The Development, Implementation, and Evaluation of a Transgender Health Resource Bundle

Lovejeet Kaur
lkaur@usfca.edu

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The Development, Implementation, and Evaluation of a Transgender Health Resource Bundle

Lovejeet Kaur

University of San Francisco

DNP Project

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The Development, Implementation, and Evaluation of a Transgender Health Resource Bundle

Abstract

Transgender populations experience disproportionate social and health disparities that can negatively impact quality of life. Healthcare barriers due to gender based discrimination and lack of medical insurance and culturally competent providers contribute to low levels of access to preventative health care screenings, resulting in sub-optimal health outcomes. The unique health circumstances of transgender individuals have been understudied in the literature. As a result clinicians are often under-informed of their specific health maintenance needs and screening guidelines. To help address this disparity, a Doctor of Nursing Practice (DNP) student at the University of San Francisco facilitated the collaborative assessment, development, implementation, and evaluation of a transgender health screening/health maintenance resource bundle at a federally funded community health center in San Francisco, California. The project met its objectives in increasing health provider knowledge regarding transgender health maintenance and in demonstrating its usefulness to the clinic.

Key words: transgender health, trans men, trans women
Section II: Introduction

Background Knowledge

‘Transgender’ broadly encompasses a diverse group of individuals whose self-identified gender (‘gender identity’), behaviors, and physical body characteristics (‘gender expression’) deviate from culturally assigned birth sex (The World Professional Association for Transgender Health [WPATH], 2012). Manifestations exist on a continuum, inclusive of male-to-female (trans women) and female-to-male (trans men) identities. Transgender individuals may choose to live as their identified sex without medical interventions or opt for transition with hormonal therapy and body modifications to physically appear more concordant with the preferred gender identity (Unger, 2014; Davis & Meier, 2014).

Lived experiences create unique population health needs for transgender individuals, ones that have historically been underserved due to long-standing societal marginalization (Shires & Jaffee, 2015). A disproportionate number of transgender individuals experience health and social disparities that encompass economic hardship, mental illness, partner violence, illicit substance use, poverty/homelessness, and high-risk sexual behaviors (Herbst et al., 2008). A meta-analysis of 29 studies estimates the US national HIV prevalence among trans women to be 27.7%. Among newly diagnosed transgender individuals, 50% report depression, substance abuse, incarceration, economic discrimination, unstable housing, commercial sex work, and/or sexual abuse as contributing factors (Rebacks & Fletcher, 2014).

To further compound these issues, transgender individuals face barriers when seeking health services, including lack of access to medical insurance and to providers experienced in transgender care. National surveys estimate that only 30-40% of transgender individuals in the United States seek routine medical care (Sanchez, Sanchez, & Danoff, 2009). Even with health
insurance, individuals may experience obstacles, as a majority of US health insurance plans do not provide adequate coverage for gender affirmation surgeries, placing a financial burden ranging from $3,000 to $100,000 on those seeking care (True, 2012; Unger, 2014). Consequences of denied or inadequate interventions are steep. Approximately 54% of transgender individuals attempt suicide and 21% self-mutilate (Ray, 2006). Additionally, more than 50% of transgender individuals inject hormones obtained illegally and used outside of closely monitored medical settings; in doing so, these individuals run the dangerous risk of suffering from adverse effects such as the development of deep vein thrombosis, pulmonary emboli, myocardial infarction and/or stroke (Ray, 2006; Unger 2014). Additional factors contributing to fragmentation in care include lack of client knowledge regarding recommended routine health exams and client reluctance to disclose gender identity (Tanner et al., 2014).

Federal preventative health initiatives, as highlighted by Healthy People 2020 and the Institute of Medicine [IOM] in 2011, suggest the need to improve the health and safety of LGBT individuals by establishing culturally competent health centers, improving patient to provider interaction, encouraging routine use of care, disseminating effective HIV/STD treatment strategies, and expanding health insurance coverage (IOM, 2011). WPATH, an international professional association that promotes evidence based research, education, public policy and care for transgender individuals, advocates for health care professionals to become knowledgeable about the health care needs of transgender individuals and provide gender-affirming care to help address current disparities (WPATH, 2012). Identifying and addressing health risk factors is an important aspect of health care for all patients, including transgender individuals. Regular health maintenance reviews allow clinicians to assess for and address potential areas of concern. The benefits of addressing health disparities and utilizing preventative services, particularly in
vulnerable populations, have been well correlated with decreased rates of disease transmission and progression, reduced health care costs, and improved health outcomes (Sanchez et al., 2009). Negatively impacted health seeking behaviors, on the other hand, have been associated with increased incidence of psychiatric disorders such as depression, suicide/suicidal ideation, and substance use disorder (Redfern & Sinclair, 2014).

Unfortunately, a review of the literature highlights a lack of substantive level-1 evidence to inform clinicians of the specific health maintenance needs of transgender individuals. Key research has focused more so on gender identity development and estimated prevalence, quality of life following hormonal and gender affirmation surgeries, HIV risk and resilience factors, and interventions to address substance use (Arcelus et al., 2015; Murad, Elamin, & Garcia, 2010; Herbst et al., 2008). The results of a handful of cohort and mixed methods studies that have focused on the transgender community needs may not present with results generalizable to the larger population due to methodological limitations. Nonetheless, they provide valuable insight about current aspects of care important to these communities. For example, mixed methods studies have illustrated that the health care needs perceived most by transgender individuals include need of access to hormones, surgery, and health care providers competent in transgender care, mental health services, and sexual health information that is specific to their changing bodies (Reisner et al., 2013; Roberts & Fantz, 2014).

**Local Problem**

As a part of the Family Nurse Practitioner (FNP) Program, the DNP student completed her preceptorship at a federally qualified community health center in San Francisco, California. The medical director and nurse practitioners of this organization frequently manage medically fragile and complex cases, noting that a city wide referral system to surrounding hospitals allow
easy access to standardized protocols and ancillary services. One exception to this process appeared in regards to transgender clients. A discussion and needs assessment conducted with health care providers highlighted gaps in knowledge regarding the health needs of transgender individuals, particularly those receiving hormone therapies or undergoing gender affirming surgeries. Transgender clients make up a smaller portion of the population matrix seen at the health center, but are found often to be equally medically complex due to existing comorbidities and behavioral risk factors. Clinicians also voiced their discomfort prescribing certain medications when clients were on varying dosages of hormone therapy. Clinicians were referencing multiple different guidelines (some standardized, some not) online when managing care for transgender clients. They speculated that the gaps in knowledge were likely due to infrequent exposure and lack of current protocol for transgender specific care at the community center. This is not surprising as health care providers often cite a general lack of guidance in understanding the frequency of cancer screenings recommended for this specialized population (Addis, Davies, Greene, MacBride-Stewart, & Shepherd, 2009).

With expanding coverage provided by the Affordable Care Act (ACA) transgender clients increasingly seek transgender specific care services or referrals from their primary health community centers. Transgender communities are at high risk for several physical and mental health disparities and stand to benefit greatly from primary care interventions and health screenings. This project sought to create urgency for change by highlighting this and the current lack of protocol or resource at the health center. As a federally qualified health center, the organization had the opportunity to utilize its resources to expand and advertise its primary care, mental health and supportive services for transgender individuals in San Francisco seeking comprehensive primary healthcare services (U.S. Department of Health & Human Services
[DHHS], 2015). Key team members (nurse practitioners [NPs], physicians, medical assistants, registered nurses, and social worker) voiced their positive regard for a standardized evidence-based resource bundle that can be quickly referenced and shared with their clients during busy clinic hours.

**Intended Improvement/Purpose of Change**

**AIM Statement**

Effectively the aim of this project was to collaboratively construct, implement, and evaluate a transgender health screening/health maintenance educational resource bundle for clinicians providing care to transgender populations at a federally funded community health center in San Francisco, California. Incentives via Healthy People 2020, IOM 2011 report, and WPATH 2012 guidelines have illustrated overarching goals to decrease health disparities in transgender populations by increasing access to health services. Providing education and evidence-based resources regarding recommended transgender health screenings and health behaviors to health care providers would serve to increase the organization’s cultural competency. This may have a positive effect on clients who may be encouraged to access these services more routinely. Routine access to care would reduce health care costs (associated with emergency room visits for example) and mortality rates in a vulnerable population disproportionately affected by health and social disparities.

The project’s timeline encompassed a period of seven months from April 1 to October 31, 2016. Teaching interventions were geared toward clinicians who would then utilize the resource bundle to assess and provide culturally competent care for transgender clients seeking primary care services. To assess baseline knowledge, health care providers at the center would be asked to provide feedback on a number of questions (in the aggregate) regarding their knowledge
of what health screenings are important to understand their perceived gaps in knowledge regarding the health needs of transgender clients. After analyzing these data, an evidence based resource bundle (an informational brochure, algorithms, and a digital recording of the DNP’s voice to guide the utilization of the resource bundle materials) was to be developed in collaboration with the stakeholders in the clinic. Teaching regarding the bundle was done in phases: the first was to address the literature regarding recommended transgender health screenings and was compiled into an informational brochure, the second was to review and evaluate the algorithm, and the third was to review the bundle in its entirety. The clinicians were evaluated on their level of knowledge by providing feedback on a number of questions (in the aggregate) before the teachings, immediately after the education had been completed, and two months post implementation. Clinicians were also asked to rate their perceived usefulness of the tool and provide written feedback prior to planned standardization, immediately post implementation, and two months post implementation.

Once implemented, the clinicians will be utilizing the bundle to actively screen and address the health promotion/health maintenance needs of their transgender clients.

The measurable objectives of this project were the following:

1.) by July 31, 2016, 90% of all health care providers involved will indicate increased levels of understanding regarding health maintenance screenings specific for transgender individuals;

2.) by September 30, 2016, at least 70% of health care providers will indicate overall usefulness of resource bundle (rated 7 or above of Likert scale); and

3.) by October 30, 2016, the resource bundle will be utilized 100% of the time when the provider is caring for a transgender client seeking primary care services.
Review of the Evidence

Methodology

Search Methods

The systematic search of available studies was carried out in the following databases: CINAHL, Cochrane, PubMed, and Web of Science databases, accessed through the University of San Francisco. The keywords used were transgender, transgender health, transgender men, transgender female, and transgender primary care. The date range of articles accessed was January 2005 to September 2016.

Inclusion and Exclusion Criteria

Studies that met the specific criteria included: systematic reviews with meta-analyses, mixed-method, and qualitative studies, published in peer review journals that focus on or include transgender individuals in sample sizes. Studies that did not meet the criteria were excluded.

Characteristics of Studies

Thirty-seven studies were chosen for topic information once screened against inclusion and exclusion criteria. Of 37, fifteen studies specific to various aspects of transgender primary health care and of sufficient quality were used for appraisal (Appendix A, Table 1). Appraised articles included four systematic reviews (two with meta-analyses), five mixed-method studies, five retrospective studies, and one descriptive qualitative study.

Quality Assessment

The John Hopkins Nursing Evidence Based Practice appraisal tools were used to evaluate the strength and quality of literature. Each study was appraised using the appropriate tool and assigned a grade level (I-V) and quality rating (high, good, or low) (John Hopkins, 2012). The appraisal tools evaluated aims/objectives, methodology, sample recruitment strategies, data
analysis processes, clear statement of findings, and replicability of the work (see Appendix A, Literature Review).

**Transition via Hormonal Therapy and Gender Affirmation Surgeries**

Individuals who are evaluated for gender dysphoria may opt to medically transition via hormone and gender affirmation surgeries (Davis & Meier, 2014). The main objective of hormone therapy is to suppress natal sex characteristics while inducing those of the desired sex. Hormone therapy for trans men primarily tailors the use of the androgen testosterone (WPATH, 2012). Physical effects accompanying testosterone treatment include increased muscle mass, voice deepening, growth of facial and body hair, weight gain, possible cessation of menses, and clitoral enlargement (WPATH, 2012; Davis & Meier, 2014). Emotional effects, such as increased energy and libido, have also been well documented (Hembree, Cohen-Kettenis, & Delemarre-van de Waal, 2009). Non-testosterone hormonal therapy may be an objective for individuals seeking to further reduce or eliminate menses (via progesterone) or prevent the onset of pubertal changes in adolescence (via gonadotrophin releasing hormone agonists) (Gorton, Buth, & Spade, 2005). For trans women, feminizing hormonal therapy includes a combination of anti-androgens and estrogens (Estradiol). Estrogen helps induce breast tissue growth, weight gain, and re-distribution of fat mass. Effects of long-term therapy include decreased libido, decreased skin oiliness and facial/body hair, and testicular atrophy (Hembree et al., 2009).

Once initiated, the Endocrine Society guidelines for the maintenance of hormonal therapy include evaluations every three months for the first year and bi-annually thereafter (Hembree et al., 2009). These visits provide the clinician the opportunity to assess for appropriate signs of feminization or masculinization, monitor for adverse reactions, and obtain bloodwork to determine serum levels of testosterone and estradiol (Unger, 2014). Additional serum testing,
such as prolactin, complete blood counts and liver function tests, are indicated prior to starting therapy and, thereafter, every three months for the first year. For the years following, recommendations indicate bi-annual monitoring for metabolic alterations (Hembree et al., 2009; Unger, 2014; WPATH, 2012). Documented side effects of hormone therapy include risk of worsened depression, suicidal ideation, and mood swings. Physiologically, the therapies may contribute to elevated prolactin and liver enzymes, migraines, and decreased insulin sensitivity (Davis & Meier, 2014; Unger, 2014).

A meta-analysis of 28 observational studies investigating the impact of hormone use in transgender individuals, noted 80% of patients reported significant improvement in gender dysphoria and improvement in quality of life, 78% reported significant improvement in psychological symptoms, and 72% reported improved sexual function (Murad et al., 2010). Cross sex hormone therapy may confer the same risks associated with sex hormone replacement therapy in biological males and females (Davis & Meier, 2014). However, the efficacy of varying dosages and effects associated with long-term cross sex hormone therapy has not been well established in the literature (Hembree et al., 2009; Davis & Meier, 2014).

Surgical options for transgender clients are performed singularly or in combination. Per guideline qualifications, transgender individuals must have well documented gender dysphoria in addition to receiving hormone therapy for at least 12 months (WPATH, 2012). Surgical options for trans men include chest reconstruction (bilateral mastectomy), hysterectomy and oophorectomy, metoidioplasty, phalloplasty, scrotoplasty, urethroplasty and vaginectomy (WPATH, 2012). Surgical options for trans women include gonadectomy, penectomy, vaginoplasty (with clitroplasty and urthetroplasty), and breast augmentation (Hembree et al., 2009).
Trans men frequently request chest reconstruction surgery; as visible external anatomy of one’s natal sex, breasts may be viewed as a significant source of gender dysphoria (Davis & Meier, 2014; Maycock & Kennedy, 2013). A mixed-methods study that examined the impact of testosterone treatment and chest reconstruction on the mental health and perceived sexual function of 208 trans men reported positive results. In comparison to trans men who had received no treatment, individuals receiving testosterone therapy and undergoing chest reconstruction surgery expressed significantly fewer symptoms of anxiety (P<0.001), depression (p<0.001), and body dissatisfaction (p<0.001) (Davis & Meier, 2014). Unfortunately, as with all surgical procedures, chest reconstruction comes with potential risks. Chronic pain following mastectomy has been a cited concern in multiple studies assessing mastectomy-related surgical outcomes in cisgender women (Maycock & Kennedy, 2013). Though this may be a risk that many trans men are willing to take, the potential for post surgical pain (acute and chronic) and its impact on quality of life should be addressed with the provider.

For trans women, breast augmentation via implantation or silicone injections, is a frequently sought enhancement procedure. Generally trans women are advised to allow for optimal breast tissue growth with estrogen therapy (typically two years) prior to seeking surgical interventions. Following the procedures, these individuals should be monitored closely for complications such as poor wound healing, hematoma, infection, necrosis and/or chronic pain (Maycock & Kennedy, 2013). Some individuals may also seek to feminize appearance by injecting silicone oil into their breasts, hips, buttocks, thighs, lips, or face. This is a vital area of counseling for transgender individuals as in some cases industrial grade silicone has been reported to be used by unlicensed practitioners with minimal to absent sterile techniques (Maycock & Kennedy, 2013; Unger, 2014). The risks related to these practices can be substantial.
and include potential for local and systematic infection, embolization, and painful granuloma formations (Maycock & Kennedy, 2013).

A systematic review of 26 studies that analyzed post-surgical outcomes in trans women (neovaginal depth and width, sexual function, patient satisfaction, and quality of life), found vaginal stenosis/stricture to be the most common complication (33%). Overall, however, 70-82.4% of the study sample sizes indicated satisfaction with post-operative sexual function and 90-100% reiterated that the interventions improved their quality of life (Horbach et al., 2015). A retrospective study that assessed postoperative outcomes in trans women also conveyed overall satisfaction with retained erogenous sensitivity in 92.9% of patients. The most common adverse effect of surgery involved urinary dysfunction, with patients reporting difficulty initiating and controlling urine flow (20%) (Goddard, Vickery, & Qureshi, 2007).

Although data concerning overall postoperative outcomes in transgender individuals is lacking, post-operative care to both the constructed organs and to the grafted sites should be routinely reviewed with the individuals during their health maintenance visits to ensure optimal healing and function. As with all surgical procedures, transgender patients are at risk for poor wound healing if there is no proper consultation post operatively.

**Primary Care Screening**

There are presently no level-1 evidence studies that target the unique transgender health maintenance needs. Current guidelines for transgender wellness are largely derived from evidence gathered for the general population and specified, with input from expert opinion, to fit transgender specific needs (Unger, 2014; Reisner, Gamarel, Dunham, Hopwood, & Hwahng, 2013). Generally, the research notes that care should be gender affirming and provided to the anatomy that is present, with attention paid to changes brought upon by hormones and surgical
procedures (Unger, 2014; WPATH 2012). Screening guidelines typically target organs systems that are likely to be affected by cross sex hormone therapy (Center of Excellence for Transgender Health, UCSF [Transhealth UCSF], 2015).

For transgender individuals with past or current hormone use, routine recommended reproductive screenings are based on extent of surgical transition. Specific reproductive cancer screenings for trans men include the breasts, cervix, ovaries, and uterus (Unger, 2014; WPATH 2012). Current guidelines emphasize the need for continued papanicolaou (PAP) smears for cervical cancer screening unless an individual has had a hysterectomy with three subsequent normal vaginal cuff Pap smears. (Saslow, Solomon, & Lawson, 2012). If the uterus/cervix remains intact, the American College of Obstetricians and Gynecologists (ACOG) and US Preventive Services Task Force (USPSTF) Grade A national guidelines indicate human papillomavirus (HPV) testing with cytology every three to five years for individuals aged 21-65 years. (U.S. Preventive Services Task Force [USPSTF], 2012). Very little data addresses the risk factors and screening recommendations for trans men who retain their ovaries and/or uterus. Long term androgen therapy may induce the development of polycystic ovarian syndrome- a known risk factor for endometrial cancer (Hembree et al., 2009). Though rare, ovarian cancer has been documented with insidious onset for trans men at earlier ages than in cisgender women (Gorton et al., 2005). Thus, endocrinologists recommend trans men consider hysterectomy and oophorectomy within five years of starting androgen therapy, especially if there is family history of cancer (Gorton et al., 2005; Hembree et al., 2009).

While gynecological care is necessary for individuals of all sexes, trans men retaining natal reproductive organs may be less likely to obtain preventative cervical cancer screenings due to lack of understanding or fear (Reisner et al., 2013; Peitzmeier, Khullar, Reisner, & Potter,
2014). An observational retrospective chart review study that analyzed recent Pap screen dates for 5,232 (4,882 cisgender women, 350 trans men) patients found that trans men had lower rates of access. Whereas 73.5% of cisgender females received screenings per recommended guidelines, only 64.3% of trans men had similar recorded frequencies. Positively associated factors included patient engagement, retained health insurance, and continuity of patient care at one health institution (Peitzmeier et al., 2014). In addition to the discomfort related to seeking reproductive services at women’s clinics, individuals may be apprehensive about genital examinations with new clinicians. (Reisner et al., 2013). Patient engagement and education is vital to not only promoting access to preventative services, but also in understanding barriers to care. Acknowledging and addressing the emotional and physical pain individuals may experience with this procedure is essential.

For trans women, reproductive cancer screenings target the testes, prostate and breasts (Reisner et al., 2013; Unger, 2014). Though incidence of benign prostate hyperplasia is rare with estrogen therapy as androgen deprivation, a few studies have reported instances in trans women who have been receiving estradiol for over 20 years (Wassersug & Gray, 2010). Current guidelines advise against routine digital rectal examination/prostate-specific antigen (PSA) serum testing due to high reported false positive rates and their insignificant impact on overall mortality rates. Individuals should consider PSA testing after weighing risks and benefits and if they have a life expectancy of ten years and greater (Wassersug & Gray, 2010).

Breast cancer risk may be lower in trans men status post chest reconstruction with continuous testosterone therapy as there is less breast tissue available for development of malignancy (Gorton et al., 2005; Davis & Meier, 2014). However, there is no consensus regarding indications for and frequency with which trans men should be screened for breast
cancer following chest reconstructive surgeries. The American Cancer Society and current federal guidelines indicate that the presence of breast tissue warrants continued clinical breast exams as no procedure or hormone therapy guarantees zero risk. (Maycock & Kennedy, 2013).

The literature is even less conclusive on suggestions for mammography specific for trans men who have undergone bilateral mastectomies. Federal guidelines suggest individuals retaining breast tissue should continue annual clinical breast exams and biannual mammography from ages 50-74 (USPSTF, 2009).

Trans women, on the other hand, may sustain extended exposure to estrogen. Though there is presently no conclusive data regarding rates or risks of carcinoma in correlation with estrogen therapy, most literature notes that breast cancers are largely estrogen receptive (Maycock & Kennedy, 2013; Unger, 2014). Thus, transgender women receiving hormonal estradiol should be counseled regarding the importance of performing regular self-breast exams and obtaining clinical breast exams and mammograms as indicated by standard guidelines (Unger, 2014).

Transgender screening recommendations for cardiovascular disease, metabolic syndrome, liver disease, osteoporosis, lung cancer, and vaccination recommendations have also been adapted from general public health studies. In both trans men and trans women, significantly elevated or depressed levels of testosterone or estrogen have been associated with decreased levels in HDL and increased levels of LDL, triglycerides and homocysteine (Gorton et al., 2005). These negative changes to lipid profiles may influence development of cardiovascular disease. Androgen suppression and estrogen substitution in trans women contributes to increases in visceral fat and accompanies increased triglyceride levels and hepatic dysfunction. Testosterone therapy for trans men decreases insulin sensitivity and promotes weight gain and re-distribution
of fat to the abdominal viscera - additional known cardiac risk factors (Hembree et al., 2009). However, the literature has not found conclusive data that directly correlates hormonal therapy to increased incidence of stroke, myocardial infarction or venous thromboembolism in transgender individuals (Meriggiola et al., 2008).

Current protocols for transgender individuals considering hormonal therapy within 12-36 months emphasize that they be screened for cardiac risk factors and lower systolic and diastolic blood pressures to below 130 and 90 mmHg (UCSF, 2015). After initiation of hormone therapy, individuals should have fasting lipid panels evaluated annually (Hembree et al., 2009). Maintenance visits should entail education on annual blood pressure monitoring, participation in risk reduction behaviors (low fat diet, reduction of excess weight, daily exercise, smoking cessation) and treatment for hypertension and hyperlipidemia as indicated (Gorton et al., 2005; USPSTF, 2015). In transgender individuals, even short term cross sex hormone therapy (continuing up to four months) has been associated with decreased insulin sensitivity and risk of liver injury (particularly with androgen therapy) (Hembree et al., 2009). Existing family history of diabetes mellitus may further impact this risk. Recommendations for diabetes mellitus and liver function screening under maintained hormone therapy encourage annual fasting glucose level and tolerance testing with hemoglobin A1C levels and liver function tests (Unger, 2014; Hembree et al., 2009).

Lung cancer screenings appear to be pertinent to this population, though specific smoking prevalence rates among transgender individuals are variable. Population based studies have found that gay/bi/trans males report smoking rates 30.7% higher than general populations. When examined, the evidence found that individuals were less informed about the associated risks and resources available to aid cessation (Addis, Davies, Greene, MacBride-Stewart, & Shepard,
A systematic review of 51 research articles that analyzed tobacco cessation clinical interventions geared toward LGBT persons found programs tailored to their community needs (socioeconomic, mental health) were most effective in encouraging cessation, with 45% abstinent rates reported after the seventh week. Individuals were most likely to engage in cessation habits with the use of inclusive screening forms and provision of culturally sensitive care (Lee, Matthews, McCullen, & Melvin, 2014; Reisner et al., 2013).

**Sexual Health**

Particular attention should be paid to sexual health needs as transgender individuals disproportionately experience increased sexually transmitted infection and human immunodeficiency virus (STI/HIV) rates (Herbst et al., 2008). A systematic review of 29 studies provided estimates of HIV prevalence and risk behaviors of transgender individuals in the US. Identified sexual risk factors for trans women included engagement in unprotected receptive sexual intercourse (44.1%) with multiple partners (31.7%), history of sex work (41.5%), and alcohol/substance use (43.7%) prior to sexual encounters (Herbst et al., 2008; Reisner, Perkovich, & Mimiaga, 2010; Sevelius, 2009). Among trans women, the average HIV and STD prevalence was 27.7% and 21.1% respectively (Reisner, Perkovich, & Mimiaga, 2010). Five of the included studies addressed risk factors specific to trans men. Overall, self reported prevalence rates of HIV and risk behaviors were lower among trans men; in the literature, rates ranged from 0%-3% (Herbst et al., 2008; Sevelius, 2009). Similarly, self-reported rates of prior STD history ranged from 6-7% in the samples included. These studies did not, however, describe the gender of the participants’ sex partners- a major measurable risk factor. Additionally, three of five studies reported 90.6-93.3% of their trans men sample sizes had engaged in at least one high-risk sexual behavior (unidentified) in the prior three months (Herbst et al., 2008). An
additional study conveyed that 31% of the participants actively engaged in sex work, with a small percent reporting participation in unprotected vaginal or anal intercourse (6.5%) (Herbst et al., 2008). Thus, though the overall HIV/STD prevalence rates were considerably lower in trans male studies in comparison to those focused on trans female communities, a subset of trans men are still at risk for HIV/STD exposure.

A separate mixed methods study sought to further explicate HIV/STD risk behaviors of trans men who have sex with cisgender men, or transMSM (Sevelius, 2009). Quantitative surveys and semi-structured interviews in the sample size of 45 determined HIV prevalence rates were similarly low, at 2.2%. However, considerable risk factors and behaviors were reported in this sample. Participants noted unequal power dynamics, low self-esteem, and need for gender and sexual affirmation in gay male spaces at times negated sexual negotiation. Identified HIV risk behaviors in this sample included inconsistent condom use with receptive sex (42.4%), sex under the influence of alcohol (41%), ecstasy (9.2%) and/or marijuana (24.5%). The use of drugs and alcohol prior to sexual activity served to alleviate bodily anxieties, but also impaired the participants’ insistence on condom use (Sevelius, 2009).

These findings are similar to those in a qualitative study focusing on the sexual health needs of transMSM; in this particular sample size of 16, 43.8% reported engaging in unprotected receptive sex with cisgender male partners of unknown HIV status. Participants in this study highlighted their lack of access to sexual health information specific for transgender men who have sex with men as a significant barrier to safer intercourse (Reisner, Perkovich, & Mimiaga, 2010).

These results echo collective concerns voiced by transgender individuals who cite a lack of access to information and resources specific to their needs regarding safe sex practices (Herbst
et al., 2008; Sevelius, 2009; Reisner, Perkovich, & Mimiaga, 2010). Providers should assess HIV and STD preventative health needs of transgender individuals and provide counseling and resources to address risky sexual behaviors. The literature highlights the need for sexual health counseling that incorporates tailored teaching on use of protective barriers and contraception. Individuals should be asked about engagement in and frequency of risky sex practices, as well as history of sexually transmitted infections (Unger, 2014). It is also pertinent to assess and counsel individuals about sexual orientation changes, if perceived, with hormonal effects and gender presentation shifts (Reisner, Perkovich, & Mimiaga, 2010).

**Mental Health and Substance Use**

Along with treatment for gender dysphoria, the need for appropriate mental health services should be assessed with every health maintenance visit. Transgender individuals who visibly live as their preferred identity experience high levels of stigma and violence. Regular exposure to societal violence has been associated with increased incidence of depression, anxiety, post-traumatic stress disorder (PTSD), suicide, and engagement in high risk behaviors (Rebacks & Fletcher, 2014; White-Hughto, Reisner, & Pachankis, 2015). Longitudinal studies that evaluated the predictors of suicide attempts among 248 lesbian, gay, bisexual, and transgender (LGBT) youth found a lifetime suicide attempt history in 31.6% of its sample, 52.4% of which represented transgender individuals. General suicidality risk factors among transgender individuals include hopelessness, impulsiveness, and perceived loss of social support (Mustanski & Liu, 2013; White-Hughto, Reisner, & Pachankis, 2015).

The literature highlights the challenges that exist in providing gender affirming mental health care for transgender individuals, including lack of access to appropriate health services and practitioner competencies in treatment (McCann & Sharek, 2016). Increasing number of
transgender individuals are seeking mental health services, however health providers often lack the knowledge and cultural sensitivity to work therapeutically with these clients (McCann & Sharek, 2016; White-Hughto, Reisner, & Pachankis, 2015). Studies note that even when mental health services do tailor the needs of transgender individuals, the services often lack options for treatments and are thus of inadequate quality (Mustanski & Liu, 2013; White-Hughto, Reisner, & Pachankis, 2015). These findings highlight the pressing need for all health care providers to have a greater knowledge regarding transgender physical and mental health needs in order to improve provision of care provided to this population.

Recommended guidelines also emphasize the need for clinicians to conduct thorough depression, anxiety, substance use, and alcohol screenings with every visit (WPATH, 2012). Despite broad mention of high rates of substance use in transgender communities, little evidence addresses prevalence of use. Most epidemiological surveys that study substance use do not specifically discern transgender populations from the general population. One meta-analysis noted transgender individuals reported rates of substance use in five studies that ranged around 13.7% (Herbst et al., 2008). Another study, a retrospective secondary data analysis focusing on the relationship between substance use disorder, demographics, mental health and gender identity in transgender individuals, found a history of partner violence (p<0.0001), PTSD (p=0.005), and unstable housing (p=0.005) were associated with increased substance use in the 12 months prior. (Keuroghlian, Reisner, White, & Weiss, 2015). McCann & Sharek (2016) reported low access rates of counseling services and substance abuse treatment programs in transgender populations. Although transgender individuals in mixed method studies identified need for treatment regarding substance misuse, they had difficulty utilizing services that were not
tailored to their specific lived experiences (McCann & Sharek, 2016; Keuroghlian, Reisner, White, & Weiss, 2015).

These findings are important to consider for clinicians providing health services to transgender clients. Although a psychosocial assessment may be done prior to hormone initiation, continuous monitoring and referral is pertinent for vulnerable populations who report a history of untreated depression, suicide attempts, homelessness, use/abuse of illicit substances and alcohol, and exposure to partner violence, as all are factors that influence continuing illicit substance and alcohol misuse (Keuroghlian et al., 2015). Additionally, practitioners should analyze their approach to these individuals and use gender-affirming language.

**Barriers to health care access**

Transgender individuals experience systems-wide societal, interpersonal, and individual barriers that prevent equal access to health protective services such as employment, housing, and healthcare (White-Hughto, Reisner, & Pachankis, 2015). The stigmas encompassing societal norms, policies, verbal, physical, and sexual harassment are highly prevalent toward transgender populations and have been linked to adverse physical and mental health outcomes such as suicide and depression (Sanchez, 2009; White-Hughto, Reisner, & Pachankis, 2015). National data surveys echo these concerns regarding exposure to prejudice and violence in health settings, noting that 28% of transgender individuals in the US have postponed urgent medical care due to fear of healthcare stigmatization and risk minor health issues becoming serious, even life threatening (Roche & Keith, 2014).

Unfortunately, health care providers generally receive very little training regarding provision of care for transgender populations (Hardacker, Hotton, and Houlberg, 2014). Health care providers have cited that insufficient training and exposure to transgender populations
during their education constrained their ability to provide culturally competent care in their future practice (Hardacker, Hotton, and Houlberg, 2014). Most healthcare stigma is associated with this lack of provider understanding of transgender needs and personal prejudice (Sanchez et al., 2009). Retrospective cross-sectional analyses have studied how gender identity and presentation predicts experiences of discrimination in varying health settings. One such study regarding transgender men, conducted by Shires and Jaffee (2015), noted that among a sample size of 1,711 female-to-male individuals, 41.8% reported some type of discrimination, from verbal harassment to denial of equal treatment, either from medical staff or other patients. Participants who had undergone some degree of surgical reassignment treatment were more likely to experience the discrimination (Shires & Jaffee, 2015). Another cross sectional survey analyzing levels of transgender based discrimination in healthcare, employment, and housing in Virginia, USA noted that 15-20% of the sample size (n=143) reported feeling uncomfortable discussing transgender specific health needs at their medical appointments. Additionally, 27% reported transgender related discrimination in health care (Bradford, Reisner, Honnold, & Xavier, 2013). These findings suggest that lack of culturally competent health care providers limits access to health services for transgender individuals. Interventions that include legislative protections and competency training for health care providers would help to address the systematic discrimination toward transgender populations.

Theoretical/Conceptual Framework for Project

The theoretical framework for organizational change for this project incorporated Kotter’s 8-step Change Model and the “Model for Improvement” once a needs assessment had been conducted and analyzed.
Kotter’s 8-step Change Model, organized across ‘eight steps,’ emphasizes that change is a process that happens across key phases and over a length of time. The eight steps are (1) establishing a sense of urgency for change, (2) forming a team to guide the change process, (3) creating a vision to guide the change process, (4) communicating the vision, (5) empowering others to act on the vision, (6) creating short term victories, (7) consolidating improvements and accelerate change, and (8) institutionalizing the new approaches (Kotter International, 2014).

“Model for Improvement,” is a pragmatic and validated framework often utilized to test and accelerate systems improvement (Scoville & Little, 2014; Institute for Healthcare Improvement [IHI], 2009). The model is comprised of two parts: three fundamental questions to clarify and guide improvement change and a Plan-Do-Study-Act (PDSA) cycle to purposely test and observe that change for improvement.

The three questions that serve to guide the improvement process are:
1.) What is the QI team trying to accomplish?
2.) How will the QI team validate that the change is an improvement?
3.) What changes can QI team make that will result in improvement?

The first two questions help to define the aim of an improvement process and its desired outcomes as well as the measurable outcomes that would demonstrate movement toward change (Scoville & Little, 2014). The third question considers that not all change will result in improvement. As such, a change can be tested via PDSA cycles to determine if the result is the intended improvement.

Section III: Methods

Ethical Issues
This DNP quality improvement project was approved by the DNP/FNP program of University of San Francisco as a non-research project. The project was driven by the nursing ethical principles of justice (by advocating for a vulnerable population), autonomy (respecting individuals regardless of socio-economic and cultural differences) and beneficence (treating individuals with compassion and an intent to do good) (Grace, 2016). Health care providers were motivated by the current literature on health disparities impacting transgender populations to improve aspects of their practice. The providers participated in the assessment, development, implementation, and evaluation of the resource bundle. There were no ethical issues or conflicts of interest within the team.

Setting

The health organization, situated in downtown San Francisco, provides access to comprehensive primary medical and dental care, mental health, and resource support services to its clients. Moreover, it serves as a valuable health safety net for medically underserved communities residing in the surrounding districts, seeing over 5,000 patients annually. Among the clientele, over 50% are low income and qualify for a citywide health plan (i.e., Healthy San Francisco) that allows them to seek health services within the city.

Clinic hours Monday through Thursday are from 8 am to 5pm; Friday through Saturday, they are from 8 am to 3:30 pm. The medical director and three nurse practitioners cover Monday through Friday, alternating schedules as needed per workload. Saturday clinic is managed by the fourth nurse practitioner and an additional on call doctor within the medical group. Approximately six medical assistants, one registered nurse, one nurse case manager, and one social worker support the clinicians in their day-to-day activities. At this present moment, the clinic does not have a nurse manager.
Generally, clinicians and ancillary staff members at the clinic are welcoming both to established work patterns and toward opportunities to improve practice. The clinic, for example, has had great success in the implementation of an electronic health record within a period of six months. Staff members openly communicate with one another and maintain good rapport with their clients. The clinic site has had previous DNP students implement performance improvement projects with great success.

**Planning the Intervention**

A needs assessment, literature review, and gap analysis highlighted current gaps in care for transgender individuals seeking primary health services at the center. Providers mutually agreed on the need to implement current evidence into practice to improve health outcomes for transgender clients. Staff member input determined that an accessible evidence-based resource bundle to guide clinical management of the transgender individual seeking primary care services would be the best format for delivery of information.

The health care providers and ancillary staff members were the main identified learners in this project. Implementation progressed forward in linear phases: assessment, group development, implementation, and evaluation. Staff was encouraged to continuously provide feedback on the processes. Additionally, stakeholder involvement and approval of project’s vision were critical in the sustainment of the project’s support within the health center. Identified stakeholders for this project included the health care professionals (medical director, nurse practitioners, registered nurses, medical assistants and social worker), all of whom had expressed their support for the DNP project.

The DNP student was responsible for the entire project, collaborating with staff at the clinic to analyze clinic structure and services to be considered when constructing the resource
bundle (Responsibility/Communication Matrix, see Appendix D). The Quality Improvement [QI] team, consisting of this DNP student, two nurse practitioners, the medical director, a medical assistant, and social worker, decided on the following measurable outcomes: (1) by July 31, 2016, 90% of all health care providers involved will indicate increased levels of understanding regarding health maintenance screenings specific for transgender individuals, (2) by September 30, 2016, at least 70% of health care providers will indicate overall usefulness of resource bundle (rated 7 out of 10 or above on Likert scale), and (3) by September 30, 2016, the resource bundle will be utilized 100% of the time when the provider is caring for a transgender client seeking primary care services.

Project planning started on April 1, 2016. Overall projected resource requirements were modest. The assessment phase of the project required printed-paper containing an aggregate of questions aimed toward assessing provider level of knowledge regarding transgender health needs. The development and construction of the bundle phase required computers and access to the Internet, and was largely done by the DNP student outside of clinic hours. Additional projected resources included colored, laminated papers used for the informational brochures and algorithms.

Approximately seven months were allocated to the assessment, development, implementation and final evaluation of this resource bundle. The DNP student acknowledged and accounted for the time constraints that become apparent with high client volumes at times by accommodating the staff members’ availability for teaching sessions.

**Return on Investment (ROI)**

**Costs**
To determine the return on investment with regards to this project, overhead costs were explored. The cost of “doing business,” typically involves assessing salaries of staff, the cost of their benefits, facility fees, utilities, and licensing (Waxman, 2013, Chapter 6). At health center, all medical doctors (MDs) and nurse practitioners (NPs) are salaried. At the start of this project, there was one MD and four NPs, one registered nurse (RN), one licensed vocational nurse (LVN), and ten medical assistants (MAs). The annual salaries were determined to be of the following: MD’s made approximately $90,000, NPs made $75,000, RNs made $55,000, LVNs made $40,000, and MAs made approximately $29,370. The biggest resource requirements for this project encompassed the two thirty minute in-sessions held in July and August centered on teaching and the implementation of the bundle step by step. These in-sessions occurred during lunch hours but were attended by all targeted learners by the second session. For the clinic, staff time and training amounted to a budgetary cost total of approximately $400. An estimated $175 was spent on finalized project materials by the DNP student; thus in total $575 was invested into teaching time and materials, accounting for staff members that attended both in-sessions and those that only attended one (Cost Benefit Analysis, see Appendix C).

Benefits

At the clinic, nurse practitioners bill under the medical director’s provider number and universally receive a flat rate of $183 per patient visit regardless of the evaluation and management code (E&M code) utilized to depict complexity. This is due to the established rate of re-imbursement for patients on the Healthy San Francisco insurance plan. On average, it was determined that the nurse practitioner sees approximately nine to thirteen patients in an usual eight to nine hour clinic day, with the average being eleven patients. The electronic health system at the community health center pools data from the selected visit, including number of
systems reviewed in the history and in the exam, and automatically populates the E&M code. The nurse practitioner works an average 48 weeks, thus the typical revenue generated annually is 48 weeks x $7,869 = $377,712. The health center notes that overhead costs consume roughly 50% of the revenue generated - thus determined to be $188,856 of the revenue generated by the NP per year.

At this point in time, the average re-imbursement per complexity (flat rate $183) multiplied by the average number of transgender clients seen annually (usually 30-35) demonstrates an approximate $5,490 of cash flow brought into the practice from providing services to this population. This equates to an ROI of approximately 12.7% ($5,490-400/400), a small but important return when considering the impact providing competent care could have to high complexity/acuity clients who may otherwise seek emergent care. Additionally, the health center would stand to benefit from increasing services to transgender clients by providing clinically competent care. For example, if 100 transgender clients established care at the center, that would increase annual cash flow to $18,300, resulting in a ROI of 44% ($18,300-$400/400) (Return on Investment, see Appendix C).

**Implementation of the Project**

With input of the QI team, the transgender primary care resource bundle consisted of three components. The first, an evidence-based multi-page brochure for clinicians, detailed background knowledge regarding primary care transgender needs (largely regarding the need of access to hormones and gender affirming surgeries, HIV/STD testing, sexual health information, psychosocial counseling, and substance use), recommended screening guidelines for health maintenance, types of hormone therapy and dosing, and pertinent lab work to monitor.
The second component of the bundle consisted of two separate algorithms, one for the clinicians and registered nurses and the other for medical assistants and ancillary staff members. The algorithms for clinicians highlighted types of hormone dosing and detailed physiological body changes that can be expected within a certain time frame. Also noted were contraindications to treatment, such as history of coronary or cerebrovascular disease, thromboembolic disease, and severe liver dysfunction (Hembree et al., 2009) and adverse outcomes. The algorithm developed for medical assistants and ancillary staff members summarized the types of hormone treatments and expected physiological body changes in a shorter format to allow for easy access during clinic hours.

The final component of the resource bundle included a check-list placed into the physical medical records of transgender clients that prompted staff members (medical assistants, social worker, and clinicians alike) to note down the dates the resource bundle was utilized or referenced when providing care. This tool sought to glean quantitative data to evaluate overall provider use of the resource bundle.

Outcome evaluations were biphasic. Health care providers were evaluated on their knowledge levels prior to the development of the bundle and immediately after interventional teachings. Staff members were also evaluated on their perceived usefulness of the bundle immediately post implementation. Health care providers were re-evaluated two months after the implementation of the bundle using the same evaluation methods to determine degree of sustained knowledge levels.

**Planning the study of the intervention**

The time period for the progression of this project occurred from April 1 to November 4, 2016 in four phases: assessment of learning needs, group development, implementation, and
evaluation (see Gantt chart, Appendix E). A needs assessment performed among primary care providers at the health center in early April determined gaps in knowledge regarding the primary care needs of transgender individuals. After discussing the potential to improve patient outcomes by utilizing resources at the federally funded health center, providers agreed to an analysis of their practice and were asked to list topics of interest for research relating to transgender primary care needs.

Findings of the subsequent literature review were disseminated amongst health care providers for discussion. The dialogue between staff acknowledged existing quality care gaps when compared to suggested guidelines set forth by the Endocrine Society and WPATH (Hembree et al., 2009; WPATH 2012) (see Gap Analysis, Appendix B). The Endocrine Society strongly recommends that hormone levels be maintained within normal physiological range for the desired gender through laboratory monitoring of serum testosterone and estradiol every 3 months during the first year and then annually. Lab monitoring of prolactin levels should occur at baseline, annually, and biannually thereafter in trans women treated with estrogens. Additionally, the guidelines emphasize that trans women treated with estrogens follow breast cancer screening guidelines recommended for biological women and prostate cancer screening guidelines recommended for biological men (Hembree et al., 2009). Chart reviews determined that laboratory monitoring was being accomplished per recommended guidelines (albeit a few clients did not have prolactin levels monitored timely). Clinicians noted, however, that they lacked the knowledge to provide anticipatory guidance to clients asking about physiologic changes for specific hormone dosages. They were also unsure of qualifying criteria for hormone therapies. Additionally, provider feedback on a survey consisting of questions (in the aggregate) regarding health screenings for transgender clients noted knowledge gaps.
Approximately half of transgender clients at the health center have established providers (typically endocrinologists at UCSF and Tom Waddell Health Center, or specialized clinicians at Asian Pacific Islander Wellness Center) who specialize in transgender care. However the other 50% of the transgender clientele at the health center do not have any additional resources. These individuals may turn to unsafe means to supplement physiological changes, such as self-administering and titrating doses of black market cross sex hormones (Hembree et al., 2009). While the health center does not presently offer transgender hormone therapy, clinicians are within their scope to assess and refer clients to specialists who are able to initiate hormone therapy. WPATH guidelines recommend that clinicians perform psychosocial assessments with every visit and become familiar of the criteria for hormone therapy (WPATH, 2012).

Providers agreed on the need to implement current evidence into practice to improve health outcomes in their transgender clients. For this project, the vision revolved around improving current care and incentivizing transgender clients to seek routine preventative services in order to help reduce existing health disparities. Discussions determined that the development of an accessible evidence-based resource bundle to guide clinical management of the transgender individual seeking primary care services would most beneficial.

The second phase, group development, occurred from May 1 to May 31, 2016. The gap analysis led to the development of the QI team. Toward the end of the project, the DNP student would consult with an NP, who would later maintain the responsibility of disseminating the resources provided to new staff members during orientation.

The transgender primary care resource bundle was developed between the time period of June 1 to June 31, 2016 and consisted of three components. The first, an evidence-based brochure for clinicians, detailed hormone therapy dosing, pertinent lab work, and preventative
screening guidelines (see Appendix I, informational brochure). The second component comprised two separate algorithms, one for the clinicians and registered nurses and the other for medical assistants and ancillary staff, detailing a timetable for physiological body changes to be expected with hormone therapies (see Appendix J, algorithms). Finally, the last component incorporated a checklist to be placed in the physical charts of patients for whom the bundle was utilized (see Appendix K, checklist).

Within the time period July 1 to July 15, a Plan-Do-Study-Act (PDSA) cycle was completed for two weeks by a trained medical assistant to test practice change. Findings of this utilization of the bundle and verbal feedback received from the medical assistant were analyzed to determine if the change led to improved practice or required further improvisation. This PDSA cycle ultimately helped to identify the need for an element that would help sustain the teachings long after the DNP student has finished her FNP preceptorship. Later discussions with staff members would agree that an electronic voice over (stored in a USB drive) would help guide staff members through the process of utilizing the transgender resource bundle; this would benefit those new or seeking to refresh their knowledge.

The third phase involved the teaching of the transgender resource bundle and lasted from July 16 to August 31, 2016. During this step, teachings were done in two separate times, once in July and once in August. All materials were disseminated to health care providers following a discussion on the topics. The evaluation phase occurred in two parts, the first of which was done immediately after intervention to assess level of knowledge and perceived usefulness of the resource bundle. Following the second in-service, the resource bundle was implemented in mid August. Anonymous checklists placed into the clients’ medical records collected quantitative data over a period of two months.
The final evaluation phase was completed in early November and encompassed the implementation of the digital voice recording. This final evaluation also gauged provider knowledge levels two months after implementation of the resource bundle, its perceived usefulness, and overall use of the tool. The same tools of evaluation were utilized.

**Methods of evaluation**

This project’s goal was the increase the knowledge levels of health care providers with regards to transgender health needs in order to address current health disparities in this population. To guide improvement and practice change, the QI team utilized Kotter’s learning theory and the “Model for Improvement,” as frameworks to create a vision and empower others for change and to test change for improvement (Kotter, 2014; Scoville & Little, 2014).

Kotter’s 8-Step Change Model acknowledges change as a process defined by eight steps that happen over a length of time. The eight steps guide systems from establish a sense of urgency, to creating a vision and institutionalizing new approaches (Kotter International, 2014).

The latter framework, “Model for Improvement,” incorporates three fundamental questions to guide work improvement: (a) what is the QI team trying to accomplish? (b) how will the QI team validate that the change is an improvement? and (c) what changes can the QI team make that will result in improvement? (IHI, 2009). The QI team developed an aim statement, based on Part 1 of this framework’s suggestions, to address the identified care gap. The statement incorporated three measurable outcomes aimed at evaluating provider knowledge levels regarding transgender health needs, the perceived usefulness of the resource bundle, and its utilization in practice.

The second part of the model incorporates the PDSA cycle to implement a test change and observe results for improvement in practice. One medical assistant, as a part of the QI team,
was instructed on the use of the resource bundle, prior to the first in-service in July. The ‘Do’ and ‘Study’ stages occurred between the time period July 1 to July 15. Findings of this utilization of the bundle and verbal feedback received from the medical assistant were analyzed to determine if the change led to improved practice or required further improvisation. The medical assistant utilized the algorithm for two transgender clients seen within that time frame and rated subsequent usefulness of the tool as “9/10” on a Likert scale. Post implementation evaluation noted that the staff member indicate increased level of knowledge immediately following the initial teaching, but demonstrated some gaps in knowledge by the end of July 15. This PDSA cycle ultimately helped to identify the need for an element that would help sustain the teachings long after the DNP student has finished her FNP preceptorship. Staff members would later come to a consensus that an electronic voice over (stored in a USB drive) would help guide staff members through the process of utilizing the transgender resource bundle; this would benefit those new or seeking to refresh their knowledge.

**SWOT Analysis**

A SWOT analysis done prior to project implementation identified potential areas of strengths, weaknesses, opportunities and threats to the implementation of this project (see Appendix F).

**Strengths**

Overall the environment at the health center is highly supportive and open to dissemination of evidence that seeks to improve health outcomes for all clients, especially those that are underserved. Other acknowledged strengths and opportunities include the potential to increase provider knowledge and competency regarding health behaviors and screenings specific to transgender clients. With this establishment of trust, it may encourage clients to seek routine
healthcare access. For vulnerable populations who disproportionately experience social and health disparities, such an intervention may help reduce health burdens to a degree (Sanchez et al., 2009).

**Weaknesses**

The low transgender client census at the health center was a considered weakness as this aspect had the potential to affect quantitative evaluation data. This, however, had the potential to change should transgender clients begin to hear about the services, resources, and increased competencies of the providers at the health center. Reduced staff time for training purposes was another highlighted weakness as teaching in-services were a requirement for this improvement project. However, as a preceptee, the DNP student had access to monthly schedules via the electronic health record system, that determined which days of the week would have higher patient volume and which would have less. This allowed for the DNP student to plan out scheduled days with all staff, requiring that they attend only one of two in-services.

**Opportunities**

The project had the opportunity to address unique community needs, facilitate client continuity of care, and decrease potential ER admissions/visits for issues that can be resolved in the outpatient setting. As a result, one can argue that preventive health screening may be cost effective. Risk and benefit analyses demonstrated that vulnerable populations may benefit from low cost interventions aimed at reducing high-risk behaviors (WPATH, 2012).

**Threats**

Serious threats to project implementation included potential staff and client disinterest, although this proved unlikely as preliminary indications suggested great interest in such a resource bundle. The construction of the resource bundle was done with input received from all
members of the QI time. All involved staff members were informed about the purpose of the project and asked to give feedback on the project’s perceived usefulness.

Analysis

Evaluations of the teachings were done immediately after interventional sessions and two approximately two months after implementation to assess level of knowledge through questions asked in the aggregate. Data on perceived usefulness and applicability of the resource bundle was collected via a Likert scale during the evaluation phases.

Questionnaires are important methods of qualitative data collection that are used extensively throughout research as they offer anonymity and are generally not expensive. The disadvantage to them is that application outside of its intended use and ability to clarify a response to a question is limited. The developed questionnaire for this DNP project included a sequence of five questions that were easy to follow and read. To increase validity, different concepts regarding transgender health needs were represented in the questions and those included screening, hormones, and psychosocial components of care. The DNP student and QI team members acknowledged outliers that may affect the scores on these questionnaires, including differing knowledge levels between staff members and frequency of exposure to transgender clients.

The Likert scale is often utilized to measure attitudes by asking people to respond to a series of questions regarding a topic. Like general questionnaires, Likert scales allow for anonymity and are generally inexpensive to create. The downside, however, is that Likert-type scales may assume linear thinking (that attitudes can be measured on scales of “strongly agree” to “strongly disagree”) (Bowling, 1997). With this project, Likert scales were utilized to measure
the perception of the health providers with regards to usefulness of the resource bundle. On the same sheet, staff members were also encouraged to leave open-ended feedback.

The final analytic method for this project included gleaning quantitative data from anonymous checklists that were to be placed into clients’ medical records and marked to indicate overall use of the bundle (see Appendix K, checklist).

**Section IV: Results**

**Program Evaluation and Outcomes**

This project’s setting encompassed this health center and included its health care providers and the transgender clients who sought primary care services. Qualitative evaluations done immediately post-interventional teachings regarding transgender primary care needs demonstrated an increase in knowledge level among 100% of the targeted learners in both the first and second in-service sessions, as well as during the final evaluation done two months post implementation of the bundle (see Appendix H, results).

For the perceived usefulness of the resource bundle in the first session in July, approximately 75% of the learners rated their perception on the Likert scale as 10/10, 15% rated 8/10, and 10% rated 7/10. In the second session in August, 70% of the learners (three of which were new ancillary staff members) rated their perception on the Likert scale as 10/10, 25% rated as 8/10, and 5% rated as 7/10. In the final evaluation done in early November, approximately 30% of the learners rated their perceptions on the Likert scale as 10/10, 50% rated as 9/10, and 20% rated as 8/10 (see Appendix H, results).

All staff members were engaged in discussions regarding their perceptions in usefulness. A majority of the members who had rated 10/10 on the Likert scales during the first and second teaching sessions were long time employees and had experience in providing care to transgender
clients. Additionally they were a part of the initial assessment phases wherein the need for such a resource had been highlighted. Thus this may have affected their reception, interpretation, and response to the bundle. In contrast, three new employees were new to the setting and had little experience providing care for transgender individuals, thus their perception of the usefulness of this resource bundle could have affected this. These same employees, however, demonstrated greater knowledge levels during their pre and post assessment evaluations done in November, and also scored their perception of the usefulness of the bundle higher two months post implementation (8-9/10 as opposed to 7-8/10 scores given in August).

Following the implementation of the resource bundle in mid August, anonymous checklists were placed into the clients’ medicals records to capture quantitative data on the amount times the bundle was accessed for review when providing care for a transgender client. This data was analyzed in early November after a two-month period. It was noted by the staff members that at an undetermined mid-point, with staff turnover and chart audits, the checklists were removed from the physical charts and kept instead in the clinicians’ joint office. As a result, medical assistants and all other ancillary staff were not able to complete this portion of the evaluation. The two clinicians who participated in the teaching session in August appeared to access the resource bundle five times and four times, respectively, in the last two months for transgender clients that were seen in that time frame. Verbally, the clinicians indicated they had also reviewed the information in the bundle outside of clinic hours though they did not indicate this on the checklist. Because of the nature of the checklist, with its anonymity, it is difficult to verify the authenticity of the recorded patterns of use. Additionally, because the checklists were removed from the charts, the DNP student could not trace use and match with appointment dates as were listed in the charts. In reflection, the DNP student may have benefitted from
collaborating with one key personnel form the medical records department. However, uncontrollable variables such as the staff turnover may have still prevented accurate utilization of the checklist.

The QI team supported all phases of this DNP improvement project. As a result, the project moved forward without much difficulty with the exception of an issue regarding staff turnover. This issue in question appeared during the implementation and evaluation phases and questioned the sustainability of the project. In August, the medical director left his position for a better opportunity in a bigger health organization and was followed by two of his close nurse practitioners, both of which were members of the QI team. The new medical director and two new nurse practitioners were engaged in their place in late August. While they were indeed supportive, it became clear that the project needed a continuing driving force beyond the initial agents who had envisioned and pushed for change. The new members in question were still adjusting to a new culture and work environment. Project sustainability continued to be an issue of concern following more new hires. Additionally, the health center did not have a RN manager for the majority of this DNP student’s one-year preceptorship at the clinic.

Toward the end of the implementation phase in August, the nurse practitioner that was a part of the original QI team, was interested in continuing to disseminate the resource bundle materials to improve clinical practice. She agreed to assist in the responsibility of dispersing the resources to new clinicians (NPs) during orientation and as needed when managing transgender client cases. With further discussion and agreement, a digital recording of the DNP student’s voice, guiding the use of the transgender resource bundle, was delivered to the clinic (after a demonstration on use) in the form of a MP4 file in a USB drive, in early November.
Section V: Discussion

Summary

This quality improvement project conducted in a community health center highlighted gaps in provider knowledge and care for transgender individuals seeking primary health services. It was determined that the clinic had no standardized protocol addressing screening guidelines specific to transgender clients. Clinicians who were providing care to these individuals relied on outside resources from varying healthcare organizations. Additionally, providers verbalized gaps in their knowledge regarding anticipatory guidance to provide for transgender clients on hormone therapy. This assessment and subsequent discussions regarding the implications of improving transgender health outcomes inspired clinicians to support a quality improvement project to increase provider clinical competency. Guided by validated framework models, the project developed collaboratively as QI team members were consulted throughout the assessment, construction, implementation, and evaluation phases. The result of this collaboration produced a guided evidence based resource bundle specifically geared toward promoting health provider knowledge on transgender health maintenance needs.

The DNP project expected and met the following measurable outcomes:

1.) by July 31, 2016, 90% of all health care providers involved will indicate increased levels of understanding regarding health maintenance screenings specific for transgender individuals; and

2.) by September 30, 2016, at least 70% of health care providers will indicate overall usefulness of resource bundle (rated 7 or above of Likert scale).

Evaluations done at the time of the intervention teachings noted an increase in knowledge level among 100% of the targeted learners. Likewise, 70-75% of the learners rated
their perception of usefulness on the Likert scale as 10/10, 25-15% rated 8/10, and 5-10% rated 7/10. In the final evaluations done two months after implementation of the resource bundle, 30% of the learners rated their perceptions on the Likert scale as 10/10, 50% rated as 9/10, and 20% rated as 8/10, indicating an upward trend in the level of knowledge retained and perception of usefulness. Factors that contributed to the successful implementation of this projected included a work culture that promoted practice improvement, as evident by the health center’s quick integration and utilization of an electronic health record. Additionally, the center’s familiarity with previous DNP/FNP students and subsequent practice improvements also played a role in acquiring and sustaining stakeholder approval of project goals and planned interventions.

It was noted that, at an undetermined mid-point, the checklists were removed from the physical charts and kept instead in the clinicians’ joint office. The two clinicians who participated in the teaching session in August noted access to the resources provided in the bundle five times and four times, respectively, in the last two months. Due to the tool’s anonymity it could not be determined whether the resource bundle was utilized 100% of the time by providers when providing care to transgender clients. Providers involved in the project verbally noted access to resource bundle material outside of clinic hours, though the checklist did not capture this.

Project sustainability appeared as an issue of concern following the PDSA cycle and confounding factors such as employee turnover. To address this, a new RN case manager was consulted and became interested in assisting the responsibility of disseminating the resources to staff members caring for transgender clients. Unfortunately, the case manager took a leave of absence toward the final evaluation phase. To mitigate this, the nurse practitioner that was a part of the original QI team was engaged in conversation and agreed to assist in the dissemination of
the resource bundle materials to new clinicians (NPs) during their orientation and as needed when managing transgender client cases. To couple this, a digital recording of this DNP student’s voice, guiding the use of the transgender resource bundle, was incorporated into the final phase of the project. Its use was demonstrated to the NP and new staff members prior to the final evaluations.

**Relation to other evidence**

This project’s design facilitated evidence based clinical decision-making by applying documented advances in patient care to everyday practice. Project evaluations determined an increase in overall provider knowledge regarding transgender health needs. Cultural competency training has shown to enhance health care provider knowledge, communication skills, and patient relations with clinicians (Khalili, Leung, & Diamant, 2015). Additionally, provider competency plays a factor in clients retaining continuing access to medical care (Wylie et al., 2016). These improvements positively impact patient health outcomes and satisfaction with care (Mizock & Fleming, 2011; Khalili, Leung, & Diamant, 2015).

Cultural competency, as defined by the Centers of Disease Control and Prevention (CDC) is an, “ability to deliver services within context of cultural beliefs, behaviors, and needs (CDC, 2016). In the context of transgender care, cultural competence includes an awareness of and response to the cultural dynamics- socioeconomic and political- and terminology specific to transgender populations (Mizock & Fleming, 2011).

A review of the literature was conducted in three databases, Cochrane Library, PubMed, and Medscape, to determine the effect of clinical competency training on provision of health care services to transgender clients. The keywords used were “-transgender-”, “-transgender health-”, “-transgender competency-”, “-cultural competence-”, “-gender variance-”, and “-trans
affirmative-“. The date range of articles accessed was January 2006 to September 2016. Data was systematically reviewed and analyzed to evaluate different methods of clinical competency training.

There are currently no level-1 studies addressing competency training specific to transgender populations. Thus, data was gleaned from mixed method studies regarding lesbian, gay, bisexual, transgender, and queer (LGBTQ) service care delivery models that have incorporated transgender related training materials into their curricula.

**Online Training modules**

Hardacker, Hotton, and Houlberg (2014) in their study utilized a US federal grant to create the Health Education about LGBT Elders (HEALE) curriculum, a series of peer-reviewed, online training modules designed to increase the cultural competency of nurses in addressing needs of older LGBT populations who often avoid routine health care due to fear of discrimination. The curriculum, designed for implementation at a community health center, encompasses the following information into six modules: (1) introduction to LGBT elder community (defines essential terminology and concepts); (2) barriers to health care and health disparities (illustrates health barriers and disparities unique to LGBT elderly populations); (3) sex and sexuality of LGBT elders (explores core elements of conducting comprehensive sexual histories and notes risk behaviors and prevention techniques to reduce STD transmission); (4) legal concerns for the LGBT elder (regards financial instability, long term care and housing needs); (5) introduction to transgender community (highlights gender non-conforming identities, effects of long term hormone therapy, and gender affirming surgical options); and (6) HIV and aging (notes rates of HIV transmission and antiretroviral treatment in this population) (Hardacker, Hotton, and Houlberg, 2014).
Live pilot trainings completed across a six-week period in eight academic settings, six community health centers, and eight long term care facilities in Chicago, gauged level of knowledge gained among targeted learners. Methods of evaluation included pre and post tests, as well as participation evaluations. The intervention demonstrated statistically significant gains in knowledge following each module, ranging from a 8.7% point increase average to 26.2% by the sixth module (p<0.01). The authors of the study noted that while there were improvements in knowledge at all institutions, those who worked in academic or hospital settings demonstrated more notable increases when compared to nursing home or home health settings. This difference was attributed to the diverse educational backgrounds found in the latter settings (Hardacker, Hotton, and Houlberg, 2014).

**PowerPoint Training and Group Discussions**

Hanssmann, Morrison, and Russian (2008) conducted a mixed-methods, retrospective analysis regarding the effectiveness of three health care provider cultural competency trainings directed 2005-2006 by a nonprofit health education organization serving LGBT individuals in Seattle, Washington. The authors of the curriculum utilized evidence from clinical literature and feedback from LGBTQ communities to develop their PowerPoint slideshows, guiding a lecture format to be delivered in three training sessions. Learners were educated regarding topics unique to LGBTQ health, including terminology, health disparities, and provision of health care to these individuals (Hanssmann, Morrison, & Russian, 2008). Analytical methods utilized to assess improvements in knowledge regarding provision of care to LGBTQ populations included a pretraining and post-training survey to gather quantitative and qualitative data. Overall, the intervention demonstrated a small, statistical gain in competency knowledge (p=.05). Qualitative data revealed positive impressions from the learners participating in the trainings, citing the
section focusing on key terminology as the most useful aspect (Hanssmann, Morrison, & Russian, 2008). This study was limited by a small sample size and possible selection bias as trainings were offered to organizations requesting for health information on LGBTQ populations (Hanssmann, Morrison, & Russian, 2008).

Community outreach programs

Community partnerships between groups that advocate for improving health access for LGBTQ populations and health organizations have demonstrated incredible potential to improve health outcomes. TRANS Pulse, a community based research project in Ontario, Canada, focuses on the impact of socioeconomic factors (societal exclusion) on the health of transgender individuals within Toronto, and ultimately the Province of Ontario. Its focus and research and helped disseminate data on various aspects of transgender health (from cancer screenings to employment status) to inform transgender policy and improve health outcomes ("TransPulse," 2016).

**Barriers to Implementation/Limitations**

All change processes need to account for project limitations and barriers to determine their internal validity. The DNP student identified possible confounding factors ahead of implementation as were known at the time. The first highlighted the varying knowledge backgrounds of staff members, including the nurse practitioners, registered nurses, licensed vocational nurses, medical assistants, and social worker, involved in the improvement project. The DNP student acknowledged that the variance in learning needs had the potential to affect ability to accurately interpret and utilize the presented information. To mitigate this, all materials were constructed to meet knowledge needs in a format that was accepted and easy to understand for the targeted learner. For example, all learners had chosen the information be presented in the
format of a physical tool as opposed to an electronic integration into the electronic health record as a physical tool would easier to utilize during a busy clinic day. The resource bundle algorithms were also created to reflect clinical competency; algorithms presented to the medical assistants were summarized to reflect information useful to them at their knowledge level.

A second confounding factor, staff turnover, was identified during the implementation phase of the change process. Prior this stage, this had not been an issue. With the departure of the medical director in August, the core group appeared to disperse as the dynamic and culture within the health center shifted. Two core nurse practitioners that were involved with this project also eventually sought better job opportunities, taking the materials provided in the resource bundle with them to their new work places. The DNP student incorporated new staff members into the project by disseminating the resource bundle materials. An NP who was part of the original QI team was approached to discuss the project’s sustaining factors. She was instructed on the utilization of a digital recording of the DNP’s voice to guide the instruction and use of the DNP bundle.

The third variable concerned time constraints with high patient volume at times. The DNP student attempted to mitigate this issue by reviewing weekly schedules for staff to determine days in which the in-services would be best received.

The DNP student also considered the threat of bias and other variables that may have affected project results. The DNP student completed her yearlong preceptorship at this clinic and worked consistently with the same staff members once or twice weekly. Toward the end of the preceptorship, these members were familiar with both the project and the DNP student. It is possible that the staff’s perception about the DNP student may have affected evaluation ratings of the project, especially the perceived usefulness of it. To address this, staff was encouraged to
be truthful in their perceived usefulness of the tools provided to them. They were informed all evaluations were anonymous and constructive criticism was welcomed, especially during the PDSA cycle.

**Interpretation**

This quality improvement project conducted in a community health center was a collaborative effort to address gaps in clinical competency and provision of care for transgender individuals seeking primary health services. The project developed through key assessment, construction, implementation, and evaluation phases, guided by input from staff members and through the results of the PDSA cycle. The effort resulted in a guided evidence based resource bundle specifically geared toward promoting health provider knowledge on transgender health maintenance needs. Teachings on the bundle resources, which included an informational brochure, two separate algorithms for clinicians and ancillary staff, and an anonymous checklist, were conducted prior to the implementation phases.

The DNP project expected and met two of its three measureable outcomes, to improve knowledge levels regarding transgender health maintenance screenings in 90% of all health care providers and to be perceived as an overall useful tool by at least 70% of the providers. A major factor that contributed to the project’s buy in and successful implementation included a work culture that promoted practice improvement. The final measurable outcome was to measure rates of utilization (with a goal of 100% use) by providers when providing care for transgender clients. Unfortunately, the results of this tool were limited due to potential bias; the checklists were removed from the physical charts and kept instead in the clinicians’ joint office. When consulted, staff note the removal was likely a process of recent chart audits. Two providers noted access to the resources provided in the bundle five times and four times, respectively, in the last two
months, however due to the tool’s anonymity it could not guarantee the authenticity of the recorded use. Thus the results were analyzed with this aspect in mind. Providers involved in the project verbally noted access to resource bundle material outside of clinic hours, though the checklist did not capture this.

An external variable that affected the ability to attain quantitative data pertaining to the third measurable outcome was the staff turnover rate. Particularly, core staff members who were originally involved in the project sought better job opportunities. Subsequently the health center hired new staff members, contributing to a culture change at the center. While welcoming when engaged, these new staff members’ priorities were to adjust to their new roles at a new environment as opposed to participating in a project regarding a small percentage of their overall clientele. Issues regarding sustainability of the project became prevalent during this period. To assuage this issue, an NP was engaged in discussion regarding the importance of improving the provision of health care for transgender clients seen at the health center. Many of these clients are underserved and would benefit from having an established provider competent in care that is gender affirming and individualized to their specific needs. The NP agreed to the responsibility of disseminating the materials of the resource bundle to new staff members. Additionally, a digital recording of the DNP student’s voice, guiding the use of the resource bundle, was delivered in a USB format to the clinic after it’s use was demonstrated to the NP.

Overall, the analysis of the results reveals a small but important increase in practice knowledge. Certain factors, such as the small staff member at the center involved in the project and percentage of overall transgender clients seen at the health center, are to be considered when evaluating overall change in practice. However, given the vastly underserved client population that this project targeted, the improvement in knowledge could prove to be substantial.
Additionally, as a health center located in San Francisco, the change in practice could bring more transgender clients to the location.

**Conclusions**

With the release of the 2011 Institute of Medicine's report on LGBT health and the Joint Commission's field guide address to LGBT health disparities, public awareness of health needs in these populations has increased in recent years (IOM, 2011; The Joint Commission, 2011). Collectively, these guidelines urged health systems to educate staff regarding LGBT nondiscrimination policies and procedures (The Joint Commission, 2011). Healthy People 2020 objectives further expanded on the need for standardized protocols addressing LGBT health needs by highlighting the shortage of culturally competent health care providers (Healthy People 2020, 2016). While these resources are available to aid development of competency training for clinicians, there remains a dearth of literature on the extent to which these programs exist and their impact on patient health outcomes (Khalili, Leung, & Diamant, 2015). Additionally, there are a lack of level I studies addressing transgender preventative needs and the systems-wide barriers that continue to prevent transgender populations from equally accessing quality health care.

This DNP project conducted in a health center in San Francisco was a collaborative effort to address gaps in providers’ clinical and cultural competency regarding transgender health needs. Following the implementation of the resource bundle materials, the results highlighted an increase in immediate knowledge in providers regarding transgender health. Most providers also indicated an overall perceived usefulness of the tool. While transgender clients make up a smaller percentage of patients at the center, these individuals typically have unaddressed health disparities and clinical complexities that can result in poor quality of life and costly
interventions. By improving provider understanding of the specific health needs, maintenance screenings, and guidelines regarding the provision of health care to transgender clients, the health center has the opportunity to expand clinical practice.

The health center will stand to benefit from increased patient access to health services. Providing health care providers with the resources to promote culturally sensitive and gender affirming care may opt clients to access services more routinely. As a federally qualified health care, the clinic also stands to potentially increase reimbursement rates for the health services provided. For clinically underserved populations, access to preventative care can decrease the number of emergency room visits and admissions for exacerbated health or mental conditions. This in effect may help to reduce the current burden of health disparities among transgender individuals.

**Funding**

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References


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https://www.sfdph.org/dph/comupg/oservices/medSvs/hlthCtrs/TransGendprotocols122006.pdf


Appendix A

**Literature Review Utilizing John Hopkins Nursing Evidence Based Practice Appraisal Tools**

<table>
<thead>
<tr>
<th>Author &amp; Date</th>
<th>Evidence Type</th>
<th>Sample Size</th>
<th>Intervention</th>
<th>Key Findings</th>
<th>Evidence Rating Level &amp; Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herbst et al., (2008)</td>
<td>Systematic Review with Meta-Analysis</td>
<td>29 Studies</td>
<td>Lit review estimating HIV prevalence rates, contributory factors, and analysis of protective behaviors in US transgender populations</td>
<td>Lab confirmed HIV prevalence trans women: 27.7%; Trans men: 0-3%; Risky identified behaviors trans women: multiple male sex partners (31.7% of sample); unprotected receptive anal intercourse (URAI) (44.1% of sample); sex work + URAI (38.5%); consumption of alcohol (43.7%) or illicit drugs (26.7%); depression/suicidal thoughts (53.8%); homelessness (12.9%), unemployment (23%); Risky identified behaviors: Trans men: Use of illicit drugs (4-21%)</td>
<td>LEVEL III Evidence, Good Quality</td>
</tr>
<tr>
<td>Murad et al (2010)</td>
<td>Systematic Review with</td>
<td>28 studies</td>
<td>Hormone therapy impact on perceived quality of life and analysis of</td>
<td>(80%) improvement gender dysphoria, (80%) improvement QOL, (78%)</td>
<td>LEVEL III Evidence, Good Quality</td>
</tr>
<tr>
<td>Reference</td>
<td>Study Type</td>
<td>Studies</td>
<td>Population</td>
<td>Findings</td>
<td>Evidence Quality</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
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</tr>
<tr>
<td>Lee, Matthews, McCulley, &amp; Melvin (2014)</td>
<td>Systematic Review</td>
<td>51 Studies (29 peer reviewed, 22 grey literature)</td>
<td>Psychosocial aspects in trans men and trans women</td>
<td>Improvement in psychological symptoms, (72%) improved sexual function</td>
<td>Level III Evidence, Good Quality</td>
</tr>
<tr>
<td>Horbach et al., (2015)</td>
<td>Systematic Review</td>
<td>26 studies; (majority retrospective case series- low to intermediate evidence)</td>
<td>Lit review determining LGBT treatment for tobacco dependence, strategies to increase smoking cessation, and analyze population’s knowledge, attitude, and behaviors related to cessation</td>
<td>LGBT tailored cessation programs correlated with 45% abstinence rates at 7th week (national= 53%). Positive factors: staff cultural competency, inclusion of sexual orientation questions in forms</td>
<td>Level III Evidence, Good Quality</td>
</tr>
</tbody>
</table>

Table: Surgical Outcomes in Trans Women Receiving Neovaginoplasty

- Neogenital skin flaps: depth mean of neo vagina= 12 cm, satisfactory sexual function with no postop complications
- Penile skin inversion: range 10-14 cm, varied satisfaction with sexual function (excellent- 78%, good 19%, unsatisfactory 4.5%) Complication: urinary infection (33%), urinary incontinence (19%), nocturia (41%), vaginal stenosis (41%)

Neovaginoplasty: depth 11.5-13 cm; sexual satisfaction ranging from 19-85.7%; Complication: vaginal
<table>
<thead>
<tr>
<th>Study</th>
<th>Study Design</th>
<th>N</th>
<th>Study Details</th>
<th>Data Analysis</th>
<th>Study Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis &amp; Meier (2014)</td>
<td>Cross-Sectional/Non-experimental Study with controls</td>
<td>208 trans men</td>
<td>Qualitative questions measuring levels of anxiety, depression, anger, mood and sexuality, and body dissatisfaction between three trans men groups: trans men receiving testosterone only (T), trans men receiving both Testosterone and Chest Reconstructive Surgery (T+CRS), and trans men who have received no treatment (Nt).</td>
<td>In comparison to (Nt), (T+CRS) reported fewer symptoms of anxiety (p&lt;.001), depression (p&lt;.001), anger (p&lt;.001), and less body dissatisfaction (p&lt;.001). Compared to (Nt), (T) reported fewer symptoms of anxiety (p&lt;.01), depression (p&lt;.01), and less anger (p&lt;.01). Nt and T groups reported same levels of body dissatisfaction (p&gt;.05). Compared to (T), (T+CRS) reported less body dissatisfaction (p&lt;.001).</td>
<td>LEVEL III Evidence, Good Quality</td>
</tr>
<tr>
<td>Reisner et al. (2013)</td>
<td>Mixed Methods Study/ Non-experimental study with no controls</td>
<td>92 trans men</td>
<td>Quantitative surveys assessing history of depression, alcohol use, asthma, physical activity and weight; qualitative interviews determining health promotion needs of trans men.</td>
<td>Quantitative: History of depression (59.9%) compared to national average (51.7%); ETOH use: 48.6%, smoking (14.2%) past smokers: 33.8%, asthma (33.3%), physical inactivity (55.2%), overweight (42.4%). Qualitative: Hormones/ chest reconstructive surgery, health insurance and access to culturally competent providers, and mental health services.</td>
<td>LEVEL III Evidence, Good Quality</td>
</tr>
<tr>
<td>Study</td>
<td>Design</td>
<td>Sample</td>
<td>Methodology</td>
<td>Findings</td>
<td>Evidence Quality</td>
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</tr>
<tr>
<td>Sevelius (2009)</td>
<td>Mixed Methods Study without controls</td>
<td>N= 45 trans men</td>
<td>Quantitative and qualitative interviews identifying HIV/STI risk behaviors and perceived interpersonal contributing factors, among transgender men who have sex with men</td>
<td>HIV risk behaviors: Inconsistent condom use with receptive sex (31.1-42.4% of sample); sex under influence of alcohol (41%), ecstasy (20.0%), marijuana (53.3%)</td>
<td>LEVEL III Evidence, Good Quality</td>
</tr>
<tr>
<td>Keuroghlian et al., (2015)</td>
<td>Retrospective secondary data analysis</td>
<td>N= 452 transgender individuals</td>
<td>Secondary data analysis of Project VOICE study (2013) examining correlations between substance use disorder and demographics, gender identity, mental health, and socio-economic factors in transgender individuals.</td>
<td>Use of cross-sex hormones/surgery: 54.9% (P=0.003); SUD: binge drinking in past 3 months: 47% (p=0.0006); illicit drug use in 12 months (p&lt;0.0001); Mental health: history partner violence 33.1% (p&lt;0.0001), PTSD 21.8% (p=0.0002) Discrimination in 12 months: 65%, unstable housing: 23.5% (p=0.005)</td>
<td>LEVEL III Evidence, Good Quality</td>
</tr>
<tr>
<td>Peitzmeier, Kullar,</td>
<td>Retrospective/Non-Experimental</td>
<td>N= 5,232 patients (4,882)</td>
<td>Chart reviews determining documented presence of cervix with at 72.9% of sample size up to date on Pap and HPV testing as per recommended</td>
<td></td>
<td>LEVEL III Evidence, Good Quality</td>
</tr>
<tr>
<td>Study</td>
<td>Study Type</td>
<td>Sample Size</td>
<td>Methodology</td>
<td>Findings</td>
<td>Evidence Quality</td>
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<tr>
<td>Reisner, &amp; Potter (2014)</td>
<td>Chart Review</td>
<td>Cisgender women, 250 trans men</td>
<td>Last Pap screens were compared to recommended guidelines from USPSTF and ACS/ASCCP/ASCP.</td>
<td>Trans men had lower rate (64.3%) compared to cisgender females (73.5%).</td>
<td></td>
</tr>
<tr>
<td>Grynberg et al (2010)</td>
<td>Retrospective/Non-Experimental Chart Review</td>
<td>N= 112 trans men</td>
<td>Histological examination of ovarian, endometrial, cervical, and breast tissue for tissue hyperplasia in sample size s/p hysterectomy, bilateral salpingo-oophorectomies, and mastectomy (with pre-surgical exposure to exogenous testosterone)</td>
<td>Ovaries: Hyperplasia present in all patients with PCOS observed in 89 out of 112. (Rate= 79.5%) (p&lt;0.03) Endometrium: Atrophic endometrium in 54 patients; adenomyosis in 4.5% sample size; 1 case of adenocarcinoma Cervix: no histological abnormalities Breast: 93% reduction of glandular tissue and proliferation of fibrous connective tissue;</td>
<td>LEVEL III Evidence, Good Quality</td>
</tr>
<tr>
<td>Goddard, J. C., Vickery, R. M., &amp; Qureshi, A. (2007)</td>
<td>Retrospective secondary data analysis/Non-experimental no controls</td>
<td>N= 222 trans women</td>
<td>Epidemiological case review of trans women who had undergone gender affirming surgeries in a single surgeon practice over a 10 year period</td>
<td>100% of subjects had phallectomy, urethroplasty and labiaplasty procedures performed; 93% had the additional formation of a neoclitoris; 91% had a skin lined neovagina; median stay in hospital equaled 6-21 days; median follow up was done in 56 days. 82% reported satisfaction with vaginal depth (average= 5-</td>
<td>LEVEL III Evidence, Good Quality</td>
</tr>
<tr>
<td>Study</td>
<td>Design</td>
<td>Sample</td>
<td>Methods</td>
<td>Results</td>
<td></td>
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<td>---------</td>
<td></td>
</tr>
<tr>
<td>Reisner, Perkovic h, &amp; Mimiaga (2010)</td>
<td>Mixed Methods Study</td>
<td>N= 16 trans men</td>
<td>Qualitative interviews and demographic surveys exploring HIV/STD risks and risk behaviors in transgender men and the influence of gender dynamics in their sexual interactions with cisgender men</td>
<td>25% with no HIV testing for 2 years; mean of 6.4 unknown HIV serostatus of sex partners in sample (any gender) 43.8% (mean 4.0) sample noted unprotected receptive vaginal sex with cisgender males; 18.8% unprotected sex acts with transgender sex partners lifetime history of transactional sex (43.8%); substance use during sex (ETOH 62.5%; marijuana 62.5%) psychosocial: depression (56.3%), anxiety (18.8-56.3%) Gender dynamics: Lack of health information for transMSM (93.8%)</td>
<td></td>
</tr>
<tr>
<td>Mustans ki &amp; Liu (2013)</td>
<td>Longitudinal, Mixed methods Prospective</td>
<td>N= 248 LGBT individuals</td>
<td>Structured psychiatric interviews assessing for clinical depression and quantitative surveys</td>
<td>Total lifetime suicide attempt history in sample: 31.6% (transgender individuals in study: 52.4%)</td>
<td></td>
</tr>
</tbody>
</table>
### Study no controls

- **Horvath et al., (2014)**  
  - **Non-experimental Online Survey Study with no controls**  
  - **N= 1,229 transgender individuals**  
  - **Quantitative online survey examining sexual, mental health, and substance use in transgender individuals in rural US**  
  - **Sexual risk behavior**: Trans men unprotected sex with any partner (16%) rural and (19%) non-rural  
  - **Mental health**: Rural (38%) non-rural (41%) trans men lifetime suicide attempt; Rural trans men with higher scores on BSI depression scale (P<.01) lower self-esteem (p=.02).  
  - **Substance use**: Heavy ETOH use for rural (6%) and nonrural (7%) transgender; illicit drug use excluding marijuana (10%) rural and (7%) non-rural; marijuana use for transmen (29-32%).  

### Level III Evidence, Good Quality

- **Shires & Jaffee (2015)**  
  - **Retrospective secondary data analysis/Non-experimental no controls**  
  - **N= 1,711 trans men**  
  - **Secondary data analysis of trans men discrimination in health care from survey data by National Gay and Lesbian Task Force**  
  - **Multiracial, public health insurance vulnerable to discrimination (p<0.001) trans men living full time as nonbirth gender & with medical transition (p<.001)**  

---

**Assessing suicide risk factors in LGBT individuals**  
- Study no controls
- **Depressive Disorder Symptoms**: 9.95 (mean) in sample; 10.43 in transgender Risk factors: hopelessness (2.01), impulsivity (64.0), family support (4.01), Peer support (5.42) & victimization (1.53)  

**Non-experimental Online Survey Study with no controls**  
- N= 1,229 transgender individuals  
- Quantitative online survey examining sexual, mental health, and substance use in transgender individuals in rural US  
- Sexual risk behavior: Trans men unprotected sex with any partner (16%) rural and (19%) non-rural  
- Mental health: Rural (38%) non-rural (41%) trans men lifetime suicide attempt; Rural trans men with higher scores on BSI depression scale (P<.01) lower self-esteem (p=.02).  
- Substance use: heavy ETOH use for rural (6%) and nonrural (7%) transgender; illicit drug use excluding marijuana (10%) rural and (7%) non-rural; marijuana use for transmen (29-32%).  

**Retrospective secondary data analysis/Non-experimental no controls**  
- N= 1,711 trans men  
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- Multiracial, public health insurance vulnerable to discrimination (p<0.001) trans men living full time as nonbirth gender & with medical transition (p<.001)
Appendix B

**Gap Analysis**

<table>
<thead>
<tr>
<th>DNP Project Vision</th>
<th>• Providing education and evidence-based resources regarding recommended transgender health screenings and health behaviors to health care in order to increase the organization’s cultural competency and help reduce health disparities in transgender populations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd Goal:</td>
<td>• By September 30, 2016, the resource bundle will be utilized 100% of the time when the provider is caring for a transgender client seeking primary care services.</td>
</tr>
<tr>
<td>2nd Goal:</td>
<td>3.) By September 30, 2016, at least 70% of health care providers will indicate overall usefulness of resource bundle (rated 7 or above of likert scale).</td>
</tr>
<tr>
<td>1st Goal:</td>
<td>4.) By July 31, 2016, 90% of all health care providers involved will indicate increased levels of understanding regarding health maintenance screenings specific for transgender individuals.</td>
</tr>
<tr>
<td>Current Reality:</td>
<td>• Clinicians lacked the knowledge to provide anticipatory guidance to clients asking about physiologic changes for specific hormone dosages. They were also unsure of qualifying criteria for hormone therapies and recommended preventative screening guidelines.</td>
</tr>
</tbody>
</table>
Appendix C

Cost/Benefit Analysis & Return on Investment (ROI)

COSTS

<table>
<thead>
<tr>
<th>Tangible Costs</th>
<th>Dollar Amounts</th>
<th>Intangible Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplies</td>
<td>$175</td>
<td>Invested time</td>
</tr>
<tr>
<td>Staff salaries for in-services</td>
<td>$400</td>
<td>Downtime, potential staff resistance due to meetings held during lunch hour</td>
</tr>
<tr>
<td>Total Costs</td>
<td></td>
<td>$575</td>
</tr>
</tbody>
</table>

BENEFITS

<table>
<thead>
<tr>
<th>Tangible Benefits</th>
<th>Dollar Amounts</th>
<th>Intangible Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in transgender clients seen annually</td>
<td>$183 per/ptnt x 30 = $5,490 annually at present</td>
<td>Improved level of staffing; Improved morale</td>
</tr>
<tr>
<td></td>
<td>If increase to 100 transgender clients seen annually, then $183 x 100= $18300</td>
<td></td>
</tr>
<tr>
<td>Total Benefits/Return on Investment</td>
<td></td>
<td>$18,300</td>
</tr>
</tbody>
</table>
Return on Investment (ROI)

Initial ROI for clinic:
With 30 transgender clients annually:
(Net profit-total investment/Total Investment)
$5490-$400/$400 = 12.75% ROI

ROI for clinic:
With 100 transgender clients annually:
(Net profit-total investment/Total Investment)
$18,300-$400/400 = 44% ROI
Appendix D

Responsibility/Communication Matrix

<table>
<thead>
<tr>
<th>Tasks</th>
<th>DNP Student</th>
<th>Nurse Practitioners x 2, Medical Director</th>
<th>Registered Nurses (x2), Medical Assistants (x6)</th>
<th>Social Worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop project vision</td>
<td>R</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Develop measurable objectives</td>
<td>R</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Literature Review</td>
<td>R</td>
<td>C/I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Construction of Resource Bundle</td>
<td>R</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Teaching/Implementation</td>
<td>R</td>
<td>C/I</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Evaluation</td>
<td>R</td>
<td>I</td>
<td>I</td>
<td>I</td>
</tr>
</tbody>
</table>

R= Responsible   A= Accountable   C= Consult   I=Inform
Appendix E

Gantt Chart

<table>
<thead>
<tr>
<th>Primary Column</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
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<tr>
<td></td>
<td>Apr</td>
<td>May</td>
<td>Jun</td>
</tr>
<tr>
<td>Needs assessment</td>
<td>Needs assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Literature review</td>
<td>Literature review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dissemination of literature</td>
<td>Dissemination of literature</td>
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<td></td>
</tr>
<tr>
<td>Gap Analysis</td>
<td>Gap Analysis</td>
<td></td>
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<tr>
<td>Group Development</td>
<td>Group Development</td>
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</tr>
<tr>
<td>Development of Resource Bundle</td>
<td>Development of Resource Bundle</td>
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<td>PDSA Cycle</td>
<td>PDSA Cycle</td>
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<tr>
<td>Teaching/Implementation Cy</td>
<td>Teaching/Implementation Cycle 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching/Implementation Cy</td>
<td>Teaching/Implementation Cycle 2</td>
<td></td>
<td></td>
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<tr>
<td>Evaluation</td>
<td>Evaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two month evaluation</td>
<td>Two month evaluation</td>
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Appendix F

SWOT Analysis

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
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<tbody>
<tr>
<td>• Supportive environment</td>
<td>• Current low transgender client census</td>
</tr>
<tr>
<td>• Open to dissemination of evidence and improving practice</td>
<td>• Staff time constraints given high volume of</td>
</tr>
<tr>
<td>• Cost effective</td>
<td>general patients</td>
</tr>
<tr>
<td>• Bundle will provide easy access point of care references for clinicians</td>
<td></td>
</tr>
<tr>
<td>and clients</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPPORTUNITIES</th>
<th>THREATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Potential to increase client knowledge and reduce high risk behaviors</td>
<td>• Potential staff/client disinterest</td>
</tr>
<tr>
<td>• Potential to increase rates of routine healthcare access &amp; reduce</td>
<td>• Lack of time, resource constraints</td>
</tr>
<tr>
<td>current disparities</td>
<td></td>
</tr>
<tr>
<td>• Potential to initiate and facilitate continuity</td>
<td></td>
</tr>
<tr>
<td>of care in the community</td>
<td></td>
</tr>
<tr>
<td>• Potential to decrease ER visits</td>
<td></td>
</tr>
</tbody>
</table>
Appendix G

IRB/DNP Statement of Non-Research Determination & Permission letter from site

**Student Name:** Lovejeet Kaur

<table>
<thead>
<tr>
<th><strong>Title of Project:</strong></th>
<th>The Development, Implementation, and Evaluation of a Health Screening and Maintenance Resource Bundle for Transgender Individuals Seeking Primary Care Health Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief Description of Project:</strong></td>
<td>To help clinicians address health disparities in transgender populations seeking health services, a Doctor of Nursing Practice (DNP) student at the University of San Francisco facilitated the collaborative assessment, development, implementation and evaluation of a transgender health screening/health maintenance resource bundle at a federally funded community health center in San Francisco, California</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>A) Aim Statement:</strong></th>
<th>By October 2016, a health screening/health maintenance resource bundle for health care providers regarding transgender health needs will be developed, implemented, and evaluated within the primary care clinic.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B) Description of Intervention:</strong></td>
<td>To assess baseline knowledge, health care providers at the center will be asked to provide feedback on a number of questions regarding their knowledge of what health screenings are important to understand their perceived gaps in knowledge regarding the health needs of transgender clients. After analyzing these data, an evidence based resource bundle consisting of an informational brochure, algorithms, and a digital version of the compiled information with an electronic voice over will be developed in collaboration with the quality improvement team in the clinic. Teaching regarding the bundle will be done in phases: the first will address the literature regarding recommended transgender health screenings, the second will review the literature compiled into an informational brochure and two algorithms, and the final teaching will re-evaluate the bundle in its entirety. The clinicians will be evaluated on their level of knowledge by providing feedback on a number of questions (in the aggregate) before the teachings, immediately after the education had been completed, and two months post implementation. Clinicians will also asked to rate their perceived usefulness of the bundle on a Likert scale and provide written feedback immediately post implementation and two months post implementation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>C) How will this intervention change practice?</strong></th>
<th>Once implemented, the clinicians will be utilizing the bundle to actively screen and address the health promotion/health maintenance needs of their transgender clients.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D) Outcome measurements:</strong> (1.)</td>
<td>By July 31, 2016, 90% of all health care providers involved will indicate increased levels of</td>
</tr>
</tbody>
</table>
understanding regarding health maintenance screenings specific for transgender individuals. (2.) By September 30, 2016, at least 70% of health care providers will indicate overall usefulness of resource bundle (rated 7 or above of Likert scale). (3.) By October 30, 2016, the resource bundle will be utilized 100% of the time when the provider is caring for a transgender client seeking primary care services.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: (http://answers.hhs.gov/ohrp/categories/1569)

X This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

□ This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:
EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *

Instructions: Answer YES or NO to each of the following statements:

<table>
<thead>
<tr>
<th>Project Title:</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The specific aim is to improve performance on a specific service or program and is a part of usual care. ALL participants will receive standard of care.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project is NOT designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control. The project does NOT follow a protocol that overrides clinical decision-making.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does NOT develop paradigms or untested methods or new untested standards.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does NOT seek to test an intervention that is beyond current science and experience.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project has NO funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., not a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: “This project was undertaken as an Evidence-</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board.”

ANSWER KEY: If the answer to ALL of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. IRB review is not required. Keep a copy of this checklist in your files. If the answer to ANY of these questions is NO, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print):
Lovejeet Kaur
Signature of Student: __________________________ DATE: 04/01/2016

SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print):
Juli Maxworthy
Signature of Supervising Faculty Member (Chair): __________________________ DATE: __________
This letter states that Lovejeet Kaur, DNP/FNP student from University of San Francisco completed her DNP project and residency at the South of Market Health Center (SMHC) in San Francisco with permission, from Spring 2016 to Fall 2016. The DNP project regarding the Development, Implementation, and Evaluation of a Health Screening and Maintenance Resource Bundle for Transgender Individuals Seeking Primary Care Health Services was concluded in collaboration with staff members at SMHC, advised by preceptor Katherine Burchell, FNP and Gregory Wong, MD.

Lovejeet Kaur, RN, MSN-CNL
Student Signature

South of Market Health Center Stamp of Approval or Signature of QI Team
Appendix H

Project Results

Average of Provider Knowledge Levels Regarding Transgender Health Needs
(Score out of 5)

NP  RN/LVN  MA

Pre-Intervention Session 1  Post-Intervention Session 1  Pre-Intervention Session 2  Post-Intervention Session 2
Average of Provider Knowledge Levels Regarding Transgender Needs (Score out of 5): Final Evaluation
Perceived Usefulness of Evidence Based Bundle

Likert scale

On a scale of 1-10, how would you rate the usefulness of this resource bundle in your practice?

<table>
<thead>
<tr>
<th>Very NOT useful</th>
<th>Not Useful</th>
<th>Moderately not useful</th>
<th>Mildly not useful</th>
<th>Unsure</th>
<th>Undecided with use</th>
<th>Mildly useful</th>
<th>Moderately useful</th>
<th>Useful</th>
<th>Very useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
<td>(10)</td>
</tr>
</tbody>
</table>

Perceived usefulness of bundle via Likert scale - Session 1

- 10 out of 10: 75%
- 8 out of 10: 15%
- 7 out of 10: 10%

Perceived usefulness of bundle via Likert scale - Session 2

- 10 out of 10: 70%
- 8 out of 10: 25%
- 7 out of 10: 5%
Perceived Usefulness of bundle via Likert Scale: Final Evaluation

- 30% rated it 10 out of 10
- 50% rated it 9 out of 10
- 20% rated it 8 out of 10
Appendix I

Informational Brochure

"GENDER DYSFUNCTION encompasses persistent feelings of identification with the opposite gender and discomfort with one’s assigned sex that results in significant distress and impairment."

Transgender is a broad term that encompasses a diverse group of individuals whose self-identified gender identity is different from their legal gender (i.e., birth certificate). Transgender individuals may or may not have received hormone and surgical interventions. The following definitions are meant to be as inclusive as possible. 

- Transgender male: Individuals who identify as male regardless of assigned sex at birth. 
- Transgender female: Individuals who identify as female regardless of assigned sex at birth. 
- Genderqueer: Individuals who identify as a gender different from traditional male or female. 
- Non-binary: Individuals who identify as a gender that is neither male nor female. 

Cross-sex hormone therapy is a critical component of transgender care, affecting endocrine system function and internal and external physical characteristics. Hormones are used to reduce secondary sex characteristics, promote internal and external changes, and manage other gender-related issues. 

General Reassignment Surgeries

- Female-to-Male 
  - FTM Reassignment Surgery: Surgical transformation of external genitalia, chest, and face to resemble those of a male. 
  - Male-to-Female 
  - MTF Reassignment Surgery: Surgical transformation of external genitalia, chest, and face to resemble those of a female. 

Cross-sex Hormone Therapy

- Hormone therapy is used to reduce secondary sex characteristics and promote internal and external changes. 

Appendix I

Informational Brochure

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- Female-to-Male 
  - FTM Reassignment Surgery: Surgical transformation of external genitalia, chest, and face to resemble those of a male. 
  - Male-to-Female 
  - MTF Reassignment Surgery: Surgical transformation of external genitalia, chest, and face to resemble those of a female. 

Cross-sex Hormone Therapy

- Hormone therapy is used to reduce secondary sex characteristics and promote internal and external changes.
Transgender Health Maintenance Algorithms (Medical Assistants and Ancillary Staff)

FTM hormone therapy
Physical effects accompanying testosterone treatment include increased muscle mass, voice deepening, growth of body hair, weight gain, possible cessation of menses, and facial enlargement. Additional psychological effects, such as increased energy and libido, have been well documented in the literature.16

<table>
<thead>
<tr>
<th>Testosterone</th>
<th>Reality Changes Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1-3 months after starting therapy</strong></td>
<td></td>
</tr>
<tr>
<td>- Increased voice pitch</td>
<td></td>
</tr>
<tr>
<td>- Growth of facial hair (beard, chest, abdomen, and chest)</td>
<td></td>
</tr>
<tr>
<td>- Oily skin and increased acne</td>
<td></td>
</tr>
<tr>
<td>- Increase in growth and thickness of hair on arms, legs, chest, abdomen, and back</td>
<td></td>
</tr>
<tr>
<td>- Redistribution of body fat in more masculine pattern around the waist</td>
<td></td>
</tr>
<tr>
<td>- Increased muscle mass and upper body strength</td>
<td></td>
</tr>
<tr>
<td><strong>6 months after starting therapy</strong></td>
<td></td>
</tr>
<tr>
<td>- Cessation of menstrual periods</td>
<td></td>
</tr>
<tr>
<td>- Telogen eflorescence</td>
<td></td>
</tr>
<tr>
<td><strong>1 year or more after starting therapy</strong></td>
<td></td>
</tr>
<tr>
<td>- Gradual growth of facial hair</td>
<td></td>
</tr>
<tr>
<td>- Some male pattern balding</td>
<td></td>
</tr>
</tbody>
</table>

MTF hormone therapy
Hormone therapy for trans women combines anti-androgens and estrogen (Ethinyl estradiol). Estrogen helps to induce breast growth, weight gain, and redistribution of fat. It also helps to decrease skin oiliness and facial and body hair. The therapy also restores decreased libido and masculine atrophy correlating with long-term therapy.14

<table>
<thead>
<tr>
<th>Anti-androgens</th>
<th>Reality Changes Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1-3 months after starting therapy</strong></td>
<td></td>
</tr>
<tr>
<td>- Decrease in sex drive and anxiety</td>
<td></td>
</tr>
<tr>
<td>- Decrease in ability to make sport-related decisions</td>
<td></td>
</tr>
<tr>
<td><strong>3 months - 3 years and continuing</strong></td>
<td></td>
</tr>
<tr>
<td>- Heightened growth of breast and body hair</td>
<td></td>
</tr>
<tr>
<td>- Decrease in acne pattern balding</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Estrogen</th>
<th>Reality Changes Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1-3 months after starting therapy</strong></td>
<td></td>
</tr>
<tr>
<td>- Decrease in sex drive, lower tolerance of morning erections</td>
<td></td>
</tr>
<tr>
<td>- Decrease in ability to make sport-related decisions</td>
<td></td>
</tr>
<tr>
<td>- Softening of skin, decrease in muscle mass, increase in body fat with distribution of fat in feminine pattern</td>
<td></td>
</tr>
<tr>
<td><strong>6 months after starting therapy</strong></td>
<td></td>
</tr>
<tr>
<td>- Normal and linear growth with decrease in truncal fat</td>
<td></td>
</tr>
<tr>
<td>- Increase in growth of pubic hair, decreased acne pattern balding</td>
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</tbody>
</table>

Lowery Kase, RN, MSN - CNI: University of San Francisco
## Appendix K

### Anonymous Checklist

<table>
<thead>
<tr>
<th>Title of health care provider</th>
<th>Date of Reference and use (indicate by marking date)</th>
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<tbody>
<tr>
<td><em>Ex: registered nurse</em></td>
<td>08/28/2016</td>
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