

Documentation of Sexual Partner Gender Is Low in Electronic Health Records: Observations, Predictors, and Recommendations to Improve Population Health Management in Primary Care

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Abstract

The 2011 Institute of Medicine report on LGBT health recommended that sexual orientation and gender identity (SO/GI) be documented in electronic health records (EHRs). Most EHRs cannot document all aspects of SO/GI, but some can record gender of sexual partners. This study sought to determine the proportion of patients who have the gender of sexual partners recorded in the EHR and to identify factors associated with documentation. A retrospective analysis was done of EHR data for 40 family medicine (FM) and general internal medicine (IM) practices, comprising 170,570 adult patients seen in 2012. The primary outcome was EHR documentation of sexual partner gender. Multivariate logistic regression assessed the impact of patient, provider, and practice factors on documentation. In all, 76,767 patients (45%) had the gender of sexual partners recorded, 4.3% of whom had same-gender partners (3.5% of females, 5.6% of males). Likelihood of documentation was independently higher for women; blacks; those with a preventive visit; those with a physician assistant, nurse practitioner, or resident primary care provider (vs. attending); those at urban practices; those at smaller practices; and those at a residency FM practice. Older age and Medicare insurance were associated with lower documentation. Sexual partner gender documentation is important to identify patients for targeted prevention and support, and holds great potential for population health management, yet documentation in the EHR currently is low. Primary care practices should routinely record the gender of sexual partners, and additional work is needed to identify best practices for collecting and using SO/GI data in this setting.

Introduction

IN 2011, THE INSTITUTE of Medicine (IOM) published a report on the health of lesbian, gay, bisexual, and transgender (LGBT) populations. The IOM identified lack of data as a major challenge to understanding the health needs of LGBT individuals and recommended documentation of sexual orientation (SO) and gender identity (GI) in electronic health records (EHRs).¹ Collection of SO/GI data in the EHR is critical to understanding disparities faced by LGBT patients.²⁻⁴ In addition, this information is useful for providing

affirmative and inclusive care, and for targeting counseling and prevention services.^{4,5} In the emerging health care environment with patient-centered medical homes that harness the power of EHRs for population health management, inclusion of SO/GI data holds great promise for improving the care provided to this minority population.

SO is a multidimensional construct including sexual identity, attraction, and behavior.^{3,6,7} Patient disclosure of sexual orientation to their providers has the potential to improve health outcomes and to ensure that opportunities for risk-appropriate preventive care are not missed.⁸⁻¹¹ Most

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EHRs are not designed to capture patients' sexual identity or attraction; however, some can collect data on behavior (ie, gender of sexual partners).³ Although not identical to SO, the combination of patient gender and gender of sexual partners provides valuable information for identifying potential risk factors and providing individualized presentation and medical care services. Moreover, gender of sexual partners is the best proxy for SO available in many EHRs. Limited research exists on the collection of sexual partner data in primary care, and the research team is aware of no large studies that address this question. The aim of this study is to determine the proportion of primary care patients who had the gender of their sexual partners documented in the EHR and to identify factors associated with such documentation.

Methods

The authors retrospectively evaluated adults (18–89 years old) with an outpatient visit to any of 40 family medicine (FM) and internal medicine (IM) primary care practices in a large health system in the northeastern United States during calendar year 2012. Patient, provider, and practice-level data were extracted from EpicCare (Epic Systems Corporation, Verona, WI), a widely used commercial EHR.¹² All data elements were current as of December 31, 2012, representing the most up-to-date information for that calendar year. No personally identifiable information was collected, and the Institutional Review Board of the University of Pennsylvania approved the use of these data.

The outcome of interest was documentation of sexual partner gender. This was captured in the social history section of the EHR where providers could select via checkboxes the gender of sexual partners (male, female, or both). This data field is optional and not required to be completed by providers. The research team selected covariables in an exploratory fashion, including factors that may display differences in documentation of sexual partner gender. Patient characteristics included sex, age, race, ethnicity, insurance coverage, number of primary care provider (PCP) visits, and presence of a preventive care visit in 2012 (Table 1). PCP visits were defined as office visits in which the patient was seen by the provider listed in the chart's "PCP" field. Preventive care visits were defined as office visits coded under a preventive care level of service. Provider and practice factors included type of PCP (resident, physician assistant [PA], nurse practitioner [NP], attending); practice location (urban, suburban); practice specialty and participation in residency training (FM without residents, IM without residents, FM with residents, IM with residents); and practice size (<1000, 1000–4999, ≥5000 patients). Type of PCP was included given differences in training (eg, NPs and PAs are trained differently from physicians, residents training in an EHR-equipped setting likely will document differently than attending physicians who trained in pre-EHR settings). Lastly, models included a variable capturing provider's use of other checkboxes in the EHR, specifically documentation of alcohol and illicit drug use. Similar to documentation of sexual partner gender, this patient information is collected in the social history section of the EHR, documented via checkboxes, and optional for providers to complete.

TABLE 1. SAMPLE CHARACTERISTICS.

<i>Patient, Provider, and Practice Characteristics</i>	<i>Count</i>	<i>(%)</i>
Full sample	170,570	(100.0%)
Patient Sex		
Male	68,511	(40.2%)
Female	102,059	(59.8%)
Patient Age		
Range	18 to 89 years	
Age < 50	85,273	(50.0%)
Age ≥ 50	85,297	(50.0%)
Patient Race		
White	110,036	(64.5%)
Black	43,403	(25.5%)
Asian	5419	(3.2%)
Pacific Islander	102	(0.1%)
Native American	129	(0.1%)
Other/Unknown	11,481	(6.7%)
Patient Ethnicity		
Not Hispanic/Latino	167,021	(97.9%)
Hispanic/Latino	3549	(2.1%)
Patient Insurance Coverage		
Private Insurance	126,417	(74.1%)
Medicare	32,895	(19.3%)
Medicaid	10,874	(6.4%)
Uninsured	384	(0.2%)
Patient Visits with PCP in 2012		
Range	0 to 43 visits	
Median	2 visits	
Patient had a Preventive Visit in 2012		
No	132,437	(77.6%)
Yes	38,133	(22.4%)
PCP Type		
Attending Physician	143,777	(86.4%)
Resident Physician	10,818	(6.5%)
Physician Assistant	6383	(3.8%)
Nurse Practitioner	5443	(3.3%)
Practice Location		
Suburban	110,688	(64.9%)
Urban	59,882	(35.1%)
Practice Size (# patients seen in 2012)		
Small (<1000)	2560	(1.5%)
Medium (1000–4999)	56,028	(32.9%)
Large (≥5000)	111,982	(65.7%)
Practice Specialty/Residency Status		
Family Medicine, no residents	34,737	(20.4%)
Internal Medicine, no residents	109,353	(64.1%)
Family Medicine, with residents	7469	(4.4%)
Internal Medicine, with residents	19,011	(11.2%)
Checkbox used for other social hx		
No	8288	(4.4%)
Yes	162,282	(95.1%)

Hx, history; PCP, primary care provider.

Note: The PCP is the one designated on each patient's chart within the electronic health record.

Data analyses were conducted at the patient level as opposed to outpatient visit level. The research team examined the proportion of patients who had the gender of their sexual partners recorded in the EHR. Multivariate logistic regression examined the impact of patient, provider, and

practice characteristics on documentation. A Bonferroni correction was applied to account for the potential impact of multiple comparisons. Two-sided testing was used, with a *P* value of <0.05 considered significant. Analyses were conducted using STATA 12.1 (StataCorp LP, College Station, TX).

Results

A total of 170,570 adults were seen at 40 primary care practices in 2012. Median age was 49 years, with the majority of the sample female, white, and privately insured (Table 1). Overall, 76,767 patients (45.0%) had sexual partner gender documented in the EHR. Of these, 95.8% had only opposite-gender partners, 3.6% had only same-gender partners, and 0.7% had both same- and opposite-gender partners. The proportion of patients with any same-gender partners differed by sex: 3.5% of females and 5.6% of males.

Sexual partner data were not uniformly documented in the EHR (Table 2). Documentation was lower for patients ≥ 50 years old, persons with Medicare (compared to private insurance), and individuals seen at suburban (compared to urban) practices. Documentation was also lower for males, patients with attending physician PCPs, and persons seen at practices that do not participate in resident training. Black patients and individuals with a preventive care visit had higher documentation rates. Comparing individual practices, the median documentation rate was 48.4% (interquartile range 27.8–60.4%).

In multivariate analyses (Table 2), the greatest predictor of sexual partner documentation was the use of the checkboxes for other social history elements. However, for 95.1% of patient charts checkboxes had been used for other social history (Table 1), and this was not the only significant factor identified: the likelihood of sexual partner gender documentation was independently higher for women, black race, and patients with preventive care visits. Documentation was also significantly more likely for those with a PA, NP, or resident PCP compared to an attending physician PCP. In addition, documentation was higher for patients seen at urban practices. In contrast, age ≥ 50 years, Medicare insurance, and being seen at a non-residency FM practice were independently associated with lower documentation.

Discussion

In this study of over 170,000 unduplicated primary care patients, only 45% had sexual partner gender documented in the EHR. Among those with documentation, one in 23 had same-gender sexual partners, which is at minimum consistent with national estimates of the proportion of individuals who identify as LGB (national estimates on gender of sexual partners is limited).^{13–16} Documentation of sexual partner data varied significantly by patient, provider, and practice characteristics. Improving the collection of sexual partner data within EHRs can provide important opportunities to improve population health management by delivering risk-appropriate screening, preventive counseling, and inclusive care. It also can allow researchers to identify and study disparities in care affecting sexual minorities.

Existing literature notes that structured data entry (rather than narratives) conflicts with the way many physicians prefer to document patient information.¹⁷ In the present

study, the use of checkboxes for other social history elements was a strong predictor of sexual partner documentation. This supports the claim that when checkboxes are involved, documentation of sexual topics is influenced not only by barriers such as provider time constraints, comfort discussing sexual practices, and insufficient provider training in LGBT issues,^{18–21} but also a provider's propensity to use checkboxes to record patient information in general. However, given that more than 95% of patients in the sample had documentation of other social history elements using checkboxes, it is important to consider what other factors beyond the propensity to use checkboxes may affect the likelihood of sexual partner documentation.

Prior studies reveal differences in care activities among residents, attending physicians, and midlevel providers,^{22–24} noting, for example, that NPs and PAs are more likely to document patients' social history in hospital admission notes than physicians.²³ The present study found that NPs, PAs, residents, and practices with residency programs were more likely to have sexual partner gender documented than attending physicians and nonteaching practices. This may relate to generational differences among provider types, as resident physicians (average age 27 years) and PAs (average age 38 years) are more commonly younger than attending physicians and NPs (average age approximately 50 years) and may be more comfortable with health information technology.^{25–28} Moreover, there may be inherent differences in how these health care professions view and use the EHR. For example, NPs may be more accepting of EHR functionality, based on reports that nurses appreciate pop-up reminders and electronic work lists.²⁹ Further research is needed to better understand how these groups approach and use the EHR, as well as their perspective on documenting sexual partner data.

Older patients in the sample were less likely to have sexual partner data recorded, which may represent provider avoidance of sexual health topics with older patients,^{18,30} provider beliefs that sexuality is not a "legitimate" topic for discussion in this age group,³¹ or fear by older LGBT patients to divulge their sexuality because of past negative experiences in the health care system.³ In addition, research has shown that older patients are reluctant to initiate discussion of sexuality with their doctors because of shame, embarrassment, and fear.³² Creating a welcoming environment for discussing sexual health and improving provider skill and comfort with sexual health discussions may improve documentation of sexual partner information in older populations.^{30,31,33}

Patients with more PCP visits were less likely to have sexual partner gender documented than those with fewer visits. Greater visit frequency may be a marker of medical complexity. For medically complex patients, providers may defer preventive services (such as taking a sexual history) to focus on more active conditions.³⁴ In contrast, patients with dedicated preventive visits had higher documentation. This is consistent with research showing that counseling on sexual health issues is more likely to be done at preventive visits than problem-focused visits.³⁵ Another issue to consider is that LGB people may seek health care more frequently than heterosexual individuals.³⁶ It is unclear how this phenomenon may have influenced the findings of this study, as SO data were not uniformly collected in the EHR.

TABLE 2. PROPORTION OF PATIENTS WITH DOCUMENTATION OF SEXUAL PARTNER GENDER IN THE ELECTRONIC HEALTH RECORD, AND RESULTS OF MULTIVARIATE LOGISTIC REGRESSION INDICATING FACTORS ASSOCIATED WITH DOCUMENTATION.

<i>Patient, Provider, and Practice Characteristics</i>	<i>Proportion of Patients with Documentation of Sexual Partner Gender</i>	<i>Multivariate Logistic Regression</i>	
		<i>AOR</i>	<i>(95% CI)</i>
Patient Sex			
Male	40.2%	ref grp	ref grp
Female	48.2%	1.29*	(1.26, 1.32)
Patient Age			
Age < 50	54.1%	ref grp	ref grp
Age ≥ 50	35.9%	0.59*	(0.58, 0.61)
Patient Race			
White	41.8%	ref grp	ref grp
Black	51.5%	1.14*	(1.11, 1.18)
Asian	49.7%	1.05	(0.99, 1.12)
Pacific Islander	42.2%	0.81	(0.58, 1.24)
Native American	45.0%	0.91	(0.63, 1.33)
Other/Unknown	49.0%	1.14*	(1.10, 1.19)
Patient Ethnicity			
Not Hispanic/Latino	45.0%	ref grp	ref grp
Hispanic/Latino	47.2%	0.96	(0.89, 1.03)
Patient Insurance Coverage			
Private Insurance	48.5%	ref grp	ref grp
Medicare	27.7%	0.58*	(0.56, 0.59)
Medicaid	56.4%	0.98	(0.94, 1.02)
Uninsured	52.9%	0.89	(0.71, 1.11)
# Patient Visits with PCP in 2012			
Number of Visits	n/a (continuous variable)	0.95*	(0.94, 0.95)
Patient had Preventive Visit in 2012			
No	42.1%	ref grp	ref grp
Yes	55.0%	1.47*	(1.43, 1.50)
PCP Type			
Attending Physician	43.2%	ref grp	ref grp
Resident Physician	57.5%	1.12*	(1.06, 1.17)
Physician Assistant	59.4%	2.19*	(2.07, 2.32)
Nurse Practitioner	58.0%	1.45*	(1.37, 1.54)
Practice Location			
Suburban	39.4%	ref grp	ref grp
Urban	55.4%	1.75*	(1.70, 1.80)
Practice Size			
Small (< 1000)	47.5%	ref grp	ref grp
Medium (1000–4999)	59.4%	0.51*	(0.47, 0.56)
Large (≥ 5,000)	53.0%	0.62*	(0.57, 0.67)
Practice Specialty/Residency Status			
Family Medicine, no residents	38.6%	ref grp	ref grp
Internal Medicine, no residents	44.0%	1.63*	(1.58, 1.68)
Family Medicine, with residents	73.1%	2.77*	(2.59, 2.96)
Internal Medicine, with residents	51.5%	1.42*	(1.35, 1.49)
Checkbox used for other social hx			
No	2.5%	ref grp	ref grp
Yes	48.4%	30.78*	(33.36, 45.10)

Asterisk (*) indicates statistically significant result (multivariate logistic regression) at alpha 0.05 with Bonferroni correction.

The PCP is the one designated on each patient's chart within the electronic health record.

AOR, adjusted odds ratio; 95% CI, 95% confidence interval; hx, history; ref grp, reference group; PCP, primary care provider.

Future studies linking EHR data with externally collected information on sexual minority status are warranted.

This study has several limitations. It was performed in a single health system, in one region of the United States. Other regions may have different experiences, although the

percentage of patients with same-gender partners in the present study is comparable to others.^{3,13,14} Practices within this health system have had EHRs for several years (some for more than a decade); documentation rates may differ for health systems that have newly adopted EHRs in response to

“meaningful use” requirements. This analysis relied on data entered into the EHR using checkboxes. This may underestimate documentation of sexual partner gender, as providers may have entered this information elsewhere in the medical record using free text. However, from a population health standpoint, the ability to search the data in a systematic way to identify sexual minorities is important, and free text documentation presents challenges in that regard. Another limitation is that there is no easy way to differentiate if sexual partner gender was based on the patient’s current, recent past, or lifetime partners. Also, the finding that attending physicians were less likely than other providers to record sexual partner gender could be confounded by providers’ age, which the research team was unable to assess. Finally, as mentioned earlier, sexual partner gender is a measure of behavior and does not fully represent self-identified SO; however, at present this is the best proxy available in many EHRs.

Conclusion

These results point to gaps in documenting sexual partner data for adult primary care patients. It is feasible to record data on patient sexuality in EHRs, but this requires provider training on how to collect this information as well as user-friendly, secure EHR systems with appropriate data fields. The collection and use of sexual partner data represents an opportunity to improve population health management. Using this information, EHR-based reminders to identify sexual minorities who require preventive care services and counseling (eg, sexually transmitted infection screening, hepatitis vaccination, cancer screening) can be developed and applied at the point of care, or used in targeted population management efforts that do not rely on face-to-face provider encounters. In addition, knowledge of sexual partner gender can facilitate outreach in a culturally appropriate fashion to sexual minority patients who have disengaged from care or are lost to follow-up. Use of sexual partner information also can help ensure that providers and staff deliver culturally appropriate care. Lastly, this information can be used at the clinic and health system level to ensure the design of effective and culturally appropriate communications, forms, outreach programs, and employee training in a way that is informed by the population served by each clinical practice.

In addition to routine documentation of the number and gender of sexual partners, collection of patients’ self-identified SO and GI is recommended as an important tool for addressing LGBT health disparities and providing inclusive care.³ Efforts to add SO/GI data should emphasize the use of standardized questions across health systems and EHR platforms. Providers and staff also should be familiar with best practices for requesting this information,³ and patient privacy concerns must be addressed.^{1,3,4} With the possibility of increased “outness” related to having such information in the EHR, qualitative studies are warranted to understand the perspectives of patients, providers, and staff about the implications of having such information more readily visible in the chart, and how such information should be used to improve patient care.

Enacting these changes will ensure that LGBT patients are no longer invisible to their providers, thus facilitating

individualized and inclusive care. If used effectively, EHRs can be a powerful tool to improve the care of patients who traditionally have been unrecognized and underserved.

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