Increased Ascertainment of Transgender and Non-binary Patients Using a 2-Step Versus 1-Step Gender Identity Intake Question in an STD Clinic Setting

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Background: Transgender inclusive and gender affirmative healthcare includes asking patients about gender identity and sex assigned at birth through what is known as the "2-step" methodology. In May 2016, the sexually transmitted disease (STD) clinic in Seattle, WA switched from using a 1-step to a 2-step gender identity question. We aimed to determine if the updated questions increased ascertainment of transgender and gender nonconforming (TGNC) patients and used the improved gender identity data to describe the human immunodeficiency virus/STD risk profile of TGNC patients.

Methods: We conducted a pre-post analysis comparing the proportion of patients that identified as TGNC during the year before and after implementation of the 2-step questions. Gender identity and medical history questions were ascertained using a computer-assisted self-interview. The 2-step question included 2 new gender response options: non-binary/genderqueer and write-in.

Results: Institution of the 2-step question resulted in a 4.8-fold increase in patients who were identified as TGNC: 36 (0.5%) of 6635 to 172 (2.4%) of 7025 patients (P < 0.001). After implementation, 89 patients identified as non-binary/genderqueer (51.7% of TGNC patients). The proportion of patients identified as transgender men and women increased from 0.2% to 0.5% (P = 0.002) and 0.4% to 0.6% (P = 0.096), respectively. Non-binary patients' human immunodeficiency virus/sexually transmitted infection risk profile was distinct from that of transgender and cisgender men who have sex with men, suggesting that distinguishing subpopulations within the TGNC population is important for risk stratification.

Conclusions: Using a 2-step gender identity question and including non-binary/genderqueer options increased our clinic's ascertainment of TGNC patients and more accurately captured gender identity among STD clinic patients.

Transgender and gender nonconforming (TGNC) people have a gender identity or expression that differs from their sex assigned at birth. Estimates suggest that there are at least 1 million transgender adults living in the United States and over 25 million globally.^{1,2} Transgender and gender nonconforming populations are disproportionately

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Copyright © 2018 American Sexually Transmitted Diseases Association All rights reserved. affected by human immunodeficiency virus (HIV) and sexually transmitted infection (STIs,) with an overall prevalence of HIV estimated to be 5 times that of the cisgender US population, and as high as 19% among black transgender women.^{3–5} A growing body of literature suggests that TGNC people, including transgender men and gender nonconforming individuals, may be more vulnerable to sexual behaviors, substance use, and structural and socioeconomic barriers that increase risk for STI and HIV acquisition.^{5–8}

Gender affirmation is a key social determinant of health for TGNC individuals, and the absence of gender affirmation is linked to increased HIV and STI risk behaviors.^{9–11} Gender-affirmative models of healthcare delivery include social affirmation, including use of patient's preferred name and pronoun, and the collection of transinclusive gender identity and sex assigned at birth on intake forms and electronic health records through a 2-step question. The validated 2-step method asks patients to separately report their gender identity question in clinical and research settings is endorsed by the Institute of Medicine, The Williams Institute, Fenway Health, The Center of Excellence for Transgender Health at University of California San Francisco, and is incorporated into the "Meaningful Use" guidelines published by the Department of Health and Human Services.^{11,14–16}

To date, there is no nationwide surveillance of the STI and HIV burden in the US TGNC population, and few public health agencies systematically and accurately collect gender identity data.¹⁷ Although most of the literature on TGNC health has focused on HIV prevalence among transgender women, the sexual health of transgender men, non-binary, and gender nonconforming individ-uals has been understudied.^{18–21} Improved collection of gender identity is a critical step in understanding the sexual health and STI burden of all gender minorities, and providing transgender inclusive and gender affirming care to patients.²² To these ends, the municipal sexually transmitted disease (STD) clinic in Seattle, WA switched from using a 1-step gender identity question to a 2-step question in May 2016 (Fig. 1). The aim of this study was to determine if the updated questions increased ascertainment of TGNC patients who attended the clinic and to use improved gender identity data to describe the demographic and behavioral profile of transgender and non-binary patients.

METHODS

Study Design and Population

The Public Health-Seattle and King County (PHSKC) STD clinic in Seattle, WA, provides STI and HIV testing and treatment on a sliding fee basis. This was a cross-sectional study of patients attending the PHSKC STD clinic between April 30, 2015, and May 6, 2017. All patients presenting to the STD clinic for a new problem visit were asked to complete a computer-assisted self-interview (CASI), which includes information on demographics,

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1-Step Question	2-Step Question		
Used Prior to May 2016	Implemented in May 2016		
Are you male, female or transgendered?	What gender do you consider yourself?		
Male	Male		
Female	Female		
 Transgender Male to Female 	 Transgender Male to Female 		
 Transgender Female to Male 	 Transgender Female to Male 		
	 Non-binary/Gendergueer 		
	Something else (write in option)		
	What sex was recorded on your original birth certificate		
	Male		
	Female		
	Which pronouns do you use?		
	He/him		
	She/her		
	They/them		
	Something else (write in option)		

Figure 1. Computer-assisted self-interview survey questions used to ascertain gender identity, sex assigned at birth, and pronouns.

HIV/STI history, and other sex and drug-related behaviors. We included all patient visits that completed the CASI, who had a new problem and answered question(s) on gender identity and sex assigned at birth. In approximately 30% of all visits, patients did not complete the CASI for various reasons, including for follow-up visits and non–English-speaking patients.

Data Collection and Measures

Before May 3, 2016, gender identity was collected using a 1-step question (Fig. 1) that asked, "Do you identify as male, female or transgendered?" and allowed 4 response options: male, female, transgender male to female, and transgender female to male. On May 3, the PHSKC STD clinic implemented the 2-step methodology. Phrasing for the survey item was developed based on recommendations from the Institute of Medicine, Fenway Health, and The Center of Excellence for Transgender Health at University of California San Francisco.¹⁶ The updated question first asks about gender identity: "What gender do you consider yourself?" In addition to the 4 response options from the 1-step question, this question added 2 additional response options: non-binary/genderqueer, and a write-in option. Second, it specifically asks about a patient's sex assigned at birth: "What sex was recorded on your original birth certificate?" The 2-step methodology was accompanied by a third question about the pronoun(s) used by the patient (he/him, she/her, they/them, and a write-in option).

We defined the pre-implementation period as April 30, 2015 to May 2, 2016, and the post-implementation period as May 3, 2016, to May 6, 2017. In the pre-implementation period, we were only able to ascertain TGNC individuals based on self-identification as transgender. However, in the post-implementation period, we were able to identify additional transgender patients if their selfreported gender identities differed from the sex recorded on their birth certificate. Therefore, we subsequently refer to individuals who self-identify as *transgender male to female* or who reported female gender identity and male sex assigned at birth as transgender women. Similarly, we refer to individuals who self-identify as *transgender female to male* or who reported male gender identity and female sex assigned at birth as transgender men. Nonbinary/genderqueer identities were only ascertainable by selfreport after implementation of the 2-step question.

Demographic data (age, race, sexual orientation), HIV and STI history (ever HIV test, HIV status, bacterial STI within the past

12 months), and behavioral data (injection and other drug use, transactional sex within the past 12 months, preexposure prophylaxis [PrEP] uptake) were all collected by self-report through the CASI. Housing stability was assessed by front desk personnel at registration.

Statistical Analyses

We conducted a pre-post analysis to determine if the updated questions increased ascertainment of transgender and gender nonconforming (TGNC) patients, comparing the year before the year after implementation of the 2-step methodology. First, we compared the proportion of all STD Clinic visits where a patient identified as transgender, non-binary/genderqueer, or other in the pre-implementation and post-implementation periods. We conducted a 2-sided χ^2 test with a statistical significant level of 0.05. A priori we anticipated a slight time trend, with an increasing number of TGNC patients seeking care at the STD clinic because of implementation of the 2-step question and other efforts to enhance gender affirming care. Therefore, we also conducted a pre-post analysis using simple linear regression on the monthly count of TGNC patients ascertained. Our primary analysis considered patient visits as the unit of analysis, however, we conducted sensitivity analyses at the patient level to confirm that we observed a true change in ascertainment. We also conducted a subanalysis of TGNC patients who attended the STD clinic during both the pre-implementation and post-implementation periods. For these TGNC individuals, we compared their gender as ascertained through the 2-step methodology to the gender ascertained through the 1-step methodology.

Lastly, we calculated descriptive statistics of the demographic, HIV/STI history and behavioral risk factors of TGNC individuals ascertained through the 2-step questions, and cisgender men who have sex with men (MSM). All analyses were performed in Stata version 15.1 (StataCorps, College Station, TX).

RESULTS

In the pre-implementation period, 6671 patients completed the 1-step gender identity question, and in the post-implementation period 7197 patients completed the 2-step question (table 1). Thirty-six (36) of 6671 (0.5%) visits in the pre-implementation period and 172 (2.4%) of 7197 visits in the post-implementation period were identified as transgender, non-binary/genderqueer, or other patients (P < 0.001); this represents a 4.8-fold increase

	Pre-implementation [*] (n, %)	Post-implementation [†] (n, %)	Р
All TGNC	36 (0.5%)	172 (2.4%)	< 0.001
Transgender men [‡]	11 (0.2%)	33 (0.5%)	0.002
Transgender women [§]	25 (0.4%)	41 (0.6%)	0.096
Non-binary/genderqueer		89 (1.2%)	
Something else		9 (0.1%)	
Cisgender men and women	6635 (99.5%)	7025 (97.6%)	< 0.001
Total [¶]	6671 (100%)	7197 (100%)	

*The pre-implementation period was from April 30, 2015 to May 2, 2016.

[†]The post-implementation period was from May 3, 2016 to May 6, 2017.

[‡]Transgender men were identified as *transgender female to male*. In the post-implementation period, we also identified transgender men if their current gender identity was male and their sex recorded on their birth certificate was female. In the post-implementation period, 17 of 33 transgender men were identified by the latter method.

⁸Transgender women were identified as *transgender male to female*. In the post-implementation period, we also identified transgender women if their current gender identity was female and their sex recorded on their birth certificate was male. In the post-implementation period, 8 of 41 transgender women were identified by the latter method.

¹A change in the composition of our patient population could explains some part of our findings. These data capture patients who completed the CASI, primarily as new problem visits. 30.1% of all visits did not complete the kiosk survey for various reasons, including for follow-up visits, and for non–English-speaking patients.

in the number of TGNC patient visits between the 2 periods. This change reflects both identification of non-binary/genderqueer patients-a group that the clinic did not systematically identify in the pre-implementation period-and an increase in the percentage of patients who identified as transgender men and women. In the implementation period, 89 patients identified as non-binary/ genderqueer (52% of all TGNC patients), of whom 59 (66%) reported male sex assigned at birth, and 30 (34%) reported female sex assigned at birth. The percentage of STD clinic patients identified as transgender men increased from 0.2% to 0.5% (P = 0.002) and the percentage of transgender women increased from 0.4% to 0.6% (P = 0.096). In the implementation period, the majority (66%) of transgender patients self-identified as transgender, whereas 33% self-reported a difference between sex assigned at birth and current gender identity. However, this varied by gender identity: 80% (33 of 41) of transgender women self-identified as transgender compared to 48% (16/33) of transgender men (P = 0.004). Missing responses were similar in both periods (30.7% and 30.1% in the pre-implementation and post-implementation periods, respectively; P = 0.482). Sensitivity analyses at the patient level obtained similar results.

Among the 25 TGNC patients who attended the municipal STD clinic during both the pre-implementation and postimplementation periods, only 7 (28%) of individuals were concordantly identified as the same gender using the 1-step question and the 2-step question. The discordance primarily (52%) reflects individuals who self-identified as non-binary/genderqueer during the implementation period; an option that was not available during the pre-implementation period. The other 20% discordant gender identified during the 2 study periods reflect individuals (n = 2) who were identified through the sex assigned at birth question and individuals (n = 3) who self-identified as transgender in the gender question of the 2-step question (table 2).

As shown in Figure 2, we observed an abrupt increase in the number of patients who identified as TGNC concurrent with implementation of the 2-step question in May 2016. After implementation, there was an average increase of 8.6 TGNC patients ascertained per month (P < 0.001). There was a stable secular trend in number of monthly visits by TGNC patients (slope 0.22, P = 0.089) over the 2-year period. Therefore, while a change in the composition of our patient population explains part of our findings, we found that implementation of a 2-step gender identity question significantly increased ascertainment of transgender and non-binary patients.

Table 3 reports demographics, HIV/STI prevalence, and behavioral risk factors among TGNC patients in the implementation period compared to cisgender MSM, who comprised the majority of all STD clinic patients (57%) and are predominantly affected by the HIV epidemic in Seattle. Individuals who identified as non-binary/ genderqueer were slightly younger than patients reporting binary gender identities. Only 2 (5%) of the 41 transgender women patients, 2 (2%) of 89 non-binary/genderqueer patients, and none of the 33 transgender men reported being HIV positive. Transgender women and men were much more likely to report not knowing their HIV status (20% and 18%, respectively) compared with nonbinary/genderqueer patients and cisgender MSM (P < 0.001). The prevalence of self-reported chlamydia infection within past year was similar among transgender women (15%), transgender men (9%), non-binary/genderqueer (18%), and cisgender MSM (17%). There were few cases of gonorrhea and syphilis reported within the past year among transgender men and women (P < 0.05). However, the prevalence of syphilis was high among both non-binary/

TABLE 2. Comparing the Gender Identity of Patients Who Identified
as TGNC in the Post-implementation Period Who Were Also Ob-
served in the Pre-implementation Period

Methodology Used to Det		
2-Step Question*	1-Step Question [†]	n (%)
Non-binary/genderqueer	enderqueer Cisgender man Cisgender woman Transgender man	
Transgender man	Cisgender man ^{‡,§} Transgender man Cisgender man [§]	3 (50.0%) 3 (50.0%) 1 (16.7%)
Transgender woman	Cisgender woman [§] Transgender woman	1 (16.7%) 4 (66.7%)

* Used during the post-implementation period May 3, 2016, to May 6, 2017.

[†] Used during the pre-implementation period April 30, 2015, to May 2, 2016. [‡] Two transgender men were identified through the sex assigned at birth question in the 2-step methodology, whereas one self-identified as a transgender man.

[§] One self-identified transgender man identified as a cisgender man on the 1-step question, 1 self-identified transgender woman identified as a cisgender woman on the 1-step question, and self-identified transgender woman identified as a cisgender man on the 1-step question.

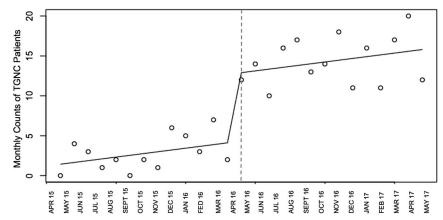


Figure 2. Simple linear regression of monthly TGNC patient counts before and after implementation. We observe a slight time trend in number of monthly visits by TGNC patients (slope 0.22, P = 0.089) over the 2-year period. Notably, we observe an average increase of 8.6 TGNC patients per month (P < 0.001) in May 2016, after the implementation of the 2-step questions.

genderqueer patients (8%) and cisgender MSM (10%). Transgender women were half as likely to have taken PrEP (15% of transgender women, P = 0.032) compared to cisgender MSM (30%).

Compared with cisgender MSM, TGNC patients were more likely to experience unstable housing, engage in transactional sex and drug use. Transgender women had the highest prevalence of unstable housing (20%, *P*-value <0.001), whereas transgender men reported similar rates of unstable housing (12%). Eighteen percent of transgender men and 16% of non-binary/genderqueer patients reported that they engaged in transactional sex within the past year (P < 0.001), compared to only 5% of transgender women and 4% of cisgender MSM. Lastly, injection drug use was significantly higher among transgender men (12%, P = 0.02), and use of other drugs (including "poppers"/inhaled amyl nitrite, cocaine, crack or methamphetamine) was highest among patients with non-binary/genderqueer and cisgender MSM, at 47% and 43%, respectively.

Ν	Transgender Women 41	Transgender Men 33	Non-binary/ Genderqueer 89	Cisgender MSM 4086
Race, n (%)	× /	~ /		
White	14 (34.1%)*	22 (66.7%)	61 (68.5%)	2692 (65.9%)
Black	8 (19.5%)*	4 (12.1%)	1 (1.1%)*	340 (8.3%)
Asian	8 (19.5%)*	0 (0.0%)	9 (10.1%)	344 (8.4%)
Mixed	1 (2.4%)	1 (3.0%)	3 (3.4%)	107 (2.6%)
Unknown/missing	10 (24.4%)*	6 (18.2%)*	15 (16.9%)*	327 (8.0%)
Sexual orientation, n (%)	· · · · ·	(<i>)</i>	(),	()
Straight	12 (29.3%)*	3 (9.1%)	0 (0.0%)*	170 (4.2%)
Gay	5 (12.2%)*	6 (18.2%)*	14 (15.7%)*	2999 (73.4%)
Bisexual	7 (17.1%)	0 (0.0%)*	9 (10.1%)	468 (11.5%)
Queer	5 (12.2%)*	10 (30.3%)*	59 (66.3%)*	88 (2.2%)
Lesbian	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Missing	7 (17.1%)*	3 (9.1%)*	4 (4.5%)	327 (8.0%)
Bacterial STI in last year, n (%)	× ,	,		()
Gonorrhea	0 (0.0%)*	1 (3.0%)*	12 (13.5%)	822 (20.1%)
Chlamydia	6 (14.6%)	3 (9.1%)	16 (18.0%)	710 (17.4%)
Syphilis	0 (0.0%)*	0 (0.0%)	7 (7.9%)	400 (9.8%)
Ever HIV test, n (%)	34 (82.9%)*	27 (81.8%)*	86 (96.6%)	3935 (96.3%)
HIV status, n (%)				(
Positive	2 (4.9%)	0 (0.0%)*	2 (2.2%)*	436 (10.7%)
Negative	31 (75.6%)	27 (81.8%)	81 (91.0%)	3469 (84.9%)
Unknown	8 (19.5%)*	6 (18.2%)*	6 (6.7%)	181 (4.4%)
Behavioral risk factors, n (%)	0 (17 10 7 0)			
Taken or taking PrEP	6 (14.6%)*	7 (21.2%)	19 (21.3%)	1228 (30.1%)
Unstable housing	8 (19.5%)*	4 (12.1%)	6 (6.7%)	242 (5.9%)
Transactional sex	2 (4.9%)	6 (18.2%)*	14 (15.7%)*	156 (3.8%)
Injection drug use [†]	1 (2.4%)	4 (12.1%)*	4 (4.5%)	165 (4.0%)
Other drug use [‡]	6 (14.6%)*	6 (18.2%)*	42 (47.2%)	1750 (42.8%)

These data are restricted to the post-implementation period, from May 2, 2016, to May 6, 2017.

* P < 0.05 for χ^2 test of difference when compared cisgender MSM.

[†] Any injection drug use within the past year.

[‡] Including the use of "poppers"/inhaled amyl nitrite, cocaine, crack or methamphetamine in the past year.

DISCUSSION

In our study of gender identity ascertainment in the municipal STD Clinic in Seattle, institution of the 2-step methodology was associated with a 4.8-fold increase in the proportion of patients identified as transgender or non-binary/genderqueer. Using the 2-step gender identity question and including non-binary/ genderqueer options increased our clinic's ascertainment of transgender and non-binary patients and more accurately captured patients' gender identities.

This change in ascertainment is comparable to what was previously observed by Tate and colleagues¹² after the implementation of the 2-step questions. While the percentage of patients identifying as TGNC is similar to what has been observed in college and community samples in San Francisco,¹² this proportion is greater than the estimated 0.39% of US adults who identify as transgender.² This suggests that Seattle and San Francisco may have a higher transgender population that most of the United States, or that our STD clinic provides an important role in providing sexual health care for gender minorities as it does for sexual minorities.²³

With improved ascertainment of patient gender identity, we were able to more accurately characterize the demographic and risk profile of TGNC patients. Notably, non-binary/genderqueer individuals comprise over half of the TGNC patients who responded to the intake form. There are limited data on the health and demographics of individuals who identify as gender nonconforming, non-binary, or genderqueer with which to contextualize our findings. Data from the Behavior Risk Factor Surveillance System suggest that gender nonconforming adults have a younger age distribution, and have greater odds of reporting barriers to care when compared to binary cisgender and transgender adults.⁶ In our clinic, gender nonconforming, non-binary, and genderqueer patients also tended to be younger than other transgender patients. They also had a mixed HIV/STI risk profile: Non-binary individuals reported high levels of bacterial STIs, transactional sex, and noninjection drug use (eg, inhaled amyl nitrite, cocaine, or methamphetamine) within the past year, but they also reported low prevalence of HIV, unstable housing, injection drug use, and the highest levels of PrEP uptake and prior HIV testing. These factors make their HIV/ STI risk profile distinct from that of binary transgender individuals and cisgender MSM, suggesting that distinguishing subpopulations within the TGNC population is important for risk stratification.

These results support the value of moving from a 1-step to a 2-step gender identity question in a clinical setting. Specifically, they highlight the importance of including options for non-binary, genderqueer, and gender nonconforming identities and write-in options, as a large portion of the TGNC population may not identify with a binary gender.²⁴ Findings from the 2015 US Transgender Survey suggest that while 63% of TGNC respondents identified as transgender men or women, approximately 30% identified as non-binary, genderqueer, gender nonconforming, gender variant, and gender fluid.⁵ This study found that among TGNC individuals who attended the clinic in both periods, the majority of discordance observed between the 1-step and the 2-step questions occurred among non-binary/genderqueer patients, which was a new option provided in the 2-step question. Consideration of the 3 individuals who self-identified as transgender through the 2 step question, but not on the 1-step question suggests that these individuals either felt increased comfort to disclose their transgender identity, or recent socially transitioned.

In addition to increasing ascertainment of TGNC patients, implementation of the 2-step question and its accompanied change in language signals improving transcompetence, which may have contributed to an increase in the proportion of TGNC people attending the Seattle STD Clinic over time. Specifically, removal of the word "transgendered," which is grammatically incorrect and felt to be offensive by some individuals, and the addition of nonbinary, genderqueer categories reflects language preferred by the TGNC community. The inclusion of an additional question on the pronoun(s) a patient uses, including gender neutral *they/them* pronouns and write-in options directly supports the provision of gender affirming care to patients. These changes can increase willingness to disclose TGNC identity and likelihood to refer or seek out additional care at the STD clinic.²⁵ Additional improvements can be made by exclusively using gender-based language for gender identity response categories (eg, using *transgender man/ transmasculine* and *transgender women/transfeminine* in place of *transgender male to female* and *transgender female to male*).

This study has several limitations. These data are from a single STD clinic in Seattle, WA, therefore these findings are only reflective of the patient population in Seattle and are not generalizable to the TGNC population. Further, small sample sizes pose a challenge to accurately characterizing how the TGNC population differs from other patients. Lastly, the low prevalence of self-reported HIV infection among transgender women attending the STD clinic differs from the literature, which reports disproportionately high rates of HIV infection among transgender women.⁴ This could reflect a true lower prevalence of HIV infection among transgender women fransgender women in the Seattle-King County region. Alternatively, TGNC individuals at highest risk for HIV acquisition may not use STD clinic services, or HIV risk estimates from clinical cohorts may not be representative of the risk the general TGNC population.

Improved ascertainment of gender minorities in diverse clinical settings is critical to understanding the demographics, risk factors, and sexual health care needs of transgender and non-binary patients, and for providing trans-competent care.¹⁷ Our findings demonstrate that implementing a 2-step gender identity question in an STD clinic setting is feasible and leads to increased identification of TGNC patients. Although this change alone does not ensure that STD clinics are providing good quality, gender affirming care, it is a simple and important step toward improving care and HIV/ STI surveillance for gender minority populations.

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