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# Offering Medical Providers Capacity and Competence in Caring for Transgender and Non-binary Patients: Evaluation of a Pilot Digital Training Program

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Offering Medical Providers Capacity and Competence in Caring for

Transgender and Non-binary Patients:

Evaluation of a Pilot Digital Training Program

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A capstone project submitted in partial fulfillment of the requirements for the degree of

Master of Science in Behavioral Health

### Abstract

**Purpose:** Stigma and discrimination in health care settings contribute to health disparities for transgender and non-binary (TGNB) people. Evidence suggests that a lack of training on the care for transgender and non-binary TGNB patients in medical school curricula has contributed to providers feeling unprepared to provide quality care for this population. Health care providers have the opportunity to play a key role in the reduction of health disparities for TGNB patients.

**Methods:** Twenty-five health care providers completed the eight-module digital training program. Pre- and post-tests assessed provider knowledge, self-efficacy, preparedness, and behavior. Paired samples t-tests were conducted to compare pre-and post-test results.

**Results:** Health care providers' self-reported knowledge, self-efficacy, and preparedness increased significantly ( $p = .000$ ) from pre-test to post-test. Increases in assessed knowledge were not statistically significant. The majority (92%) of participants reported having already used something they learned from the training. Eighty percent of participants were “very likely” or “extremely likely” to recommend transCONNECT to a colleague.

**Discussion:** Based on the evaluation results, digital training can be an effective method of increasing medical providers' competence in caring for TGNB patients. Participants had an overall positive experience with the training regarding both content as well as with the online training platform. Arguably the most significant outcome was the enthusiasm and appreciation expressed by participants both formally through the evaluation as well as informally through interactions with the project management team.

*Keywords: transgender, non-binary, health care provider training, primary health care, stigma, discrimination*

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## Literature Review

### Overview

People who are lesbian, gay, bisexual, and transgender (LGBT) are subject to discrimination and stigma within and outside of the health care system. The higher rates of discrimination against transgender and non-binary (TGNB) people is associated with disparities in physical and mental health (Radix, Lelutiu-Weinberger, & Gamarel, 2014) and lower quality of life (Miller & Grollman, 2015), and is prevalent regardless of age group, race, gender, socioeconomic status, and medical transition status (Kattari & Hasche, 2016). The United States Transgender Survey (USTS, 2015) reported that one-third (33%) of transgender people had at least one negative interaction with a health care provider including mistreatment during medical care (Grant et al., 2011) and being denied care (Bauer, Scheim, Deutsch, & Massarella, 2014).

Patients consistently reported that providers had inadequate knowledge on TGNB health and exhibited a lack of cultural humility and lack of competence has been related to lack of professional education about LGBT health (Baldwin et al., 2018; Radix et al., 2014; Winter et al., 2016). Studies have consistently demonstrated the importance of early introduction of transgender health curricula in medical education (Dowshen et al., 2014; Wylie et al., 2016). A lack of educational training about transgender health is persistent for all levels of staff providers (Baldwin et al., 2018; Radix et al., 2014; Winter et al., 2016; Wylie et al., 2016). However, there

are few studies evaluating TGNB training programs. Additional studies could support providers to gain the competencies they need to provide quality care.

Table 1

Key Terms

Transgender	A person whose sense of personal identity and gender does not correspond with their birth sex
Non-binary	Non-binary is a spectrum of gender identities that are not exclusively masculine or exclusively feminine—identities that are outside the gender binary
Cisgender	A person whose sense of personal identity and gender corresponds with their birth sex
Gender affirming care	Can include social affirmation (e.g. use of correct pronouns), medical affirmation (e.g. hormone replacement therapy), and surgical affirmation (e.g. top or bottom surgery)
Cultural competence	Cultural competence is the ability to understand, communicate with and effectively interact with people across cultures
Cultural humility	Cultural humility is a process of self-reflection and discovery in order to build honest and trustworthy relationships

### Health Disparities and Gender-Diverse Populations

Health disparities are prevalent among transgender and non-binary (TGNB) people. Compared with the cisgender population, TGNB people have significantly higher rates of drug and alcohol consumption, HIV and STI infections, and suicidal attempts (Fredriksen-Goldsen, 2011; Sevelius, Keatley, & Gutierrez-Mock, 2011). TGNB marginalization is associated with negative effects on physical and mental health (Radix et al., 2014) and lower quality of life (Miller &

Grollman, 2015); among transgender people, rates of poverty, victimization, school harassment, unemployment, and sexual violence exceed those of the general population (Herbst et al., 2008). TGNB people are more likely to be uninsured, delay medical care, and use emergency care for primary care health problems (Maragh-Bass et al., 2017). Furthermore, multiple health disparities have been observed during preventative care, such as being less likely to undergo preventing screenings leading to a delay in becoming aware of their HIV status (Fredriksen-Goldsen, 2011). In regards to non-communicable diseases, TGNB individuals have higher rates of diabetes mellitus, obesity, and cardiovascular diseases than cisgender people (Radix et al., 2014).

**Stigma and discrimination.** Stigma and discrimination has been identified as a fundamental barrier to health care and cause of health disparities (Krieger, 2012; Poteat, German, & Kerrigan, 2013) (Poteat, 2013; Krieger, 2012). Stigma can be understood as a social process of “othering, blaming, and shaming” (Deacon, 2006) leading to discrimination when stigmatized groups are devalued during the exercise of social, cultural, economic, and political power by others (Link & Phelan, 1995). Structural and institutional discrimination refers to the intentional and unintentional policies and practices that result in limited opportunities for people being stigmatized (Corrigan, Markowitz, & Watson, 2004). TGNB are among the most stigmatized people in the United States (Norton & Herek, 2013).

US Transgender Survey (USTS), first implemented in 2010 with 6,000 participants and for the second time in 2015 with almost 28,000 respondents, is the largest survey to explore the lives and experiences of transgender people (USTS, n.d.). Results indicated that 70% of transgender respondents reported that they experienced some form of discrimination in a health care setting compared to 56% of LGB patients, and 63% of people living with HIV (Legal, 2010). The

Lamda Legal study also found that one in four (25%) transgender patients reported being denied care due to their gender identity compared to 7.7% of LGB patients due to their sexual orientation, and 19% of people living with HIV due to their HIV status. The higher rates of discrimination experienced by transgender patients indicated a need to improve the quality of health care specifically for this population. However, it was not until *Healthy People 2020* that LGBT people were identified for the first time in the U.S as an at-risk population and a health priority (U.S. Department of Health and Human Services, 2012).

**Health care discrimination.** Transgender and non-binary people have been recognized as a population that faces discrimination and stigma within and outside of the health care system (Graham et al., 2011; Harrison, Grant, & Herman, 2012), however, health care was the most common area in which discrimination has been reported (Bradford, Reisner, Honnold, & Xavier, 2013). When TGNB people can access health care, they experience discrimination that leads to a negative impact on their help-seeking behaviors as well as mistrust of health care professionals (G. Bauer, Pyne, Francino, & Hammond, 2013; Bradford et al., 2013). Discrimination against TGNB people within health care has affected patients regardless of age group, race, gender, socioeconomic status, and medical transition status (Kattari & Hasche, 2016). One-third (33%) of transgender people had at least one negative interaction with a health care provider regarding their gender expression within the last year, 23% did not seek medical attention when they needed it due to fear of discrimination, and 33% did not seek medical care because of the cost (Jaffee, Shires, & Stroumsa, 2016; James et al., 2016). Regarding cost, discrimination is linked to higher rates of unemployment, which then affects access to employer-sponsored health insurance (Leppel, 2016). This is particularly relevant when considering that transgender and gender non-binary people could require gender-affirming interventions and that living their

authentic gender expression is dependent upon their access to the medical system (Stroumsa, 2014). Gender affirming interventions include any procedure or care that allows patients to live in alignment with the gender they identify with (e.g. hormone replacement therapy).

***Mistreatment during medical care.*** In the US Transgender Survey, 28% of respondents were subjected to harassment in medical settings and 2% were victims of violence in doctor's offices (J. M. Grant et al., 2011). Similarly, in the Lambda Legal study (2010), it was found that 20.9% of transgender respondents were subjected to harsh language, and 20.3% reported being blamed for their health problems. Furthermore, 15% reported that health care providers refused to touch them or used excessive precautions (Legal, 2010). Although emergency departments (EDs) usually serve as health care "safety nets" for vulnerable populations, a recent study found that TGNB people reported negative patient experiences due to clinicians lack of training, in comparison to general ED patients who 92% of them reported being satisfied with the emergency care being received (Chisolm-Straker et al., 2017). Inappropriate patient-provider encounters included participant descriptions of the health care staff focusing on genital examinations, unnecessarily taking the history of about gender-related surgeries, assumption of sexually transmitted diseases, excessive questioning related to drug use and psychological disorders, and patients teaching providers about TGNB health (Chisolm-Straker et al., 2017).

***Being denied care.*** TGNB individuals are frequently refused care by providers (G. R. Bauer et al., 2014; J. M. Grant et al., 2011). The U.S. Transgender Survey found that 19% of the sample reported being refused care due to their transgender or gender non-binary status, with higher percentages among people of color (Grant et al., 2010). In a recent qualitative study by Baldwin et. al (2018), TGNB participants described three different ways in which they experienced denial of care: 1) participants reported denial of care related to transition; a specific example was a



refusal to discuss hormone replacement therapy due to the provider's "religious beliefs." 2) Denial of care related to patient gender identity, for example, not being able to discuss sexual health because of incorrect assumptions. 3) Participants noted that being referred to another provider is itself a kind of denial of care, even when done with good intention since it leaves patients with the impression that they were refused care and it often results in the same outcome (i.e., delayed care or no care at all). In the words of one participant, "the idea that it takes specialized knowledge to work with me or other trans people is frustrating and inaccurate" (Baldwin et al., 2018). Providers may perceive that they are, or may truly be, lacking the training to provide inclusive care; however, the vast majority of trans patients' needs can and should be met in a non-specialized primary care setting.

### **Health Care for Trans and Non-Binary Patients**

TGNB people and their needs are not well understood, not only by health care providers but also by society in general. As gender is increasingly being seen as a social construct and people are generally more aware of transgender identity, the estimated populations of people identifying as transgender has increased from .3% to .6% (Flores A., Herman J., Gates G., Brown T., 2016).

The absence of appropriate information, together with stigma and its consequent discrimination, have alarming consequences for transgender people's health and wellbeing (Winter et al., 2016).

The World Professional Association for Transgender Health (WPATH) published in 2012 the 7<sup>th</sup> version of the international standards of care for transsexual, transgender, and gender non-binary people (Coleman et al., 2012). Nevertheless, the implementation of these standards depends on the health system and sociocultural context of the country in regard.

**The current state.** The WPATH 7<sup>th</sup> version of the standards of care includes the concept of gender non-conformity (or being TGNB) and confirms that it is not considered to be a pathology.

The guidelines state that people who experience gender dysphoria and want to start a transition are entitled to access to medical treatment (Coleman et al., 2012; Wylie et al., 2016).

Furthermore, the standards highlight that a referral is not a requirement in order to access medical interventions; however, an evaluation and referral by a health provider with training in transgender health is recommended. Mental health providers can have an important role in improving the wellbeing, and when applicable, facilitating gender transition and coming out (Coleman et al., 2012). There are clinical services that are best delivered in a more specialized facility (such as gender-affirming surgery); however, the majority of health care needs of trans people can be delivered at a primary care setting (Wylie et al., 2016).

Regarding the current evidence, most of the research on health care experience of TGNB people is limited to transgender people (Baldwin et al., 2018), however gender non-binary individuals (genderqueer or gender non-conformity) also face stigma when not aligned with gender norms and are underrepresented in the literature (Miller & Grollman, 2015). Furthermore, research on TGNB people's health care experiences have focused on a variety of negative interactions, but there is a lack of research investigating the impact of positive patient-provider interactions.

**Lack of competent providers.** A lack of providers who have competence with transgender and non-binary health issues represents a barrier to health care access and is related to traumatic encounters, denial of services, and delay in seeking out care (Radix et al., 2014). Patients consistently reported that inadequate knowledge of transgender health and lack of cultural competency working with TGNB people had been a major impediment to accessing care. Patients also articulated that this resulted in unsafe practices including the use of hormones acquired outside of the medical system. Lack of competence has been linked to a lack of professional education about LGBT health (Baldwin et al., 2018; Radix et al., 2014; Winter et

al., 2016; Wylie et al., 2016). One third of medical schools in the United States do not include mandatory LGBT-related content, and as a result, health professionals themselves express not being well equipped to provide care to TGNB patients (Hollenbach, Eckstrand, & Dreger, 2014; Poteat et al., 2013). Some health professionals learn about TGNB health issues through self-study (Reisner, Radix, & Deutsch, 2016). In a recent study, participants reported that it is important for providers to recognize that not all health issues are related to being TGNB, that there are many possibilities for gender identity and expression, and that not everyone who is TGNB is looking for hormone therapies or surgeries (Baldwin et al., 2018).

***Patients delaying or not seeking out care.*** Multiple studies report that TGNB people frequently avoid seeking necessary health care because of fear of discrimination and harassment (G. R. Bauer et al., 2014; Chisolm-Straker et al., 2017; J. M. Grant et al., 2011). In a recent study, transgender people who delayed health care due to fear of discrimination had worse general health than those who did not delay or delayed health care for other reasons. They also found greater odds of having depression and past suicide attempts (Seelman, Colón-Díaz, LeCroix, Xavier-Brier, & Kattari, 2017). In the USTS a third of respondents (33%) reported that discrimination caused them to postpone preventative care and 28% postponed treatment when sick or injured (J. M. Grant et al., 2011). In one study, half of the participants who had taken hormones had received them from someone who was not a medical professional and nearly half had injected the hormones themselves or had them injected by someone who was not medically trained (Poteat et al., 2013).

***Patients' search for competent providers.*** Ninety percent of transgender patients in the Lambda Legal study believed that there are not enough properly trained medical providers (2010). Some sought out recommendations from friends or searched the internet to find providers with

experience in TGNB health, however, some of those participants reported still being frustrated by their provider's limited knowledge and found themselves educating their medical providers (Poteat et al., 2013). Many TGNB participants' cited specific resources they wanted health providers to become familiarized with, including the Gender Odyssey Conference (which offers continuing education), and the WPATH standards of care (Baldwin et al., 2018).

***Need for training.*** Providers are unprepared to care for transgender and non-binary patients in large part because medical training often does not explicitly include teaching on LGBT health. Both, transgender patients and their physicians identified the lack of TGNB relevant clinical training as a barrier to care and reported the limited coverage of this topic within the medical education curricula (G. R. Bauer, Zong, Scheim, Hammond, & Thind, 2015). Teaching on LGBT and non-binary health is not achieving widespread curricular integration at neither graduate nor postgraduate education. In a survey of medical school deans, 36% rated the content in their school's curriculum as fair and 34% rated it as 'poor' or 'very poor' (Rutherford, McIntyre, & Ross, 2012). Lack of education is one of the key root causes of systemic discrimination rather than any fault of providers themselves (Baldwin et al., 2018). The challenges associated with integrating training on LGBT and TGNB care into the medical curricula might come from the lack of research because there are few studies evaluating the effectiveness of health education initiatives on this topic (Rutherford et al., 2012).

***Patients having to educate their providers.*** When TGNB people are able to access care, individuals report having to teach their providers about LGBT health (J. Grant et al., 2010; Jaffee et al., 2016). In the first U.S. Transgender Survey of over 6000 TGNB people, 50% of the sample reported having to teach their medical providers about transgender care (Grant et al., 2010). Similar results were found in the assessment conducted in Virginia, where 46% of

transgender respondents had to educate their regular doctors about their health care needs (Xavier, Honnold, & Bradford, 2007). Furthermore, it has been found that transgender patients who need to teach their providers about TGNB health are significantly more likely to postpone or to not seek needed care (Jaffee et al., 2016).

### **Training Programs and New Frameworks of Care**

**Training can effectively improve competence.** Studies have consistently indicated the importance of early introduction of transgender health curricula in medical education (Dowshen et al., 2014; Wylie et al., 2016). One study that evaluated an intervention where undergraduate medical students received a lecture on transgender health showed that participants who attended lectures reported significantly higher levels of competency compared with the rest of the students (Dowshen et al., 2014). Although these types of interventions can improve cultural and clinical competency, most providers reported that they still have limited exposure and experience regarding the health needs of LGBT people (Moll et al., 2014). Comprehensive training programs must include all levels of health care staff and address different issues such as transgender and non-binary identity, barriers to health care, and appropriate language (Radix et al., 2014). Furthermore, evidence suggests that cultural competence training can improve knowledge, attitudes, and skills of health professionals (Beach et al., 2005).

**New frameworks of care.** The concept of cultural safety suggests that the health of minority populations can be improved by addressing the social structures and the role of institutions in preserving health disparities (Williams, 1999). Baldwin et al. (2018) recommended this framework for TGNB health care, which highlights the shared responsibility of providers, the medical institutions, and the systems they work in to provide quality care (Baldwin et al., 2018). They also called out the education of professionals as a priority. The Association of American

Medical Colleges created a resource for medical education institutions that includes TGNB health care curricula (Baldwin et al., 2018). However, current research found that having personal experiences or connections with TGNB helped reduce stigma and discrimination when providing care to TGNB patients (Poteat et al., 2013). Stroumsa (2014) also mentioned that while educating physicians, there is also a need to direct this training to other health care professionals such as nurses, emergency care providers, assistants, and administrative staff. As Wylie et al. (2016) suggests, the general care of TGNB people should be addressed in a primary care setting since specific care for gender transition is also possible at this level. There are several examples in the US, Canada, and Australia where comprehensive services at the primary care level address multiple health concerns (Reisner et al., 2015). Other examples reported by Wylie et al. (2016) are the TRANS Pulse Project in Canada; the concept of “gender units” as examples of a coordinated multidisciplinary approach to meet needs of TGNB patients; and a group in Boston, U.S. of partnership agencies (e.g., community, academia, public health institutions, and service providers).

### **Agency Profile**

**Overview.** Youth + Tech + Health (YTH) is a small non-profit organization located near downtown Oakland. YTH’s program model is to partner with other agencies who are working to improve the health of young people through technology. The partnerships often lead to a collaborative project where the partner identifies a need and YTH designs an innovative solution. Projects often involve building technology, such as an app, although they also conduct research and evaluations and provide expert advice in their field. Each year they host YTH Live, a conference where leaders youth health promotion and technology share findings and best

practice. As of spring of 2019, YTH merged with ETR, a large organization leading in health education and health promotion materials.

**History.** YTH began as “Internet Sexuality Information Services” and began primarily as a sexual and reproductive health organization working to connect young people to resources and information through technology. An example of one of their earlier projects was “Circle of 6,” an app that allows users to add six of their closest contacts that can be immediately notified for a variety of emergency scenarios. Emergencies include needing to be picked up from an unsafe situation or requesting for someone to call with an excuse to leave. The focus on sexual health was expanded after hearing from young people that a variety of unmet needs exist, primarily in mental health.

**Funding.** Funding for YTH comes from a variety of sources with the majority coming from partner organizations that co-own the projects. At the start of a project, YTH provides a quote with an estimate of staff time and resources to be allocated to the project. In many cases, results from a research project or landscape analysis indicate that a tech solution is needed. YTH is often positioned to build the tech solution after a need is discovered. YTH also receives some institutional philanthropy and a small portion of their funding comes from grants.

**Target audience.** The target audience for YTH is youth in under-resourced communities. A lack of access to resources disproportionately affects low income, urban, marginalized communities. On the website the mission and vision is as follows: “We believe that young people deserve honest information, deserve for their voice to be heard, and deserve to live healthy lives without shame or fear. YTH is committed to pursuing emerging, startling, and sometimes, simple technologies that can reach young people where they are. Through our partnerships and projects, we discover what works, pilot innovative solutions, and disseminate what’s truly effective.”

Young people are already using technology to seek information about their health and YTH is seeking to ensure that information is valid, reliable, and accessible.

**Current project.** The goal of transCONNECT is to provide digital training to medical providers to provide appropriate and high quality care to transgender individuals. An earlier project, They2Ze connected transgender young people to qualified providers and through that process it was determined that, to be effective, they would need to increase the number of qualified providers. transCONNECT is a potential solution that could increase the number of providers who have the capacity and competence to provide quality care to TGNB patients.

## **Methods**

### **Project Purpose**

The purpose of evaluating the transCONNECT pilot program was to use the results to make targeted improvements to the program, inform marketing strategies, and record baseline impact on provider outcomes before making the final product available to the public.

### **Research Question**

The evaluation was designed to assess three components of the training program: effectiveness, experience, and value. Effectiveness refers to the impact on provider outcomes including knowledge, self-efficacy, preparedness, and behavior. Experience refers to participants' experience with completing the training including usability of the training platform and engagement while completing the training. Value refers to participants' perceived value, including financial value, of the training for themselves and other providers.



Table 2  
Research Questions

Effectiveness	Did the training have the intended impact on provider outcomes?
Experience	Did the participants have a positive experience completing the training?
Value	Did the training meet the participants' needs and expectations?

### Participants

Participants in the study included 25 health care providers. To be eligible for the study, participants had to 1) be a health care provider and 2) provide services directly to patients. “Health care provider” was defined as any profession that provides a health care service, which includes professions outside of doctor’s offices and hospitals. The most common professions were therapists (32%) and physicians (28%) with the remainder consisting primarily of other medical providers (e.g. nurse practitioner). The majority practiced in urban areas (72%), with 44% in suburban areas and 12% practicing in rural areas. Participants varied in their amount of prior training intended to prepare them to care for TGNB patients with 56% having received very little or none, 36% having received a moderate amount, and 8% having had a great deal or training.

**Sampling method.** The initial sampling method was convenience sampling at the YTH Live conference; however, while many attendees work in the field of adolescent health, the majority were in roles adjacent to health care (e.g. tech that encourages youth to seek care). Of the four attendees who completed the contact form, only one was eligible. The transCONNECT team had to pivot to a new strategy to recruit a sufficient number of participants. The second method used

was snowball sampling. A recruitment email was sent through existing social networks and recipients were asked to forward the email to any providers in their network. The snowball method was effective with 57 participants who were not emailed directly completing the contact form.

**Procedure.** Participants were sent registration instructions on a rolling basis during the six week recruitment period. Reminders were sent periodically via email to encourage participants to register and complete the training. In the final two weeks, participants who had registered were offered an incentive of a \$25 gift card to complete the training before the deadline.

### **Program Design**

transCONNECT is a project designed to connect trans patients to trans-competent health care providers and to support providers to gain competency in caring for trans patients.

transCONNECT uses social franchising as a strategy to become a brand that both patients and providers recognize and trust. Social franchising is defined as “a network of private-sector health care providers that are linked through agreements to provide socially beneficial health services under a common franchise brand” (HIPs, 2018). By participating in the training program, providers will be able to market themselves as trans-competent by displaying the transCONNECT logo on their website or printed materials. The branding will also allow trans patients to more easily identify providers who are prepared to provide quality care.

The training program was created using human-centered design principles where trans youth and providers working in trans health care were informing and driving content development from start to finish. Topics include transgender and non-binary gender identities and experience, health disparities, cultural humility, gender affirming care, HIV prevention and care, and best practices for working with marginalized communities. As described on the website,

“transCONNECT is aimed at uniting marginalized patients and inclusive providers; continually working towards an overarching goal of non-stigmatized care” (transCONNECT, 2019).<sup>1</sup>

**Training platform.** transCONNECT was hosted on *skyprep*, an online training platform or learning management system (LMS). The nine-module training included end-of-module user engagement questions as well as a pre-test after first module and post-test after the last module. Participants’ progress and responses were tracked and collected via *skyprep*.

### **Instruments**

**Pre / Post-test.** A 21-question pre-test was designed to assess the training’s impact on provider outcomes (14 questions) and provider demographics (7 questions). A 23-question post-test used the same 14 questions assessing provider outcomes as well additional post-only questions assessing experience, perceived value, intentions, and behavior. Questions assessing impact on provider outcomes consisted of knowledge (assessed and self-reported) and self-efficacy. Assessed knowledge questions had a correct answer and were created based on training content (e.g., It’s important to use anatomically correct language when speaking with a patient about their body even when it’s different than the patient’s preferred terms). Self-reported knowledge questions were based on training objectives and were typically more functional or skills-based (e.g. I know at least two methods of promoting TGNB visibility and safety in physical office spaces). Self-efficacy questions were also based on training outcomes asking participants to rate their confidence in their ability to apply certain skills (e.g. I feel confident that I could collect routine sexual history information using inclusive language).

### **Research Design**

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<sup>1</sup> <http://trans-connect.org/>

A within-subjects research design was used to evaluate the training program. Participants completed a pre-test before the training and a post-test after completing the training.

Effectiveness was assessed using three questions types: assessed knowledge, self-report knowledge, and self-efficacy. Post-test questions assess participant experience and perceived value of the training.

**Data Analysis.** Descriptive statistics were run for demographics and post-test-only questions assessing participant experience and perceived value. Paired samples *t*-tests were conducted to compare means for self-reported knowledge and self-efficacy questions, which were asked using a 4-point strongly agree to strongly disagree Likert scale. Chi-square tests were conducted on assessed knowledge questions when there were more than two answer choices and Fisher's Exact Tests were run when answer choices were on a dichotomous scale (e.g. true / false).

### Results

The pre-test captured participant demographics, which are summarized in Table 3. All participants came from health care professions and the majority were within the medical field (52%) with physicians being the most common (28%) medical profession. The most common of any specific health care profession were therapists (32%) with four of the eight being in marriage and family therapy. Over half of the participants (56%) had very little or no prior training in TGNB care, about a third (36%) had a moderate amount, and only 8% had a great deal.

A third of the participants reported that they or their practice market specifically to TGNB patients. The majority of participants practiced in urban areas (72%) in the western region of the US. (60%). Only 12% practice in rural areas, which is proportional to the national percentage of physicians working in rural areas according to the US Census Bureau (2016). Regarding

recruitment, three quarters (76%) of the participants learned about the program through a professional contact and only one was recruited at the YTH Live conference.

Table 3  
Participant demographics.

Factor	n	%
Participants	25	
Profession		
Physician	7	28%
Nurse practitioner	3	12%
Registered nurse	2	8%
Physician assistant	1	4%
Therapist	8	32%
Other	4	16%
Preparedness		
Very prepared	5	20%
Somewhat prepared	13	52%
Somewhat unprepared	7	28%
Prior training		
Very little or none	14	56%

A moderate amount	9	36%
A great deal	2	8%
Marketing to TGNB patients		
Yes	8	32%
No	11	44%
Unsure	6	24%
Area type providing services		
Urban	18	72%
Suburban	11	44%
Rural	3	12%
Other	0	0%
Region providing services		
West	15	60%
Midwest	0	0%
Northeast	5	20%
South	4	16%
International	1	4%
Recruitment method		

A professional contact	19	76%
YTH Live Conference	1	4%
Social media	2	8%
They2Ze	0	0%
Google search	0	0%
Other	2	8%

Participant responses on the pre-test and post-test were compared to assess the training's impact on assessed knowledge, self-reported knowledge, self-efficacy, and preparedness (see Table 4). Scores for assessed knowledge did increase for majority of questions; however, no results were statistically significant. Participants scored above 90% on the pre-test for three of the eight assessed knowledge questions suggesting possible ceiling effects. All questions for self-reported knowledge, self-efficacy, and preparedness were statistically significant at the .001 level with large effect sizes.

Table 4

Comparison of pre-test and post-test scores for all participants.

Outcome: Assessed knowledge	Pre-test % correct	Post-test % correct	Change score	<i>p</i> value	Effect Size (Cramér's V)
There is a power difference between the patient and the provider.	100%	96%	-4%	1	.143

Which sentence is correct? b) They are transgender	84%	96%	+12%	.489	.262
Which of the following statements are correct? a) Gender identity and assigned sex can sometimes be used interchangeably	4%	0%	-4%	.074	.322
b) Transman means they were assigned male at birth (incorrect)	4%	0%	-4%		
c) Non-binary is a sexual orientation (incorrect)	8%	8%	0%		
d) Ask for someone's pronouns if you're unsure (correct)	96%	100%	+4%		
A gatekeeper is...	92%	100%	+8%	.490	.204
TGNB people typically know their gender identity with certainty and from a young age.	32%	56%	+24%	.154	.242
Under the "Informed Consent Model", it is recommended that mental health evaluations be made before a patient receives access to gender-affirming treatments.	64%	76%	+12%	.538	.131
It's important to use anatomically correct	76%	92%	+16%	.247	.218



language when speaking with a patient about their body even when it's different than the patient's preferred terms.

Incentivizing HIV testing is an effective strategy for increasing rates of HIV screening	64%	88%	+24%	.095	.281
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Self-reported knowledge	Pre-test mean	Post-test mean	Change scores	<i>p</i> value	Effect Size (Cohen's <i>d</i> )
I understand how overlapping identities impact a patient's lived experiences.	3.28	3.92	+0.64	.000***	1.32
I know at least two methods of promoting TGNB visibility and safety in physical office spaces.	2.72	3.92	+1.2	.000***	2.30
I'm familiar with strategies for engaging and retaining patients in HIV care.	2.20	3.44	+1.24	.000***	1.60
Self-efficacy	Pre-test mean	Post-test mean	Change scores	<i>p</i> value	Effect Size (Cohen's <i>d</i> )
I feel confident that I could recognize language or actions that contribute to negative experiences for TGNB patients.	3.08	3.80	+0.72	.000***	1.39

I feel confident that I could respond if I witnessed a colleague contributing to negative experiences for TGNB patients.	3.36	3.92	+0.56	.000***	1.11
I feel confident that I could collect routine sexual history information using inclusive language.	2.20	3.44	+1.24	.000***	1.37
Preparedness	Pre-test mean	Post-test mean	Change scores	p value	Effect Size (Cohen's d)
How prepared do you feel to provide inclusive care to a TGNB patient in your practice and/or clinic?	2.92	3.60	+0.68	0.00	1.14

*Note.* Significance: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Effect Size (Cohen's d): .2 = small; .5 = medium; .8 = large

Effect Size (Cramér's V): .1 = small; .3 = medium; .5 = large

The post-test included questions assessing participant experience, perceived value of the training, intentions, and behavior (see Table 5). Regarding behavior, 92% of participants reported that they had already used something they learned from the training. Participants intended to market their new competence using a variety of methods, with their bio and website being the most popular options (52%). When asked how much, if any, they would be willing to pay for transCONNECT, three quarters of participants responded that they would be willing to pay with answers ranging from \$25 or less to \$51-\$100. The most common barrier participants faced when completing the training was a lack of time in their schedule. A quarter found the training

platform difficult to navigate and another quarter selected “other.” Also noteworthy was that zero reported that the modules took too long to complete.

Table 5

Post-test scores for experience with and perceived value of transCONNECT

Factor	n	%
I have already used something I have learned from the transCONNECT training.		
Yes	23	92%
No	2	8%
How, if at all, do you think you will market your new competence in trans-inclusive care?		
Bio		52%
LinkedIn		16%
Social media		24%
Window sticker		16%
Trans community websites		16%
Website		52%
Yelp!		4%
Other		32%

How much, if any, would you be willing to pay for transCONNECT?

>\$25	8	32%
\$26 to \$50	5	20%
\$51 to \$100	6	24%
\$100 to \$150	0	0%
\$150+	0	0%
I would not be willing to pay	6	24%

What barriers did you experience in completing this training, if any?

Modules took too long to complete	0	0%
Lack of time in my schedule	13	52%
The platform was difficult to navigate	7	28%
Tech challenges	1	4%
Other	7	28%

Net Promoter is a standardized assessment of customer experience that asks participants whether they would recommend a product to a friend or colleague (What is Net Promoter, n.d.). On a ten-point scale, with ten being extremely likely and 1 being not likely at all, 80% of participants rated transCONNECT as a 9 or 10 (see Table 6). Participants responding with a score of 9-10 are called “promoters”, with 7-8 are “passives”, and 1-6 are “detractors. The Net Promoter Score (NPS) is calculated by subtracting the percentage of detractors from the percentage of promoters. transCONNECT received an NPS of 70, which is considered to be excellent according to 2019 benchmarks (What is a Good Net Promoter Score, 2019).

Table 6

## Net Promoter Score

Category	n	%
Promoters	20	80%
Passives	4	16%
Detractors	1	4%
Calculated NPS	76	

## Discussion

### Outcomes

**Effectiveness.** Based on the evaluation results, digital training can be an effective method of increasing medical providers' competence in caring for TGNB patients. After the training, providers reported significantly higher levels of self-efficacy, self-reported knowledge, and felt more prepared to provide quality TGNB care. According to an influential study on patient-provider relationships, providers' feelings of uncertainty disrupt the standard role of the provider as the expert. When providers feel uncertain of their ability to provide care, they are more likely to refer the patient elsewhere even for standard primary care concerns (Poteat, T., German, D., & Kerrigan, D. (2013). If a training can help providers build knowledge as well and confidence in their ability to apply that knowledge, this should lead to a reduction in the negative impact caused by uncertainty.

Impact on providers' assessed knowledge was not statistically significant; which could be due to a variety of factors. First, for three of the questions, participants scored above 90% on the pre-test suggesting possible ceiling effects. Initial high scores could be due to providers already having a baseline understanding of the topic or that they were able to conjure a reasonable guess based on context clues. Second, a sample size of 25 may not be powerful enough to detect effects. Aside from the three questions with ceiling effects (pre-test scores above 90%), increases

ranged from 12% to 24%, which translates to a small to medium effect size. Third, and finally, for the five questions without ceiling effects, the training may not have provided clear enough takeaways for key points. For example, the true / false question “TGNB people typically know their gender identity with certainty and from a young age” is based on a myth that is present in many mainstream narratives regarding transgender identity. To get this questions correct, participants not only need to learn new information, but also to unlearn previously held beliefs, which will likely require additional emphasis within the training.

**Experience.** Participants had an overall positive experience with the training regarding both content as well as the online training platform. Participants noted that the content was informative, at an appropriate level, and easy to comprehend. The training was successfully able to introduce new concepts, some of them relatively complex, without overwhelming participants who had little prior training on the subject. The most common barrier (52%) that participants faced was a lack of time in their schedule to complete the training. Interestingly, no participants reported that the modules took too long to complete. A potential solution to helping providers find time to complete the training could be to incorporate the training into existing systems. For example, if hospital were to implement the training for employees, then staff could complete the training during the workday rather than during evenings and weekends.

**Value.** Arguably the most significant outcome was the enthusiasm and appreciation expressed by participants both formally through the evaluation as well as informally through interactions with the project management team. A Net Promoter Score above 70, or in the “excellent” range is relatively rare and according to a Retently, an organization that creates NPS measurement software, “An NPS over 70 means your customers love you and your company is generating a lot of positive word-of-mouth from their referrals. The higher your NPS is, the more likely it is that

your customer referrals will convert into new leads and more revenue for your company” (What is a Good Net Promoter Score, 2019). This sentiment was echoed during recruitment where participants were eager to share the training with their colleagues. According to emails with the transCONNECT team, the pilot was featured on multiple listservs, which was initiated and implemented solely by participants and their colleagues. Additionally, during and following the pilot, many participants expressed interest in connecting the transCONNECT team with institutions there were affiliated with.

Regarding the financial value of the training, participants expressed a range of responses. That three quarters of participants responded that they would be willing to pay at least some amount for the training is promising. However, it is also noteworthy that participants were spread evenly across the amounts they would be willing to pay with the highest being up to \$100. This could be an opportunity to introduce a sliding scale payment system for individual providers where a lower payment could be supplemented by sharing or promoting the program (e.g. LinkedIn post). Overall, there is an unmet need for training on trans health care and providers are willing to contribute socially and financially to the program.

### **Limitations**

Because a form of snowball sampling was used, providers in the sample may differ systematically from providers in the general population. Recruitment began through the networks of the transCONNECT team, often through channels affiliated with public health or behavioral health. While the message did eventually spread beyond these networks, the message likely reached providers who may have already been more inclined to seek out this type of training. Furthermore, participants who sign up for the program and who also complete the full training within the allotted timeframe are likely to be more enthusiastic and dedicated than the general

population. However, non-participants who supported with recruitment as well as participants who did not complete the full training also expressed similar sentiments.

While some self-report questions did assess functional knowledge, (e.g. I'm familiar with strategies for engaging and retaining patients in HIV care) the evaluation was unable to assess providers ability to apply those skills. Providers may overestimate their own ability to apply skills in their work, as their application in practice can be complex and unpredictable.

Furthermore, impact the quality of care could not be assessed within the scope of this evaluation.

Further research should account for patient perspectives on changes in quality of care following the training.



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## Appendix A

## Pre / Post-test

**Pre-test**

Chapter	#	Question type	Question
2. Cultural Humility	1	Self-reported knowledge	[Select one: A/D] I understand how overlapping identities impact a patient's lived experiences.
	2	Assessed knowledge	[Select one: T/F] There is a power difference between the patient and the provider.
3. Gender 101	3	Assessed knowledge	[Select all] Which of the following statements are correct? (Select all that apply) <ul style="list-style-type: none"> <li>a) Gender identity and assigned sex are terms that can sometimes be used interchangeably</li> <li>b) Non-binary is a sexual orientation</li> <li>c) Transman means they were assigned male at birth</li> <li>d) Ask for someone's pronouns if you're unsure</li> </ul>
	4	Assessed knowledge	[Select all] Which sentence is correct? (Select all that apply) <ul style="list-style-type: none"> <li>a) "They are a transgender"</li> <li>b) "They are transgender"</li> <li>c) "They are transgendered"</li> </ul>
4. Transgender / Non-binary 101	5	Assessed knowledge	[Select one] A gatekeeper is... (Select one) <ul style="list-style-type: none"> <li>a) A person who has the authority to approve another person's access to something</li> <li>b) An institution who has the authority to approve another person's access to something</li> <li>c) A person or institution who has the authority to approve another person's access to something</li> </ul>
	6	Assessed knowledge	[Select one: T/F] TGNB people typically know their gender identity with certainty and from a young age.
5. TGNB Experiences in	7	Self-efficacy	[Select one: A/D] I feel confident that I could recognize language or actions that contribute to negative experiences for TGNB patients.



Healthcare Settings	8	Self-efficacy	[Select one: A/D] I feel confident that I could respond if I witnessed a colleague contributing to negative experiences for TGNB patients.
6. Making Care Inclusive	9	Self-reported knowledge	[Select one: A/D] I am familiar with strategies for promoting TGNB visibility and safety in physical office spaces.
	10	Assessed knowledge	[Select one: T/F] Under the “Informed Consent Model”, it is recommended that mental health evaluations be made before a patient receives access to gender-affirming treatments.
7. Medical Care for TGNB Patients	11	Assessed knowledge	[Select one: T/F] It’s important to use anatomically correct language when speaking with a patient about their body even when it’s different than the patient’s preferred terms.
	12	Self-reported knowledge	[Select one: A/D] I feel confident that I could collect routine sexual history information using inclusive language.
8. HIV	13	Self-reported knowledge	[Select one: A/D] I’m familiar with strategies for engaging and retaining patients in HIV care.
	14	Assessed knowledge	[Select one: T/F] Incentivizing HIV testing (including fixed, direct payments and being entered into a lottery) is an effective strategy for increasing rates of HIV screening.
All	15	Recruitment	[Select all] How did you learn about the TransCONNECT program? a) A colleague / professional contact b) YTH Live conference c) Social media d) They2ze e) Google search f) Other
All	16	Demographics	[Text box] What is your profession?
All	17	Demographics	[Text box] In what state do you provide services?
All	18	Demographics	[Select all] In what type of area do you provide services? a) Urban b) Suburban c) Rural

		d) Other
All	19	Demographics / preparedness [Select one] How prepared do you feel to provide inclusive care to a TGNB patient in your practice and/or clinic? a) Very prepared b) Somewhat prepared c) Somewhat unprepared d) Very unprepared
All	20	Demographics [Select one: Y/N] How much formal training intended to prepare you to provide inclusive care to TGNB patients have you had? a) Very little or none b) A moderate amount c) A great deal
All	21	Demographics [Select one: Y/N] Do you or your practice market to trans and non-binary patients? For example, a website or social media content that highlights trans competent staff and/or inclusive pronoun language in your marketing materials. a) Yes b) Unsure c) No

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### Post-test

Question type	#	Question
	14	All pre-test questions aside from demographics
Preparedness	15	[Select one] How prepared do you feel to provide inclusive care to a TGNB patient in your practice and/or clinic? a) Very prepared b) Somewhat prepared c) Somewhat unprepared d) Very unprepared
Feedback & Suggestions	16	[Select one: Y/N] I have already used something I have learned from the transCONNECT training.
Feedback	17	[Text box] <u>Please describe</u> what you have gained or taken away from this course.

Intentions	18	[Select all] How, if at all, do you think you will market your new competence in trans-inclusive care? a) Website b) Social media c) Bio d) LinkedIn e) Sticker in window f) Yelp! description g) Trans community websites h) Other
Value / Net Promoter	19	[Select one: 1 - 10] How likely are you to recommend this course to a coworker or colleague?
Value	20	[Text box] How would you describe transCONNECT to other colleagues or potential users?
Value	21	[Select one] How much, if any, would you be willing to pay for transCONNECT? a) >\$25 b) \$26 to \$50 c) \$51 to \$100 d) \$100 to \$150 e) \$150+ f) I would not be willing to pay
Experience	22	[Select all] What barriers did you experience in completing this training, if any? a) Modules took too long to complete b) Lack of time in my schedule c) Tech challenges d) It was difficult to navigate the training platform e) Other
Feedback & Suggestions	23	[Text box] Please share any additional feedback that could help us improve this course, or the branding/logo of the marketing materials.

*Note.* A / D = strongly agree to strongly disagree; T / F = true / false scale

## Appendix B

### Interview Guide

#### Business Development

1. Are you in a private practice or part of a larger health system or group?
2. How do you typically access professional development opportunities? (e.g. you find the opportunities yourself, your health system/hospital offers opportunities in-house, etc.)
  - How do you get approval to participate or pay for a training like transCONNECT? (specifically, do you pay yourself individually, does your hospital have a health education department that must approve, etc.)?
3. How did you learn about transCONNECT?
4. What do you think are the most effective ways for other providers to learn about transCONNECT?

#### Platform and Materials

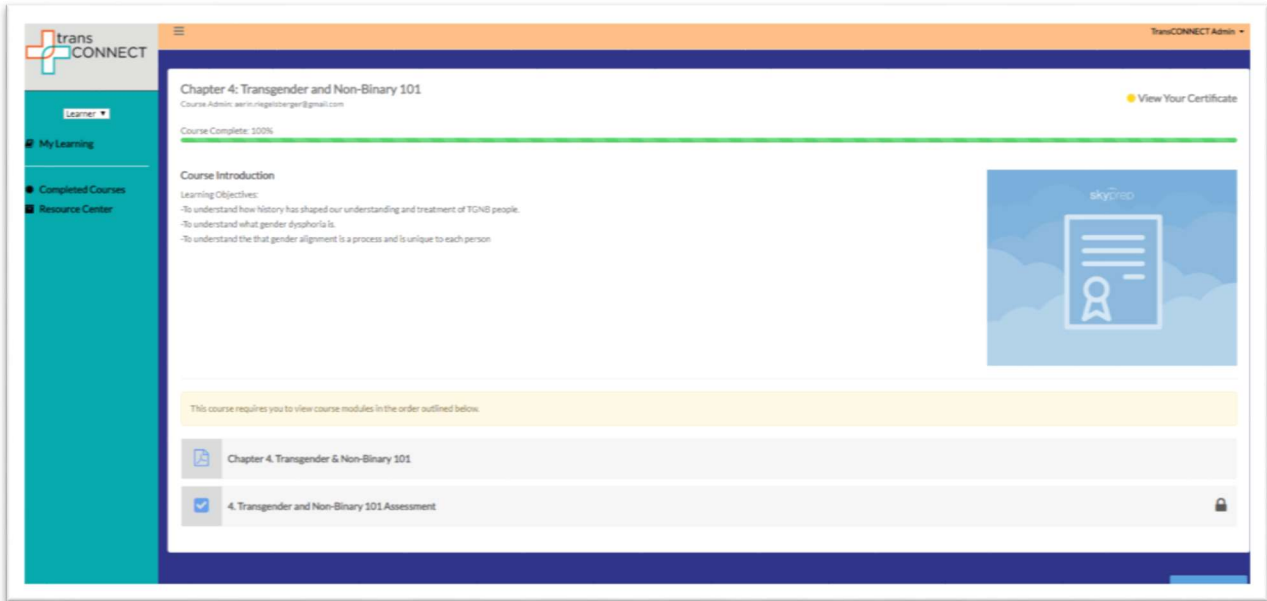
5. What was your experience using the online platform?
  - Would you change anything to improve engagement?
  - What type of barriers, if any, did you experience while completing the training?
  - Where did you typically complete the training?
6. How would you rate the quality of the designed items such as the logo and branded chapters?
7. What branded items beyond these, would be helpful for your practice (e.g. trans-inclusive poster, a logo sticker for window, pins, etc.)?

#### Benefits and Impact

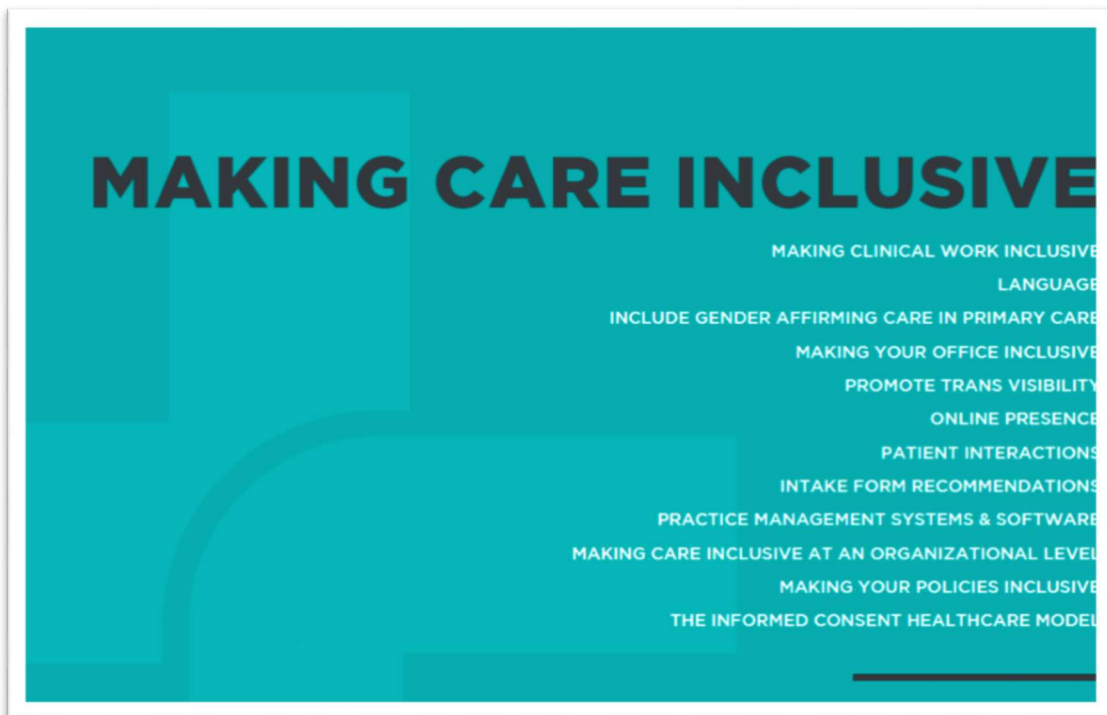
8. When you signed up for the program, what benefit did you anticipate?
  - Did you feel like you gained the benefit that you were hoping to gain?
  - To what extent was the information provided in the training new to you?
9. What did you learn that stood out to you or felt most valuable?
  - What concept or exercise in the training resonated with you the most?
10. Were you able to make any changes either in the way you care for patients or your practice?
  - What else would you need to be able to make or sustain these changes?
  - What impact do you anticipate these changes will make?

Appendix C

transCONNECT Screenshots



Chapter 4: Transgender and Non-Binary 101



Chapter 6: Making Care Inclusive