

Division of Chronic Disease, Primary Care,
and Rural Health



Hispanic Cancer Disparities



Bottom Line

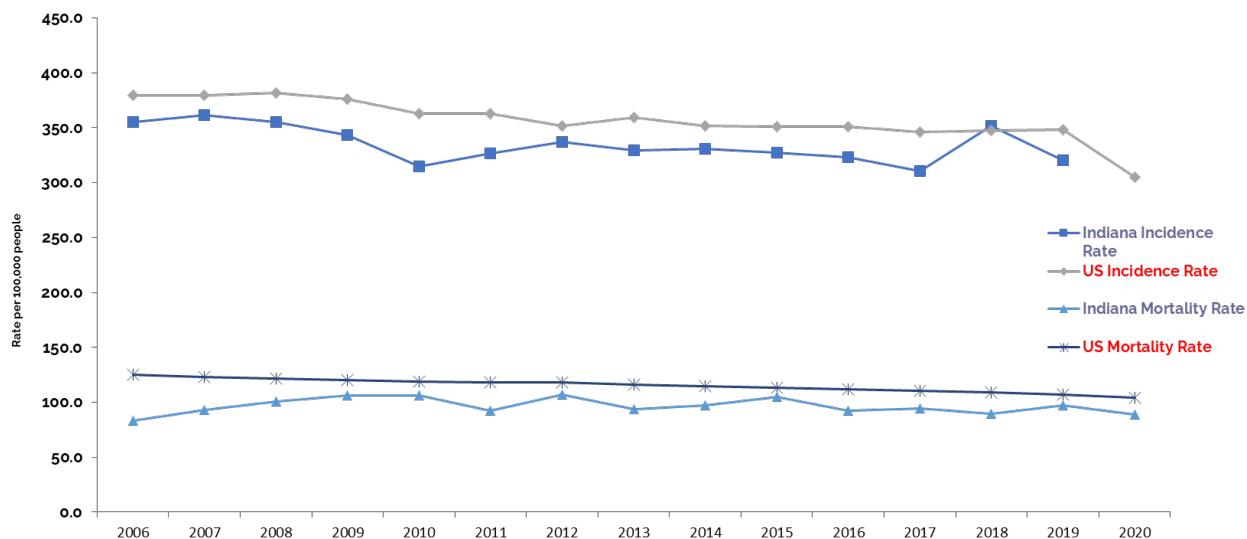
In 2022, 63.7 million Americans identified as Hispanic (19 percent of the total U.S. population). Hispanics represent the largest racial and ethnic minority group in the nation. In Indiana, Hispanic residents account for 7.9 percent of the state's population.¹ According to the American Cancer Society (ACS), it is estimated that one in three Hispanics will be diagnosed with cancer in their lifetime.² The lifetime probability of dying from cancer is approximately one in five for Hispanic men and one in seven for Hispanic women.³ Cancer was the cause of 20 percent of deaths of Hispanics in Indiana in 2022, making it the leading cause of death for Hispanics.¹

Table 17. Burden of Cancer Among Hispanics- Indiana, 2016-2020

*Age-adjusted to the U.S. 2000 Standard Population. Source: Indiana State Cancer Registry

	Average number of cases per year (2016-2020)	Rate per 100,000 people (2016-2020)	Number of cases (2020)	Rate per 100,000 people (2020)
Indiana Incidence	630	235.3	588	192.3
Indiana Deaths	177	74.1	167	58.5

*Age-adjusted. Indiana 2020 Data not available in CDC Wonder at time of publication. Source: United States Cancer Statistics - Incidence: 1999 - 2020, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer



What Are the Cancer Disparities in Indiana Relating to Race and Ethnicity?

The following data were collected from the Indiana State Cancer Registry and the Centers for Disease Control and Prevention WONDER U.S. Cancer Statistics Database for state and national rates, respectively. In Indiana, for 2016 through 2020, the cancer incidence rate for Hispanics was lower than the incidence rate for non-Hispanic whites (235.3 versus 441.6 per 100,000, respectively).⁴ The cancer mortality rate for Indiana Hispanics was also lower than the mortality rate for whites (74.1 versus 143.3 deaths per 100,000 people, respectively).⁴

- **Colon and Rectum (Colorectal):** Colorectal cancer is the second-most common cancer diagnosis and the third-leading cause of cancer-related death for Hispanic men and women in the U.S.² However, Hispanics have lower incidence rates for colon cancer than Non-Hispanic Whites. Hispanics are also more likely to have diabetes, which is associated with an increased risk of colorectal cancer.² Nationally, Hispanics are diagnosed less often with colorectal cancer in a localized stage because of reduced screening rates and reduced access to timely follow-up and treatment.² According to the 2022 Indiana BRFSS, the proportion of Indiana Hispanic adults aged 50-75 (60.81%) participating in colorectal screening was similar to Black adults (71.94%) adults, but significantly lower than Non-Hispanic White adults (75.5%).⁶ In Indiana, from 2016 to 2020 the incidence rate among Hispanics was lower than the national rate (23.4 versus 32.2 cases per 100,000 people, respectively).^{4,5} During that same time, the mortality rate in Indiana was lower than the national rate (5.6 versus 10.7 deaths per 100,000 people, respectively).^{4,5} From 2016 to 2020, Indiana Hispanics compared to Non-Hispanic Whites had a 50.4 percent lower incidence rate (23.4 versus 39.2 cases per 100,000 people, respectively) and a 67.4 percent lower mortality rate for colorectal cancer (5.6 versus 11.3 deaths per 100,000 people, respectively).⁴
- **Lung:** Nationally, the ACS states lung cancer is the third-most common cancer diagnosis and the leading cause of cancer death for Hispanic men. For Hispanic women, lung cancer is the fourth most common cancer diagnosis and the second-most common cause of cancer-related death.² Due to lower rates of smoking, lung cancer incidence rates for Hispanics are approximately half the rate of Non-Hispanic Whites.² Hispanic patients are slightly less likely to be diagnosed with localized disease compared to Non-Hispanic Whites (22% versus 25%, respectively).² According to the IN-BRFSS, Hispanic adults had a smoking prevalence (11.8%) that was significantly lower than Non-Hispanic White (16.5%) adults.⁶ In Indiana, from 2016 to 2020, the incidence rate among Indiana Hispanics was lower than the national rate (19.6 versus 28.3 cases per 100,000 people, respectively).^{4,5} During that same time, the mortality rate in Indiana was lower than the national rate (11.0 versus 15.5 deaths per 100,000 people, respectively).^{4,5} Between 2016 and 2020, Indiana Hispanics compared to Non-Hispanic Whites had a 110 percent lower incidence rate (19.6 versus 68.2 cases per 100,000 people, respectively) and a 122 percent lower mortality rate for lung cancer (11.0 versus 45.6 deaths per 100,000 people, respectively).⁵
- **Prostate:** Prostate cancer is the most common cancer diagnosis for Hispanic men and the fourth-leading cause of cancer-related death. Nationally during 2016-2020, incidence rates have stabilized among non-Hispanic white and Hispanic men.² In Indiana, during 2016 to 2020, the incidence rate among Hispanics was lower than the national rate (53.2 versus 86.4 cases per 100,000 males, respectively).^{4,5} During that same time period, the mortality rate in Indiana was lower than the national rate (14.1 versus 15.4 deaths per 100,000 males, respectively).^{4,5} Between 2016 and 2020, Hispanics compared to Non-Hispanic whites had a 40 percent lower incidence



rate (53.2 versus 87.0 cases per 100,000 people, respectively) and a 76.9 percent lower mortality rate for prostate cancer (6.0 versus 13.5 deaths per 100,000 people, respectively).⁵

- **Female Breast:** According to the ACS, breast cancer is the most common cancer and also the leading cause of cancer death for Hispanic women. Overall, the incidence and mortality rates of breast cancer is 30 percent lower for Hispanic women than Non-Hispanic Whites.² Hispanic women who are born in other countries have an even lower risk for breast cancer than their Hispanic, US-born counterparts.² The difference in breast cancer rates is likely due to variations in risk factors that are associated with a lower risk of breast cancer. For example, Hispanic women are more likely to have more children and also have their first child at a younger age than Non-Hispanic White women. Breastfeeding is a more common practice in Hispanic populations than in Non-Hispanic White populations. Nationally, Hispanic women also have lower utilization of menopausal hormonal therapy as well as mammography screening for breast cancer.² In 2022, 81.4 percent of Indiana Hispanic females aged 50 to 75 had a mammogram in the past two years, which is higher than White Non-Hispanic females (78.2 percent) and Black (79.4 percent) aged 50 to 75.⁶ However, Hispanic women are less likely to be diagnosed with breast cancer when the disease is at a local stage. From 2016 to 2020, 47 percent of Hispanic women with breast cancer were diagnosed at a local stage compared to 57 percent of Non-Hispanic White women. Hispanic women are more likely to have difficult-to-treat tumors that are larger and also hormone receptor negative. Furthermore, Hispanic women are less likely to have timely follow-ups on abnormal mammography screenings and treatment for diagnosed breast cancer.² In Indiana, from 2016 to 2020, the incidence rate among Hispanics was similar to the national rate (95.4 versus 129.0 cases per 100,000 females, respectively).^{4,5} During that same time, the mortality rate in Indiana was higher than the national rate (23.4 versus 19.5 deaths per 100,000 females, respectively).^{4,5} From 2016 to 2020, Indiana Hispanics compared to Non-Hispanic Whites had a 46.2 percent lower incidence rate (95.4 versus 125.8 cases per 100,000 females, respectively) and a 84.9 percent lower mortality rate for breast cancer (6.1 versus 15.1 deaths per 100,000 females, respectively).⁵
- **Sites with higher rates for Hispanics:** According to the ACS, despite the fact that Hispanics have relatively low rates of the most common cancers, Hispanics bear a disproportionate burden of certain kinds of cancer.
 - Gallbladder cancer incidence rates in both Hispanic men and women are double those in Non-Hispanic White individuals.² Additionally, gallbladder cancer is one of the few cancers that occurs more often in women than in men worldwide. According to the ACS, 800 Hispanic men and 1,100 Hispanic women will be diagnosed with gallbladder cancer in 2021, and 600 Hispanic individuals are expected to die from the disease. Symptoms of gallbladder cancer are generally nonspecific, making it difficult to diagnose early and therefore survive. The causal factors for high rates of gallbladder cancer in Hispanics are not well understood but may include genetic factors, diabetes, obesity, chronic inflammation of the biliary tract, and the use of hormone replacement therapy.²
 - Liver cancer incidence in the U.S. is twice as high for Hispanics as Non-Hispanic Whites. However, rates among Hispanic individuals differ substantially by nativity, sex, and country of origin, and may be strongly linked to acculturation and associated risk factors, particularly among men. An estimated 7,100 Hispanic individuals will be diagnosed with liver cancer and 4,100 liver cancer deaths are expected to occur in 2021. Most liver cancer cases are associated with chronic hepatitis B virus (HBV) or hepatitis C virus (HCV). Other risk factors for liver cancer include obesity, alcohol consumption, and smoking.²
 - Stomach cancer incidence rates for Hispanic men are more than 60 percent higher than Non-Hispanic Whites and more than 50 percent higher for Hispanic women than Non-Hispanic Whites in the U.S.⁴ Hispanic individuals have a higher risk of early-onset stomach



cancer than non-Hispanic whites, Non-Hispanic African Americans and Asian/Pacific Islanders in the U.S. One major risk factor for stomach cancer is chronic infection with *Helicobacter pylori* (*H. pylori*). Other risk factors for stomach cancer include smoking, excess alcohol consumption, gastric reflux, foods preserved with salts, and/or processed meats.²

- The cervical cancer incidence rate for Hispanic women is 30 to 40 percent higher than Non-Hispanic White women.² The greatest risk factor for cervical cancer is infection with human papillomavirus (HPV), which is preventable through vaccination. The higher mortality rates from cervical cancer seen in Hispanic women are likely attributable to less access to screening and a higher prevalence of HPV infection. Concerning HPV vaccination, a higher proportion of Hispanic adolescents ages 13-17 years had initiated HPV vaccination than non-Hispanic whites for both girls and boys in 2022. Hispanic youths were also more likely to have completed the vaccination series.²
- Hispanics experience an increased burden of human immunodeficiency virus (HIV). The weakened immune system of people with HIV/ AIDS indirectly increases their risk of several cancers. In 2022, the rate of newly diagnosed HIV was over two times higher in Hispanic individuals than in Whites, with the majority of cases occurring in men.²
- **Underrepresentation in research and clinical trials:** There is a disconnect between the burden of disease and the underrepresentation of racial and ethnic minority populations in research and clinical trials.⁷ Many of the same racial and ethnic groups who experience astounding disparities in cancer incidence and mortality are also underrepresented in cancer research clinical trials and clinical trials.⁸ The lack of racial and ethnic diversity in research and clinical trials prolongs the continuation of health disparities and limits the understanding of factors that promote health and wellness.⁷ Study subjects representative of the larger U.S. population help researchers to better understand the combination of genetic influences, environmental exposures, and social factors that all racial and ethnic groups experience.^{7,9}
- **Disparities in hospice and palliative care:** Research shows consistently lower rates of hospice use for racial and ethnic minorities than for Non-Hispanic White adults across diagnoses and geographic location.^{10,11} Studies also show that minorities receive lower-quality palliative care indicated by decreased satisfaction, communication and pain management. Factors contributing to these disparities may include lack of familiarity, as studies indicate disproportionate gaps in understanding of palliative care among ethnic and racial minorities. Minority populations may also be wary of the healthcare system due to a lack of cultural competence in practice. Cultural beliefs and differences, such as challenges among Hispanics regarding disclosure of terminal illness, or language differences among Spanish-speaking countries, may also be a barrier to effective palliative care. Further research that investigates disparities in racial and ethnic minorities for hospice and palliative care is essential.¹²

Can Cancer Be Prevented?

- **Body weight, diet, and physical activity:** Excess body weight is a major risk factor for developing cancer among all populations. Five to 11 percent of cancer cases are attributed to obesity and it is believed that obesity contributes to 7 percent of all cancer deaths in the U.S.¹³ According to the ACS, increased body weight is associated with cancers of the uterine corpus, esophagus (adenocarcinoma), liver, stomach (gastric cardia), kidney (renal cell), brain (meningioma), multiple myeloma, pancreas, colorectum, gallbladder, ovary, female breast (postmenopausal), and thyroid.² In Indiana, the prevalence of being overweight is similar for Hispanic women compared to Non-Hispanic White women (26.6 and 27.9 percent, respectively).⁶



The prevalence of obesity is lower for Hispanic women (36.5 percent) in Indiana when compared to Non-Hispanic White and Black women (37.5 and 48.7 percent, respectively). Hispanic men have a lower prevalence of being overweight compared to Non-Hispanic White men in Indiana (37.7 and 38.4 percent, respectively). While the prevalence of obesity is lower for Hispanic men (32.5 percent) in Indiana compared to Non-Hispanic White and Black men (35.9 and 37.2 percent, respectively).⁶ In 2022, the U.S. Census Bureau reported that 16.8 percent of Hispanics in comparison to 6.1 percent of Non-Hispanic Whites were living at the poverty level.¹⁴ In the same year 29.8 percent of Hispanic adults reported physical inactivity compared to other races and ethnicities.¹⁵ People of lower socioeconomic status are less likely to have opportunities to engage in physical activity and are less likely to consume the recommended amount of fruits and vegetables, which are factors that reduce cancer risk.

- **Tobacco:** Tobacco use persists as the most preventable cause of death. Smoking cigarettes accounts for approximately 20 percent of all cancers diagnosed in the US.¹⁶ Smoking puts a person at increased risk for developing 12 cancers (oral cavity, pharynx, larynx, lung, esophagus, pancreas, uterine cervix, kidney, bladder, stomach, colorectum, and liver, as well as acute myeloid leukemia.² In general, Hispanics are less likely to be cigarette smokers than Non-Hispanic Whites or Blacks. There is a significant gender gap in smoking prevalence among Hispanics, as 6 percent of Hispanic women were current smokers in 2022 compared to 12 percent of Hispanic men. It is important to note that Hispanic smokers are less likely to receive smoking cessation assistance than Non-Hispanic Whites. Hispanic women born in the U.S. are twice as likely to be current smokers than Hispanic women born in other countries. In 2022, Hispanic youth had slightly higher rates of smoking than Non-Hispanic White youth at 1.2 percent vs 1 percent.³
- **Type 2 Diabetes:** Type 2 Diabetes is associated with an increased risk of multiple forms of cancer, including liver, endometrium, pancreas, colorectum, kidney, bladder, breast and perhaps ovary. Hispanics are more than twice as likely to be diagnosed with type 2 diabetes when compared to Non-Hispanic Whites. There has been minimal research conducted on the association between type 2 diabetes and cancer risk for Hispanic populations.²
- **Socioeconomic status and health care access:** Access to health care is key in cancer prevention, screening, treatment and survival. Many Hispanics face structural barriers to health care, such as poor geographical access and lack of transportation. Hispanics also face cultural and language barriers, in addition to discrimination, healthcare provider bias, and a lack of cultural competency. Those with no health insurance or Medicaid coverage are more likely to be diagnosed with cancer at later stages and are more likely to die of cancer compared to their counterparts with private health insurance. Of all racial and ethnic groups, Hispanics are the least likely to have health insurance. Nationally, among those 18 to 64 years of age, 19 percent of Hispanic individuals were uninsured as of 2022 compared to 6 percent of Non-Hispanic Whites.² According to the 2022 Indiana Behavioral Risk Factor Surveillance System, Hispanic adults had a significantly higher rate of being uninsured (24%) than Black Non-Hispanic adults (9%) and White Non-Hispanic adults.⁶ Additionally, the COVID-19 pandemic disproportionately affected the Hispanic community and other communities of color in terms of virus case burden, mortality, employment, health insurance and access to health care. According to the ACS, preliminary data has suggested that life expectancy in Hispanic people declined three years in 2020.²
- **Infectious diseases:** There are ethnic disparities in infectious diseases which in turn impact cancer disparities. Although Hispanics comprise 7.7 percent of the Indiana population, they experience 10 percent of all new Human Immunodeficiency Virus (HIV) infections. As of 2021, Hispanics accounted for 10.7 percent of persons living with HIV in Indiana. The prevalence of HIV/AIDS among Hispanics is 2.5 times higher than Non-Hispanic Whites in Indiana.¹⁷
- **Human Papillomavirus (HPV):** HPV is a commonly transmitted infection and is responsible for



virtually all cases of cervical cancer as well as many cases of anal, penile, vulvar, vaginal and oropharyngeal cancers. HPV is passed person-to-person through skin-to-skin contact with an infected area of the body. Although HPV can be spread through skin-to-skin sexual contact, sex doesn't have to occur for the infection to spread. The HPV virus can be spread through hand-to-genital contact with an infected area of the body. The risk of transmission can be reduced by delaying first sexual activity, limiting the number of sexual partners and using condoms.¹⁸

- HPV vaccination is the best method of prevention. Currently, there is one HPV vaccine available in the U.S. – Gardasil-9. It is FDA-approved for both females and males, aged 9 through 45 years. It is most effective when given in early adolescence. Per the CDC Advisory Committee on Immunization Practices (ACIP), HPV vaccination is recommended for all girls and boys aged 11 and 12 years and catch-up HPV vaccination for all persons through age 26 years. HPV vaccination can be administered to both boys and girls starting at age 9, an approach recommended by the American Cancer Society.¹⁸ For males and females aged 27-45 years there is a shared clinical decision-making recommendation, such that the decision regarding vaccination should involve discussions between patients and healthcare providers as to whether patients may benefit from and desire HPV vaccination.¹⁹ If the first dose is administered before age 15, only two doses are required, six to 12 months apart. If the first dose is administered at age 15 or older, three doses are required, with the second dose administered one to two months after the first dose, and the third dose administered approximately three to four months after the second dose.²⁰ In 2022, less Hispanic adolescents ages 13-17 years had initiated HPV vaccination than Non-Hispanic Whites, 38.6% versus 34.4%, respectively. Additionally, Hispanic youths were also more likely to have completed the vaccination series.²
- **Alcohol consumption:** Alcohol consumption is linked to cancers of the mouth, pharynx, larynx, esophagus, liver, colorectal and breast. Consumption may also increase the risk of developing stomach cancer. For each of these cancers, the more alcohol you drink, the higher your cancer risk. But for some types of cancer, most notably breast cancer, consuming even small amounts of alcohol can increase risk.²¹

Can Cancer Be Prevented?

The United States Preventative Services Task Force and other organizations have established screening guidelines for breast, cervical, colorectal and lung cancers to promote early detection. The early identification of cancer when the cancer is at a localized stage can decrease deaths from breast, cervical, colorectal and lung cancers.

While Hispanics tend to have lower incidence and mortality rates for most common cancers when compared to Non-Hispanic Whites, Hispanics are less likely to be diagnosed with cancer at a localized stage. This is an especially prominent trend for melanoma and breast cancers, impacting treatment options and ultimately survival outcomes.²

What Factors Influence Cancer Survival?

In general, the further a cancer has spread, the less likely that treatment will be effective. Although Hispanics have lower incidence and death rates than Non-Hispanic Whites for the most common cancers, they are more likely to be diagnosed with a more advanced stage of disease. Overall, the lifetime probability of dying from cancer among Hispanics is one in five for males and about one in seven for females.²



Be Aware and Take Charge!

What can you do to help prevent cancer? ^{22,23}

- Maintain a healthy weight, engage in physical activity, and eat a healthy diet
- Limit alcohol intake
- Get immunized (HPV and hepatitis vaccines)
- Be smoke-free—Visit QuitNowIndiana.com or call 1-800-Quit-Now for free tobacco dependence treatment resources
- Find and engage with a primary health care provider and regularly talk about cancer screening options and risk-reduction
- Seek treatment early and avoid delaying care, if diagnosed with cancer

What can the community do to help prevent cancer and improve care among Hispanics? ²⁴

- Become informed about racial disparities and social determinants of health
- Promote cultural competency among healthcare providers and support the development of culturally relevant resources. If you are a health care provider, encourage staff to participate in cultural competency education.
- Explore social determinants of health, such as socioeconomic justice, education, employment, housing, nutrition, physical environment, and health care access
- Support increased opportunities for health care providers who are members of minority racial/ethnic groups
- Encourage and/or conduct research that includes and addresses the needs of all racial/ethnic groups
- Implement culturally competent patient navigator programs, which help guide patients and their caregivers through their cancer journey and aim to eliminate barriers to timely cancer detection, diagnosis, and treatment within the health care system. Support culturally competent health literacy efforts.



References

1. Explore Census Data, United States Census Bureau. American Community Survey (ACS), Demographic and Housing Estimates 2018-2022 ACS 5-year Estimates. Accessed at <https://data.census.gov/table?q=United> on April 11, 2024.
2. American Cancer Society. Cancer Facts and Figures for Hispanic/Latino People 2021-2023. Accessed at <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/cancer-facts-and-figures-for-hispanics-andlatinos/hispanic-latino-2021-2023-cancer-facts-and-figures.pdf> on April 11, 2024.
3. American Cancer Society. Cancer Facts & Figures 2024. Atlanta: American Cancer Society; 2024.
4. Indiana State Cancer Registry, 2024.
5. United States Cancer Statistics: 1999 - 2020 Incidence, WONDER Online Database. United States Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2021. Accessed at <https://wonder.cdc.gov/cancer-v2020.HTML> on April 11, 2024.
6. Indiana Behavioral Risk Factor Surveillance System, 2024.
7. Oh, Sam S., et al. Diversity in Clinical and Biomedical Research: A promise yet to be fulfilled. PLoS Medicine, vol. 12, no. 12, 2015, doi:10.1371/journal.pmed.1001918.
8. National Cancer Institute. Cancer Disparities. Accessed at <https://www.cancer.gov/about-cancer/understanding/disparities> on April 11, 2024.
9. Jaffee, Elizabeth M. et al.; Future cancer research priorities in the USA: a Lancet Oncology Commission. Lancet Oncology, vol. 18, no. 11, 2017, e653-e706. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6178838/>; doi: 10.1016/S1470-2045(17)30698-8.
10. Islam JY, Deveaux A, Previs RA, Akinyemiju T. Racial and Ethnic Disparities in Palliative Care Utilization Among Gynecological Cancer Patients. (2021) Gynecologic Oncology, 160(2), 469-476. Doi: 10.1016/j.ygyno.2020.11.031.
11. Alterio, R. E., Ju, M. R., Wang, S. C., Mansour, J. C., Yopp, A., & Porembka, M. R. (2021). Socioeconomic and racial/ethnic disparities in receipt of palliative care among patients with metastatic hepatocellular carcinoma. Journal of Surgical Oncology, 124(8), 1365–1372. <https://doi.org/10.1002/jso.26672>.
12. Johnson, Kimberly S. Racial and Ethnic Disparities in Palliative Care. (2013) Journal of Palliative Medicine, vol. 16(11), 1329-1334. doi: 10.1089/jpm.2013.9468.
13. American Cancer Society. Does body weight affect cancer risk? Accessed at <https://www.cancer.org/cancer/risk-prevention/diet-physical-activity/body-weight-and-cancer-risk.html> on April 11, 2024.



15. U.S. Department of Health and Human Services Office of Minority Health. Profile: Hispanic and Latino Americans. Accessed at <https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=3&lvid=64> on April 11, 2024.
16. United Health Foundation; America's Health Rankings, 2020 Edition; Physical inactivity and Fruit and Vegetable Consumption, Accessed at <https://www.americashealthrankings.org/explore/measures/fvcombo> on April 11, 2024.
17. American Cancer Society. Health Risks of Smoking Tobacco. Accessed at <https://www.cancer.org/cancer/risk-prevention/tobacco/health-risks-of-tobacco/health-risks-of-smoking-tobacco.html> on April 11, 2024.
18. Hillman, Daniel. HIV/AIDS Epidemiologic Profile Indiana 2022. Accessed at <https://www.in.gov/health/hiv-std-viral-hepatitis/reports-and-statistics-hivstdviral-hepatitis/> on April 11, 2024.
19. American Cancer Society. Can Cervical Cancer Be Prevented? Accessed at <https://www.cancer.org/cancer/types/cervical-cancer/causes-risks-prevention.html> on April 11, 2024.
20. Meites E, Szilagyi PG, Chesson HW, Unger ER, Romero JR, Markowitz LE. Human Papillomavirus Vaccination for Adults: Updated Recommendations of the Advisory Committee on Immunization Practices. *MMWR Morb Mortal Wkly Rep*. 2019 Aug 16;68(32):698-702. doi: 10.15585/mmwr.mm6832a3. PMID: 31415491; PMCID: PMC6818701.
21. Meites E, Kempe A, Markowitz LE. Use of a 2-Dose Schedule for Human Papillomavirus Vaccination – Updated Recommendations of the Advisory Committee on Immunization Practices. *MMWR* 2016;65 (No. 49): 1405-1408.
22. American Cancer Society. Alcohol Use and Cancer. Accessed at <https://www.cancer.org/cancer/risk-prevention/diet-physical-activity/alcohol-use-and-cancer.html> on December April 11, 2024.
23. Prevent Cancer Foundation. Ways to Prevent Cancer. Accessed at <https://www.preventcancer.org/resource/ways-to-prevent-cancer/> on April 11, 2024.
24. Centers for Disease Control and Prevention. How to Prevent Cancer or Find it Early. Accessed at <https://www.cdc.gov/cancer/dcpc/prevention/index.htm> on April 11, 2024.
25. Kronenfeld, J.P., Graves, K.D., Penedo, F.J. and Yanez, B. (2021), Overcoming Disparities in Cancer: A Need for Meaningful Reform for Hispanic and Latino Cancer Survivors. *The Oncol*, 26: 443-452. <https://doi.org/10.1002/onco.13729>.

