii. Are you currently practicing in Colorado?--Yes/no
 - iv. How many years have you been in practice?--Fill in blank

- v. In which county in Colorado do you work?--Fill in blank
 - vi. In which county do you live?--fill in the blank (possible they do not live in Colorado)
 - vii. Do you work for a federally funded health center?--Yes/no
 - viii. Does your race/ethnicity match most your patients' race/ethnicity?--Yes/no
- c. HIV specifics
- i. How important is it for you to practice in a setting that delivers quality care to people living with HIV? 1-5
 - ii. Do you regularly work with patients living with HIV (weekly)? Yes/no
 - iii. How much your geographical location influence your ability to routinely test for HIV? A lot, somewhat, average, a little, none
- d. Barriers/Facilitators
- i. "What currently prevents you from implementing routine HIV testing in your practice?" (White et al, 2015)
 - ii. "What would help or facilitate your implementation of routine HIV testing in your practice?" (White et al, 2015)
 - iii. The questions
- e. Knowledge, Subjective norm, behavioral control and attitudes assessed in *Attitudes and Perceived Behavioral Control Toward HIV Screening*

and the Perceived Social Norms Questionnaire (Sutherland, 2015; see Appendix F)

- f. Provide any additional questions/comments?

Although the *Attitudes and Perceived Behavioral Control Toward HIV Screening and the Perceived Social Norms Questionnaire* (Sutherland, 2015) was basis for this project, other questions were added for additional information. This project did not assess expansion of the CDC (2018) guideline to age 75.

Statistical Analysis

The following dependent variables within this project were analyzed via HIV screening priority and frequency, attitudes toward HIV screening, perceived behavioral control toward HIV screening, intention to routinely screen patients ages 13-64, key person's support toward routine HIV screening, and subjective norms (normative priority and normative expectation) of HIV screening recommendations. The Kruskal-Wallis statistical test was chosen because it was unknown if the multiple groups were homogenous. Homogeneity of variance was tested but it was assumed the variance within the groups of setting--urban, rural and frontier--would not have a normal distribution. This test could not be run because of the type of data received and number of responses. Therefore, confidence intervals could not be analyzed. The dependent variables analyzed here were continuous-interval measurements. If groups were homogenous, then analysis of variance (ANOVA) would be utilized as the statistical method of analysis. An ANOVA was not run because there were only two groups. Instead, Spearman's rho and Kendall's tau were run to see if there was a correlation

between urban/rural settings versus knowledge, attitudes, perceived norms, and control beliefs. If no correlation was run or was insignificant, it was not listed in the data.

Additional dependent variables analyzed within this project were knowledge of HIV screening guidelines, behavior--routine HIV screening of patients 13-64, and HIV screening method available in practice. These dependent variables were categorical measurements and analyzed via descriptive statistics.

Demographics were listed per location/setting (urban, rural, frontier) and separated into type of advance practice registered nurse, race/ethnicity of patients, and years of experience. The demographics of urban and rural settings were analyzed using descriptive statistics of percentages and frequency.

CHAPTER IV

RESULTS AND OUTCOMES

Demographics

There were 66 responses to the survey which took place from January 15, 2019 through February 18, 2019. Of the 230 individuals who were sent emails, 16 responses were received--a 7% response rate. The remainder of responses came via the 1,000 postcards sent via U.S. Postal Service on January 23, 2019. Fifty responses came from the postcard participants for a response rate of 2%. The postcards had the web address and a QR code for participants to use. Eighteen used the QR code and 32 used the web address. The total response rate between both the emails and postcards was 5.4%.

Regarding gender, there were 55 females, 9 males, and two who did not answer the question. Regarding years of experience as an APRN, six participants responded zero to one years of experience, 17 responded one to four years, 13 responded five to nine years, and 28 responded of 10 or more years. Table 2 provides detailed descriptive statistics regarding years of APRN experience.

Table 2

Years of Experience With Frequency, Percent, Valid Percent and Cumulative Percent

	Years	Frequency	%	Valid %	Cumulative %
Valid	0-1 years	6	9.1	9.4	9.4
	1-4 years	17	25.8	26.6	35.9
	5-9 years	13	19.7	20.3	56.3
	10 or more years	28	42.4	43.8	100.00
	Total	64	97.0	100.0	
Missing		2	3.0		
	Total	66	100.0		

The APRN participants worked in the following types of APRN practice specialties: family (36), women's health (5), adult/geriatric health (4), pediatrics (2), oncology (1), diabetes (1), cardiology (1), rheumatology (1), palliative/hospice care (2), psychiatry (2), and anesthesia (2; Certified Registered Nurse Anesthetists). Table 3 provides detailed statistics regarding the setting in which the APRN participants practiced. Figure 6 provides a visual representation of the main clinical setting.

Table 3

Setting of Main Clinical Practice

	Setting	Frequency	%	Valid %	Cumulative %
Valid	University-based	10	15.2	15.9	15.9
	Private Practice	22	33.3	34.9	50.8
	HIV Medicine Clinic	1	1.5	1.6	52.4
	Public	15	22.7	23.8	76.2
	Veteran Affiliated	2	3.0	3.2	79.4
	Faith-based	4	6.1	6.3	85.7
	Other	9	13.6	14.3	100.0
	Total	63	95.5	100.0	
Missing		3	4.5		
Total		66	100.0		

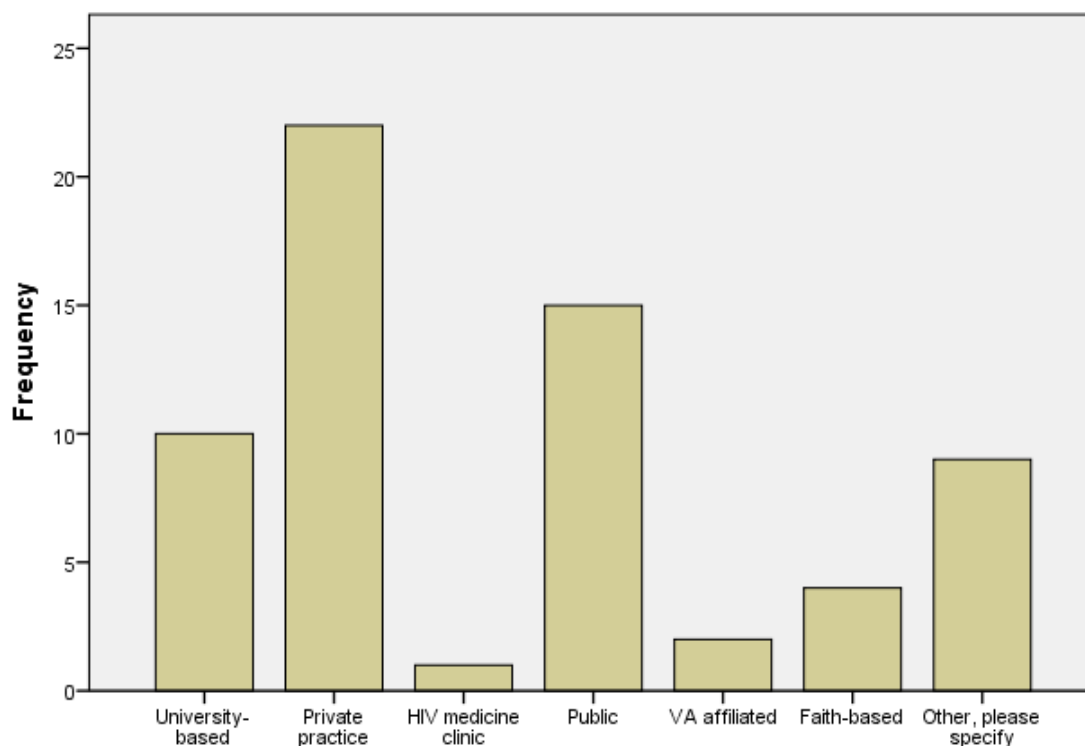


Figure 6. Setting of main clinical practice with frequency comparison.

The nine responses in the Other category were community health, clinical services in state prison, corporate health care, hospice and palliative, hospital owned, rural health clinic, correctional facility, rural health hospital, and dual public/university setting.

The respondents worked in the following counties in Colorado: Adams (5), Arapahoe (4), Aurora (1), Boulder (1), Denver (12), Douglas (3), Eagle (1), El Paso (16), Gilpin (1), Jefferson (3), Larimer (4), Prowers (1), Pueblo (4), and Weld (3); 11 responses had no answer. Of these counties, only Eagle, Prowers, and Gilpin were considered rural. Three responses came from these counties. While the Colorado Rural Health Center designated Gilpin County as urban only 6,013 people reside in this county (QuickFacts, 2017). For the purposes of this project, Gilpin County was considered rural

because the population is less than 50,000. Oddly enough, responses of which county APRNs worked in did not match the urban, rural question asked. For the purposes of statistical analysis, responses to “what type of community is your practice located in?” were used to assess differences between urban and rural related to knowledge, attitudes, perceived norms, and control beliefs. Table 4 provides detailed information regarding the type of community in which APRNs worked.

Table 4

Type of Community in Which Practice Was Located

	Type of Community	Frequency	%	Valid %	Cumulative %
Valid	Urban (>50,000)	52	78.8	82.5	82.5
	Rural (<50,000)	11	16.7	17.5	100.0
	Total	63	95.5	100.0	
Missing		3	4.5		
Total		66	100.0		

Federally funded healthcare centers accounted for many of the HIV tests, especially in the rural areas of Colorado (see Table 5). Thirteen APRNs worked in a federally funded healthcare center and 50 did not work for a federally funded healthcare center.

Table 5

Frequency, Percent, Valid Percent, and Cumulative Percent for Participants Working at a Federally Funded Health Center

	Federally Funded Health Center	Frequency	%	Valid %	Cumulative %
Valid	Yes	13	19.7	20.6	20.6
	No	50	75.8	79.4	100.0
	Total	63	95.5	100.0	
Missing		3	4.5		
Total		66	100.0		

Because of the CDC (2018) guideline, it was important to assess the ages of patients served by APRNs. The guideline only applied to patients ages 13-64. Although some of the APRNs did not work with patients ages 13-64, the survey was to assess attitudes, knowledge, perceived norms, and control beliefs of HIV. These variables could influence the quality of care of those living with HIV who do not fall into the age range. Only one participant responded regarding working with patients within that age range. Most of the APRNs had some contact with patients in the age range requirement of the CDC guideline (see Table 6 and Figure 7).

Table 6

Percentage of Patients Ages 13-64

	Percentage of Patients 13-64	Frequency	%	Valid %	Cumulative %
Valid	0	1	1.5	1.6	1.6
	11-25	6	9.1	9.5	11.1
	26-50	12	18.2	19.0	30.2
	51-75	18	27.3	28.6	58.7
	>75	26	39.4	41.3	100.0
	Total	63	95.5	100.0	
Missing		3	4.5		
Total		66	100.0		

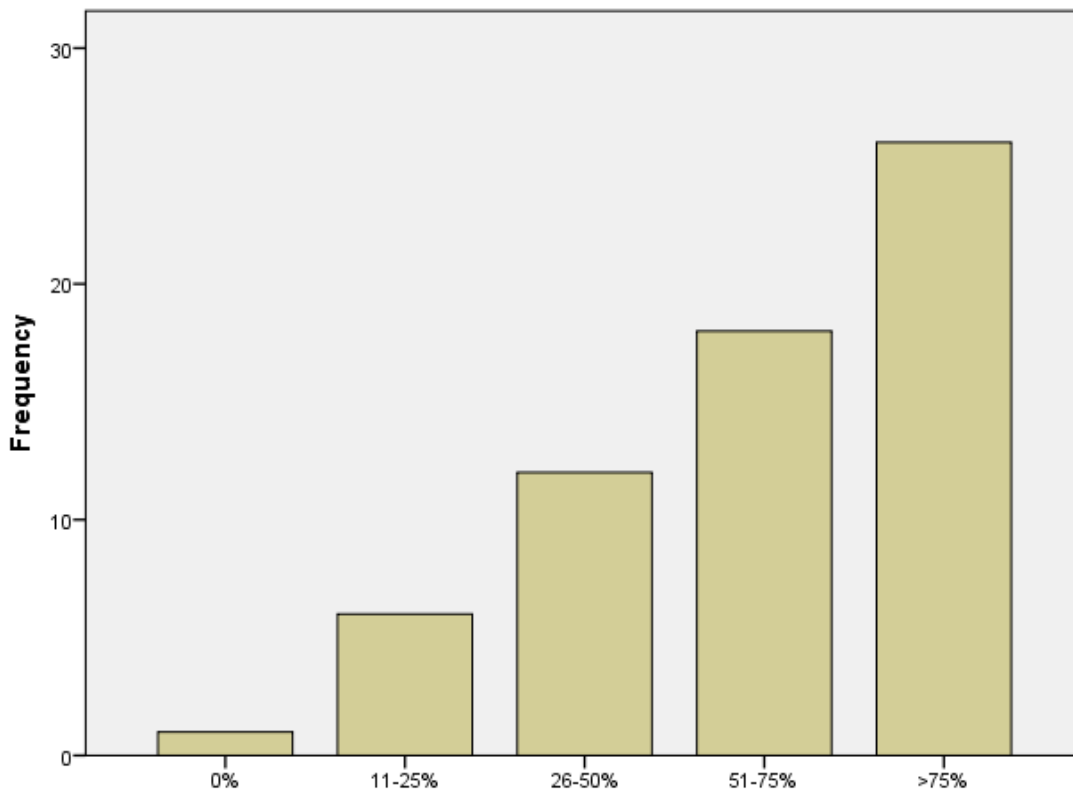


Figure 7. Percentage of patients ages 13-64 with frequency.

There were 64 responses to the question “What is your race/ethnicity?” The frequencies are provided in Table 7. Of the 64 responses, 86.4% were White/Caucasian, 1.5% were Black/African American, 6.1% were Hispanic/Latino, 1.5% were multi-racial, and 1.5% chose not to answer.

Table 7

Race/Ethnicity of Advanced Practice Registered Nurse Participants

	Race/Ethnicity	Frequency	%	Valid %	Cumulative %
Valid	White/Caucasian	57	86.4	89.1	89.1
	Black/African American	1	1.5	1.6	90.6
	Hispanic/Latino	4	6.1	6.3	96.9
	Multi-Racial	1	1.5	1.6	98.4
	Chose Not to Answer	1	1.5	1.6	100.0
	Total	64	97.0	100.0	
Missing		2	3.0		
Total		66	100.0		

The averages of ethnicities of patients are shown in Figure 8. Most patients were White/Caucasian (50%), 25% of patients were Hispanic/Latino, 10% were Black/African American, less than 5% were Asian, other, or unknown. Race/ethnicity of the APRNs was very close to the race/ethnicity of the patients they served. This is uncommon in healthcare but might be beneficial in the future as patient culture matched by APRN could positively influence patient-provider rapport.

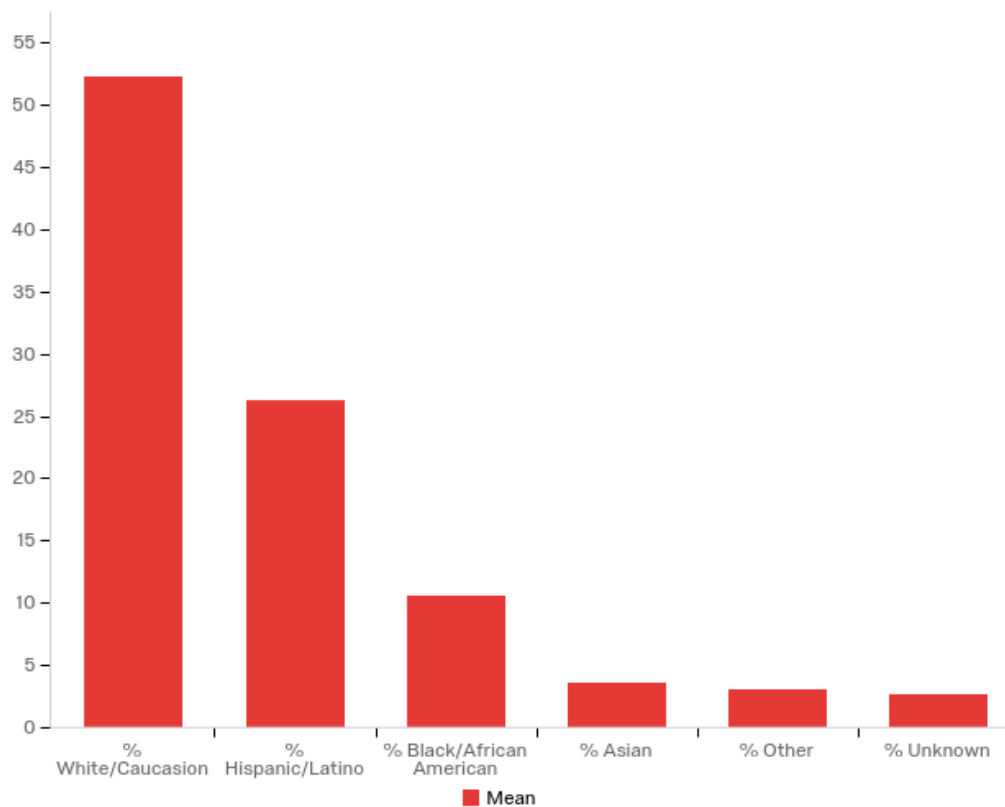


Figure 8. Patient race/ethnicity mean comparison.

Closely related to race/ethnicity were encounters with different languages. The APRNs estimated many encounters in other languages (see Table 8).

Table 8

Estimated Percentage of Patient Encounters in a Language Other Than English

	Language Other Than English	Frequency	%	Valid %	Cumulative %
Valid	<5%	34	51.5	54.8	54.8
	6-25%	16	24.2	25.8	80.6
	26-50%	6	9.1	9.7	90.3
	51-75%	4	6.1	6.5	96.8
	76-100%	2	3.0	3.2	100.0
	Total	62	93.9	100.0	
Missing		4	6.1		
Total		66	100.0		

It is important to understand the prevalence of HIV within a given population. The APRNs estimated the prevalence of HIV in their clinic population. About two-thirds of the total patient population served by the APRN respondents were over the <0.1% threshold of the CDC (2018) screening guideline (see Table 9 and Figure 9).

Table 9

Prevalence of Human Immunodeficiency Virus Infection in Population Served by Clinic

	Prevalence of HIV	Frequency	%	Valid %	Cumulative %
Valid	<0.1%	22	33.3	34.9	34.9
	0.1-0.9%	17	25.8	27.0	61.9
	1-4.9%	17	25.8	27.0	88.9
	5-10%	6	9.1	9.5	98.4
	>10%	1	1.5	1.6	100.0
	Total	63	95.5	100.0	
Missing		3	4.5		
Total		66	100.0		

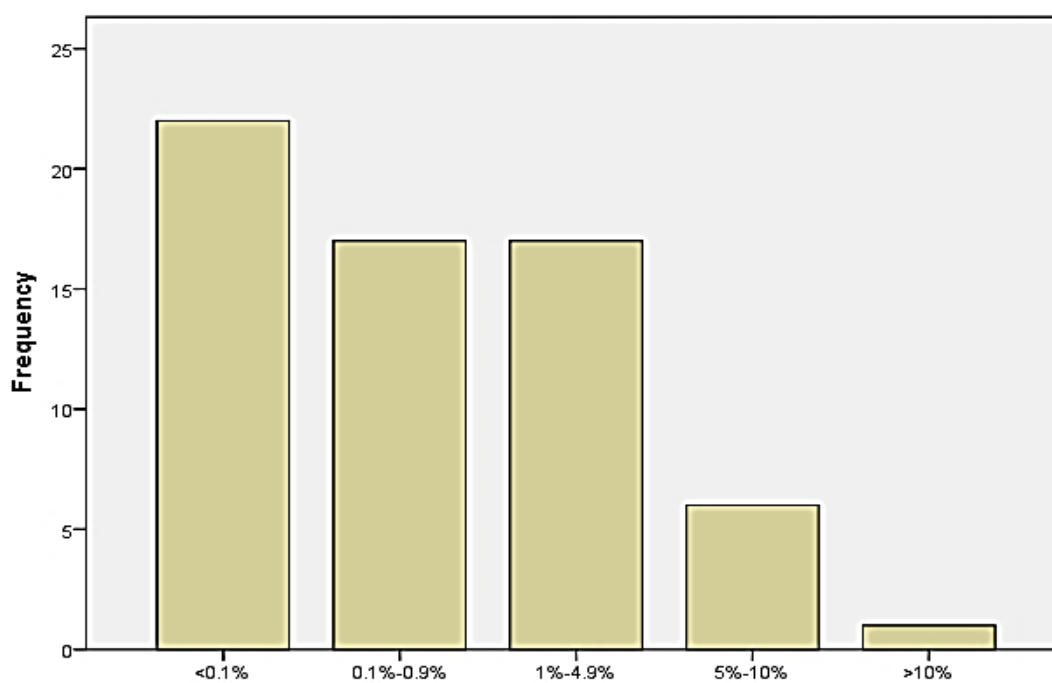


Figure 9. Prevalence of human immunodeficiency virus infection in population served by clinic

Thirteen APRNs said they regularly worked with patients living with HIV and 47 said they did not regularly work with patients living with HIV (see Table 10 for frequency, percent, valid percent, and cumulative percent).

Table 10

Advanced Practice Registered Nurse Participants Who Regularly Worked with Patients Living with Human Immunodeficiency Virus

	Regularly Worked with Patients with HIV	Frequency	%	Valid %	Cumulative %
Valid	Yes	13	19.7	21.7	21.7
	No	47	71.2	78.3	100.0
	Total	60	90.9	100.0	
Missing		6	9.1		
Total		66	100.0		

Regardless of setting, the APRNs could work in a setting that served those living with HIV. Most APRNs said it was very important they worked in a setting that delivered high quality care to those living with HIV. It was interesting that four respondents said it was not important that they worked in a setting that provided high quality care to those living with HIV (see Figure 10).

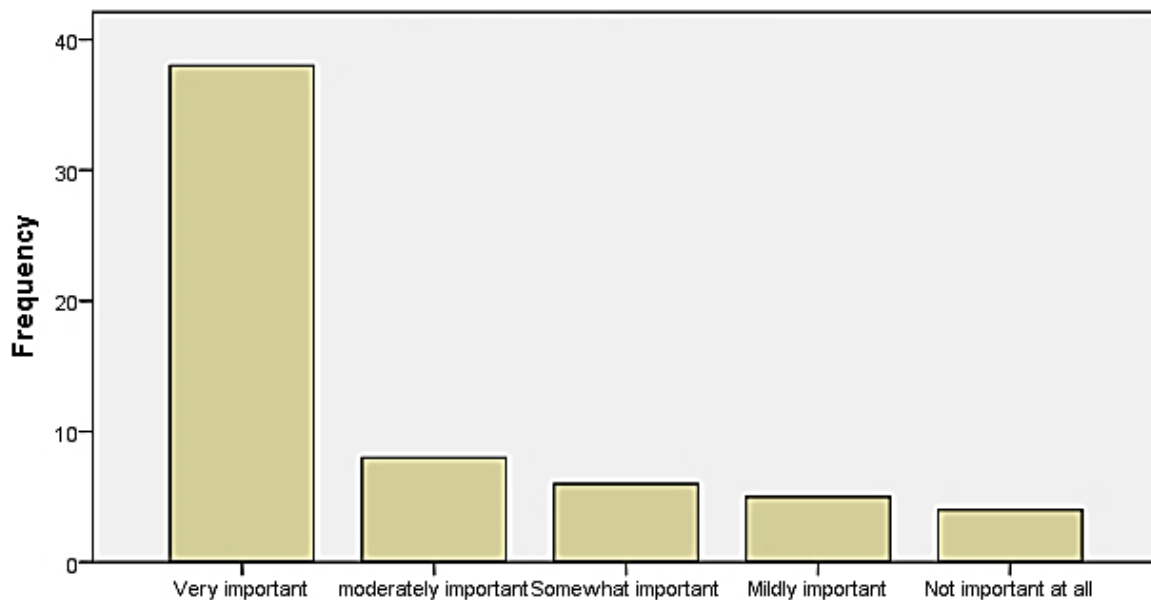


Figure 10. Importance of working in a setting that delivered high quality care to patients living with the human immunodeficiency virus.

Figure 11 shows how often APRNs offered HIV tests in different situations.

These situations are indications for HIV testing. It is interesting that many APRNs did not offer HIV testing when indicated.

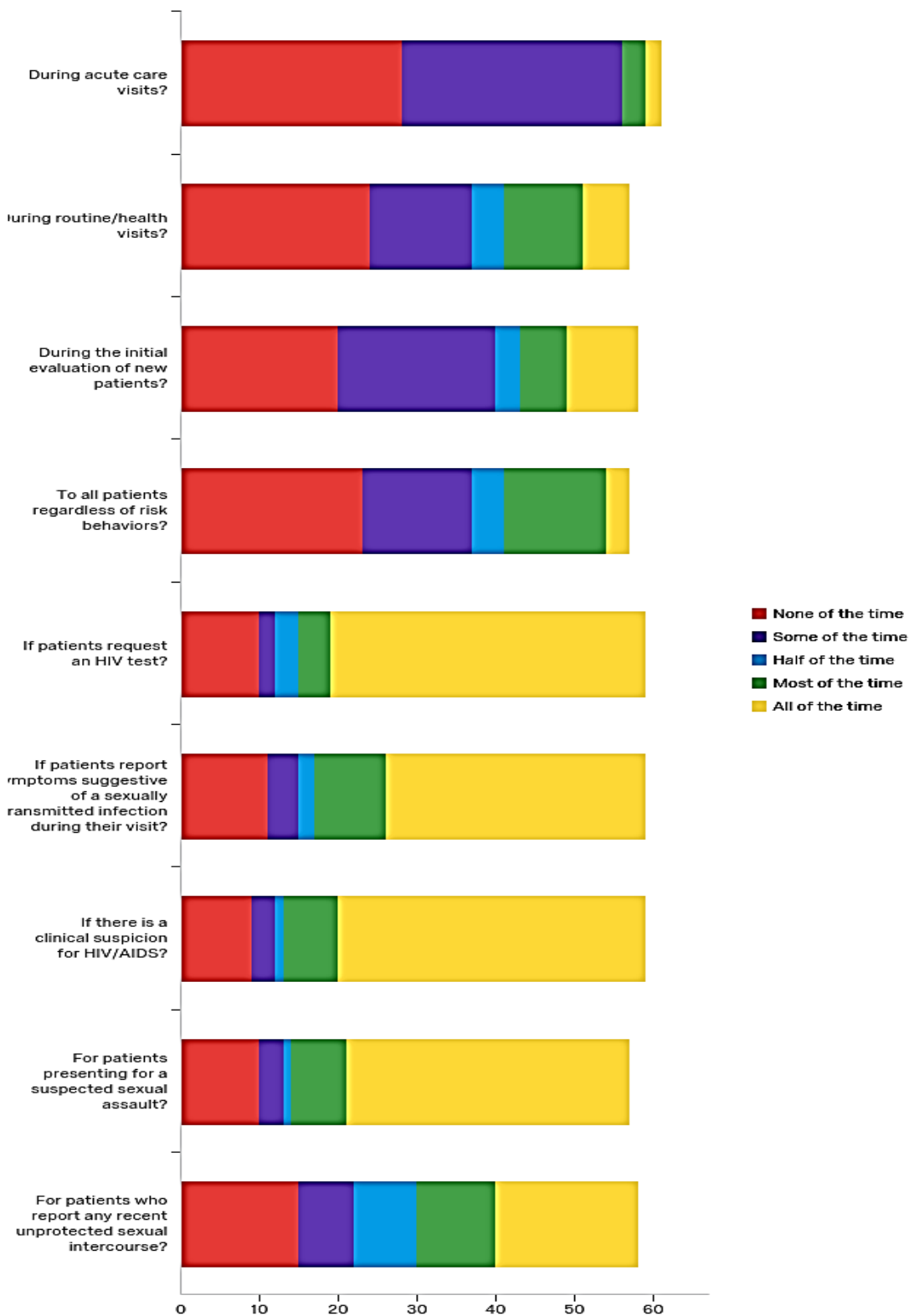


Figure 11. How often and in which situations advanced practice registered nurse participants screened for human immunodeficiency virus.

Outcomes Related to Objectives

Objective One

1. Assess knowledge, attitudes, perceived norms, and control beliefs in APRNs in Colorado

Knowledge. The CDC (2018) screening guidelines recommended screening for all people ages 13-64. The survey showed 31 APRNs knew this to be true and 10 did not know this to be true, showing a clear lack of knowledge regarding the guideline. The guideline also indicated all patients ages 13-64 should be tested at least once in their lifetime and high-risk individuals should be tested annually. Forty-two APRNs responded correctly to the question " Per CDC HIV screening guidelines, only individuals with increased risk should be tested for HIV"; 11 APRNS responded incorrectly that it was true.

Advanced practice registered nurses (APRNs) indicated a lack of knowledge of the CDC (2018) guideline, which states written consent for HIV testing is not required—only verbal consent is needed. Two-thirds of APRNs thought written consent was required and the remaining one-third knew written consent was not required.

The CDC (2018) guideline indicated high risk individuals should be tested annually. Survey responses from APRNS regarding high-risk behaviors included intravenous drug users and their sexual partners (62), sexual partners with people known to be infected with HIV (61), men who have sex with men (60), unprotected sex (49), and those who exchange sex for money (59).

Education. The APRNs indicated a wide range of education regarding HIV education. Although most APRNs had some (27), moderate (17), and significant (4) amounts of HIV education, the knowledge questions indicated 14 APRNs had very little knowledge regarding routine HIV screening.

Table 11 shows the type of HIV screening methods APRNs had available in their practice. Of note--15 respondents indicated their practice did not offer HIV screening and nine respondents said they did not know which type of HIV test was available in their practice.

Table 11

Human Immunodeficiency Virus Screening Method Available in Practice Setting

	HIV Screening Method	Frequency	%	Valid %	Cumulative %
Valid	My practice does not offer HIV screening	15	22.7	23.8	23.8
	Rapid HIV testing (oral swab or fingerstick)	6	9.1	9.5	33.3
	Serum HIV antibody (e.g., standard third generation enzyme-linked immunosorbent assay)	24	36.4	38.1	71.4
	Serum combined HIV antibody and p.24 antigen test (4 th generation test)	9	13.6	14.3	85.7
	I do not know which tests are available	9	13.6	14.3	100.0
	Total	63	95.5	100.0	
Missing		3	4.5		
Total		66	100.0		

Attitudes. The results of the attitude questions were the most surprising (see Figure 12) and were unexpected by the student researcher. It was unexpected that any APRN would disagree with APRNs having a responsibility to offer routine HIV screening or believing HIV screening would improve the health of communities. It was unexpected that APRNs would agree that offering HIV screening would decrease their ability to meet the medical needs of other patients. Overall, APRNs were comfortable discussing HIV with all patients including those at high risk. Although, APRNs said they could identify which patients were high risk, they could not identify the high-risk behaviors (see Figure 13). The yellow and green bars in the African-American/Black and healthcare workers should be zero if these APRNs could correctly identify high-risk behaviors. There was a difference between attitudes of screening and actual knowledge of screening guidelines.

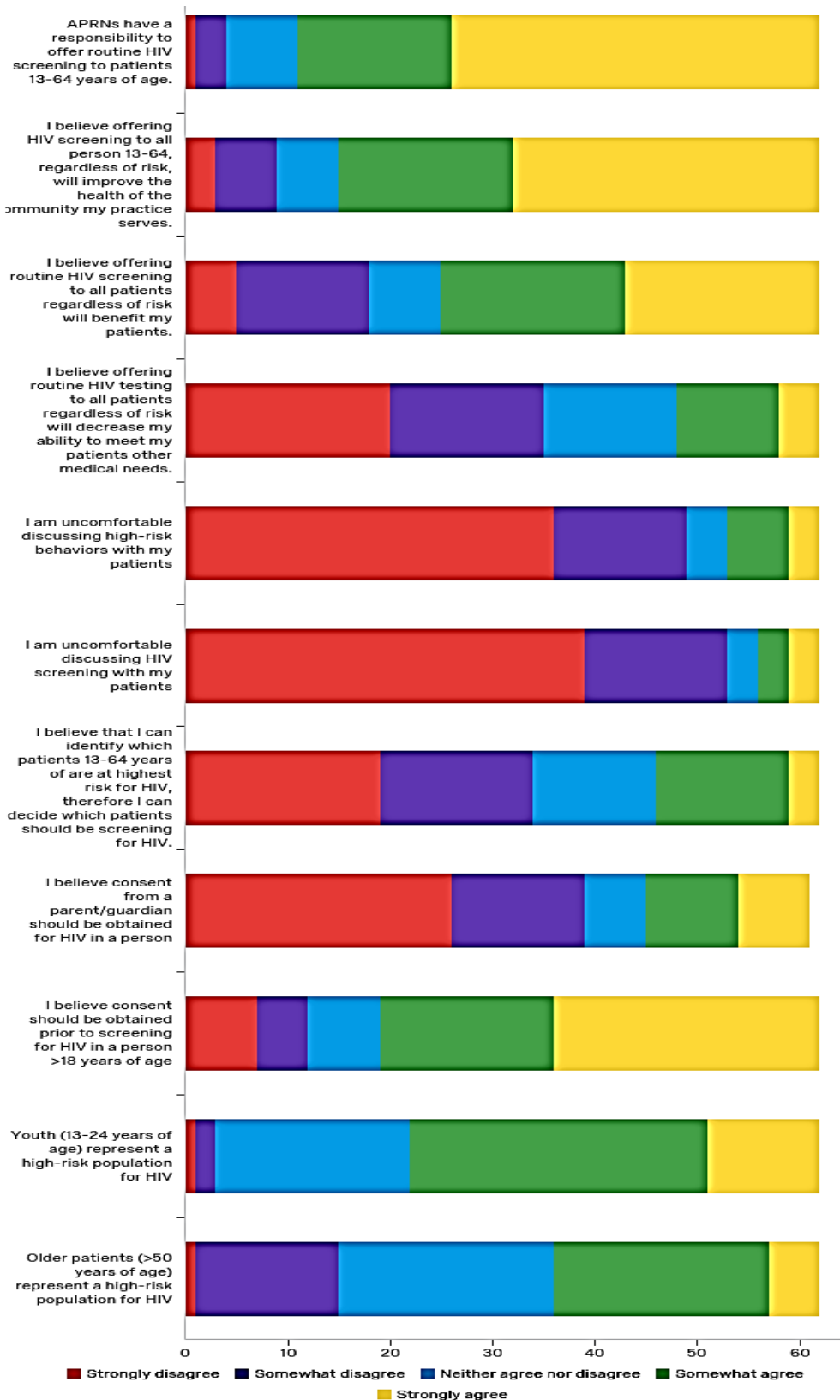


Figure 12. Level of agreement with statements (attitudes).

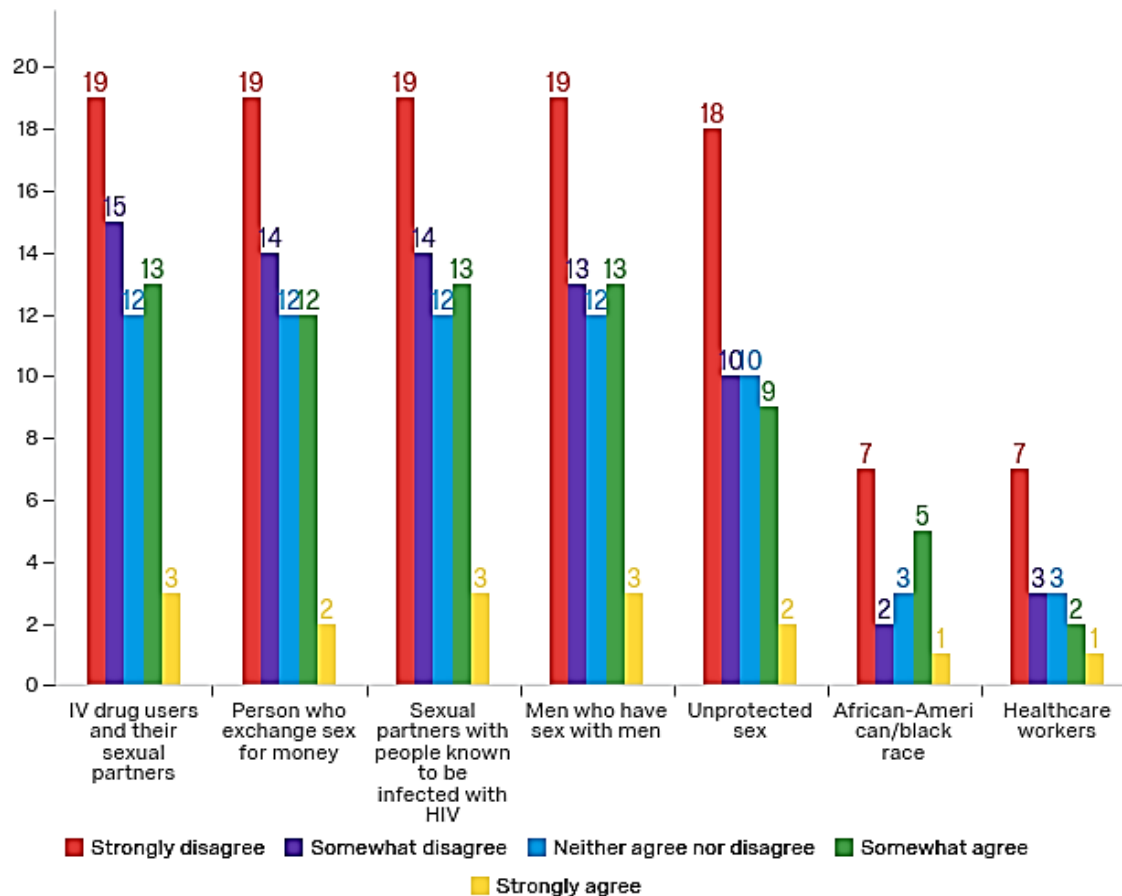
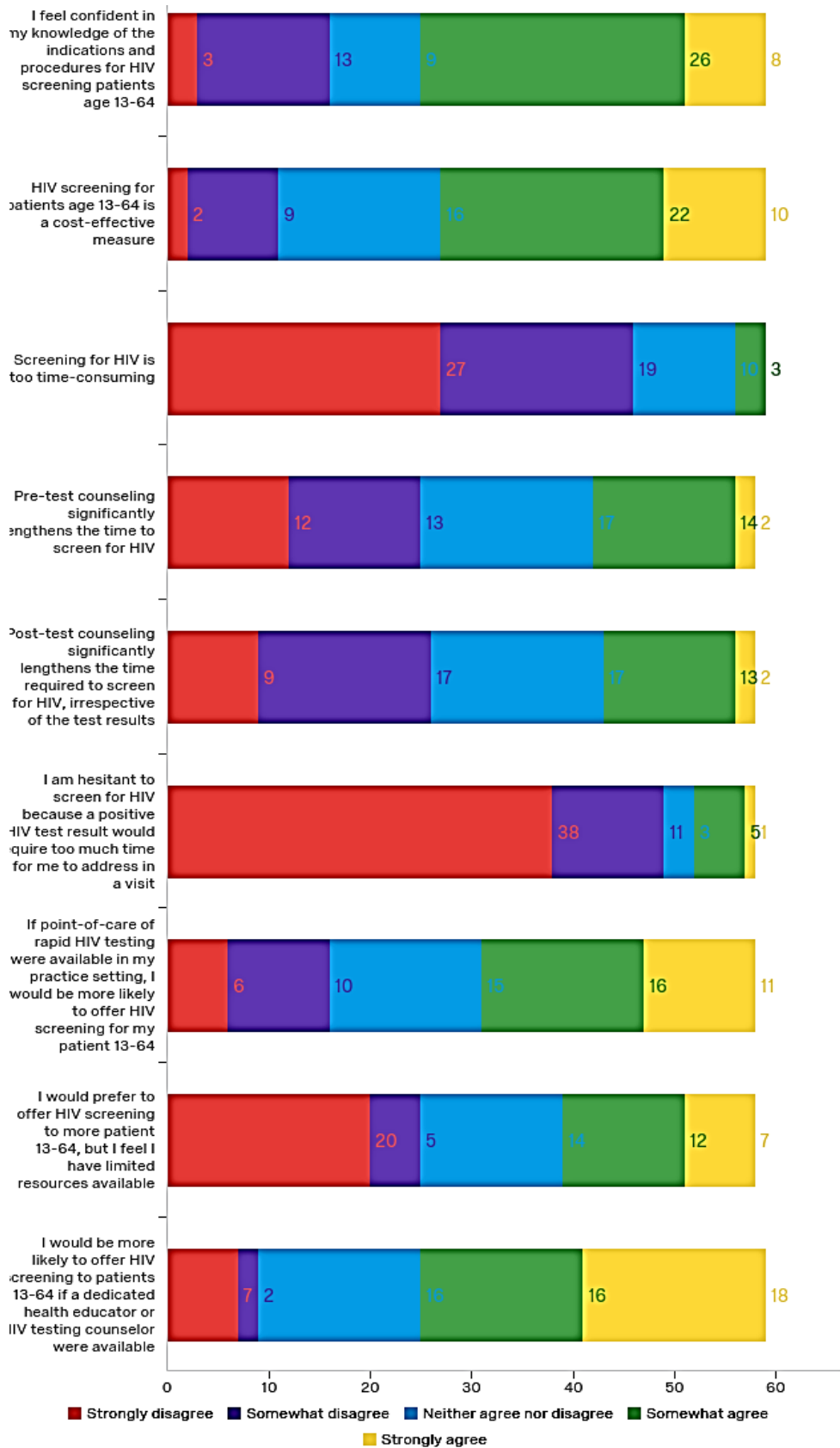


Figure 13. Ability to identify high-risk behaviors.

Control beliefs. Figure 14 shows the influence different factors had on routine HIV screening by the APRNs who took the survey. There was a lack of confidence in many APRNs. It was unexpected to have APRNs disagree that HIV screening was cost effective but it could also indicate a lack of knowledge of the reimbursement codes required to be paid for the HIV screening. Many disagreed that HIV screening was too time consuming. Since time was not a barrier to screening, this presented an opportunity to discover why APRNs were not screening.



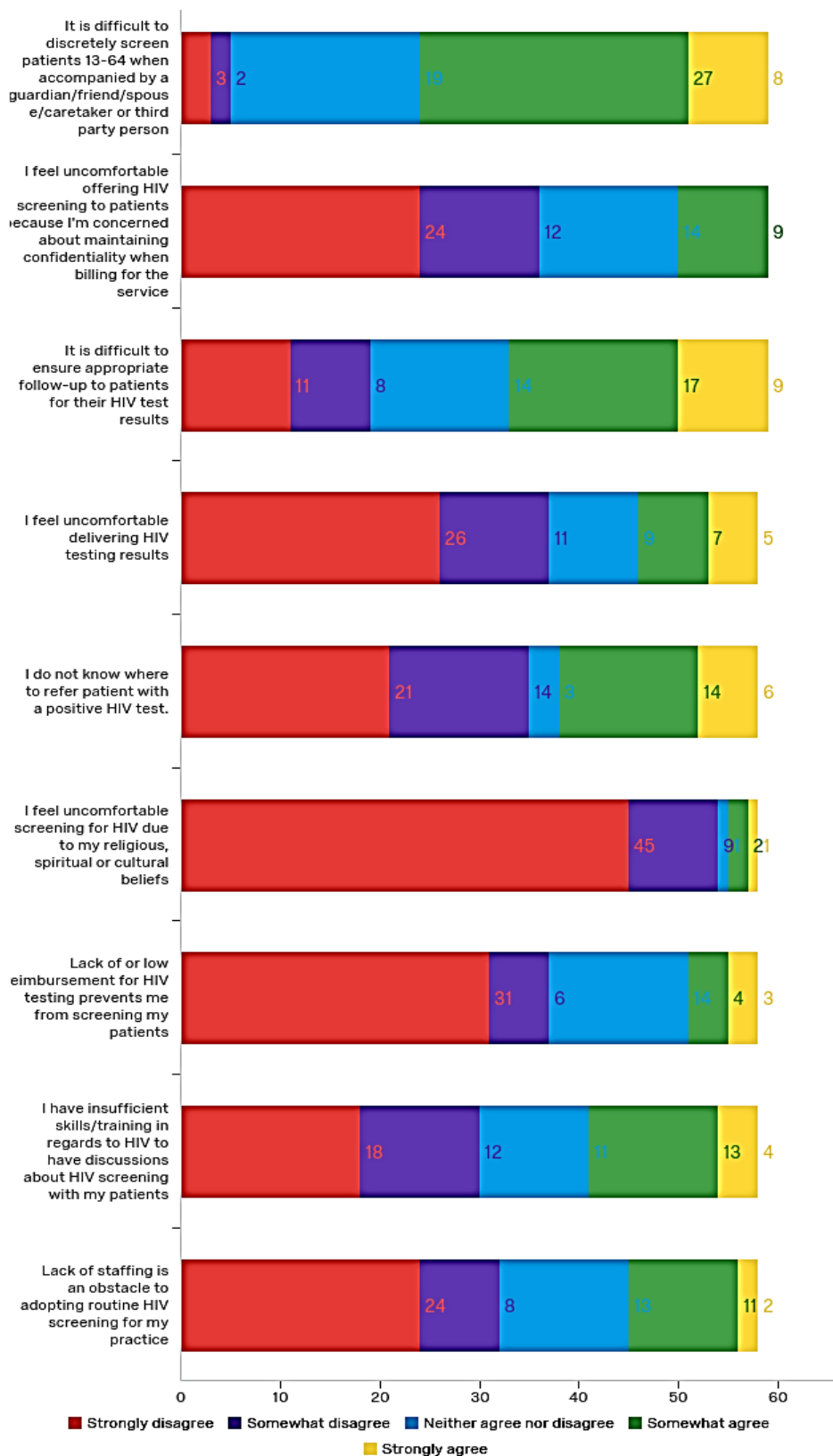


Figure 14. Agreement with statements regarding control beliefs.

The APRNs were not hesitant to screen for HIV--27 respondents said if point-of-care rapid testing was available, they would be more likely to offer HIV screening to their patients. Some wanted more resources available before they screened regularly. Thirty-five respondents said it was difficult to screen discretely when other people were present in a visit. This presented an opportunity for education on scripts APRNs could use when providing care. It was encouraging to find that 45 respondents said they strongly disagreed that they “feel uncomfortable screening for HIV due to religious, spiritual or cultural beliefs.” This was different than what the literature found. It might also be the difference between doctors and nurses, providing a basis for future surveys.

Perceived norms. The APRNs who responded the most to statements said it was important for them to practice in a manner consistent with other APRNs, adhere to practice guidelines, have patient approval, have an open discussion with patients, colleagues assumed they discussed HIV, and have a supportive office staff (see Figure 15 for further statements of agreement). Although APRNs agreed they had support of other staff, it could be further investigated why they felt they did not have support from other influences. A quote from one participant was surprising: “What other physicians, support staff, etc. think does not have an impact on my practice.” This might be due to personal bias and confidence. It would be interesting to explore this further.

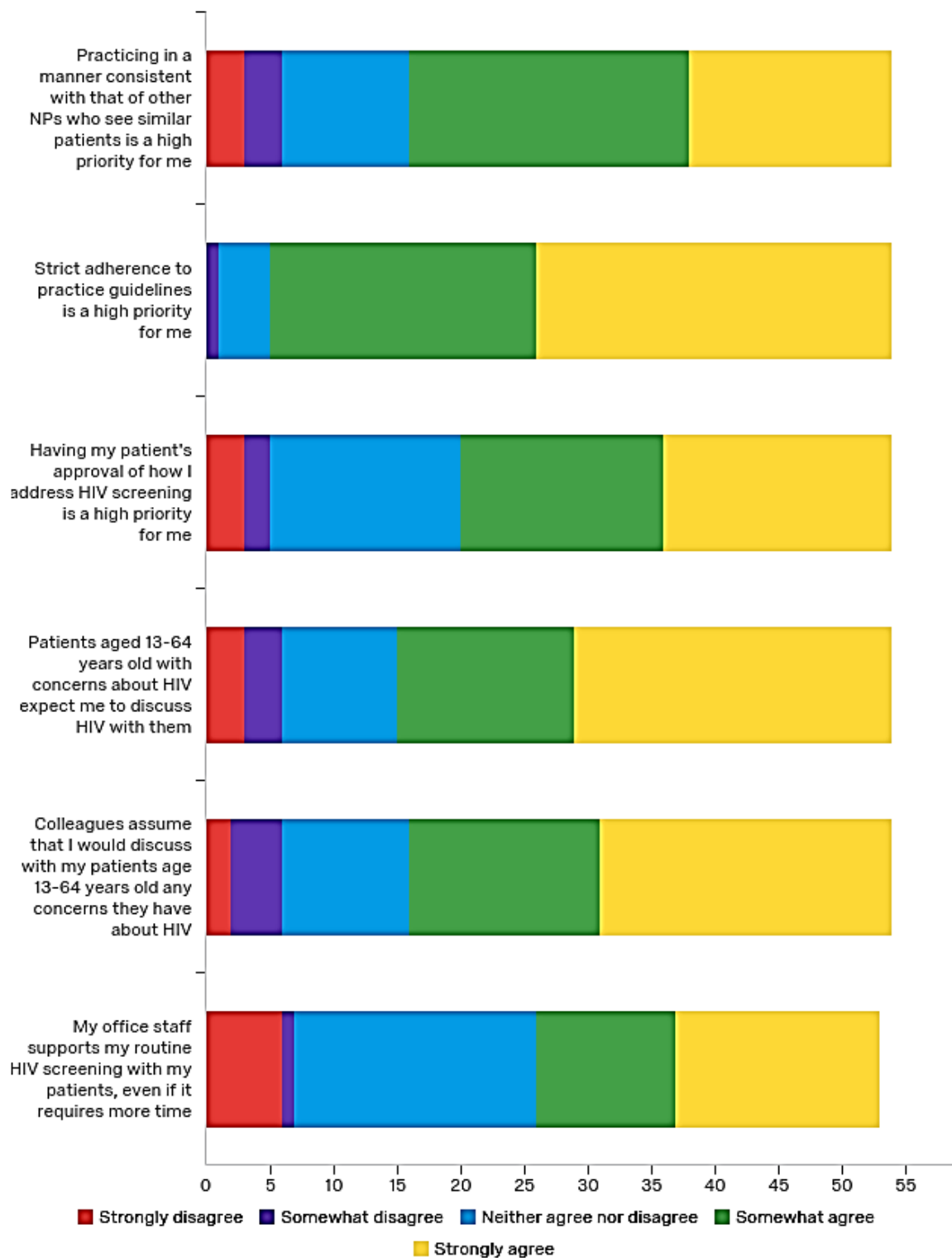


Figure 15. Agreement with statements regarding perceived norms.

Objective Two

2. Assess barriers and facilitators impacting routine HIV screening by APRNs in Colorado.

Barriers. When asked “What currently prevents you from implementing routine HIV testing in your practice?” half of the respondents said nothing, indicating it was not appropriate for their setting or they already did routine screening. Other responses included lack of follow-up (2), time (2), reimbursement (7), knowledge (2), resources for counseling (1), parents (1), and lack of testing ability (1).

There were 21 APRNs who said their geographical location influenced their ability to routinely screen for HIV a lot or a moderate amount. There were 41 APRNs who said their geographical location influenced their ability to routinely screen for HIV a little.

Facilitators. When asked “What would help or facilitate your implementation of routine HIV testing in your practice”, respondents indicated the following: education (3); proper follow-up (3); staff, time, money (3); ICD-10 allowing reimbursement (2); other testing methods (2); administrative support (1); and physician buy-in (1). Figure 16 provides further responses to whether APRNs agreed or disagreed that tools/aids/assistance would make it easier to adopt routine HIV testing in their practice setting.

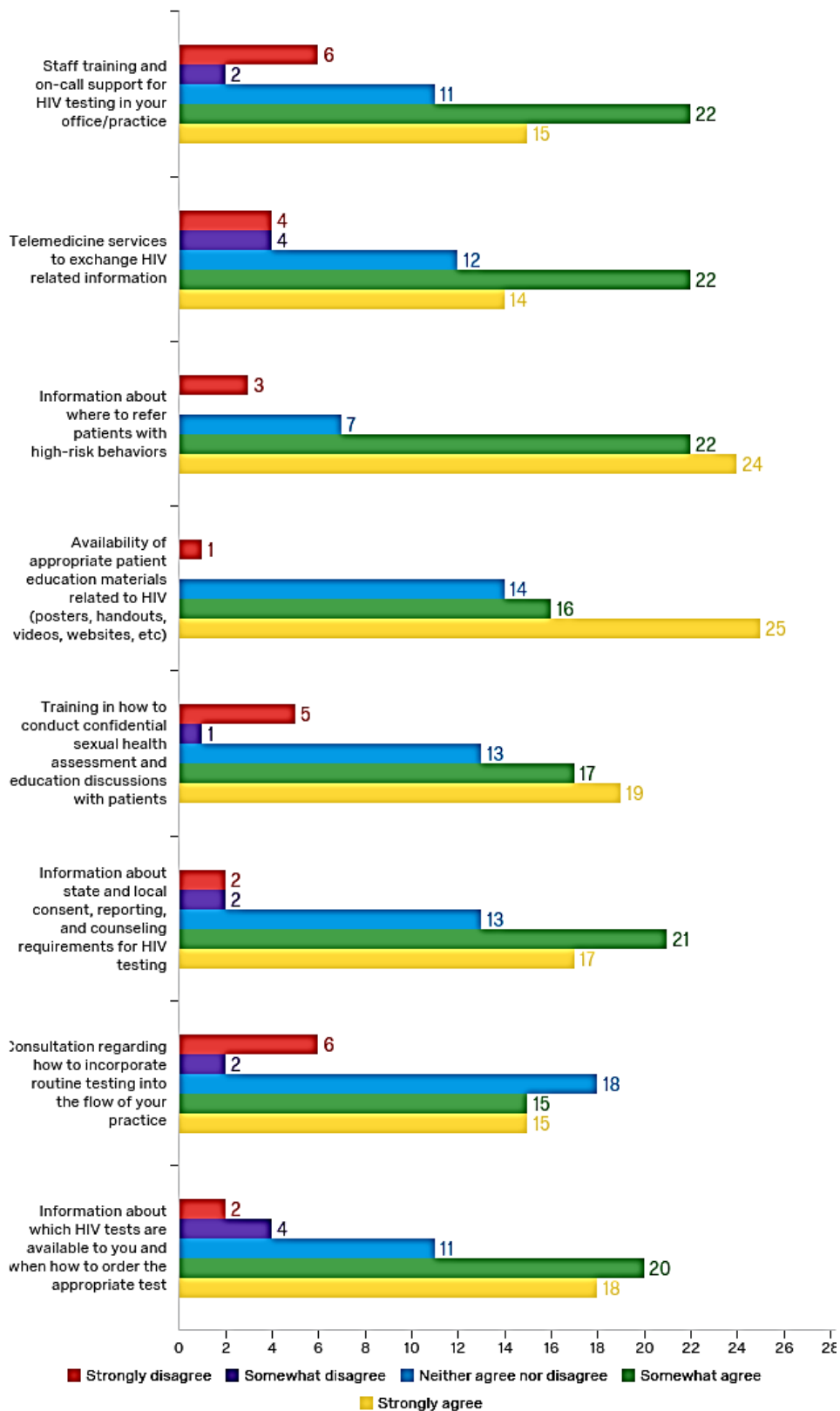


Figure 16. Agreement with statements regarding facilitators.

Differences between Urban and Rural Settings

No responses were received from APRNs working in a frontier setting; thus, differences between urban and rural settings were analyzed. The graphs below show differences between urban and rural settings and the relationship to education, knowledge, attitudes, perceived norms, and control beliefs.

Education

There was no correlation between urban and rural settings, meaning these were still independent factors related to HIV screening. Figure 17 provides correlations of type of community and education.

		Correlations		
			What type of community is your practice located in?	How much education have you had regarding routine HIV screening?
Kendall's tau_b	What type of community is your practice located in?	Correlation Coefficient	1.000	.044
		Sig. (2-tailed)	.	.710
		N	63	62
	How much education have you had regarding routine HIV screening?	Correlation Coefficient	.044	1.000
		Sig. (2-tailed)	.710	.
		N	62	62
Spearman's rho	What type of community is your practice located in?	Correlation Coefficient	1.000	.048
		Sig. (2-tailed)	.	.713
		N	63	62
	How much education have you had regarding routine HIV screening?	Correlation Coefficient	.048	1.000
		Sig. (2-tailed)	.713	.
		N	62	62

Figure 17. Correlations regarding type of community and education.

Knowledge

There were no significant differences between the urban and rural groups regarding knowledge. The following figures show the comparison of urban and rural APRN responses regarding CDC (2018) guidelines that recommended screening for all patients age 13-64 (see Figure 18), written consent was not required (see Figure 19), and high-risk individuals were not the only ones who should be screened (see Figure 20).

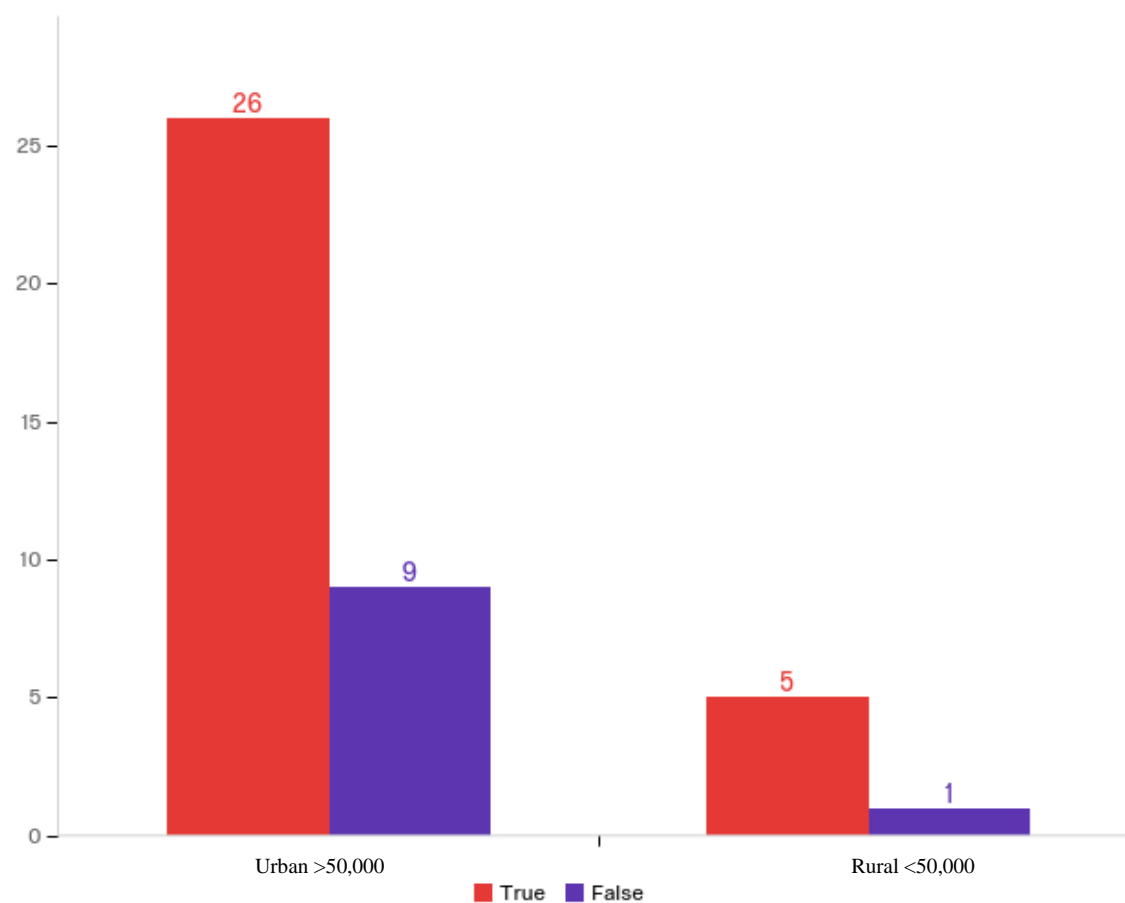


Figure 18. Comparison of urban/rural vs knowledge of Centers for Disease Control and Prevention guideline recommending screening for all patients ages 13-64.

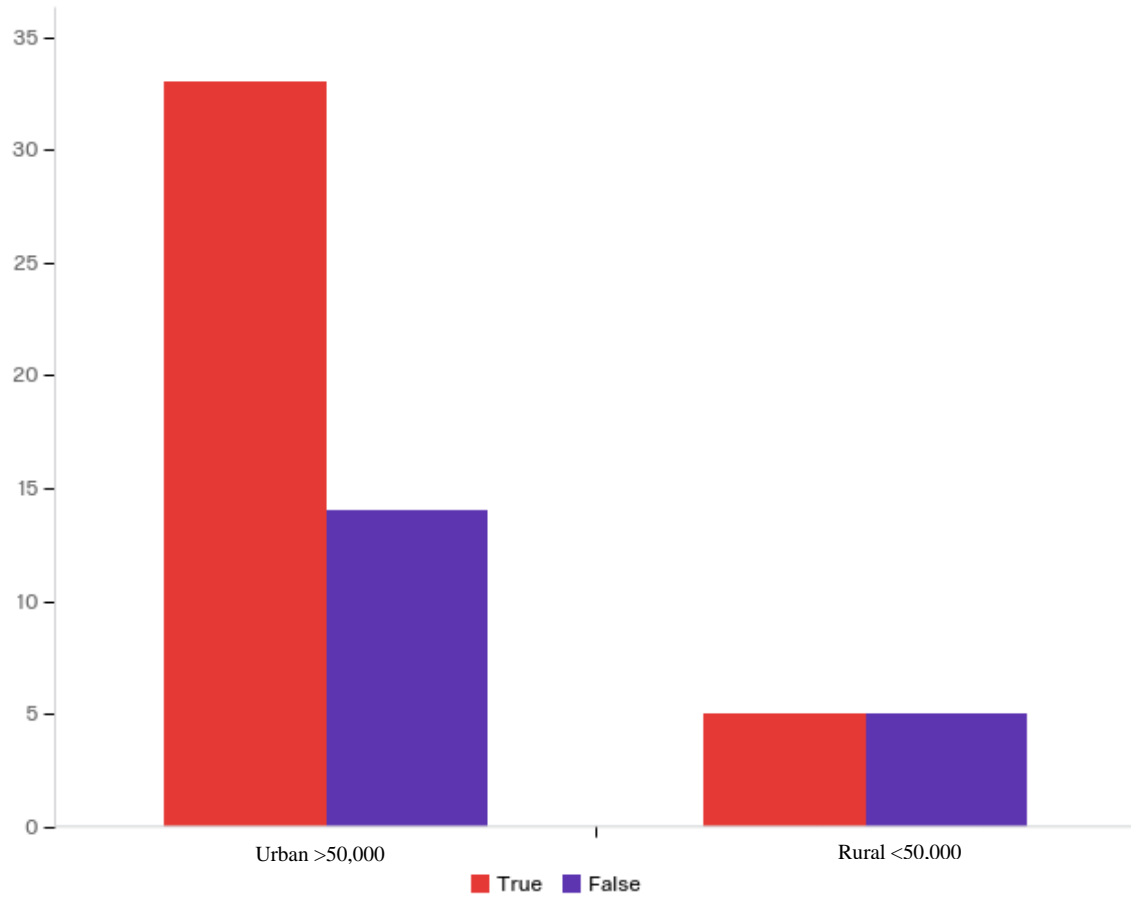


Figure 19. Comparison of urban/rural vs knowledge of Centers for Disease Control and Prevention guideline regarding written consent being required.

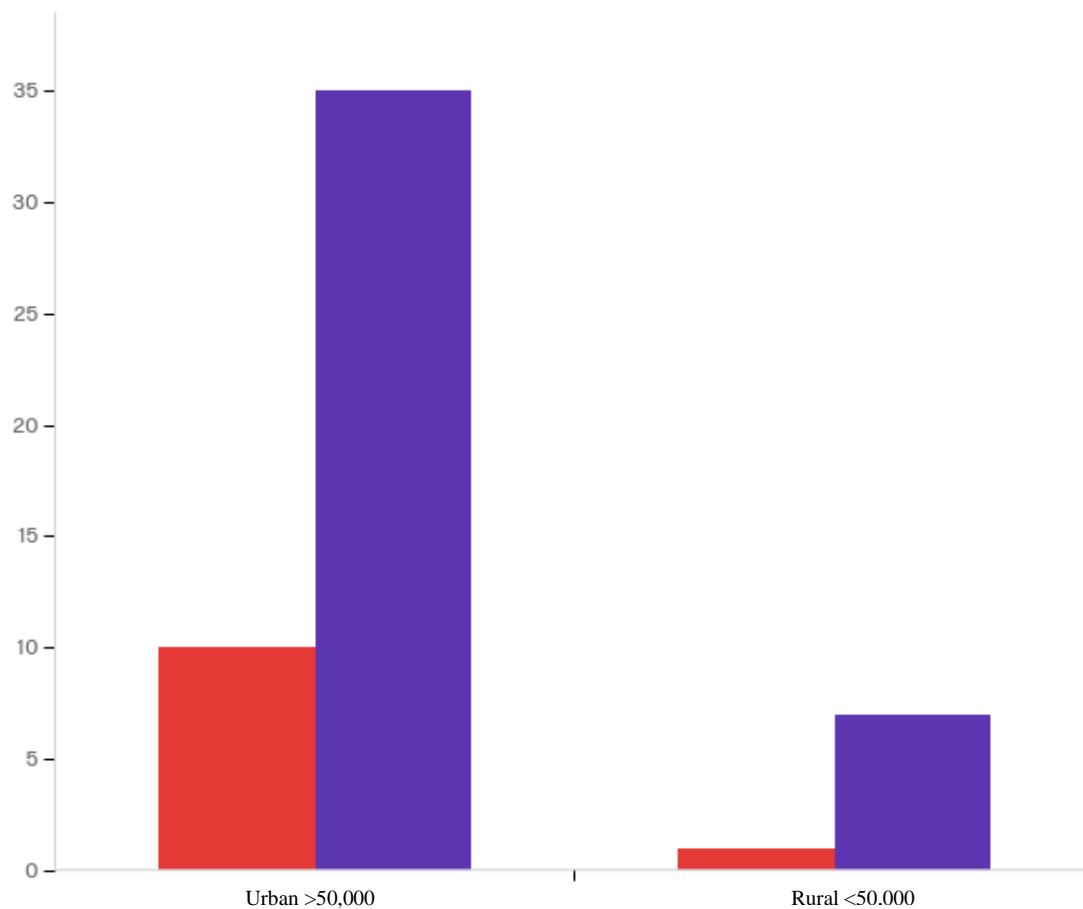


Figure 20. Comparison of urban/rural vs knowledge of Centers for Disease Control and Prevention guideline regarding screening being required for high risk individuals.

Figure 21 shows the differences between what high risk behaviors should be screened and which should not. The orange bar represents screening of African American/Blacks and the grey bar represents healthcare workers, neither of whom are high risk for HIV screening.

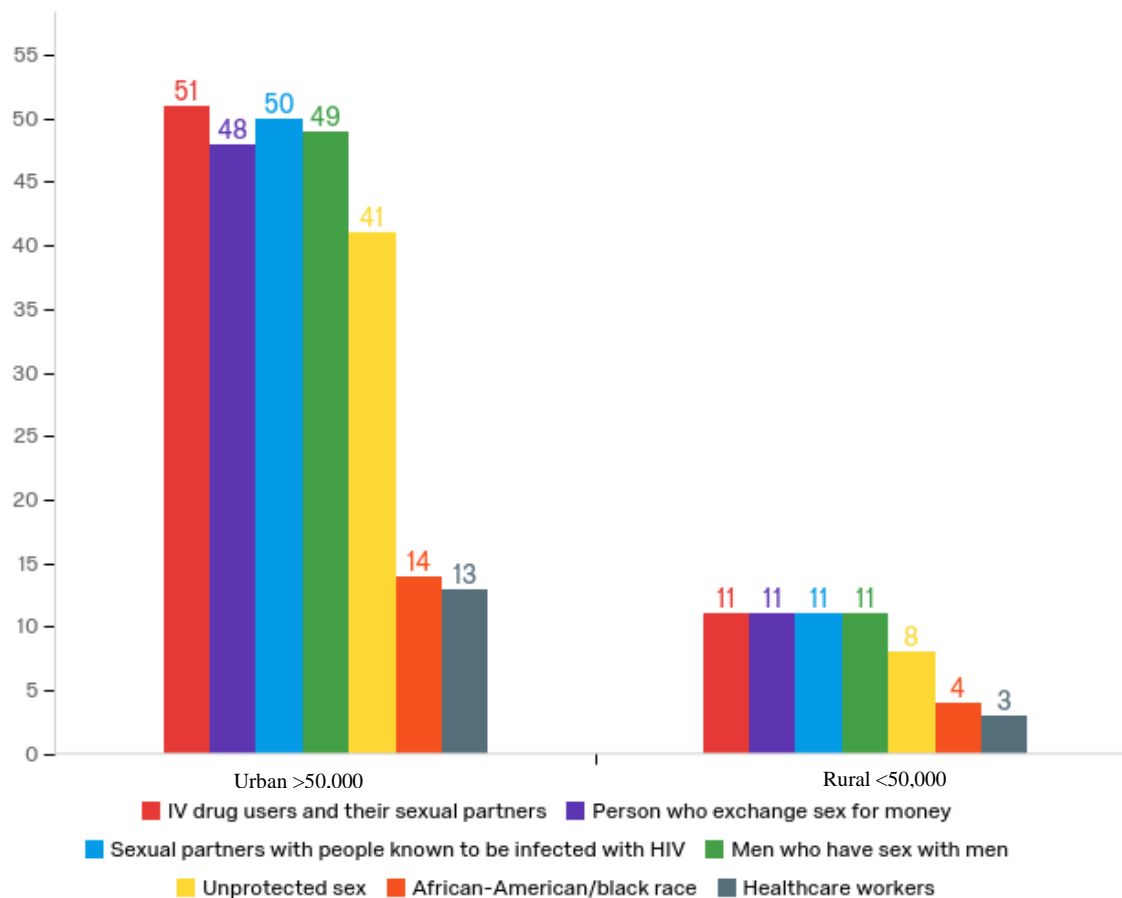


Figure 21. Comparison of urban/rural vs knowledge of Centers for Disease Control and Prevention guideline regarding what constitutes high-risk behaviors.

Attitudes

Those APRNs working in the rural setting had fewer strong agreements and strong disagreements regarding attitudes associated with HIV screening. One APRN in the urban setting strongly disagreed that APRNs had a responsibility to screen people ages 13-64 for HIV. In the rural setting, there were zero responses. In the urban setting, APRNs somewhat agreed or strongly agreed that they felt uncomfortable discussing HIV screening with their patients while in the rural setting, there were zero responses. Notable was zero APRNs in the rural setting felt youth ages 13-24 represented a high-risk

group. Youth do not represent a high-risk group but might be prone to more sexually risky behavior and might have more sexual partners. Appendix I contains further responses from urban and rural APRNs regarding their level of agreement to statements.

Barriers

The barriers assessed in this project were not significantly different between the urban and rural settings. Figure 22 shows the differences between the APRNs in the urban and rural settings and their ability to routinely screen for HIV. The red bar is a lot, the purple bar is a moderate amount, and the blue bar is a little. It was expected that rural APRNs would have said their geographical location influenced their ability to routinely screen for HIV but that was not reflected in their responses.

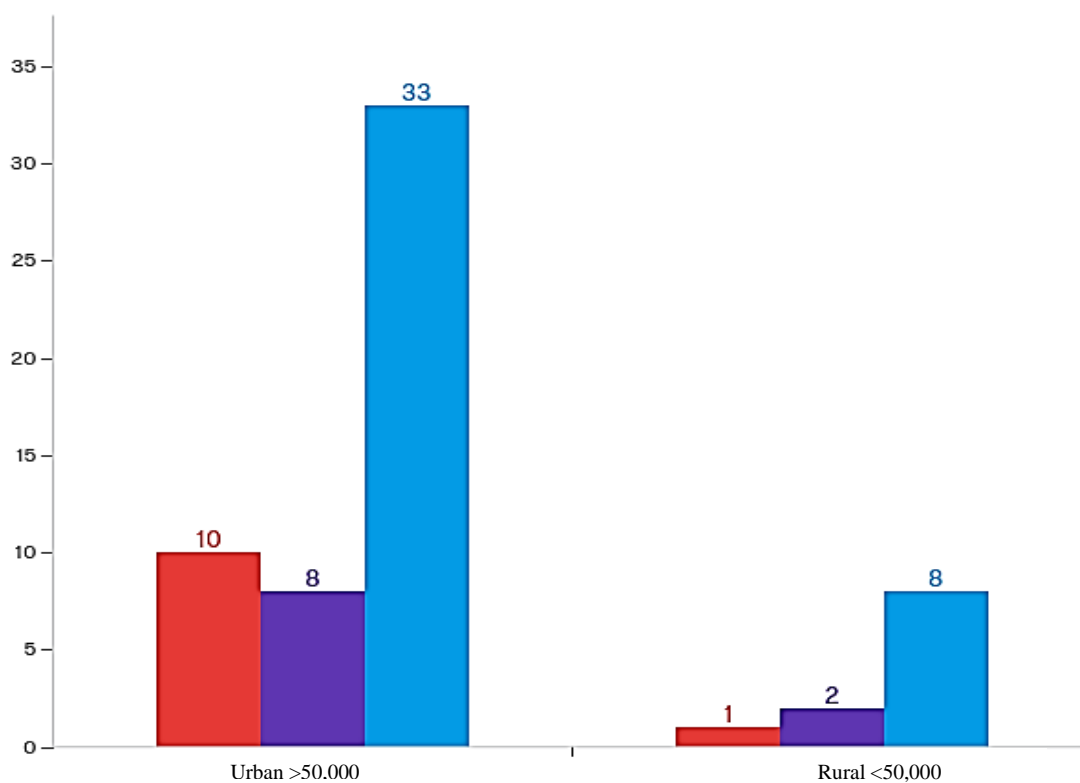


Figure 22. Comparison of urban/rural advanced practice registered nurses regarding geographical location influence.

Facilitators

The APRNs in the urban setting strongly disagreed with facilitator statements regarding staff training (6), telemedicine(4), information about where to refer patients with high-risk behaviors (3), availability of appropriate patient education materials related to HIV (1), training in how to conduct confidential sexual health assessment and education discussions with patients (5), information about state and local consent, reporting, and counseling requirements for HIV testing (2), consultation regarding on how to incorporate routine testing into the flow of your practice (6), and information about which HIV tests are available to you and when/how to order the appropriate test (2). None of the APRNs in the rural setting strongly agreed with these statements. It seemed the rural nurses would like all of these facilitators to increase screening while the urban APRNs did not want them as much. For more detailed urban and rural APRN responses to facilitator statements, see Appendix J.

Perceived Norms

The APRNs who responded most said it was important to practice in a manner consistent with other APRNs, adhere to practice guidelines, have patient approval, open discussion with patient, colleagues assume they discuss HIV, and office staff is supportive. The APRNs also agreed that they had support of other staff but it could be further investigated why they felt they did not have support from other influences. Figures 23 and 24 provide comparisons of urban and rural settings to perceived norms, respectively. It seems there were stronger disagreements in the urban setting versus the rural setting.

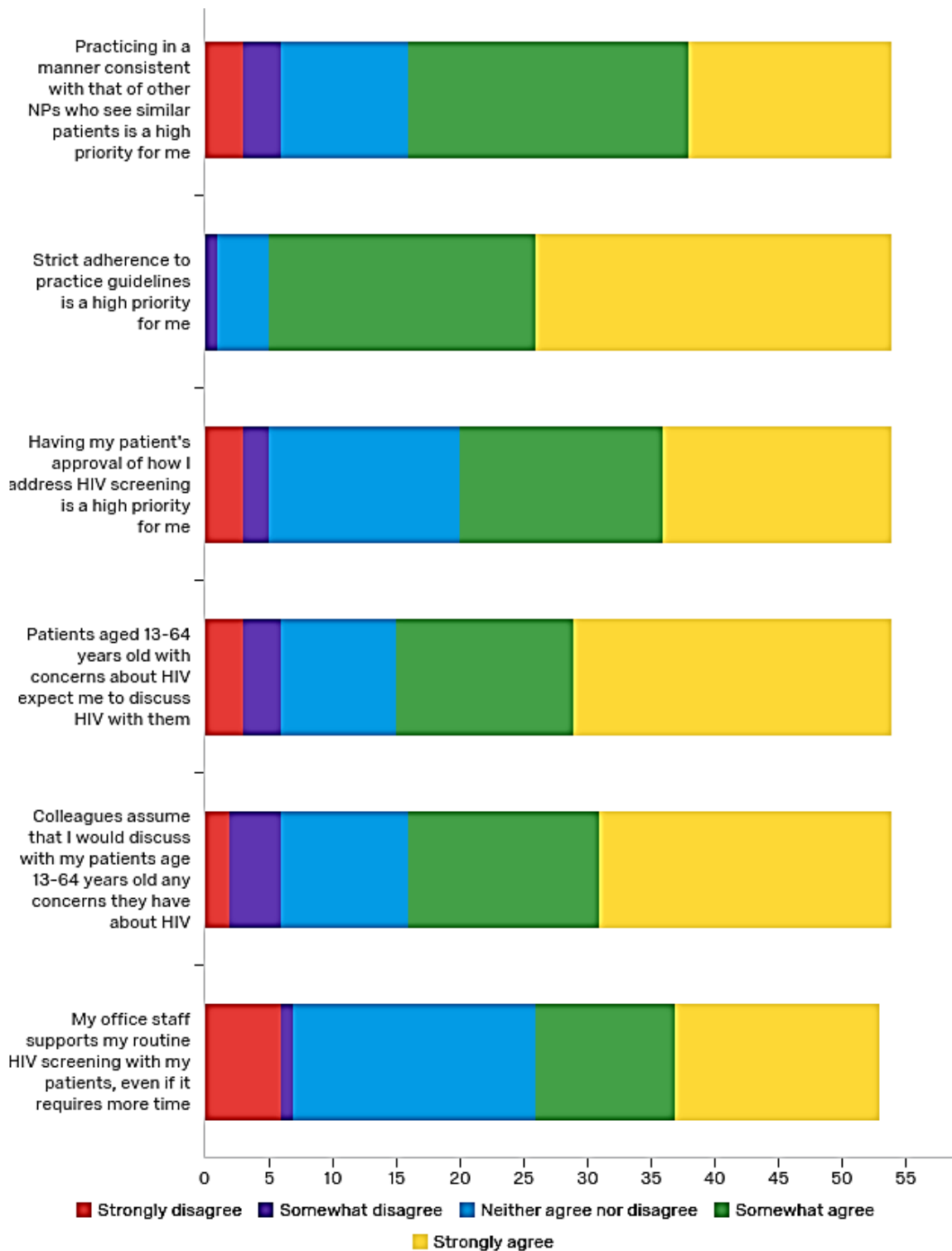


Figure 23. Comparison of urban setting (>50,000) versus perceived norms.

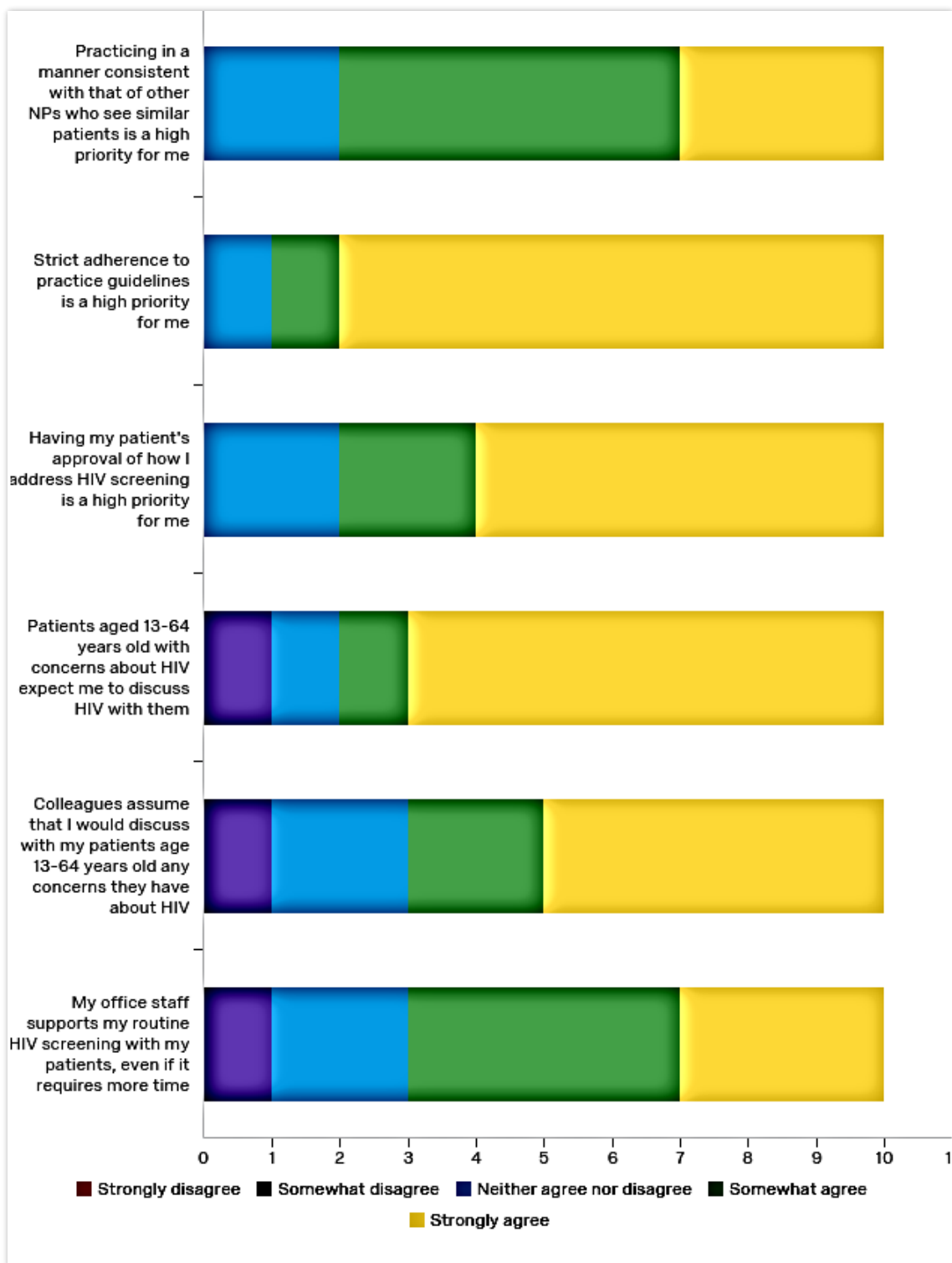


Figure 24. Comparison of rural setting (<50,000) versus perceived norms.

Control Beliefs

The APRNs in the urban setting somewhat agreed that they felt confident in their knowledge of indications and procedures for HIV screening as 27 APRNs said they somewhat agreed or strongly agreed. In the rural setting, seven APRNs agreed and three somewhat disagreed that they felt confident in their knowledge of indications and procedures for HIV screening. All of the APRNs in both urban and rural could not agree that point of care testing would increase routine screening of HIV. While some APRNs agreed they had limited resources, most strongly disagreed. This showed another possible opportunity for future projects as providing resources to both the urban and rural settings would be achievable. Fifteen APRNs in the urban setting and five in the rural setting said they somewhat agreed or strongly agreed that they did not know where to refer a patient for a positive HIV test. In both the urban and rural settings, the APRNs strongly disagreed that lack of reimbursement was what prevented them from screening for HIV; this was assessed earlier and was shown as a barrier. It would be interesting to understand those differences. Five APRNs somewhat agreed that there was an apparent lack of staffing in the rural setting but five APRNS said they disagreed somewhat that staff was an obstacle. Figure 25 provides a comparison of urban/rural settings versus control beliefs.

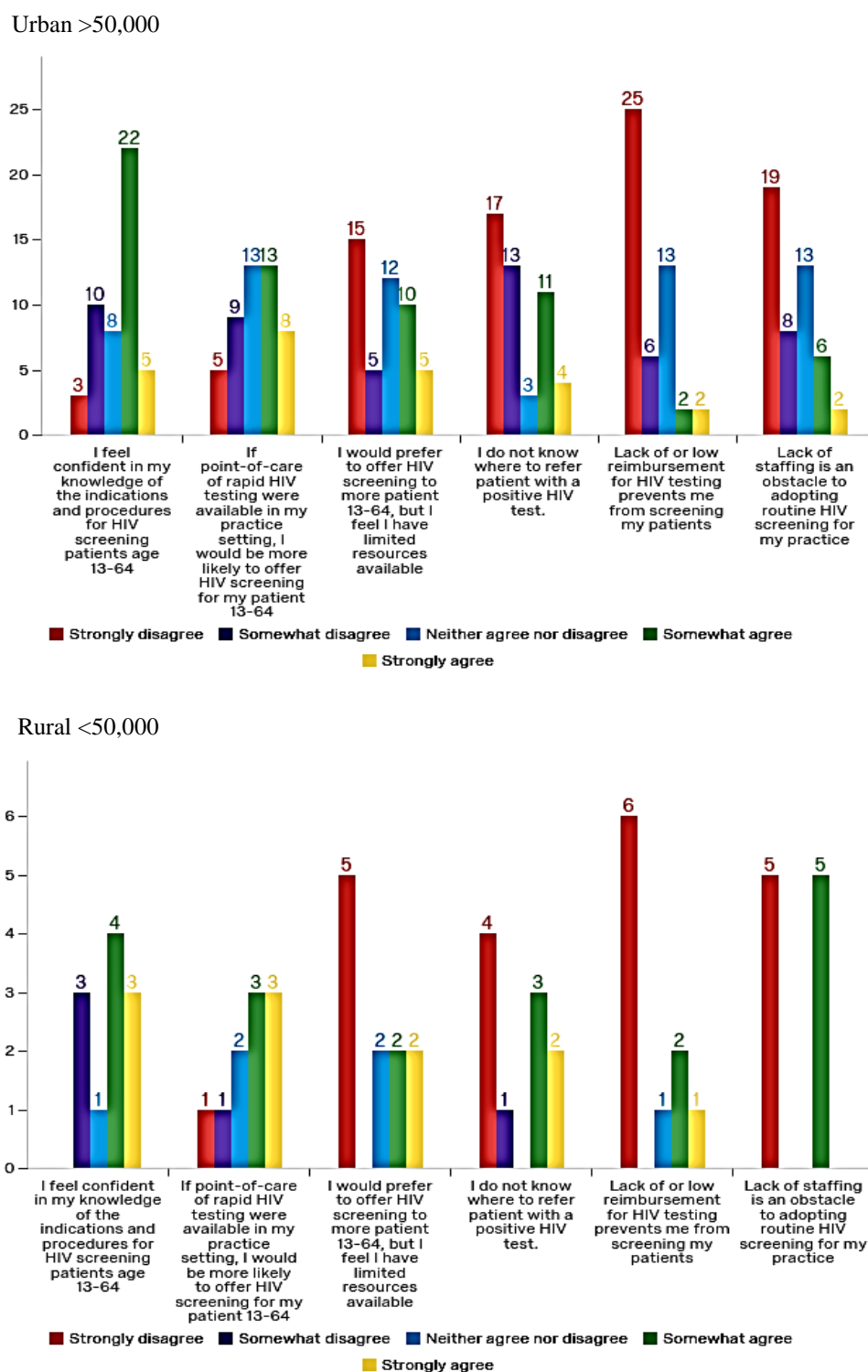


Figure 25. Comparison of urban/rural settings versus control beliefs.

Barriers to Achieving Objectives

One barrier encountered during this project was the number of responses. The response rate was 5.4%. Another barrier could have been the timing of the survey. The survey was only available for four weeks. If the survey had been available for a longer period, more responses might have been received. The number of other APRNs, besides nurse practitioners, could have made a difference in the results of the survey. It was impossible to assess the differences among nurse practitioners, certified registered nurse anesthetists, certified nurse midwives and clinical nurse specialists because not enough responses were received. In addition, no responses were received from APRNs working in a frontier setting (less than five people per square mile). This inhibited the assessment of differences among urban, rural, and frontier settings.

Facilitators to Achieving Objectives

One facilitator encountered during this project was access to physical addresses of APRNs in Colorado, which were provided by the Department of Regulatory Agencies as a part of the State of Colorado (2019). Technology also enabled this project to take place as the use of Qualtrics and email provided ease of survey collection and distribution.

Unintended Consequences

Negative Consequences

The student researcher did not expect to receive responses from those APRNs who did not have access to HIV screening methods or who worked in a location/practice setting where they were not in a role that allowed for HIV screening. This might have influenced results from the survey in a negative way. Nine APRN respondents said they did not routinely test for HIV; this might have been due to the type of practice setting in

which they worked. The question was limited to the last year, which might not have covered previous year testing. Table 12 provides the percentage of patients 13-64 years of age APRNs tested for HIV within the last year.

Table 12

Number and Percentage of Patients 13-64 Years of Age Screened in Last Year

	% of Patients 13-64 Years of Age	Frequency	%	Valid %	Cumulative %
Valid	0	9	13.6	16.1	16.1
	1-5	22	33.3	39.3	55.4
	6-25	14	21.2	25.0	80.4
	26-50	7	10.6	12.5	92.9
	>76	4	6.1	7.1	100.0
Missing		10	15.2		
Total		66	100.0		

Positive Consequences

This project increased current knowledge of why APRNs in Colorado do not screen for HIV on a routine basis. For example, APRNs are not knowledgeable about reimbursement codes associated with HIV screening. This evidence-based project provided opportunities for future educational programs. The need for intervention was solidified as the results of this project aligned with the literature review and added to current data about HIV screening. In addition, APRNs voiced a need for additional

resources. The student researcher became more familiar with research methods and required IRB processes.

CHAPTER V

RECOMMENDATIONS AND IMPLICATIONS FOR PRACTICE

Health care opportunities in rural counties are decreasing. Provider access will influence follow-up care. The student researcher plans to use data in this project as the basis for future projects. Human immunodeficiency virus (HIV) screening is still a problem and will be until the virus is eliminated in the United States.

Recommendations for Current Data

Organization

Future opportunities within the University of Northern Colorado (UNC) are a possibility. The university could address the disparities in knowledge of APRNs in the education of NPs within programs at UNC. Addressing attitudes toward a subject might be a future project in an attempt for students to understand their biases in the treatment of patients as APRNs.

Student

Current data provided the basis for future educational programs. The survey has opportunities to be improved and become more reliable and valid. The student researcher can take the data learned in this project and apply it to education. The APRNs said they wanted resources for how to screen, follow guidelines, and where to refer patients for follow up. These data would be useful in future education and resource development for

APRNs in Colorado. The differences between urban and rural settings provide a basis of how to address the method of education. Rural APRNs have different barriers so these would be addressed in future educational projects.

Project Alignment to Stetler Model of Research Use

The Stetler (2010) model of research utilization provided the conceptual framework for the project and is comprised of the following five phases:

- Phase 1: Literature review
- Phase 2: Focused critique of each article
- Phase 3: Assessment of current practice and other influences via the theory of planned behavior
- Phase 4: Consider use for future interventions; reform survey for future use
- Phase 5: Use in formal interventions for APRNs in Colorado and beyond.

In Phase 4, this project considers future use of data as the basis for interventions of education. A pre/post assessment of educational program using the survey with survey improvements would be a possibility. This project aligns with Colorado's Strategic Plan (CDPHE, 2017c) to increase HIV screening by APRNs. Possible distribution to professional organizations to increase awareness of HIV screening, the CDC (2018) guideline, and reimbursement through the Centers for Medicare and Medicaid is something the student researcher will consider in the future.

Project Alignment to the Theory of Planned Behavior

The instrument (Sutherland, 2015) used was based on the theory of planned behavior. Assessment of perceived norms, control beliefs, knowledge, attitudes, and intention were all concepts within the theory of planned behavior. These variables were

found to be independent from the geographical location of the APRNs. The theory of planned behavior will be used in the future as the change model required for the behavior of implementing routine HIV screening among APRNs.

Project Alignment to Essentials of Doctoral Education for Advanced Nursing Practice

According to AACN (2006), there are eight essentials of doctoral education for advanced nursing practice:

- Essential I: Scientific underpinnings for practice,
- Essential II: Organizational and systems leadership for quality improvement and systems thinking,
- Essential III: Clinical scholarship and analytical methods for evidence-based practice,
- Essential IV: Information systems/technology and patient care technology for the improvement and transformation of health care,
- Essential V: Health care policy for advocacy in health care,
- Essential VI: Interprofessional collaboration for improving patient and population health outcomes,
- Essential VII: Clinical prevention and population health for improving the nation's health,
- Essential VIII: Advanced nursing practice. (p. 8)

The literature review provided the theoretical basis of the practice inquiry. The student researcher analyzed the literature critically, identified gaps, and asked the research questions based on the knowns and unknowns of HIV screening. The research questions and literature review utilized scientific underpinnings by clinical examination

of levels of evidence and critical review of methods within the literature. The literature review met Essentials I, II, IV, and V. The scientific basis of this project began with scouring the data available via the literature review (Essential I). Then systems thinking, Essential II, was used to develop the project methods. Human immunodeficiency virus (HIV) is a stigmatizing disease affecting national and population health. Understanding the societal impact of HIV care triggered the student researcher to examine systemic quality of HIV care, which in turn led to the development of the research questions to examine thoroughly the attitudes, beliefs, and knowledge regarding HIV screening. Analytical methods, Essential III, were used to review the raw data from the project survey and then decide which statistical test was most appropriate. Utilization of the survey tool and additional inquiry of geography influence and application to future recommendations were consistent with Essential III. The overall project based on HIV screening met essentials IV, V, VI, VII, and VIII. The student researcher utilized information systems via the literature review to search databases. The student researcher also used Qualtrics online survey technology in the administration of the survey of advanced practice registered nurses (APRNs). Email technology was also utilized in this project. Essential V was met via the student researcher's passion for advocacy of a stigmatized population and as a nurse advocate for the equality of health care in all populations. Essential VI was seen in the subject matter of HIV as it is still stigmatized. The project sought to understand how HIV screening was influenced by knowledge, attitudes, beliefs, and perceived norms. This project could potentially propel HIV screening into the forefront of APRNs' minds to increase the health outcomes of those who live with HIV and those at a higher risk of HIV infection. Increasing HIV screening

by addressing knowledge, attitudes, beliefs, perceived norms, barriers, and facilitators related to HIV clinical prevention of HIV could be increased and HIV infection could be decreased. The student researcher focused this project on APRNs to increase the quality of health care provided by advanced nursing practice in Colorado.

Project Alignment to Enhances, Culmination, Partnership, Implements, and Evaluation

For the purposes of this project, EC as PIE (Enhances, Culmination, Partnership, Implements, and Evaluation) criteria were used to show alignment of this project to the AACN's (2006) essentials of doctoral education in advanced nursing practice (Waldrop, Caruso, Fuchs, & Hypes, 2014). The EC as PIE criteria provide a universal and thorough basis for DNP projects to meet the AACN essentials and represent all five pieces of the whole 'pie' (Waldrop et al., 2014).

This project focused on health policy along with knowledge, attitudes, and beliefs of HIV screening. This project enhanced the data known about APRNs in Colorado. Enhancement could hopefully lead to both personal reflection by the participants in the project and future education regarding HIV screening. With knowledge from this project, future studies nationwide could adjust education and interventions based on geography of all providers--not only APRNs. Screening for HIV is also covered by the Affordable Care Act, demonstrating enhancement of health care across America (Waldrop et al., 2014).

The culmination of this project utilized real world experiences by APRNs in Colorado. The quality measure of HIV screening met those put forth by the Centers for Medicare and Medicaid Services (2015). The student researcher became an expert in the

subject matter of HIV screening via the literature review. She identified gaps in the literature and used a pragmatic method to determine the inquiry basis of this project.

The student researcher utilized many partnerships for the duration of this project. Interprofessional relationships developed made this project possible. The APRNs in Colorado were responsible for the data in this project. Future implementation of this project would also be based in partnerships to influence policy change and the normalization of HIV screening. Educational opportunities in the future based on the outcomes of this project would allow for methods of education and barriers to be addressed. This project evaluated the attitudes/knowledge/beliefs regarding HIV screening. The evaluation was at an individual level of the system of care regarding HIV screening.

Future Implications Related to Barriers/Facilitators of Achieving Objectives

1. Assess knowledge, attitudes, perceived norms, and control beliefs in advanced practice registered nurses in Colorado. Are these different among urban, rural, and frontier settings?

Future interventions could contribute to the survey development and increase its reliability and validity. The number of participants was a barrier. Future interventions could be aimed at certified registered nurse anesthetists, clinical nurse specialist, certified nurse midwife, as well as APRNs. Lack of frontier assessment might have a larger influence on those areas so future interventions might have to take place in frontier settings. The student researcher might have received many more responses if paper and pencil responses were employed. The barrier of technology was not assessed but might have influenced the number of responses, which could be corrected in the future.

2. Identify differences in barriers and facilitators for Advanced Practice Registered Nurses to screen for HIV in Colorado. Are these different among urban, rural, and frontier settings?

Future interventions could also utilize technology for statistical analysis; SPSS and Qualtrics were vital in this project and could be used in the future. The main points of this survey to take into the future are as follows: APRNs want the resources of where to send patients for a positive HIV test and the appropriate codes for reimbursement, which might have been the cause for lack of screening.

A future intervention could take place in a rural/frontier setting where resources might be limited. This intervention could include a pre/post-assessment of the knowledge learned during an education session about the CDC (2018) guideline. This education session could be a one-hour lecture or webinar (if web access is available). This education session would include the main important points of the CDC guideline: (a) All patients ages 13-64 should be screened at least once in their lifetime; (b) high-risk behaviors such as (i) men who have sex with men, (ii) intravenous drug use, (iii) exchanging sex for money, (iv) unprotected sex with someone known to be infected with HIV, (v) and unprotected sex; (c) those at high risk should be screened annually; and (d) written consent is not required. It would also be important to assess the method of HIV testing available and how to decrease the cost and access to the HIV test.

Personal Leadership Goals

This project was the culmination of the education the student researcher received for the degree of Doctor of Nursing Practice (DNP). The student researcher's goal of utilizing specialized training in nursing to diagnose human conditions and intervene by

empowering patients to heal and thrive was met through the journey of this project. There were setbacks. The student researcher learned how to re-evaluate and maintain stamina despite these setbacks. The student researcher enjoyed the process of learning about the stigma associated with HIV through the literature review. During the first semester of the DNP program, the student researcher developed a passion for social justice and even wrote a concept analysis on social justice. This project further developed this passion for social justice. This student researcher plans to become involved in the policy development for marginalized populations while advocating for equality.

Conclusion

The purpose of this evidence-based practice project was to increase the knowledge base to address barriers preventing routine screening of HIV. The project consisted of a statewide survey to assess the knowledge, attitudes, subjective norms, control beliefs, barriers, and facilitators of APRNs across Colorado. A statewide assessment was important in the state of Colorado because APRNs are the primary providers in many rural areas.

There were 66 responses to the survey. Knowledge of the CDC (2018) guideline for HIV screening was lacking. About one-third of the APRNs did not know the CDC guideline applied to all patients ages 13-64 and was not just for high-risk groups—of which the Black/African American race and healthcare workers were not. They were influenced by actions of other APRNs but did not screen per CDC guidelines for many reasons. The APRNs were confident in HIV screening but wanted resources of where they could get more information and where to send patients who might have a positive

HIV test. The APRNs did not have the resources for HIV screening and follow up. This project provided the basis for future education interventions. Those future interventions could utilize a pre/post survey with a one-hour educational session either in the rural setting or via webinar.

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APPENDIX A
METHODOLOGICAL FACTORS

Methodological Factors of Stetler Model Phase I

Citation	Purpose, hypotheses/ study questions	Measurements/ operational definitions(Rel/Val) variables	Sampling: Method, size	Design, Level of evidence
Tan, K. & Black, B.P. (2018). A systematic review of health care provider-perceived barriers and facilitators to routine HIV testing in primary care settings in the southeastern United States. <i>Journal of the association of nurses in AIDS care</i> . 29, 3. https://doi.org/10.1016/j.jana.2017.12.006	Describe health care provider barriers and facilitators of HIV screening.	Barriers and facilitators Variables: Location, perception, HIV, routine HIV testing, Healthcare provider perspective	Search of PubMed, CINAHL and Embase databases for studies after 2006 in Southeastern United States. 12 studies included. Empirical qualitative and qualitative, universal HIV testing in primary care	Level I-systematic review A
Davies, C. F., Gompels, M. & May, M. T. (2014). Public and healthcare practitioner attitudes towards HIV testing: Review of evidence from the United Kingdom. <i>International STD Research & Reviews</i> . 3(3), 91-122. http://dx.doi.org/10.9734/ISRR/2015/18724	Attitudes, barriers, motivators of patients and providers	“Common barriers reported by the public were stigma, fear, denial, and low perception of risk. Common barriers reported by HCP were lack of confidence or anxiety around offering a test, privacy and confidentiality, and insufficient knowledge/training in HIV. Public motivators towards testing were: HCP offering/ recommending a test, universal testing at practice registration, outreach rapid point-of-care (POC) testing offered as part of a check-up, availability of home testing/sampling, and informing patients about HIV and the benefit of receiving treatment” (p.91-92),	Search of Pubmed, Web of Science, OVID Medline and Google from 1996-2014 in UK 64.	Level I-systematic review A

Stanton, M., & Johnson, P. (2017). Effect of Training Program on Physicians' Attitude towards Knowledge and Practice Related to Assessment and Screening of Clients with HIV/AIDS . <i>Online Journal of Rural Nursing and Health Care</i> , 1(3) 43-61. Retrieved from https://rnojournal.binghamton.edu/index.php/RNO/article/view/485/383	Can a training program increase knowledge, change in attitudes, increase routine testing of HIV?	Measured knowledge, attitudes, frequency of routine testing. Physicians were more comfortable discussing sexual issues, knowledge increased from 80% to 93%.	Pre/Post test Educational training program of 4 online modules, Convenient self-selected 114 Hispanic physicians. 50% in private practice, 50% in hospital or community based clinic	Level III-pre/post training survey B
Sutherland, J. (2015). <i>Predicting nursing practitioners' intentions and behaviors to perform HIV screening</i> . (Doctoral Dissertation). Available from ProQuest. (3713645).	Why don't NPs screen for HIV?	"Attitudinal, normative, and control beliefs toward routine HIV screening and their associations and relationships with intentions and behaviors" (p. iv)	140 NPs in AANP via mailed surveys	Level IV-survey B, limited to AANP
Bares, S., Steinbeck, J., Bence, L., Kordik, A., Acree, M.E., Jih, J., Farnan, J., Watson, S., Rasinski, K., Scheider, J. & Pitrak, D. (2016). Knowledge, attitudes, and ordering patterns for routine HIV screening among resident physicians at an urban medical center. <i>Journal of the International Association of Providers of AIDS care</i> . 15(4), 320-327. DOI: 10.1177/2325957414554006	"We sought to measure resident physician knowledge of HIV epidemiology and screening guidelines, attitudes toward testing, testing practices, and barriers and facilitators to routine testing" (p. 320).	Attitudes toward testing, testing practices, barriers and facilitators	259 Resident Physicians	Level IV- Survey A
Goyal, M. K., Dowshen, N., Mehta, A., Hayes, K., Lee, S., & Mistry, R. D. (2013). Pediatric primary care provider practices, knowledge, and attitudes of human immunodeficiency virus screening among adolescents. <i>The Journal of Pediatrics</i> , 163, 1711- 1715. http://dx.doi.org/10.1016/j.jpeds.2013.08.023	Practices, knowledge and attitudes toward screening adolescents.	Knowledge (0.56 Cronbach alpha) Barriers and facilitators (0.87)	Survey of 101 physicians and NPs	Level IV A Provides survey

<p>White, B. L., Walsh, J., Rayasam, S., Pathman, D. E., Adimora, A. A., & Golin, C. E. (2015, March). What makes me screen for HIV? Perceived barriers and facilitators to conducting recommended routine HIV testing among primary care physicians in the southeastern United States. <i>Journal of the International Association of Providers of AIDS Care</i>, 14 (2), 127-135. http://dx.doi.org/10.1177/2325957414524025</p>	<p>Barriers and facilitators</p>	<p>Barriers and facilitators of providers in Southern U.S. in community based clinics. Family and internal medicine focused.</p>	<p>18 interviews in 2011-2012</p>	<p>Level IV- interviews A</p>
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APPENDIX B
UTILIZATION FACTORS

Utilization Factors Stetler Model Phase II

Citation	Findings	Fit: Setting, sample/ subject and related implications	Unknown factors potentially relevant to practice problem/limitations	Implications for feasibility: risk	Implications for feasibility: resources/cost/ readiness
<p>Tan, K. & Black, B.P. (2018). A systematic review of health care provider-perceived barriers and facilitators to routine HIV testing in primary care settings in the southeastern United States. <i>Journal of the association of nurses in AIDS care</i>. 29, 3. https://doi.org/10.1016/j.jana.2017.12.006</p>	<p>Found extensive barriers and facilitators. Societal, financial, stigma, policy, staff, provider factors, discomfort, attitudes, education</p>	<p>12 studies included. Barriers and facilitators only.</p>	<p>Limited to Southeastern United States. Limited to primary care settings. Doesn't assess Urban vs rural</p>	<p>Risk: Low risk, assessment of health care providers in primary care</p>	<p>resources/cost/readiness: Meta-analysis, labor intensive, no cost</p>
<p>Davies, C. F., Gompels, M. & May, M. T. (2014). Public and healthcare practitioner attitudes towards HIV testing: Review of evidence from the United Kingdom. <i>International STD Research & Reviews</i>. 3(3), 91-122. http://dx.doi.org/10.9734/ISRR/2015/18724</p>	<p>“Common barriers reported by the public were stigma, fear, denial, and low perception of risk. Common barriers reported by HCP were lack of confidence or anxiety around offering a test, privacy and confidentiality, and insufficient knowledge/training in HIV. Public motivators towards testing were: HCP offering/recommending a test, universal testing at practice registration, outreach rapid point-of-care (POC) testing offered as part of a check-up, availability of home testing/sampling, and informing patients about HIV and the benefit of receiving treatment” (p91-92).</p>	<p>Assessment of patients and providers. Worldwide barriers in HIV screening in developed world</p>	<p>Limited the United Kingdom</p>	<p>Risk: Low risk, assessment of health care providers in primary care</p>	<p>resources/cost/readiness: Meta-analysis, labor intensive, no cost</p>

<p>Stanton, M., & Johnson, P. (2017). Effect of Training Program on Physicians' Attitude towards Knowledge and Practice Related to Assessment and Screening of Clients with HIV/AIDS . <i>Online Journal of Rural Nursing and Health Care</i>, 1(3) 43-61. Retrieved from https://rnojournl.binghamton.edu/index.php/RNO/article/view/485/383</p>	<p>Measured knowledge, attitudes, frequency of routine testing. Physicians were more comfortable discussing sexual issues, knowledge increased from 80% to 93%.</p>	<p>Pre/Post test Educational training program of 4 online modules, Convenient self-selected 114 Hispanic physicians. 50% in private practice, 50% in hospital or community based clinic</p>	<p>Limited to Hispanic physicians in Urban medically underserved population</p>	<p>Risk: low risk</p>	<p>Resources/cost/readiness: Web-based training program, Cost of program, self selected physicians</p>
<p>Sutherland, J. (2015). <i>Predicting nursing practitioners' intentions and behaviors to perform HIV screening</i>. (Doctoral Dissertation). Available from ProQuest. (3713645).</p>	<p>Positive attitudes, higher normative beliefs and lower control barriers lead to more HIV normative expectations.</p>	<p>140 NPs in AANP</p>	<p>NPs in AANP, limited to AANP doesn't include ANCC. Many not aware of guidelines. Cross sectional survey, small sample size.</p>	<p>Risk: low risk</p>	<p>Resources/cost/readiness: Postal service of mailed survey, cost of postage, NPs are ready</p>
<p>Bares, S., Steinbeck, J., Bence, L., Kordik, A., Acree, M.E., Jih, J., Farnan, J., Watson, S., Rasinski, K., Scheider, J. & Pitrak, D. (2016). Knowledge, attitudes, and ordering patterns for routine HIV screening among resident physicians at an urban medical center. <i>Journal of the International Association of Providers of AIDS care</i>. 15(4), 320-327. DOI: 10.1177/2325957414554006</p>	<p>Barriers identified: 50% unfamiliar with guidelines, Majority had positive attitudes, "competing priorities, not thinking of it during the clinical encounter, patient refusal, and insufficient time" (p.323). Facilitators found were "institutional elimination of written consent form, electronic reminders, reminders from attending physicians or preceptors, and 2006 revision of CDC guidelines" (Beres et al., p.323</p>	<p>259 Resident Physicians in Chicago. "Changing physician behavior will require a clear understanding of the barriers to routine HIV screening, and our study suggests important barriers to adoption of routine screening that likely contribute to both a knowledge-behavior and belief-behavior gap" (Beres et al, 2016 p 325).</p>	<p>Only assessed resident physicians, not APRNs</p>	<p>Risk: Low risk, assessment of providers, not patient involvement</p>	<p>Resources/cost/readiness: Survey, low cost, readiness high of resident physicians</p>

<p>Goyal, M. K., Dowshen, N., Mehta, A., Hayes, K., Lee, S., & Mistry, R. D. (2013). Pediatric primary care provider practices, knowledge, and attitudes of human immunodeficiency virus screening among adolescents. <i>The Journal of Pediatrics</i>, 163, 1711- 1715. http://dx.doi.org/10.1016/j.peds.2013.08.023</p>	<p>40% screening all adolescents 43% think written consent is required 50% know high risk patients should be tested annually</p>	<p>Provides survey for attitudes, knowledge.</p>	<p>Limited to Adolescents in urban/suburban settings</p>	<p>Risk: low risk in survey of providers,</p>	<p>Resources/cost/readiness: Low cost as survey is available, providers are presumed ready to follow CDC guidelines</p>
<p>White, B. L., Walsh, J., Rayasam, S., Pathman, D. E., Adimora, A. A., & Golin, C. E. (2015, March). What makes me screen for HIV? Perceived barriers and facilitators to conducting recommended routine HIV testing among primary care physicians in the southeastern United States. <i>Journal of the International Association of Providers of AIDS Care</i>, 14 (2), 127-135. http://dx.doi.org/10.1177/2325957414524025</p>	<p>“stigma, fear, denial, and low perception of risk,” and from providers of “lack of confidence or anxiety around offering a test, privacy and confidentiality, and insufficient knowledge/training in HIV” (p. 91)</p>	<p>18 interviews in 2011-2012 Barriers and facilitators of providers in Southern U.S. in community based clinics. Family and internal medicine focused.</p>	<p>Limited to physicians in family and internal medicine, semi-structured interview</p>	<p>Risk: low risk in survey of provider</p>	<p>Resources/cost/readiness: Survey questions not available, no cost, providers open to CDC guidelines</p>

APPENDIX C
BARRIERS AND FACILITATORS

Tan & Black (2018) Barriers and Facilitators table

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Table 3. Key Findings

Barrier	Facilitator
Societal factors	
Financial factors	
<ul style="list-style-type: none"> • Lack of reimbursement/costs of rapid testing (5,8,11) • Lack of financial support for HIV testing programs (7,12) • Costs of rapid testing (10) 	<ul style="list-style-type: none"> • Funding for HIV testing programs (4,12) • Increased education regarding billing for HIV test and screening (8) • Third-party reimbursement (11)
Stigma	
<ul style="list-style-type: none"> • Greater HIV-related stigma and stereotyping (2,6,8,9,11) 	<ul style="list-style-type: none"> • Decrease stigma (11) • Social Marketing to reduce stigma associated with HIV testing (12)
Policy:	
<ul style="list-style-type: none"> • Too many state and federal regulations for rapid test and consent (1,4,11,12) • Requirements for parental consent (11) • Requirements for testing site quality assurance/policies (4) 	<ul style="list-style-type: none"> • Congruent federal guidelines (2,11) • Elimination of written HIV consent (11,12) • Require HIV testing for college enrollment (11) • Require providers to routinely test (11)
Resources	
<ul style="list-style-type: none"> • Lack of dissemination and implementation strategies for HIV testing programs (4,7,9) • Lack of education materials for implementation of HIV testing (7) • Absence of patient-friendly literature (7) • Rapid test supply shortages (10) 	<ul style="list-style-type: none"> • More HIV literature and HIV specific training for clinic staff (7) • Health department involvement with community based organizations (9)
Population characteristics	
<ul style="list-style-type: none"> • Conservative communities (11,12) • Low perceived prevalence of HIV in state (2,12) • Competing health needs and priorities (12) • Hard to reach diverse populations (2, 9,11) 	<ul style="list-style-type: none"> • Public campaigns to encourage patient acceptance (11)
Limited health care networks	
<ul style="list-style-type: none"> • Limited access to health care services (8) • Lack of feedback from hospitals about patients who test positive for HIV (9) 	<ul style="list-style-type: none"> • Streamline HIV counseling (11)
Organizational factors	
Clinic characteristics	
<ul style="list-style-type: none"> • Organization does not have enough space to confidentially conduct rapid HIV tests (1,6) • Difficult to fit counseling into one session (1) • Lack of time - rapid pace of primary care office visits (1,2,5,7,11) • Additional financial burden on clinic from HIV testing and diagnosis (7) • Lack of resources for prevention and testing (9) 	<ul style="list-style-type: none"> • More time spent during initial visit (3,10) • HIV screening did not interfere with delivery of medical services and there was sufficient time (6,10) • Dedicated time to screening/testing (10)
Protocol/guidelines	
<ul style="list-style-type: none"> • Lack of or inconsistent guidelines or unaware of guidelines for providing information to patients (2,11) • Quality assurance procedures for rapid tests are too complex (1) • Small practices less likely to be up-to-date on new recommendations (11) • Difficult to design a rapid testing protocol for organization (1) 	<ul style="list-style-type: none"> • General consent that included HIV testing (3) • Availability of sexual history tool (5) • Integration into routine clinic activities (4,10,11) • Normalization of sexual history taking (5) • Clinic assurance of confidentiality of test results and testing (7)
Referral	
<ul style="list-style-type: none"> • Inconvenient off-site/referral HIV testing/health system silos (2,11,12) • Lack of follow-up care (6,12) 	<ul style="list-style-type: none"> • On-site or easily accessible testing and treatment (7) • Strong Internal and External Referral Network (12) • Dedicated HIV testing program (12)

(Continued)

Table 3. (Continued)

Barrier	Facilitator
Staff/administrative	
<ul style="list-style-type: none"> ● Intermittent staff compliance with guidelines/resistance (5,7,11) ● Too many administrative hassles associated with rapid HIV tests (1) ● Justification of sexual history taking and HIV/STD testing efforts to administrators (5) ● Hospital Administration does not support use of rapid HIV tests (1,5) 	<ul style="list-style-type: none"> ● Leadership: Change champion that drives the implementation/ intervention (4) ● Voluntary involvement of staff/support of staff (4,10,12) ● Acceptance of program among staff members (6)
Individual – provider factors	
Attitude/prioritization	
<ul style="list-style-type: none"> ● Low prioritization of HIV screening in competition with other clinical priorities (1,2,3,11) ● Staff thought of HIV as a stigma (6,11) ● Misperception that patients are low risk (7,8,9,11) ● Belief that routine HIV testing should be conducted outside of primary care settings (6,8,9) ● Belief that routine HIV testing is not cost effective (11) ● Procedures for running or ordering rapid tests are difficult to learn (1,2) 	<ul style="list-style-type: none"> ● Believe there is a need for sexual history training (3,5) ● Believe guidelines should be instituted (3,10) ● Personal experience with patients with HIV leads to more vigilance for HIV testing (2) ● Providers willing to provide routine testing for all patients if reimbursed (8) ● Most providers are aware of the high HIV rates in Mississippi Delta (8) ● More proactive primary care providers that offer testing to their patients (7)
Discomfort	
<ul style="list-style-type: none"> ● Discomfort talking about sexual practices and offering HIV tests (2,5,7,9,11) ● Worry about possibility of false positive and responsibility (1,12) 	<ul style="list-style-type: none"> ● Good rapport with patient (2)
Lack of knowledge	
<ul style="list-style-type: none"> ● Lack of HIV-specific training during professional training (2,6,7,9) ● Confusion/unaware of laws and federal guidelines (6,8) ● Different definitions of routine testing (7) ● Nurses forgetting to implement the HIV screening program (6) ● Lack of knowledge regarding reimbursement rates, costs, and how to be reimbursed (2,8) ● Provider cultural/linguistic competency (7) 	<ul style="list-style-type: none"> ● HIV-related care training: “the majority [of nurses] felt well trained in many aspects of HIV-related care” (6) ● Physician education (patient experiences, HIV prevalence, HIV screening recommendations) (2,11) ● Increase physician awareness of HIV prevalence in the communities where they practice (11)
Individual - patient	
Perception of risk	
<ul style="list-style-type: none"> ● Misconceptions about risks for HIV. Do not believe they are at risk despite risk behaviors (2,7,8,11) 	<ul style="list-style-type: none"> ● Patient concerned about STDs (2) ● Sexual orientation – indication of risk behaviors (2)
Attitudes	
<ul style="list-style-type: none"> ● Fear of positive results (2,7,11) ● Fear of needles/bloodwork (7,11) ● Concerns about confidentiality (5,7,11) ● Concerns about stigma (5,6,11) ● Patient refusal (6,11) ● HIV testing too expensive for patients (11) 	<ul style="list-style-type: none"> ● Comfort with provider (2) ● Patient interest and willingness to be tested (female and younger more receptive) (2,7,11) ● Patient requesting medication for sexual dysfunction prompts conversations (2) ● Relief after sharing sexual history (5)
Lack of education	
<ul style="list-style-type: none"> ● Low literacy and health literacy levels (2) ● Lack of education about HIV/AIDS (11) 	<ul style="list-style-type: none"> ● Educate patients about HIV risk (11)

Note. STD = sexually transmitted disease; numbers in parentheses correspond to the studies that demonstrated the finding (see Table 2).

Source: Tan & Black, 2018.

APPENDIX D
STATEMENT OF AGREEMENT

Statement of Mutual Agreement
University of Northern Colorado
Doctorate of Nursing Practice Capstone Project
Jennifer Berry
January 15, 2019

The purpose of the "Statement of Mutual Agreement" is to describe the shared view between University of Northern Colorado and Jennifer Berry, DNP Candidate from University of Northern Colorado, concerning their proposed capstone project.

Proposed Project Title: Human immunodeficiency virus screening: Knowledge, attitudes, perceived norms, and control beliefs of Advanced Practice Registered Nurses in Colorado

Brief Description of Proposed Project: The purpose of this project is to assess the knowledge, attitudes, perceived norms, and control beliefs of APRNs in Colorado to increase routine HIV screening. Assessment will take place via an online survey distributed via email and postcards sent via U.S. Postal Service.

Goal of Capstone Project: Through a survey, this project will identify differences among urban, rural, and frontier APRNs; their knowledge, skills, attitudes, subjective norms, and perceived behavioral controls; and the barriers and facilitators impacting screening of HIV. This data will be used in future interventions to decrease the rate of HIV and increase HIV screening.

Proposed On-site Activities: The university's role in the project is to provide technology via the use of Qualtrics (online survey software), email and use of SPSS for data analyzing.

Confidentiality of Patient Records: (If applicable) N/A

The designated Capstone Community/Agency member will agree to participate in the review and approval of the proposal and presentation of the final version of the project. He/she will attend (on campus or remotely) the meetings for both.

The DNP Capstone project will include a final report, an abstract, potential publication or oral presentation of the report. No personal identifiers will be included and all data will be reported in aggregate form. The author welcomes any comments or suggestions from the Agency, but reserves the right to publish findings and analysis according to professional standards and principles of academic freedom. For any work of a scholarly nature, the Author agrees to follow the Agency preferences in how it is to be named (or not) in the work.

Signature of DNP Student	1/15/19 Date
Signature of Research Advisor at University of Northern Colorado	Jan 15, 2019 Date
Signature of DNP Capstone Member	3-6-19 Date




APPENDIX E
PERMISSIONS

Jodi Sutherland PhD, RN, ACRN

Berry, Jennifer

Tue 8/7, 5:32 PM

jsuther1@binghamton.edu, sutherla@binghamton.edu; sutherla@binghamton.edu ✕

  Reply all | 

Hi,

I am a DNP student at the University of Northern Colorado. I recently came across your dissertation and article in AANP.

Can I have your permission to use the *Attitudes and perceived behavioral control toward HIV screening and the perceived social norms questionnaire* in a pre/post manner of education effectiveness of nurse practitioners in Colorado?




Also do you have a digital copy for use you could send to me?

Jennifer Berry

Jodi Sutherland <sutherla@binghamton.edu>

Today, 5:57 AM

Berry, Jennifer ✕

  Reply all | 

Jennifer,

I am pleased to receive your email. Congratulations to you on continuing your education, working towards a DNP, and that you have interest in this research topic!!

Please note: the items in the questionnaire were adapted from a survey created and developed by Goyal et al. (2013) and Mansell et al. (2011). You may use the adapted version used in my dissertation, but I suggest you also contact the original authors for their permission. I would reference all authors in your work and publications.

The questionnaire is printed in its full version in my dissertation.

If you are ever interested in collaborating on a project together would love to discuss with you.
All the best to you! Jodi

Jodi L. Sutherland, PhD, RN, ACRN

Clinical Assistant Professor

Decker School of Nursing

Office 303



Binghamton, NY 13902

email: sutherla@binghamton.edu

Berry, Jennifer

Today, 9:37 AM

greg.salinas@ceoutcomes.com ✉

 [Reply all](#) | 

Hi,

I am a student at the University of Northern Colorado. I am completing my DNP project on knowledge, skills and attitudes towards HIV screening in Nurse Practitioners in Colorado.

Can I have your permission to use the survey you developed for Attitudes Toward Management of Decreased Sexual Desire in Premenopausal Women: A National Survey of Nurse Practitioners and Physician Assistants (Mansell, Salinas, Sanchez, & Abdolrasulnia, 2011).?

I will be utilizing the *Attitudes and perceived behavioral control toward HIV screening and the perceived social norms questionnaire* adapted by Sutherland (2017), which was based on your original survey.

Do you have a digital copy of this survey? I cannot access it online.

Thank you,

Jennifer Berry

Greg Salinas PhD

Not a problem at all. Please see attached. Just reference the original paper (and probably Ajzen as well). Let me know if you have any questions!

Greg



Greg Salinas, PhD

President

CE Outcomes, LLC

Ph: 205.259.1079 Fx: 205.776.2570

greg.salinas@ceoutcomes.com

www.ceoutcomes.com

Twitter: @OutcomesGreg

APPENDIX F

**ATTITUDES AND PERCEIVED BEHAVIORAL
CONTROL TOWARD HIV SCREENING AND
THE PERCEIVED SOCIAL NORMS
QUESTIONNAIRE**

Attitudes and Perceived Behavioral Control toward HIV Screening and the Perceived Social Norms Questionnaire

Thank you for your interest in this questionnaire. By participating, you will help me understand current practices and attitudes, social norms, and perceived behavioral control towards HIV screening among Nurse Practitioners. None of your answers will be linked back to your identity. Participation is voluntary and will not affect you in any way. By answering the questions, consent to participate will be implied. Additionally, as a token of appreciation, you may provide your email and you will be entered into a raffle to win an iPad mini®.

I thank you again for your time and your interest.

Nurse Practitioner's HIV Screening Survey

Please circle a response for each item.

During a typical patient visit in your setting, how important do you think it is to do each of the following:

	Not at all important	Not important	Neutral/ no opinion	Important	Very Important
1. Take a patient's medical history	1	2	3	4	5
2. Check the patient's vital signs	1	2	3	4	5
3. Check the patient's height/weight	1	2	3	4	5
4. Offer routine HIV screening	1	2	3	4	5
5. Assess the patient for substance use	1	2	3	4	5
6. Assess for violence in the patient's life	1	2	3	4	5

The following questions relate to HIV screening and consent (True or False).

7. Per the Centers for Disease Control and Prevention (CDC), HIV screening is recommended for all persons 13-64 years of age who access care in public and private sectors, including emergency rooms, urgent care clinics, inpatient services, substance abuse treatment clinics, public health clinics, community clinics, correctional health-care facilities, and primary care settings.

True False Don't know

8. Per the CDC, written consent is required for HIV testing.

True False Don't know

9. Per the CDC, only individuals at increased risk should be tested for HIV.

True False Don't know

TURN PAGE OVER TO CONTINUE QUESTIONNAIRE

According to the CDC, **high risk patients** include all of the following:

- Injection-drug users and their sex partners
- Persons who exchange sex for money or drugs
- Sex partners of HIV-infected persons
- Men who have sex with men
- Heterosexual persons who themselves or whose sex partners have had more than one sex partner since their most recent HIV test

10. How often does the CDC recommend HIV screening in **high-risk patients**?

- At least every 3 months
- At least annually
- At least every 2 years
- At least every 5 years
- I do not know

How often do you offer HIV screening to your patients in the following scenarios?

	None of the time	Some of the time	Half of the time	Most of the time	All of the time
11. During acute care visits?	1	2	3	4	5
12. During routine/health visits?	1	2	3	4	5
13. During initial evaluations of new patients?	1	2	3	4	5
14. To all patients regardless of risk behaviors?	1	2	3	4	5
15. If patients request an HIV test?	1	2	3	4	5
16. If patients report symptoms suggestive of a sexually transmitted infection during their visit?	1	2	3	4	5
17. If there is a clinical suspicion for HIV or AIDS?	1	2	3	4	5
18. For patients presenting for a suspected sexual assault?	1	2	3	4	5
19. For persons who report any recent unprotected sexual intercourse?	1	2	3	4	5

QUESTIONNAIRE CONTINUES ON NEXT PAGE

Please indicate your level of agreement for the following statements.

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
20. Nurse Practitioners have a responsibility to offer routine HIV screening to patients 13- 64 years of age.	1	2	3	4	5
21. I believe offering HIV screening to all persons 13-64 years of age, regardless of risk, will improve the health of the community my practice serves.	1	2	3	4	5
22. I believe offering routine HIV screening to all patients regardless of risk will benefit my patients.	1	2	3	4	5
23. I believe offering routine HIV testing to all patients regardless of risk will decrease my ability to meet my patients other medical needs.	1	2	3	4	5
24. I am uncomfortable discussing high-risk behaviors with my patients.	1	2	3	4	5
25. I am uncomfortable discussing HIV screening with my patients.	1	2	3	4	5
26. I believe that I can identify which patients 13-64 years of age are at highest risk for HIV, therefore I can decide which patients should be screened for HIV.	1	2	3	4	5
27. I believe consent from a parent/guardian should be obtained prior to screening for HIV in a person <18 years of age.	1	2	3	4	5
28. I believe consent should be obtained prior to screening for HIV in a person >18 years of age.	1	2	3	4	5
29. Youth (young people 13-24 years of age) and older Americans (Americans 50 years of age and older) represent a high-risk population for HIV.	1	2	3	4	5

TURN PAGE OVER TO CONTINUE QUESTIONNAIRE

In September 2006, the CDC revised HIV testing guidelines to recommend routine HIV testing of all Americans, age 13-64, regardless of risk at least once except in areas with documented HIV prevalence <0.1%. They recommend that written consent for testing should not be required, and that high risk individuals should be tested annually.

30. How much do you agree with these recommendations?

- Strongly disagree
 Disagree
 Neither agree or disagree
 Agree
 Strongly agree

In April 2013, the U.S. Preventative Services Task Force recommended that clinicians screen for HIV infection in adolescents and adults ages 15 to 65 years. Younger adolescents and older adults who are at increased risk should also be screened.

31. How much do you agree with these recommendations?

- Strongly disagree
 Disagree
 Neither agree or disagree
 Agree
 Strongly agree

In July 2013, a *Coverage Guide for HIV Testing* was issued (due to support of HIV testing and the Affordable Care Act) to guide reimbursement of HIV testing by various payers of health care.

32. How much do you agree with the coverage and reimbursement guide?

- Strongly disagree
 Disagree
 Neither agree or disagree
 Agree
 Strongly agree

Please rate how much you agree or disagree with the following statements.

- Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

33. I feel confident in my knowledge of the indications and procedures for HIV screening in patients age 13-64.	1	2	3	4	5
34. HIV screening for patients age 13-64 is a cost-effective measure.	1	2	3	4	5
35. Screening for HIV is too time-consuming.	1	2	3	4	5

QUESTIONNAIRE CONTINUES ON NEXT PAGE

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
36. Pre-test counseling significantly lengthens the time required to screen for HIV.	1	2	3	4	5
37. Post-test counseling significantly lengthens the time required to screen for HIV, irrespective of the test results.	1	2	3	4	5
38. I am hesitant to screen for HIV because a positive HIV test result would require too much time for me to address in a visit.	1	2	3	4	5
39. If point-of-care or rapid HIV testing were available in my practice setting, I would be more likely to offer HIV screening for patients age 13-64.	1	2	3	4	5
40. I would prefer to offer HIV screening to more patients age 13-64 but feel I have limited resources available.	1	2	3	4	5
41. I would be more likely to offer HIV screening to patients age 13-64 if a dedicated health educator or HIV testing counselor were available.	1	2	3	4	5
42. It is difficult to discretely screen patients age 13-64 when accompanied by a guardian/friend/spouse/caretaker or third party person.	1	2	3	4	5
43. I feel uncomfortable offering HIV screening to patients because I'm concerned about maintaining confidentiality when billing for the service.	1	2	3	4	5
44. It is difficult to ensure appropriate follow-up to patients for their HIV test results.	1	2	3	4	5
45. I feel uncomfortable delivering HIV test results to patients.	1	2	3	4	5
46. I do not know where to refer patients with a positive HIV test.	1	2	3	4	5

TURN PAGE OVER TO CONTINUE QUESTIONNAIRE

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
47. I feel uncomfortable screening for HIV due to my religious, spiritual or cultural beliefs.	1	2	3	4	5
48. Lack of or low reimbursement for HIV testing prevents me from screening my patients.	1	2	3	4	5
49. I have insufficient skills/training in regards to HIV to have discussions about HIV screening with my patients.	1	2	3	4	5
50. Lack of staffing is an obstacle to adopting routine HIV screening for my clinic.	1	2	3	4	5

How strongly do you agree or disagree that the following tools/aids/assistance would make it easier to adopt routine HIV testing in your practice setting.

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
51. Staff training and on-call support for HIV testing in your office/practice	1	2	3	4	5
52. Telemedicine services to exchange HIV related information	1	2	3	4	5
53. Information about where to refer patients with high-risk behaviors	1	2	3	4	5
54. Availability of appropriate patient education materials related to HIV (posters, handouts, videos, websites, etc.)	1	2	3	4	5
55. Training in how to conduct confidential sexual health assessment and education discussions with patients	1	2	3	4	5
56. Information about state and local consent, reporting, and counseling requirements for HIV testing	1	2	3	4	5
57. Consultation regarding how to incorporate routine testing into the flow of your busy practice	1	2	3	4	5
58. Information about which HIV tests are available to you and when and how to order the appropriate test	1	2	3	4	5
59. Other (please specify)					

QUESTIONNAIRE CONTINUES ON NEXT PAGE

page 6 of 11

Please indicate your level of agreement to the following statement.

	Strongly disagree	Disagree	Neither agree or	Agree	Strongly agree
60. During the next year, I intend to increase offering routine HIV screening to patients age 13-64 regardless of their risk.	1	2	3	4	5

61. What percentage of patients 13-64 years of age would you estimate you have tested for HIV within the last year?

- 0%
- 1- 5%
- 6- 25%
- 26- 50%
- 51- 75%
- > 75%

Nurse Practitioners' Perceived Social Norms toward HIV Screening Survey

Please circle a response for each item.

For your practice, rate each person's approval of your routine HIV screening of patients (age 13-64).

	Strongly Disapprove					Strongly approve	Not applicable
1. Administration	1	2	3	4	5	6	0
2. Physicians	1	2	3	4	5	6	0
3. If required, collaborating physician	1	2	3	4	5	6	0
4. Nurse Practitioners	1	2	3	4	5	6	0
5. Physician Assistants	1	2	3	4	5	6	0
6. Nurses and Medical Assistants	1	2	3	4	5	6	0
7. Front Desk Staff	1	2	3	4	5	6	0
8. Laboratory Staff	1	2	3	4	5	6	0
9. Social Worker	1	2	3	4	5	6	0
10. Patients	1	2	3	4	5	6	0
11. Guardians/Friend/Spouse/Third Party Person	1	2	3	4	5	6	0
12. State Law	1	2	3	4	5	6	0

TURN PAGE OVER TO CONTINUE QUESTIONNAIRE

4. In what location is your main clinical practice?

- Emergency Department
 Urgent Care Clinic
 Inpatient Services
 Substance Abuse Treatment Clinics
 Public Health Clinic
 Community Clinic
 Correctional Health-Care Facility
 Primary Care Setting
 Other, Specify _____

5. In what setting is your main clinical practice? (Check all that apply)

- University-based
 Private practice
 HIV medicine clinic
 Public
 VA affiliated
 Faith-based
 Other, Specify _____

6. What percent of your patients are 13-64 years old?

- 0%
 1-10%
 11-25%
 26-50%
 51-75%
 >75%

7. In the fields below, please estimate the insurance status breakdown of your patients (must equal 100%)

% private _____
 % Medicaid _____
 % Uninsured _____
 Total % _____ (Please be sure this total equals 100%)

8. In the fields below, please estimate the race/ethnicity distribution of your patients (must equal 100%).

% Non-Hispanic White/Caucasian _____
 % Non-Hispanic Black/African American _____
 % Hispanic _____
 % Other _____
 % Unknown _____
 Total % _____ (Please be sure this total equals 100%)

TURN PAGE OVER TO CONTINUE QUESTIONNAIRE

page 9 of 11

9. I estimate the percent of my patient encounters that are conducted in a language OTHER THAN English each week to be:

- <5%
- 6-25%
- 26-50%
- 51-75%
- 76-100%

10. I estimate the prevalence of HIV-infection in the population my clinic serves is:

- <0.1%
- 0.1%- 0.9%
- 1.0%- 4.9%
- 5.0%- 10%
- > 10%

11. How many years of experience do you have?

- less than 1 year
- 1-5 years
- 5-10 years
- 10-20 years
- 20 years or more

12. What is your gender?

- Male
- Female

13. What is your ethnicity?

- Hispanic or Latino
- Not Hispanic or Latino
- Multi-ethnic
- Other (please specify) _____

14. What is your race?

- American Indian or Alaskan Native
- Asian
- Black or African American
- Multi-racial
- Native Hawaiian or Other Pacific Islander
- White
- Other (please specify) _____

QUESTIONNAIRE CONTINUES ON NEXT PAGE

page 10 of 11

15. What is your age in years?

- 18-29 years old
 30-39 years old
 40-49 years old
 50-59 years old
 60-69 years old
 70 or older

16. What zip code and state do you practice in?

_____ zip code
 _____ practice state

17. What type of community is your practice located in?

- Rural (< 20,000)
 Suburban (20,000- 50,000)
 Urban (> 50,000)

18. How much do you agree that the CDC recommendations for routine HIV screening should include all patients, age 13-75, regardless of risk at least once?

- Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

19. During the next year, I intend to increase offering routine HIV screening to patients age 13-75 regardless of their risk.

- Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

THANK YOU SO MUCH FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE!

Is there anything else you would like to tell us? If so, please write it below. Thank you again.

Please return questionnaire in the postage paid, addressed envelope provided by December 1, 2014.

Jodi L. Sutherland, RN MS
 Decker School of Nursing
 Binghamton University
 P.O. Box 6000
 Binghamton, New York 13902
 607-777-3003; jsuther1@binghamton.edu

By giving your email below, you will be entered into a raffle to win one iPad mini®. Your email address will not be linked to your responses. Drawing to take place on December 15, 2014.

email:

END OF QUESTIONNAIRE

page 11 of 11

APPENDIX G
INSTITUTIONAL REVIEW BOARD APPROVAL



Institutional Review Board

DATE: February 6, 2019

TO: Jennifer Berry, BSN

FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [1212585-2] HIV screening: Knowledge, attitudes, perceived norms and control beliefs of Advanced Practice Registered Nurses in Colorado

SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVAL/VERIFICATION OF EXEMPT STATUS

DECISION DATE: January 14, 2019

EXPIRATION DATE: January 14, 2023

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

Thank you for making the requested modifications and amendments. Please be sure to implement these changes in your participant recruitment and data collection.

Best wishes with your research and don't hesitate to contact me with any IRB-related questions or concerns.

Sincerely,

Dr. Megan Stellino, UNC IRB Co-Chair

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Nicole Morse at 970-351-1910 or nicole.morse@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.

APPENDIX H
CONSENT FORM FOR HUMAN PARTICIPATION
IN RESEARCH

CONSENT FORM FOR HUMAN PARTICIPATION IN RESEARCH

University of Northern Colorado

INFORMED CONSENT-NO SIGNATURE DOCUMENT

Project Title: HIV screening: Knowledge, attitudes, perceived norms and control beliefs of Advanced Practice Registered Nurses in Colorado

Student Researcher: Jennifer Berry RN, BSN, DNP-student

Research Advisor: Kathleen N. Dunemn PhD, APRN, CNM, School of Nursing

Co-Research Advisor: Darcy Copeland PhD, RN, School of Nursing

Committee Member: Martha Levine PhD, RNC-OB, C-EFM

Purpose: The purpose of this project is to increase the knowledge base to address the barriers preventing routine screening of HIV. The project will consist of a statewide survey to assess the knowledge, attitudes, perceived norms and control beliefs of Advanced Practice Registered Nurses (APRN). A statewide assessment is important in the state of Colorado because APRNs are the primary providers in many rural and frontier areas. Assessment of the barriers will lead to interventions to decrease these barriers, which will lead to routine screening of HIV.

Objective: This project sets to identify differences between urban, rural and frontier Advanced Practice Registered Nurses barriers due to knowledge, attitudes, perceived norms and control beliefs in the screening of HIV.

All responses will be kept confidential and anonymous on a password protected computer and an internet based resource called Qualtrics. There are no anticipated risks by participation in this survey. If you complete the survey, it will be assumed that you have communicated consent for your participation. You may keep this form for future reference.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact the Office of Research, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

If you know additional persons who would be interested in the survey, please pass this along to them.

Please click the following link for access to the survey:

HIV screening: Knowledge, attitudes, perceived norms and control beliefs of Advanced Practice Registered Nurses in Colorado
https://unco.co1.qualtrics.com/jfe/form/SV_0Hena5peShCSQV7

Committee Contact information:

Student Researcher: Jennifer Berry RN, BSN, DNP-student

Email: berry3669@bears.unco.edu

Research Advisor: Kathleen N. Dunemn, PhD, APRN, CNM, School of Nursing

Email: Kathleen.dunemn@unco.edu

Phone: (803)409-8391/ (303)325-5295

Co-Research Advisor: Darcy Copeland PhD, RN, School of Nursing

Email: Darcy.Copeland@unco.edu

Phone: (970)351-1930

Committee Member: Martha Shaw Levine, PhD, RNC-OB, C-EFM, School of Nursing

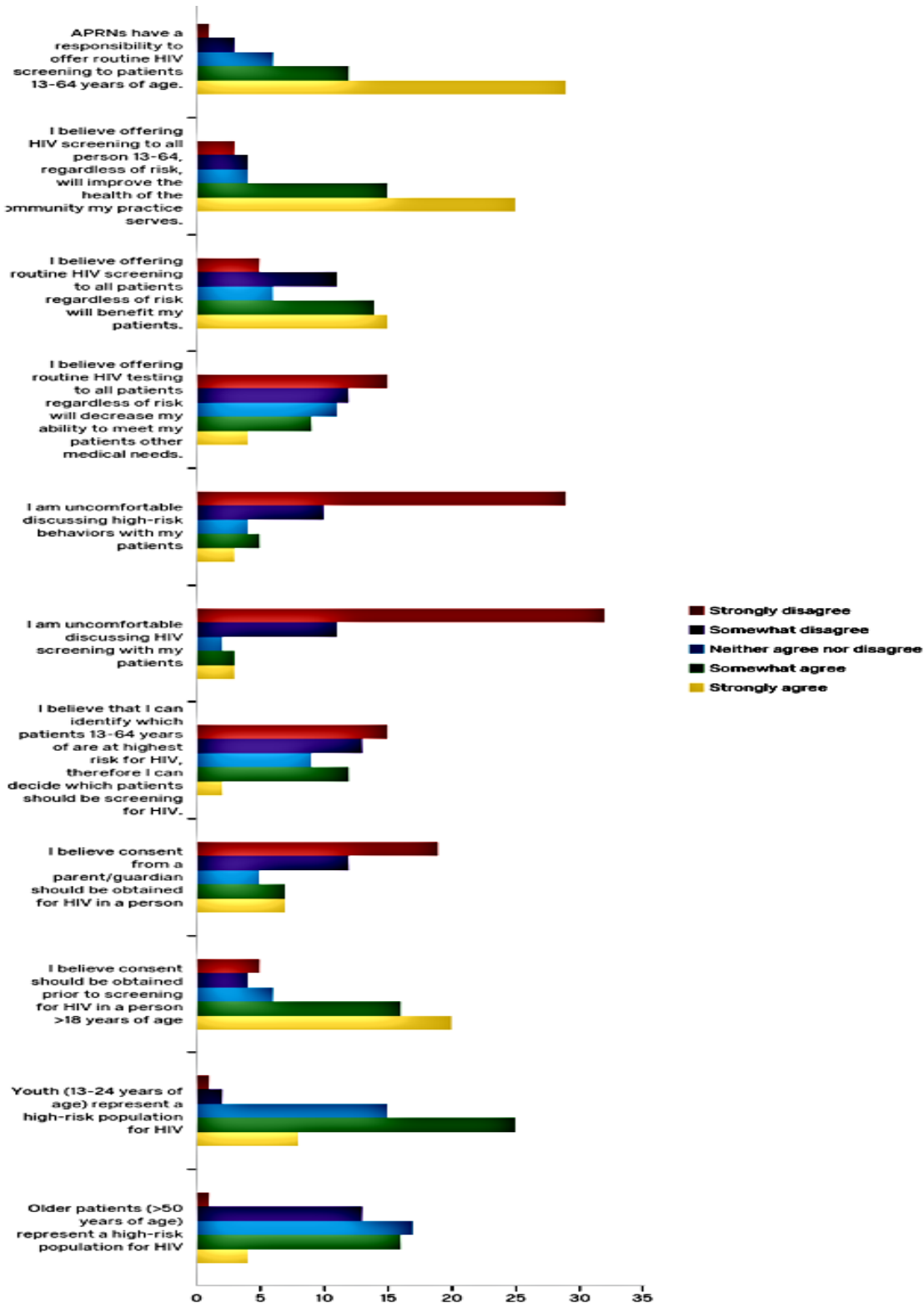
Email: martha.levine@unco.edu

Phone: 970-351-1690

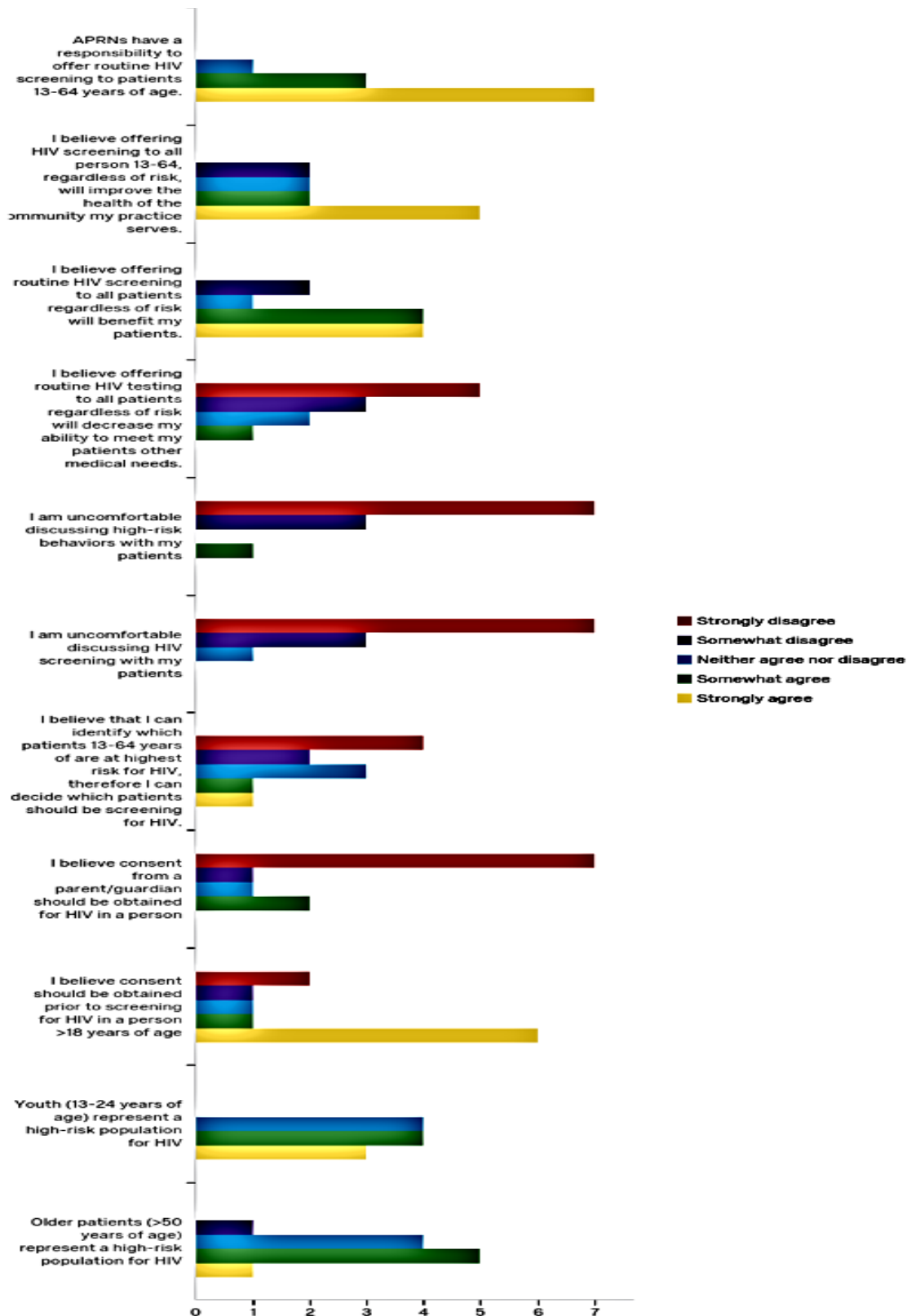
APPENDIX I

**LEVEL OF AGREEMENT OF URBAN AND RURAL
ADVANCED PRACTICE REGISTERED NURSES
TO ATTITUDE STATEMENTS**

Urban >50,000



Rural <50,000



APPENDIX J

**LEVEL OF AGREEMENT OF URBAN AND RURAL
ADVANCED PRACTICE REGISTERED NURSES
TO FACILITATOR STATEMENTS**

