Cancer and Lesbian, Gay, Bisexual, Transgender/Transsexual, and Queer/Questioning (LGBTQ) Populations

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This article provides an overview of the current literature on seven cancer sites that may disproportionately affect lesbian, gay, bisexual, transgender/transsexual, and queer/questioning (LGBTQ) populations. For each cancer site, the authors present and discuss the descriptive statistics, primary prevention, secondary prevention and preclinical disease, tertiary prevention and late-stage disease, and clinical implications. Finally, an overview of psychosocial factors related to cancer survivorship is offered as well as strategies for improving access to care. CA Cancer J Clin 2015;65:384-400. © 2015 American Cancer Society.

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Introduction

Overview and Background

The lesbian, gay, bisexual, transgender/transsexual, and queer/questioning (LGBTQ) community, also referred to as sexual minorities, represents a growing and medically underserved population in the United States1 that includes a spectrum of acronyms and nomenclature. The terms “lesbian, gay, bisexual” typically define sexual attraction and/or sexual orientation.2,3 The term “gender” refers to gender identity—the psychological sense of being male or female, which is distinct from defining an individual as male or female in terms of typical reproductive and sexual anatomy (ie, biological sex)—and the term “transgender” is used to describe people who do not identify with their biologically assigned sex at birth. This incongruence may lead to gender dysphoria,4 which may motivate sex reassignment. “Transsexual” refers to transgender persons who have undergone sex-reassignment procedures.2,3 The in-group term “queer” is an umbrella category used to define the whole LGBTQ community or as an alternative to the labels lesbian, gay, and bisexual. The category “questioning” denotes a person who is in the process of exploration and consideration of either sexual orientation or gender identity.5,6 “Intersex” refers to a person whose reproductive organs and/or chromosomes do not fit usual patterns (eg, being born with ambiguous genitalia or having an XXY chromosome pattern/Klinefelter syndrome).7 Although the National Institutes of Health includes “intersex” in their definition of sexual minorities (ie, LGBTQI), at present there are limited published data regarding cancer in this population; therefore, it is not included in this review.

The LGBTQ community spans all races, ethnicities, ages, socioeconomic statuses, and regions of the United States.5 Previous published surveys estimate that approximately 3% to 12% of the adult US population identifies as LGBTQ.8

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There is no universally agreed upon acronym (ie, LGB, GLBT, LGBT, LGBTQI, etc) to represent the community, and alternative terms are often used to describe the population as a whole (eg, sexual minorities) or specific groups within the community (eg, transspectrum, two-spirit, men who have sex with men [MSM], and genderqueer). Furthermore, the Institute of Medicine suggests that each moniker represents a population that is distinct and has its own health concerns. What each group shares within the community is a common stigmatization as a sexual or gender minority for which little health research, particularly cancer related, has been conducted.

Compared with non-LGBTQ heterosexuals, previous studies have reported that individuals in the LGBTQ population tend to have lower incomes and are less satisfied with their standard of living. Families of gay and lesbian couples are significantly more likely to be poor than heterosexual, married-couple families. Children in gay and lesbian households have poverty rates twice those of children in heterosexual married-couple households. In addition, health and utilization of health care services among LGBTQ individuals are adversely affected by marginalization; and approximately 30% of LGBTQ adults do not seek health care services or lack a regular health care provider compared with 10% of age-matched heterosexuals.

In the United States, LGBTQ persons experience barriers to accessing health insurance coverage and may forgo care because of costs (some insurers do not cover domestic partners, and most do not cover mental health services, hormone therapy, or gender affirmation surgery). LGBTQ patients are more likely to remain silent about important health issues they fear may lead to stigmatization. Despite the critical need for health care in the LGBTQ community, structural (eg, cost) barriers to health care information and treatment significantly contribute to the avoidance or delay of seeking health care. Many health care professionals lack knowledge of LGBTQ persons’ health care needs, and some have negative attitudes toward them. Studies report a lack of trust and understanding in physician-patient relationships because the patient fears substandard care or confidentiality issues if they disclose their sexual orientation or gender identity.

The majority of published research identified through this review on health care needs among LGBTQ populations has been focused on family systems, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) prevention and maintenance, and general health. This review revealed that, to date, there have been limited efforts to systematically identify cancer health care needs across the cancer continuum, including prevention, early detection, diagnosis, treatment, survivorship, and end of life care. Therefore, we focused on seven specific cancer sites that may disproportionately affect LGBTQ populations. For each cancer site, where available, we present published data on descriptive statistics and consider the unique perspectives and issues for LGBTQ populations with respect to prevention, treatment and psychological issues, and survivorship. In this article, under primary prevention, we review factors associated with the risk of disease; in secondary prevention, we review factors related to the prevention and early detection of disease; and, in tertiary prevention, we review factors related to patient outcomes.

For breast cancer and prostate cancer, we also review available data in transgender/transsexual populations. Because no studies are currently available across the other cancer sites, we include a separate section on transgender health and cancer after the site-specific cancer information. In all cited studies, we use the sexual orientation (eg, gay men or MSM) and gender identity terminology reported in the original study to describe the population. Although this report is not a systematic review, we have synthesized the current knowledge and substantive findings related to cancer in sexual minorities.

Site-Specific Cancers

Anal Cancer

Descriptive epidemiology

Cancers of the anus and perianus are rare, accounting for approximately 0.4% of all new cancer cases in the United States, and only about 0.2% of men and women will be diagnosed with anal cancer at some point during their lifetime. The most frequent tumor of the anal canal and perianal skin is squamous cell carcinoma; however, other less common neoplasms of the anal canal are basal cell carcinoma, melanoma, and adenocarcinoma. In the United States, approximately 2640 new cases among men and 4630 new cases among women are anticipated for 2015. The annual incidence rates for men and women are 1.5 and 2.0 per 100,000 persons per year, respectively, and the mortality rates for men and women are 0.2 and 0.3 per 100,000 persons per year, respectively.

Early studies revealed an excess risk of anal cancer among gay men, and high incidence rates of anal cancer among white men residing in San Francisco County. A recent publication on temporal trends in the incidence of anal cancer over the past 4 decades reported that the age-adjusted rate had increased by 2.2% per year in Western countries combined. However, those analyses were not stratified by sexual orientation. Machalek et al performed a systematic review and meta-analysis of anal human papillomavirus (HPV) infection and associated neoplastic lesions among MSM. Their analyses revealed that the incidence of anal cancer among HIV-positive MSM (45.9 per 100,000 person-years) was 9-fold higher than that among HIV-negative MSM (5.1 per 100,000 person-years), with the latter still higher than that observed in the general population.
**Primary prevention and preclinical disease**

HPV, a sexually transmitted infection, is a causal risk factor in the development of anal cancer. Transmission of HPV occurs through contact with infected anogenital skin, mucous membranes, or bodily fluids and can be passed through sexual intercourse and oral sex. HPV is an established human carcinogen and is highly prevalent among both men and women. With over 170 different types, HPV's are divided into low-risk types (eg, HPV-6, HPV-11, HPV-42, HPV-43, and HPV-44), which have the potential to induce warts and low-grade squamous intraepithelial lesions, and high-risk types (eg, HPV-16, HPV-18, HPV-31, HPV-33, HPV-35, HPV-45, HPV-51, HPV-52, and HPV-56), which are causally involved in cancer at numerous anatomic sites.

Other factors associated with increased risk of anal cancer include a high number of lifetime sexual partners, MSM, multiple and concurrent sexual partnerships, coexistence of other sexually transmitted infections, cigarette smoking, and immunosuppression. HPV infection, most commonly detected by the presence of viral DNA in the tumor, is present in greater than 80% of cases of anal squamous cell carcinoma, which is second only to cervical cancer for its association with this virus. Because of the high prevalence of HPV in anal cancer, it is difficult to differentiate the independent effects for risk of disease by sexual behavior, such as the number of lifetime sexual partners, MSM, and multiple and concurrent sexual partnerships. Because of sexual practices, such as receptive anal intercourse, gay men are at greater risk of anal cancer as a consequence of HPV infection than heterosexual men, and HIV-positive men are at the highest risk, even when on antiretroviral therapy. HIV-infected individuals are 28 times more likely than non–HIV–infected individuals to develop anal cancer. Therefore, consistent male condom use, which has been shown to reduce the risk of transmitting both HIV and HPV, is highly recommended.

Vaccination against HPV holds great promise for the prevention of anal cancer. HPV vaccination is efficacious in the prevention of precancerous lesions in the cervix, vulva, and vagina among women and in the prevention of precancerous anal lesions and anogenital warts in both genders. Because of the latter, the impact and relevance of male vaccination is extremely important in gay men. A placebo–controlled, double-blind study of 602 MSM demonstrated that the quadrivalent vaccine is efficacious in reducing the incidences of persistent anal infection with HPV-6, HPV-11, HPV-16, or HPV-18 and anal intraepithelial neoplasia associated with these HPV types. These data demonstrate that the quadrivalent HPV vaccine may be used for the prevention of anal HPV-related disease, including cancer. The authors concluded that the best long-term approach to reducing the risk of both anal cancer and anal condyloma may be vaccination. Because MSM are at a higher risk of HPV-associated anal cancer compared with heterosexual men and women, they are an important target group for HPV vaccination. A recent systematic review on knowledge and beliefs about HPV and attitudes toward HPV vaccine among MSM showed that there is insufficient knowledge of HPV-related cancers and the availability of HPV vaccine as a method of primary prevention. However, most MSM are receptive to being vaccinated against HPV despite potential limited knowledge about the virus and the vaccine.

**Secondary prevention and early stage disease**

Two early detection approaches to identify anal dysplasia include the anal Papanicolaou (Pap) tests (also known as Pap smears) and high-resolution anoscopy. Although anal dysplasia is usually asymptomatic, recent analysis of high–resolution anoscopy in relation to patient symptoms among high risk patients suggested that those with anal pain, lesions, and other high–risk factors were at increased risk of high–grade anal dysplasia. However, randomized control trials conducted to date do not support the efficacy or effectiveness of an anal cancer screening program in the general population. Presently, there are no formal guidelines for routine screening via anal Pap tests for anal cancer in non–HIV–infected individuals.

**Tertiary prevention, late-stage disease, and beyond**

Because anal cancer is a rare disease, limited studies have investigated the factors that influence patient outcomes and survival. Tumor characteristics, such as stage and lymph node involvement, impact prognosis; and there is evidence that patient factors such as gender, race, socioeconomic status, HPV positivity, and p16 protein expression status (a surrogate marker of HPV infection) also may play a role in disease prognosis. To date, sexual orientation or gender identity has not been evaluated as a potential prognostic factor for anal cancer patient outcomes.

**Psychosocial factors during treatment and survivorship**

There are few studies specific to quality of life for anal cancer survivors, and those available do not report outcomes by sexual orientation or gender identity. A study conducted in Norway showed that average health–related quality–of–life scores across a variety of domains of anal cancer survivors (n = 128) were poorer compared with those among volunteers from the National Population Register (n = 269). Compared with volunteers, anal cancer survivors reported significant impairment in social and role function (P < .001); higher scores for fatigue, dyspnea, insomnia, and diarrhea (P < .001); and reduced global quality of life (P < .001). Anal cancer survivors had increased stool frequency; more buttock pain, flatulence, fecal incontinence, impotence (males), and dyspareunia; and
reduced sexual interest (females; \( P < .001 \)). Given these potential long-term impacts, sexual functioning for men engaging in anal intercourse could be directly impacted by anal cancer and its treatment.\(^{44}\)

**Clinical implications**

The Advisory Committee on Immunization Practices recommends routine vaccination of all males ages 9 to 21 years and through age 26 years specifically for MSM and HIV-infected males. This recommendation creates different practice guidelines for heterosexual and nonheterosexual males between the ages of 22 and 26 years.\(^{35}\) Because published studies have reported that health care professionals do not routinely assess sexual orientation,\(^{45,46}\) this may result in a missed clinical opportunity to deliver vaccine to groups that are most likely to benefit. Clinicians should encourage their eligible patients to receive the HPV vaccine.

National guidelines for anal cancer screening have not been established for the general population. However, anal cancer screening, including anal cytologic testing (ie, an “anal Pap test”) and evaluation of the anal canal with anoscopy, has been suggested for high-risk populations, such as HIV-positive individuals.\(^{47,48}\) The New York State Department of Health was among the first to establish formal anal cytology screening recommendations for HIV-positive patients.\(^{29}\) Those who have anal cytology results that reveal dysplasia or atypical cells should undergo standard or high-resolution anoscopy.\(^{50}\) No recommendations for screening HIV-negative MSM have yet been formalized, but many health care providers screen these patients similar to screening for HIV-positive patients. Gay men, bisexual men, or MSM with low-grade lesions, such as condyloma or other dysplasia, should undergo more definitive evaluation given the risk of underlying high-grade dysplasia.\(^{51}\) Although not all patients with dysplasia will have symptoms, those patients with any new anal pain, ulcers, or masses should undergo anoscopy.

**Breast Cancer**

**Descriptive epidemiology**

Excluding cancers of the skin, breast cancer is the most frequently diagnosed cancer in women.\(^{18}\) In 2015, approximately 231,840 women will be diagnosed with invasive breast cancer, 60,290 women will be diagnosed with in situ breast cancer, and 40,730 women will die of breast cancer in the United States.\(^{18}\) The estimated annual incidence of female breast cancer is 124.8 per 100,000 women per year.\(^{16}\) Breast cancer ranks second as a cause of cancer death in women with an annual mortality rate of 21.9 cases per 100,000 women per year.\(^{16}\)

A recent systematic review\(^{52}\) of breast cancer incidence and prevalence in lesbian and bisexual women found no published data on breast cancer incidence in this population, and the few published prevalence estimates were unreliable because the studies were relatively small and of poor quality in terms of study design and reporting. The American Cancer Society estimates that there will be approximately 2350 new cases of invasive male breast cancer and about 440 men will die from breast cancer in 2015.\(^{18}\) There are no published studies on incidence or mortality rates for breast cancer among gay or bisexual men. A recent report describing 10 cases of breast cancer in transsexual veterans increases the estimated annual incidence of breast cancer in the transsexual population to 12 female-to-male transsexual persons and to 13 male-to-female transgender persons.\(^{53}\) Because the incidence rate of breast cancer incidence and mortality is very low in males and is unknown among transsexual persons, the remainder of this section will focus on breast cancer among women.

To account for the lack of sexual orientation data in national databases and registries, researchers have used novel approaches to estimate the prevalence, density, incidence, and mortality of cancer among sexual minorities.\(^{54–57}\) Boehmer et al\(^ {55} \) analyzed pooled data from the 2001, 2003, and 2005 California Health Interview Surveys to generate prevalence estimates weighted by sexual orientation proportions and found that the prevalence of breast cancer did not significantly differ by sexual orientation. Among heterosexual women, the weighted prevalence estimate was 20.6%; and, for lesbian and bisexual women, the weighted prevalence estimates were 17.8% and 13.3%, respectively. In a different study, age-specific sexual minority population density data were generated using cancer incidence data from the California Cancer Registry, and data on sexual orientation were obtained from the California Health Interview Survey.\(^ {54}\) The authors noted that geographic areas with a greater density of lesbian women\(^ {54}\) were significantly associated with higher incidence of breast cancer (incidence rate ratio [IRR], 1.02; 95% confidence interval [CI], 1.01–1.03), and areas with a greater population density of bisexual women were significantly associated with lower breast cancer incidence (IRR, 0.97; 95% CI, 0.96–0.98). Unfortunately, sexual minority status data are not available in national surveys and registries. Hence, as the authors noted, these findings only represent California, and it would be inappropriate to conclude that they represent sexual minorities across the United States. In addition, the demographic characteristics of the lesbian and gay respondents of the California Health Interview Survey were more likely to report white race, advanced education, and higher income compared with heterosexual responders. Therefore, this study raises the question of whether the data are representative and generalizable.

**Primary prevention and preclinical disease**

Despite limited published data over the last decade on breast cancer risk factors for lesbian and bisexual women,\(^ {58–62}\) the Institute of Medicine suggests a higher risk for breast cancer in this population because of higher
prevailing of some breast cancer risk factors, such as nulliparity, alcohol use, smoking, and obesity.\textsuperscript{5,62} Published data comparing breast cancer risk factors between 370 lesbian and heterosexual sister pairs over the age of 40 years showed that lesbian sisters had significantly more education, fewer pregnancies, less total months pregnant, fewer children, fewer total months breastfeeding, higher body mass indices, exercised fewer times per week, and performed fewer breast self-examinations.\textsuperscript{62} Interestingly, history of smoking and alcohol use were not statistically significantly different between the two groups. The authors noted that the small and homogeneous study population was highly white, well educated, insured, and from the same region of the country. Because of this, the results, especially pertaining to history of smoking and alcohol use, probably are not generalizable. A Swedish study\textsuperscript{63} comparing the reproductive health of lesbian and bisexual women with that of heterosexual women found that lesbian and bisexual women reported significantly fewer pregnancies. Because pregnancy has long been considered a protective factor\textsuperscript{64} for breast cancer, reduced pregnancy rates in lesbian and bisexual women equate to increased cancer risk. There also is evidence from two recent studies that lesbians have a higher prevalence of obesity, which is associated with a higher risk of breast cancer after menopause.\textsuperscript{64–66} Future research should formally address whether the elevated prevalence of breast cancer risk factors translate into higher incidence of disease for lesbian and bisexual women. Moreover, because many breast cancer risk factors are modifiable, culturally appropriate ways to attenuate risk, especially for reproductive factors, will need to be explored. As noted above, although it appears that lesbian and bisexual women have an increased prevalence of breast cancer risk factors, currently, it is unclear whether they are indeed at an increased risk of breast cancer.

Secondary prevention and early stage disease

For women at average risk of disease, breast cancer screening includes clinical breast examination and mammography.\textsuperscript{67} Findings with respect to participation in mammography screening among lesbian and bisexual women have been inconsistent. As reviewed elsewhere,\textsuperscript{58,68} some studies reported that lesbian and bisexual women were less likely than heterosexual women to have a recent mammogram, whereas other studies reported that lesbian women were more likely to get mammography, and other studies observed no differences by sexual orientation. Many factors may contribute to lower screening rates, including lower income and not having health care coverage.\textsuperscript{68} In addition, previous studies have shown that the relationship between the health care provider and patient is crucial to the decision to obtain breast cancer screening and that lesbian and bisexual women often do not have positive relationships with their providers.\textsuperscript{68,69} Thus, because of differences in behavior and barriers to health care, lesbian and bisexual women may be an underserved population with regard to breast cancer screening and prevention.

Tertiary prevention, late-stage disease, and beyond

To date, there are limited studies on breast cancer survivorship among lesbian and bisexual women, although breast cancer is largely a chronic condition manageable with regular survivorship care. A study using the National Health Interview Survey estimated the age-adjusted relative risk (RR) for mortality attributed to breast cancer and found that lesbian women had greater disease-specific mortality (RR, 3.20; 95% CI, 1.01-10.21) but did not differ in their overall risk for mortality.\textsuperscript{70} A study by Boehmer et al\textsuperscript{75} reported that lesbian cancer survivors had nearly twice the odds (odds ratio [OR], 1.98; 95% CI, 1.15-3.42) and bisexual women had over 2-fold the odds (OR, 2.32; 95% CI, 1.21-4.82)\textsuperscript{70} of reporting fair or poor health compared with heterosexual women. Although the study analyzed data across all cancers, breast cancer was the most frequently reported cancer site among women (20.6% among heterosexual women, 17.8% among lesbian women, and 13.3% among bisexual women).

Psychosocial factors during treatment and survivorship

Quality of life among breast cancer survivors has been studied for several decades. Areas of concern include psychological morbidity (eg, depression, anxiety) as well as more direct effects of cancer treatment, including lymphedema, fatigue, vasomotor complaints, sexual dysfunction, and cognitive impairment.\textsuperscript{71} Two studies comparing lesbian and bisexual women and heterosexual breast cancer survivors found no differences in global quality-of-life scores.\textsuperscript{72,73} When specific treatment-related effects were examined, there were no differences between the groups regarding either morbidity of the arm (including lymphedema) or systemic side effects.\textsuperscript{74} In addition, a study of lesbian and bisexual breast cancer patients and healthy controls found no differences in overall sexual functioning between these groups but did find that sexual minority breast cancer patients were more likely to report lower sexual activity frequency, desire, and ability to reach orgasm as well as higher levels of pain.\textsuperscript{75} The authors concluded that sexual orientation should be identified before discussions of sexual problems and therapeutic options.

Transsexual persons

Extended cross-sex hormone treatment is common to male-to-female and female-to-male transsexual persons. For male-to-female persons, there is concern that extended estrogen treatment will lead to carcinomas in the breast and other estrogen-sensitive tissues. While there are several reported cases of breast cancer, the limited evidence
suggests that male-to-female persons are not at a higher risk for breast cancer than are biological women.\textsuperscript{76,77} For female-to-male persons, there is potential for the development of breast cancer, especially among those who do not undergo mastectomy. It is unclear how extended testosterone treatment may be related to the development of breast cancer, but it has been observed that serum estradiol levels do not increase in response to treatment. The risk of breast cancer among female-to-male persons is comparable to that of biological men, which parallels the similar level of risk for male-to-female persons and biological women. With regard to mammography for transsexual persons, screening mammography is not currently recommended for transsexual women who are not taking hormones, except in individuals with other known risk factors (eg, Klinefelter syndrome).\textsuperscript{78}

**Clinical implications**

As noted above, breast cancer risk factors may be more prevalent among nonheterosexual women.\textsuperscript{5,62} Given the likelihood that lesbian and bisexual women will delay seeking health care,\textsuperscript{79} every clinical encounter, not just preventive care visits, should be seen as an opportunity to promote screening. After diagnosis, health care providers should be particularly mindful that they are attending to postdiagnosis needs, because qualitative evidence suggests that lesbian breast cancer patients have higher stress associated with the diagnosis, lower satisfaction with physician care, and lower satisfaction with perceived availability of emotional support.\textsuperscript{80} For female breast cancer survivors who have female partners, it is also important for clinicians to be sensitive to the impact that breast disease and breast cancer treatment can have on relationships with sexual partners. Although there is limited research on the topic, several studies suggest that decisions about breast-conserving therapies and requests for breast reconstruction are dissimilar between lesbian and heterosexual women. These studies suggest that decisions about cancer treatment and survivorship are based on a value system and body image shaped by sexual orientation/identity.\textsuperscript{81–83} Health care providers should be aware of the cultural factors affecting treatment decisions and address these culture-specific concerns when counseling patients about treatment options. Moreover, health care providers should counsel lesbian and bisexual women about potential differences in long-term symptoms after treatment, ie, higher rates of arm morbidity and systemic side effects compared with heterosexual women.\textsuperscript{74}

**Cervical Cancer**

**Descriptive epidemiology**

In 2015, an estimated 12,900 new cases of cervical cancer will be diagnosed, and approximately 4100 women will die of this cancer in the United States.\textsuperscript{18} The annual incidence of uterine cervical cancer in the United States is approximately 7.7 cases per 100,000 women, and the mortality rate is 2.3 per 100,000 women per year.\textsuperscript{16} Weighted prevalence estimates generated using data on 71,112 women from the California Health Interview Survey show that heterosexual women have a significantly lower prevalence of cervical cancer (14%) compared with lesbian women (16.5%) and bisexual women (41.2%).\textsuperscript{55} As noted above in the breast cancer section, and relevant across all cancer sites in this review, sexual minority status is not collected in national surveys and registries and therefore there may be limited generalizability of these results. In addition, to date, there are no published data on cervical cancer incidence and mortality among lesbian and bisexual women.

**Primary prevention and preclinical disease**

HPV is the most important and prevalent risk factor for cervical cancer. In fact, nearly all cervical cancers are caused by HPV infections, with just two types (HPV-16 and HPV-18) responsible for about 70% of all cases.\textsuperscript{84} Although previous studies have suggested that sexually transmitted infections are rarely transmitted between lesbians, more recent studies indicate that sexually transmitted infections are common in lesbians and that transmission occurs through sexual contact. Furthermore, as reviewed by Waterman and Voss,\textsuperscript{88} research has demonstrated that many lesbians and their partners have had previous sexual contact with men. In addition, lesbian women may have higher rates of other cervical cancer risk factors and behaviors compared with heterosexual women, including higher body mass index scores and smoking history.\textsuperscript{88}

An important modality for the prevention of cervical cancer is HPV vaccination. The bivalent vaccine (including HPV-16 and HPV-18), the quadrivalent HPV vaccine (including HPV-6, HPV-11, HPV-16, and HPV-18), and the 9-valent HPV vaccine (includes the quadrivalent types and HPV-31, HPV-33, HPV-45, HPV-52, and HPV-58) are available for adolescent and young adult males and females.\textsuperscript{89} Unfortunately, vaccination rates are low in the United States, and the HPV vaccine is not currently recommended for individuals aged 27 years or older. Moreover, because lesbian and bisexual women are an often overlooked group at risk for HPV infection,\textsuperscript{58} their uptake of the HPV vaccine could be even lower than that in the general population. To date, there are limited published data on HPV vaccination among lesbian and bisexual women. Using a web-based, respondent-driven sampling strategy, Bernat et al\textsuperscript{90} reported that 44.9% of lesbian and bisexual women ages 18 to 24 years received at least one dose of HPV vaccine compared with 51.1% of heterosexual women. A more recent study\textsuperscript{91} that surveyed a national sample of young adults ages 18 to 26 years who self-identified as LGBT found that 45% of respondents had
initiated an HPV vaccine, and 70% of initiators reported completing the series. Unfortunately, the study did not include corresponding proportions among heterosexuals; thus, a direct comparison is not possible. Of particular importance, the authors found that HPV vaccine initiation was higher among respondents who received a health care provider’s recommendation. This finding suggests that, similar to the general population, programs designed to increase HPV vaccination among women in this population should focus on health care provider recommendations.

Secondary prevention and early stage disease

The “Pap test” or “Pap smear” is the most important screening tool used to detect precancerous cervical abnormalities. Current cervical cancer screening guidelines do not include language or considerations for lesbian and bisexual women. The US Preventive Services Task Force recently changed the screening recommendations for Pap testing to every 3 years for all women ages 21 to 65 years who have a cervix, regardless of sexual history. However, because of potential misconceptions that lesbian and bisexual women are not at risk for cervical cancer, these women may not be screened at the same rates as the general population. A recent study analyzed a national sample of lesbian and bisexual women ages 21 to 26 years and found that Pap testing was more common among women who had disclosed their sexual orientation to their health care provider. However, Pap testing was less common among women who self-identified as lesbian but had not disclosed their orientation to a health care provider.

Because lesbian and bisexual women may potentially experience barriers to health care access and have a higher prevalence of cervical cancer risk factors and behaviors compared with heterosexual women, cervical screening guidelines may need to be modified to address sexual minority status. Specifically, cervical screening guidelines may need to explicitly include language that lesbian and bisexual women are a potentially vulnerable group and that sexual orientation and gender identity status need to be assessed to ensure proper health care education and delivery.

Tertiary prevention, late-stage disease, and beyond

Although barriers to health care, screening, and vaccination among lesbian and bisexual women have received some attention in the published literature, there are no published data on tertiary prevention, late-stage disease, or patient outcomes in cervical cancer outcomes among these women.

Psychosocial factors during treatment and survivorship

No studies were identified that focused exclusively on quality of life after cervical cancer for lesbian and bisexual women. However, it is likely they would experience many of the same issues as heterosexual women, particularly those related to cancer treatment. A recent review indicates that the types of treatment received by cervical cancer patients have the greatest impact on long term quality of life, with those who receive radiation at greatest risk of increased long-term bladder and bowel dysfunction, sexual dysfunction, and negative psychosocial consequences. A meta-analysis of 20 studies examining sexual functioning of cervical cancer survivors identified no differences in the ability to achieve an orgasm compared with healthy controls. However, cervical cancer survivors more frequently reported pain, lack of lubrication, and decreased interest in sexual activity after treatment.

Clinical implications

Clinicians should be aware that HPV transmission occurs through contact with infected genital skin, mucous membranes, or bodily fluids and skin-to-skin contact with the penis, scrotum, vagina, vulva, or anus of an infected person. Therefore, women who have not had vaginal or anal intercourse are still at risk for HPV infection and cervical cancer. Standard recommendations for cervical cancer screening still apply for women who have never had sex with a male partner. A national study in the United States of 9581 women revealed that Pap testing was significantly lower in lesbian women, largely because of lower utilization of sexual and reproductive health services among these patients. Clinicians should be vigilant about identifying lesbian and bisexual women who are not up to date on cervical cancer screening or who have not followed up after an abnormal screening result. Patients who require treatment for cervical cancer should be counseled about any impact of treatment on sexual function and potential impact on future fertility should also be discussed, regardless of sexual orientation or gender identity.

Colon and Rectal Cancer

Descriptive epidemiology

In 2015, there are expected to be approximately 93,090 new diagnoses of colon cancer and 39,610 new diagnoses of rectal cancer in the United States. Colorectal cancer is the third most common cancer in both men and women, with annual incidence rates of 48.9 and 37.1 per 100,000 persons per year, respectively. Mortality rates for men and women are 18.6 and 13.1 per 100,000 persons per year, respectively. A study of 51,259 men and 71,135 women from the California Health Interview Survey found that the weighted colon cancer prevalence estimates were not significantly different between heterosexual women (2.8%) versus lesbian women (4.5%) or between heterosexual men (4.4%) and gay (2.7%) or bisexual (1.7%) men. A separate study of data from the California Cancer Registry and the California Health Interview Survey found a slightly higher yet statistically significant incidence of colorectal cancer in geographic areas with a higher density of bisexual men (IRR, 1.03; 95% CI, 1.00–1.05), but not gay men (IRR, 1.0; 95%
DNA test. Among men and women who are at average risk for fecal occult blood test, fecal immunochemical test, and stool endoscopy, double-contrast barium enema, virtual colonoscopy, there are several screening tests available for the early detection of colorectal cancer, including sigmoidoscopy, colonoscopy, double-contrast barium enema, virtual colonoscopy, fecal occult blood test, fecal immunochemical test, and stool DNA test. Men and women who are at average risk for developing colorectal cancer should begin screening at age 50 years, whereas those who are at increased risk because of family history, personal history of inflammatory bowel disease, or inherited disorders should start screening before age 50 years. Previous studies have shown men in the general population who receive prostate cancer screening are also more likely to undergo colorectal cancer screening. However, Heslin et al found the opposite to be true among gay or bisexual men where more men received screening for colorectal cancer than for prostate cancer. Those authors suggested that the difference between these groups may partly be because colonoscopy and sigmoidoscopy can be used to diagnose problems associated with receptive anal sex. Moreover, we acknowledge that data on screening behavior among gay or bisexual men may not be comparable to data from national surveys (eg, the Behavioral Risk Factor Surveillance System) comprising the general population. To date, limited recent data have been published on colorectal cancer screening in lesbian and bisexual women. By using a population-based probability sample of Missouri women, McElroy et al reported that sexual minority women and heterosexual women did not differ in the proportion that ever obtained colorectal cancer screening.

**Primary prevention and preclinical disease**

Several risk factors are associated with an increased risk of colorectal cancer, including advanced age, personal history of polyps in the large intestine, family history, and lifestyle factors, such as obesity, smoking, and alcohol consumption. Although there is evidence that sexual minorities have higher rates of smoking, alcohol consumption, and obesity compared with heterosexuals, no published studies have compared differences in colorectal cancer risk by sexual orientation or gender identity.

**Secondary prevention and early stage disease**

There are several screening tests available for the early detection of colorectal cancer, including sigmoidoscopy, colonoscopy, double-contrast barium enema, virtual colonoscopy, fecal occult blood test, fecal immunochemical test, and stool DNA test. Men and women who are at average risk for developing colorectal cancer should begin screening at age 50 years, whereas those who are at increased risk because of family history, personal history of inflammatory bowel disease, or inherited disorders should start screening before age 50 years. Previous studies have shown men in the general population who receive prostate cancer screening are also more likely to undergo colorectal cancer screening. However, Heslin et al found the opposite to be true among gay or bisexual men where more men received screening for colorectal cancer than for prostate cancer. Those authors suggested that the difference between these groups may partly be because colonoscopy and sigmoidoscopy can be used to diagnose problems associated with receptive anal sex. Moreover, we acknowledge that data on screening behavior among gay or bisexual men may not be comparable to data from national surveys (eg, the Behavioral Risk Factor Surveillance System) comprising the general population. To date, limited recent data have been published on colorectal cancer screening in lesbian and bisexual women. By using a population-based probability sample of Missouri women, McElroy et al reported that sexual minority women and heterosexual women did not differ in the proportion that ever obtained colorectal cancer screening.

**Tertiary prevention, late-stage disease, and beyond**

To date, there are no published studies that have examined the potential impact of sexual orientation or gender identity on treatment outcomes among patients with colorectal cancer.

**Psychosocial factors during treatment and survivorship**

To date, no studies have focused on quality-of-life outcomes or survivorship issues by sexual orientation or gender identity among patients with colorectal cancer. A recent review of colorectal cancer survivors compared with age-matched individuals revealed that survivors experienced lower levels of physical and mental quality of life, and the long-term effects of treatment included fatigue, sleep difficulty, fear of recurrence, anxiety, depression, negative body image, sensory neuropathy, gastrointestinal problems, urinary incontinence, and sexual dysfunction.

**Clinical implications**

Patients should undergo colorectal cancer screening based on their individual risk factors regardless of sexual orientation or gender identity. Clinicians should educate their patients on changing their modifiable risk factors to reduce their individual colorectal cancer risk. Gay and bisexual men who are diagnosed with rectal cancer and are treated with neoadjuvant radiation therapy and surgery may experience discomfort when engaging in anal sex.

**Endometrial Cancer**

**Descriptive epidemiology**

In 2015, approximately 54,870 new cases of uterine corpus cancer (most of which are endometrial cancer) are predicted in the United States, as are approximately 10,170 uterine corpus cancer-related deaths. The estimated annual incidence of uterine corpus cancer (including uterus, not otherwise specified) is 25.1 cases per 100,000 women, and the annual mortality rate is approximately 4.4 cases per 100,000 women.

Very few studies have assessed the burden of endometrial cancer among lesbian and bisexual women. One study used a sample of 370 lesbian-heterosexual sister pairs to investigate whether lesbians had more gynecologic cancer risk factors compared with their heterosexual sisters. The authors suggested that the risk of endometrial cancer might be higher among lesbians compared with their sisters because of their significantly higher prevalence of nulliparity and a trend toward obesity. They also found that the use of oral contraceptive pills was lower among lesbians than among their heterosexual sisters (40% vs 60%), but other endometrial cancer risks were similar between the two groups. An analysis using data from the Women’s Health Initiative evaluated older lesbian and bisexual women and found that women who never had sex with men had decreased prevalence of endometrial cancer relative to heterosexual women. In the absence of published literature, it is also not known whether lesbian and bisexual women are...
offered the same treatment options as heterosexual women. There is clearly a need for additional research to fill the knowledge gap in what is known about endometrial cancer among lesbian and bisexual women.

**Psychosocial factors during treatment and survivorship**

Quality of life in endometrial cancer is not well described in the general population, and there are no studies specific to lesbian and/or bisexual women.110 Available studies suggest that quality of life among all women, regardless of sexual orientation, who are diagnosed with endometrial cancer is impacted by the type of surgery for primary treatment, with those who undergo laparoscopic procedures reporting higher quality of life than those undergoing laparatomic or vaginal surgical approaches.111 However, no studies have examined whether lesbian and/or bisexual women are more or less likely to choose treatment options that are associated with reduced quality-of-life outcomes. In addition, a recent meta-analysis suggests that obesity is associated with poorer quality of life in endometrial cancer survivors, including poorer physical, role, and social functioning.112 This finding may be relevant for lesbian and bisexual women given their higher rates of obesity compared with heterosexual women.1

**Clinical implications**

Regardless of sexual orientation or gender identity, endometrial cancer screening is not recommended for asymptomatic women at average risk for this disease.94 Thus, there is no direct implication for the care of lesbian and bisexual women. However, this does not diminish the concern that lesbian and bisexual women may delay seeking care because of concerns about discrimination in the health care setting.79 Consequently, it is critical that clinicians facilitate the diagnostic process when patients present for evaluation of symptoms that raise concern for endometrial cancer. Health care providers should also create a welcoming environment that encourages accurate disclosure of sexual health history, sexual orientation, gender identity, and all information that is relevant for optimal patient care.113 Health care providers are further reminded to discuss the impact of surgery and other therapies on sexual functioning, because lesbian and bisexual women may be reluctant to raise this concern themselves.

**Lung Cancer**

**Descriptive epidemiology**

Lung cancer is the second most common cancer and the leading cause of cancer death in the United States and around the world.18,114 In 2015, there will be an estimated 221,200 new cases of lung cancer in the United States, accounting for about 13% of all cancer diagnoses, and an estimated 158,040 deaths, accounting for nearly 27% of all cancer deaths.18 The annual incidence rates are 70.1 per 100,000 and 50.2 per 100,000, for men and women, respectively, and the annual mortality rates are 59.8 per 100,000 and 37.8 per 100,000, for men and women, respectively.16

Boehmer et al17 performed an ecological analysis to determine whether there is an association between geographic areas with greater sexual minority density, defined as gay and lesbian individuals, and the incidence and mortality rates for lung cancer. Those authors used population-based Surveillance, Epidemiology, and End Results (SEER) registries to obtain cancer data, and the US Census was used to obtain data on same-sex–partnered households for the geographic area covered by SEER. Overall, that study found higher incidence and mortality rates for lung cancer in geographic areas with a greater density of sexual minority males (IRR, 1.05; 95% CI, 1.04-1.07). Conversely, areas with a higher density of sexual minority females had significantly lower incidence and mortality rates for lung cancer (IRR, 0.83; 95% CI, 0.79-0.88). A more recent study by Boehmer et al54 used an improved measure of sexual minority identity from California population-based data to estimate the relationship to lung cancer incidence. Among men, bisexual population density was associated with a lower incidence (IRR, 0.92; 95% CI, 0.90-0.94) of lung cancer, and gay population density was associated with a slightly higher incidence of lung cancer (IRR, 1.0004; 95% CI, 0.995-1.006). Among women, lesbian population density was associated with a lower incidence of lung cancer (IRR, 0.95; 95% CI, 0.93-0.97), and bisexual population density (IRR, 1.11; 95% CI, 1.08-1.15) was associated with a higher incidence of lung cancer. Because county-level ecological data were used in those analyses, it is not possible to draw conclusions linking sexual minority status and cancer risk at the individual level. Therefore, there is an inherent need to collect gender orientation and sexual identity status in local, state, and national surveys and registries to better assess the incidence of cancer among sexual minorities. Until such individual-level data are available, these ecological analyses provide compelling and important data on potential cancer disparities among sexual minorities, albeit demonstrating only modest differences in lung cancer risk, especially for gay men.

**Primary prevention and preclinical disease**

Smoking among the LGBTQ population is higher compared with that in heterosexual populations. There is also evidence that smoking rates of LGBT youth are as high as those of LGBT adults, and these individuals tend to start smoking at an earlier age.105,115–117 Rath et al116 used data from the Legacy’s Young Adult Cohort Study, a nationally representative longitudinal sample of young adults ages 18 to 34 years (N = 4215), and found significantly higher tobacco use among sexual minorities (33%) compared with heterosexuals (22%). These findings are consistent with the results of state-based studies showing smoking prevalence
ranging from 25% to 37% among sexual minorities.\textsuperscript{118–122} Among the general population, smokers have about a 20-fold increase in lung cancer risk compared with lifetime never-smokers.\textsuperscript{123} Because cigarette smoking is unequivocally the most important and prevalent risk factor for lung cancer,\textsuperscript{114} populations like LGBTQ with higher smoking rates are likely at an elevated risk of tobacco-related diseases, such as lung cancer. However, to date, there are no published risk estimates for the association between smoking and lung cancer among sexual minorities.

A recent review found that the incidence of lung cancer among HIV-infected patients is significantly higher than that in the general population.\textsuperscript{124} Lung cancer risk also was greater among HIV-infected individuals compared with the general population. The standardized incidence ratio comparing the number of observed to expected cases, or adjusted the IRR, was 5.0 in Africa, ranged from 0.7 to 6.9 in the United States, and ranged from 1.5 to 3.4 in Europe. Those authors speculated that the increased risk of lung cancer may be attributed to numerous factors, including immunosuppression, excessive cigarette smoking among HIV patients, or coexisting comorbidities, such as chronic obstructive pulmonary disease, bacterial pneumonia, and asthma. Although highly active antiretroviral therapy significantly prolongs the survival of HIV-infected individuals, its impact on lung cancer risk and incidence is not clear. Although the review by Hou et al\textsuperscript{124} did not directly address potential differences in risk between sexual minorities and heterosexual populations, many of the studies included were conducted among gay men. There are no other published data on the influence of other established lung cancer risk factors,\textsuperscript{114} such as occupational exposures, radon, asbestos, and family history, among sexual minorities.

**Secondary prevention and early stage disease**

Currently, the only recommended modality for the early detection of lung cancer is annual screening with low-dose computed tomography in high-risk adults ages 55 to 80 years who have a 30 pack-year smoking history and who currently smoke or have quit within the past 15 years.\textsuperscript{94,125,126} The recommendations for lung cancer screening by the US Preventive Services Task Force and by the American Cancer Society,\textsuperscript{126,127} both rendered in 2013, were based on findings from the National Lung Screening Trial, which did not include an assessment of sexual orientation or gender identity. Therefore, the impact of lung cancer screening on LGBTQ communities is not known and will not likely be known for decades. If indeed sexual minorities are a highly susceptible group, then their risk of lung cancer either may exceed that of the current high-risk population or may be considered as an additional risk factor. For future considerations, the lung cancer screening guidelines may need to include sexual orientation and gender identity as a potential additional inclusion factor.

**Tertiary prevention, late-stage disease, and beyond**

Currently, there are no published data related to tertiary prevention for lung cancer among LGBTQ populations.

**Psychosocial factors during treatment and survivorship**

Available quality-of-life studies do not provide specific outcomes by sexual orientation.\textsuperscript{128,129} However, an important survivorship consideration for all lung cancer survivors is the need for smoking cessation.\textsuperscript{130} Given the overall higher smoking rates in gay and lesbian populations,\textsuperscript{131} this may be a particularly relevant issue.

**Clinical implications**

Physicians should screen their LGBTQ patients for tobacco use and encourage smoking cessation. LGBTQ youth begin smoking at an earlier age than their heterosexual counterparts, requiring a clinician’s heightened awareness for tobacco use among their adolescent patients.\textsuperscript{131} LGBTQ patients should be screened and treated for lung cancer based on their individual risks, similar to their heterosexual counterparts.

**Prostate Cancer**

**Descriptive epidemiology**

Other than skin cancer, prostate cancer is the most frequently diagnosed cancer in men and the second-leading cause of cancer death. Incidence rates for prostate cancer changed substantially because of widespread dissemination of the prostate-specific antigen (PSA) blood test for screening in the 1980s and 1990s.\textsuperscript{132,133} In 2015, approximately 220,800 new cases of prostate cancer and 27,540 prostate cancer-related deaths are predicted in the United States.\textsuperscript{18} The incidence rate in the United States is 137.9 per 100,000 men per year, and the mortality rate is 21.4 per 100,000 men per year.\textsuperscript{16}

Although all men are at risk for prostate disease, there are limited data on the impact of prostate disease among gay and bisexual men. A commentary\textsuperscript{134} in 2005 estimated that at least 5000 gay or bisexual men are diagnosed with prostate cancer each year, and 50,000 or more are living after prostate cancer treatment. These projections were based on a conservative estimate that 2% to 3% of the US male population is gay or bisexual. More recently, Boehmer et al\textsuperscript{155} used data on 51,233 men from the California Health Interview Survey and found that gay men had a significantly lower weighted prevalence estimate for prostate cancer (5.3%) compared with heterosexual men (16.5%) and bisexual men (14.3%).

Supporting data from the US HIV/AIDS Cancer Match Study found that men with HIV had a 50% lower risk of prostate cancer than men in the general population.\textsuperscript{135} However, in a subset analyses in which PSA values were available, the authors reported lower rates of PSA testing in a cohort
of low-income HIV-infected men, suggesting that PSA testing may be less common in men with HIV.

**Primary prevention and preclinical disease**

Advanced age, African ancestry, geographical locale, and a family history of prostate cancer are well established risk factors for prostate cancer.\(^{136}\) In addition, a meta-analysis of 24 prospective cohort studies revealed that smoking is associated with prostate cancer incidence and mortality.\(^{137}\) There are no published data comparing prostate cancer risk factors between heterosexual and gay and bisexual men.

**Secondary prevention and early stage disease**

The American Cancer Society recommends that health care providers discuss the uncertainties, risks, and potential benefits of PSA testing with their patients and that these communications begin at age 50 years for men at average risk, at age 45 years for men at high risk, and at age 40 years for men at highest risk.\(^{94}\) Although previous studies have shown that PSA testing frequency differs by race/ethnicity, income, education, and other characteristics,\(^{138,139}\) very little data have been published on whether there are differences by sexual orientation. A cross-sectional analysis of 19,410 men in the California Health Interview Survey\(^{104}\) found no overall differences in PSA testing in gay or bisexual men compared with heterosexual men. However, PSA testing among gay or bisexual African Americans was 12% to 14% lower than that of heterosexual African Americans and 15% to 28% lower than that of gay or bisexual whites.

**Tertiary prevention, late-stage disease, and beyond**

Despite concerted efforts toward understanding treatment outcomes and quality of life among men dealing with prostate cancer, there have been limited studies examining differences by sexual orientation. It has been suggested that the effects of prostate cancer treatment on sexual function and quality of life may differ by sexual orientation.\(^{134}\) Three studies\(^{140–142}\) reported poorer outcomes and decreased quality of life among gay men with prostate cancer compared with heterosexual men or published norms. In contrast, a larger study among men with prostate cancer in the United States, Australia, Canada, the United Kingdom, and other countries reported no significant differences in sexual function scores between heterosexual men and gay and bisexual men. However, another study found that gay and bisexual men reported significantly worse sexual bother, ejaculatory function, and ejaculatory bother after prostate cancer treatment.\(^{143}\)

**Psychosocial factors during treatment and survivorship**

The impact of prostate cancer spans multiple social and emotional domains that may impact quality of life among survivors. A recent review summarized the late effects by treatment modality as well as general psychosocial long-term and late effects in the general population patients with prostate cancer.\(^{144}\) Specifically, sexual (eg, erectile dysfunction), urinary (eg, incontinence), and bowel (eg, fecal incontinence, tenesmus) treatment-related side effects have significant and long-term effects on sexual function among the general population of patients with prostate cancer.\(^{144–146}\) This finding is mirrored primarily in qualitative studies that include or are focused on gay prostate cancer survivors. However, the impact of poorer sexual functioning for gay men should be considered in light of sexual activity characteristics, such as preferences for anal intercourse, that may require a firmer erection compared with vaginal sex as well as anal discomfort.\(^{134}\) A recent pilot study of gay and bisexual men diagnosed with prostate cancer (n = 15) observed that all participants who received radiation therapy (n = 8) reported retaining their pretreatment role as either a receptive or insertive sexual partner; whereas, among those who underwent surgery (n = 7), only 1 of 4 who previously reported pretreatment receptive anal intercourse and none of the 3 men who reported insertive anal intercourse maintained this role postsurgical treatment.\(^{141}\)

Social support affects quality of life in men with prostate cancer.\(^{147}\) Prior work has predominantly focused on heterosexual men, the vast majority of whom were married at the time of diagnosis and treatment.\(^{134}\) For gay men, both observational and intervention studies addressing the impact of social support may require consideration of support from sources other than a married or partner relationship, to include friends or the LGBT community more broadly.\(^{134}\) In addition, the sources and extent of social support may be limited for gay men who are not open about their sexual orientation. Finally, given the ongoing treatment-related side effects that persist for at least a decade posttreatment,\(^{146}\) it is important for oncology, urology, and primary care providers to consider whether their patients are willing and able to discuss any of these issues.\(^{134}\)

National recommendations for health behaviors in cancer survivors have focused on improved nutrition, increased physical activity, and reduced alcohol and tobacco use.\(^{148}\) However, in a national study comparing health behaviors among male cancer survivors (25% were diagnosed with prostate cancer), gay men were less likely to engage in moderate exercise and reported higher levels of alcohol consumption compared with heterosexual male survivors.\(^{11}\) In addition, qualitative research on prostate cancer in gay male survivors identified their frustrations with the heterosexual orientation of survivorship care as well as concerns about homophobia among oncology health care professionals.\(^{149}\) Because recommendations for positive health behaviors may occur at lower rates among gay prostate cancer survivors, future health promotion
efforts should be tailored to address these behaviors and also should be culturally relevant to gay men.

Transsexual persons

For male-to-female persons, removal of the prostate is not typical. Although androgen-deprivation treatment reduces the size of the prostate, there remains potential for development of prostate cancer, especially among those starting hormonal treatment after age 50 years. A recent case study presented an occurrence of metastatic prostate cancer at age 75 years in a male-to-female person who underwent sex reassignment at age 45 years. Prostate cancer screening should strongly be considered, and the related risks and benefits should be discussed with male-to-female persons.

Clinical implications

All males, regardless of their sexual orientation and gender identity, should have an opportunity to make an informed decision with their health care provider about whether to be screened for prostate cancer after receiving information about the potential benefits, risks, and uncertainties associated with prostate cancer screening. When discussing treatment options, physicians should be sensitive to the differing implications that treatment may have for gay men compared with heterosexual men.

Transgender/Transsexual Men and Women

Cancer-Related Issues

Cancer-related issues for transgender/transsexual persons have focused on those who have undergone sex-reassignment procedures. The relative frequency of transgender persons is low, and the relative frequency of those undergoing sex-reassignment procedures is even lower. Specifically, data from smaller countries in Europe with access to total population statistics and referrals suggest that roughly 1 per 30,000 adult males and 1 per 100,000 adult females seek sex-reassignment surgery. In turn, published research concerning cancer among male-to-female and female-to-male transsexual persons is scarce and has been limited to case studies and small target sample sizes in observational studies. For this reason, drawing conclusions from the existing body of research is not warranted. There is a significant opportunity for new research to greatly advance our understanding of cancer among transsexual populations, especially with 1) an aging transsexual population, and 2) greater opportunities to globally collect and pool data. However, it will be difficult to move beyond case studies without advance planning and an investment in those transsexual persons who are willing to provide data for years after sex reassignment.
Barriers to Care

There are several issues regarding cancer risk among transgender/transsexual populations. One is the underutilization of health care in general, often related to perceived discrimination and stigma. Another stems from gender identity mismatch. For example, a person with male reproductive organs who identifies as female may forego prostate screening or avoid addressing prostate-related symptoms. Other important issues for transgender populations include finding and comfortably working with health care providers who are knowledgeable about the physical and mental health issues distinct to transgender patients. This would apply equally to primary care providers, cancer specialists, and the institutions in which care is provided.

Strategies for Improving Access for Sexual Minorities

Because LGBTQ disparities are evident, it is crucial to implement effective strategies to address and ultimately eliminate such disparities. Interventions to assist LGBTQ patients with cancer health care access and decision making are needed. In the United States, certain basic rights for this population are limited or nonexistent due to a complex patchwork of legislation. Some legislation is vague regarding state and federal rights for end-of-life decisions among LGBTQ patients and their loved ones, often causing these patients to mistakenly believe that their rights are covered when they may not be. Health insurance providers play a key role in improving access among LGBTQ patients. First, health insurance needs to expand coverage for transgender patients in order for them to obtain appropriate access to care. Second, insurers could incorporate a link to the Gay and Lesbian Medical Association’s database of physicians into their own provider directory so that patients have the option to seek care from an LGBTQ-friendly provider.

Another avenue for patients to find LGBTQ-friendly services is through The Healthcare Equality Index (HEI), which was created by the Human Rights Campaign Foundation as a way for health care facilities to affirm that they comply with the Joint Commission and Centers for Medicare and Medicaid Services requirements for LGBTQ equity, are committed to LGBTQ patient-centered care, and extend nondiscrimination protection to their LGBTQ employees. Medical institutions, physicians, nurse educators, and practitioners play critical roles in the accessibility and promotion of health care by building trust and cultivating partnerships with the LGBTQ community. The availability of a provider directory and facilities that promote LGBTQ health care equity will be even more necessary for patients as awareness of LGBTQ unique needs for health care increases. Although listings in the HEI or other LGBTQ directories can provide some assurance regarding LGBTQ-related institutional policies and staff training, the degree to which an institution’s rating on the HEI translates into improved patient experiences is less clearly defined.

Implementing local, state, federal, and institutional policies that include LGBTQ populations is another strategy to reduce disparities. For example, policies regarding marriage, housing, health insurance coverage, and other governmental agencies/programs affect the health of LGBTQ individuals and need to be inclusive of their needs and concerns. The American Medical Association acknowledges that a statewide ban on same-sex marriage contributes to health disparities by causing a struggle for validation and acceptance, leading to stress and possible destructive or risky behaviors, and reduces the ability to access health care provided through marriage benefits. Also, workplace policies should expand to be inclusive of LGBTQ employees and their partners and/or dependents. Health care organizations should understand how governmental and institutional policies impact LGBTQ patients and should critically examine current shortcomings and limitations within their policies and make appropriate modifications to be more inclusive of LGBTQ populations.

Healthy People 2020 has for the first time acknowledged health disparities in the LGBT population. One goal of LGBT health improvement for Healthy People 2020 is to increase the number of population-based data systems used to monitor Healthy People 2020 objectives that include in their core a standardized set of questions used to identify LGBT populations. The inclusion of sexual orientation and gender identity within electronic medical records is essential to provide a foundation for understanding the LGBT population status and needs. There are several essential ways to collect sexual orientation and gender identity information, such as registration forms and patient-provider open dialogue. The inclusion of sexual orientation and gender identity may cause privacy and confidentiality concerns among LGBT patients. Thus, health care organizations need to be prepared to communicate their infrastructure and procedures for ensuring privacy.

Finally, improving the mechanism for LGBTQ-related research is also an effective strategy for eliminating disparities in this population. The inclusion of sexual orientation and gender identity questions on national population surveys and registries, such as the SEER cancer registries, is needed to identify the demography and disparities of the LGBTQ population. Moreover, sexual orientation and gender identity questions should also be included in health care provider intakes, clinical trials, and academic-centric research. Presently, because this demographic is not routinely collected, it is difficult to identify whether LGBTQ knowledge, attitudes, beliefs, and satisfaction are represented in cancer research.
health studies. Furthermore, it will help identify gaps in care and disparities and will support the need for public health initiatives and interventions within this population. In addition, LGBTQ-related research funding is lacking. One study found that approximately 0.1% of all National Institutes of Health-funded research in 2012 focused on health-related research, excluding HIV/AIDS or other sexual health matters. In 2012, for every $100 awarded by US foundations, only 24 cents went to LGBTQ issues. Fortunately, the National Institutes of Health has recently created an LGBTQ Health Research Strategic Plan to begin efforts to increase grant funding for LGBTQ studies.

**Universal Clinical Implications**

There is a paucity of evidence-based guidelines with regard to the cancer-related clinical care of LGBTQ populations. Regardless of the type of cancer, clinical teams should focus on eliciting patient preferences, concerns, and needs pertaining to treatment plans and end-of-life care. Discussions about plans of care should be inclusive of patients’ partners given the important role they can play in decision making. The medical rights of patients, their partners, and their families need to be acknowledged by health care providers. Clinical and cultural competency training with regard to LGBTQ patients is needed so that health care providers and their staff can acquire the skills and knowledge needed to treat LGBTQ patients effectively and to reduce disparities affecting this population. The American Medical Association recently updated their policies on LGBT issues and noted that not obtaining sexual orientation and gender identity from patients was akin to a failure to screen or diagnose. This underscores the professional duty of clinicians to create safe environments for disclosure of and attention to this important aspect of a patient’s social history.

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