

CANCER COMMUNITY NEEDS ASSESSMENT AND PATIENT NAVIGATION REPORT

2017

HARRISHEALTH
SYSTEM



**Presented to the Harris Health System Cancer Committee
By the Community Needs Assessment Working Group**

Friday, July 14, 2017

With revisions Friday, October 6, 2017

In accordance with the Commission on Cancer Standard 3.1.

Patient Navigation Process

Commission on Cancer

**Standard 3.1 Patient Navigation
Process**

A patient navigation process, driven by a community needs assessment, is established to address health care disparities and barriers to care for patients. Resources to address identified barriers may be provided on-site or by referral to community-based or national organizations. The navigation process is evaluated, documented, and reported to the cancer committee annually. The patient navigation process is modified or enhanced each year to address additional barriers identified by the community needs assessment.

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Cancer Community Needs Assessment Working Group

Jane R. Montealegre, PhD MSPH. Senior Associate for Community Programs in Disparities, Office of Outreach and Health Disparities, Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine, Houston, Texas

June Hanke, RN MSN MPH. Strategic Analyst Planner, Health System Strategy, Harris Health System, Houston, Texas.

Loretta Hanser, RT (RM). Director of Imaging Services Radiology, Harris Health System, Houston, Texas

Allison Rosen, MS. Lead Project Coordinator, Office of Outreach and Health Disparities, Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine, Houston, Texas

Maria L. Jibaja-Weiss, EdD. Director, Office of Outreach and Health Disparities, Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine, Houston, Texas



DAN L DUNCAN
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CANCER CENTER

Introduction

As part of its accreditation process, the American College of Surgeon's Commission on Cancer requires that "a patient navigation process, driven by a triennial Community Needs Assessment, [be] established to address health care disparities and barriers to cancer care. Resources to address identified barriers may be provided either on-site or by referral." (Committee on Cancer Standard 3.1) [1]. Cancer-related patient navigation within Harris Health System began in the late 1990s and arose from the need to maximize systems efficiency and ensure that patients with abnormal cancer screening test results obtained timely diagnostic and therapeutic follow-up. Since then, cancer-related patient navigation activities within Harris Health System have expanded to include not only those aimed at ensuring follow-up among patients with abnormal screening tests but also to those aimed at increasing screening and vaccination coverage. Patient navigation programs currently operate within the Breast, Cervical, Colorectal, Hepatocellular, and Gastric Cancer programs, as well as in the Pediatric Service line to improve human papillomavirus (HPV) vaccination rates, the Outreach Services Department to provide healthcare access navigation, and the Diagnostic and Screening Clinics to provide oncology care coordination.

As in the initial 2014 Cancer Community Needs Assessment and Patient Navigation Report, we use this opportunity to describe the history of the patient navigation program, as well as its present state and its challenges for the future. This narrative is told in the context of a cancer community needs assessment that describes the current state of specific cancers within Harris County. The community needs assessment builds on the 2014 report and focuses on the cancers for which population-based screening tests are available and recommended by the American Cancer Society: breast, cervical, colorectal cancer [2]. For these cancers, we provide information regarding incidence and mortality, disparities in the burden of disease, and utilization of cancer-specific screening tests. Additionally, we provide geographic data on other preventable cancers that are commonly seen at Harris Health: prostate, lung, and hepatocellular (liver) cancer.

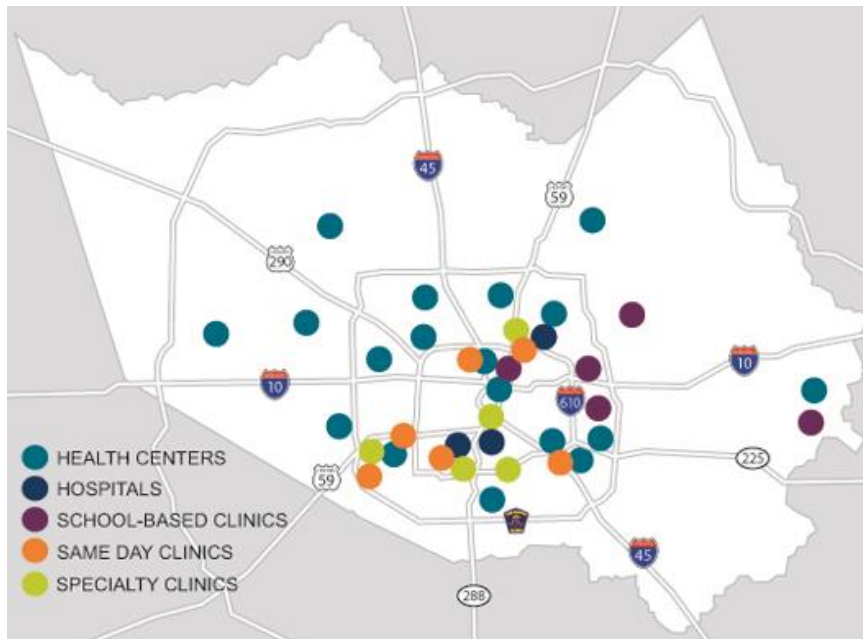
Data, such as that presented in this report, have guided the development of Harris Health System's patient navigation programs. As described in this report, the two primary aims of the existing patient navigation programs are to improve access to healthcare and cancer screening tests and to ensure follow-up of patients with abnormal screening test results. The overarching goals guiding these programs are to reduce cancer health disparities in Harris County and improve the healthcare experience of Harris Health patients along the cancer continuum of care.

Overview of Harris Health System's Medical Facilities

Harris Health System, formerly the Harris County Hospital District, is an integrated health system that is the primary safety net provider for the Houston metroplex. It currently operates 19 community health centers (CHCs), the nation's first free-standing HIV/AIDS treatment center, two large multi-specialty centers, six same day clinics, a geriatric assessment center, a dialysis center, a free standing dental center, five school-based clinics, ten homeless shelter clinics, five homeless eligibility service locations and a mobile immunization and medical outreach program. These clinics are distributed throughout Harris County (Figure 1) and offer primary care as well as a variety of specialty care, including as psychiatry, dentistry, obstetrical/gynecological, podiatry, ophthalmology, pharmacy, psychiatry and counseling, laboratory and x-ray services, HIV/AIDS case management, and a variety of nutrition, health education, and social services. In 2016, the Harris Health System facilities

logged over 1,947,989 outpatient visits, had 6,596 births, 172,345 emergency visit, and 51,649 cases occupying hospital beds. Through affiliation agreements with Baylor College of Medicine and The University of Texas Health Science Center-Houston, the two medical schools provide primary care and specialty physician staffing to all Harris Health System facilities. The clinics are also staffed by countless nurses, clerks, and allied health professionals.

Figure 1. Harris Health System facilities in Harris County, Texas.



Ben Taub Hospital is a world renowned Level I Trauma Center, Comprehensive Stroke Center and Designated Chest Pain Center with 486 licensed acute-care beds. Lyndon B. Johnson Hospital is a 235 licensed bed acute-care hospital with a newly expanded Level III trauma center and a distinguished regional center for neonatal intensive care for high-risk deliveries. Quentin Mease Community Hospital has 49 licensed beds for long-term physical rehabilitation and its geriatric services program.

Harris Health is a teaching system for Baylor College of Medicine and The University of Texas Health Science Center at Houston, training the next generation of healthcare providers on the latest medical procedures and technological breakthroughs. Through its collaboration with Baylor College of Medicine, The University of Texas Medical School at Houston and The University of Texas M.D. Anderson Cancer Center, patients at Ben Taub Hospital and Lyndon B. Johnson Hospital have access to an array of cutting-edge clinical trials. As a patient, your care team may include a medical oncologist, surgeon, radiation oncologist, nurse, genetics counselor, pathologist, nutritionist, interventional radiologist and other providers all focused on the patients' specific needs. This meeting of the minds provides each patient with a personalized care plan designed for the most successful outcome.

Harris Health System patients in the system are billed on a sliding scale based on degree of economic hardship. Enrollment assistance for Medicaid, Children's Health Insurance program (CHIP), and the Harris Health Financial Assistance Program for discounted health care are made through five eligibility centers and teams of community health

educators/workers who reach out into targeted low-income communities. Beginning March 1, 2016, Harris Health System adopted a narrower income range for persons seeking financial assistance. To qualify for financial assistance, household income may not exceed 150% of the Federal Poverty Level. Harris Health also sponsors many awareness educational activities, such as presentations, health fairs, volunteer trainings, and individual assistance at community multi-service centers, churches, temples, apartment complexes, and other non-profit agency locations.

It is at the core of the Harris Health System strategic plan to accelerate its transformation into a high-performing, fully integrated healthcare-delivery system and to achieve their vision of “Improving the Health of our Community”. Harris Health System was the first accredited healthcare institution in Harris County to be designated by the National Committee for Quality Assurance as a Patient-Centered Medical Home, and is one of the largest systems in the country to achieve the quality standard [3].

Harris Health System’s Cancer Care Program

The Cancer Care Program within Harris Health System encompasses two inpatient venues (Ben Taub Hospital and Lyndon B. Johnson Hospital) as well as clinics at Ben Taub Hospital, the Outpatient Clinic at the Lyndon B. Johnson Hospital and the Smith Clinic. Patients with all forms of malignancy are seen within the system, many in multidisciplinary settings that include medical oncologists, hematologists, surgeons, gynecologic oncologists and radiation oncologists. In addition, there are programs to address genetic counseling in malignancy, nutrition, physical therapy, behavioral counseling, lymphedema, and palliative care. There are oncology diagnostic and screening clinics at both Smith Clinic and the Lyndon B. Johnson Hospital Outpatient Center to assist in rapidly obtaining an accurate diagnosis for patients in the outpatient setting. The Harris Health System boasts state of the art imaging centers including digital mammography and breast magnetic resonance imaging (MRI), multipurpose MRI and computerized tomography (CT) scanners, a positron emission tomography (PET)/CT scanner, and three state of the art linear accelerators for radiation therapy with stereotactic radiosurgery capability.

Methods

Social Determinants of Health Framework

This community needs assessment uses a Social Determinants of Health framework, which recognizes the multiple factors that affect health and the dynamic relationship between people and their physical, social, and interpersonal environment [4]. Building on this framework, the assessment utilizes data to identify health disparities in the population and examine the socio-economic, cultural, and environmental conditions associated with such disparities. The following diagram provides a visual representation of how the interplay between people and their environments affects health outcomes (Figure 2). Individual lifestyle factors, which are most directly associated with specific health outcomes, do not occur in a vacuum. Rather, they are influenced by upstream factors such as socioeconomic status, education, and place of residence.

Figure 2. Social Determinants of Health Framework

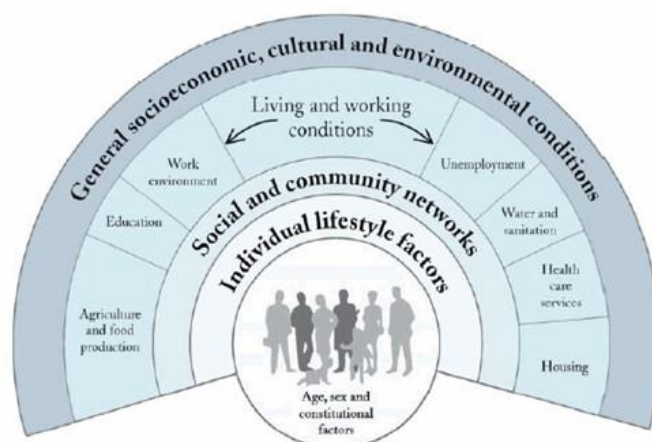


Figure shows one influential model of the determinants of health that illustrates how various health-influencing factors are embedded within broader aspects of society.

Source: Dahlgren G and Whitehead M. Policies and Strategies to Promote Social Equity in Health. Stockholm: Institute for Futures Studies. 1991. [4]

The Cancer Community Needs Assessment Working Group

A working group was established in 2013 to lead the development of the 2014 Harris Health System's Cancer Community Needs Assessment. The group reconvened in 2016 to develop the present 2017 report. The working group includes Harris Health System staff and academic partners from the Dan L. Duncan Comprehensive Cancer Center at Baylor College of Medicine. The Working Group met regularly between November 2016 and July 2017 and worked collaboratively over the course of this period to collect, analyze, and report the data presented in this community needs assessment.

Secondary Data

Epidemiological data was used to provide a general profile of the health, social, and economic characteristics of Harris Health System's catchment area, Harris County. Additionally, secondary data was used to explore indicators across the cancer continuum, including risk and protective factors, cancer screening, incidence, and mortality. Data on risk and protective factors and screening were obtained from the Texas Behavioral Risk Factor Surveillance System [5]. Cancer incidence and mortality data were obtained from the Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry [6].

Geographic Information Systems Mapping

The cancer incidence and mortality maps in this report were produced using ArcGIS by June Hanke, RN MSN MPH (Harris Health System). Data were obtained from the Texas Cancer Registry (2012 to 2014) and the U.S. Census. The incidence and mortality figures were displayed by zip code noting that zip codes with less than 6 cases were coded as having three cases in order to perform the rate calculations. Such mapping allowed for a visual representation of Harris County to identify areas of high incidence and mortality for these cancers. To better understand the distribution of cancer among medically underserved populations, we overlaid cancer incidence and mortality data with maps of medically underserved Areas. Medically underserved areas are defined according to the Index of Medical Underservice [7]. The index

takes into account four indicators of medical underservice: the ratio of primary medical care physicians per 1,000 population, the infant mortality rate, the percentage of the population with incomes below the poverty level, and the percentage of the population age 65 years and older.

Additional maps describing cancer risk and screening behaviors were obtained from the Centers for Disease Control and Prevention's 500 Cities Project [8]. The 500 Cities Project is a collaboration between the Robert Wood Johnson Foundation, the CDC Foundation, and the Centers for Disease Control and Prevention (CDC), to provide high quality small area estimates for behavioral risk factors that influence health status, for health outcomes, and the use of clinical preventive services. These estimates can be used to identify emerging health problems and to develop and implement of effective, targeted public health prevention activities. Data for the 500 cities project were obtained from the CDC Behavioral Risk Factor Surveillance System (BRFSS) 2013, 2014, the Census Bureau 2010 census population data, American Community Survey 2009-2013 and 2010-2014 estimates, and Esri ArcGIS Online basemaps.

Qualitative Data

Ongoing Meetings with Cancer-Specific Clinical Advisory Boards

Since 2010, members of the Community Needs Assessment Working Group have actively participated in the Cervical, Colorectal, and Breast Clinical Advisory Boards (CAB) established through the Community Network for Cancer Prevention (CNCPP) program. The CNCPP is a prevention program funded by the Cancer Prevention and Research Institute of Texas (CPRIT) that aims to implement innovative education, outreach efforts, and systems-level changes to increase awareness of and access to colorectal, cervical, and breast cancer screening services among the uninsured or under-insured population of Harris County, Texas. The CNCPP's CABs are composed of physicians, nurses, and public health professionals from the Harris Health System and other community-based organizations that serve Harris County's medically underserved community. Members of the CABs meet regularly to discuss barriers to cancer-specific care and troubleshoot strategies to address such barriers. Discussions from CAB meetings have informed the findings of the Community Needs Assessment.

Key Informant Interviews

The Community Needs Assessment has also been informed by in-depth interviews with leaders and front-line staff within the Harris Health System. These interviews were conducted by members of the Working Group to obtain a historical portrait of the development of the current programs that provide patient and healthcare access navigation within the Harris Health System.

Focus Group Discussions

A focus group was conducted in May 2017 with Harris Health's Patient Stakeholder Committee for Research, which was established by Harris Health/UT Health through a grant from the Patient Centered Outcomes Research Initiative (PCORI, PI: Benjamin-Garner). The purpose of the focus group was to gain patient stakeholders' perspectives on the community's needs and assets in regard to cancer prevention and control. To conduct the focus group, we used a problem tree activity with 12 members of the Patient Stakeholder Committee for Research. Participants were asked to describe causes of cancer (which become the roots of the problem tree), and effects/consequences (which become the branches). The problem tree was then used to guide a discussion about how cancer affects the community and identify key needs and assets in regard to cancer prevention and control.

The Health of Harris County

Profile of Harris County

Harris County is the third most populous county in the nation with a population of just over 4.5 million in 2016 [9]. This figure represents a twelve percent increase in the population from April 1, 2010 to July 1, 2016. Based on the 2011-2015 demographic estimates by the U.S. Census Bureau, Harris County is a racially and ethnically diverse county with 31.7% being white, 18.5% black, 41.6% Hispanic, 6.5% Asian, and 1.3% other. Twenty-five percent of the residents are foreign born. In 2015 there were approximately 840,000 people ages 55 years and older, making up 19.3% of the total population. Of the population 25 and older, 20.4% have not completed high school, 23.3% are high school graduates, and 29.4% have bachelor's degree or higher. Among residents who have lived in Houston for five years or more, 43.1% speak a language other than English at home, with 20.4% speaking English less than very well. The mean per capita income in Harris County is \$29,047, with approximately 18.4% of households earning less than \$25,000. In 2015, the median income for male full-time workers in Harris County was \$46,448, while female full-time workers earned \$38,067.

Cancer Risk Behaviors

Obesity, physical inactivity, and smoking are well-known health indicators related to cancer [10]. According to a recent report by the Centers for Disease Control and Prevention (CDC), lifestyle changes including increasing physical activity, eating healthier, and avoiding tobacco, could prevent 21% of early cancer deaths in the United States, prolonging 84,500 lives annually [11].

The 2015 Texas Behavioral Risk Surveillance System (BRFSS) reported that 65.8% of the population of Harris County had a body mass index (BMI) greater than 25 [5], indicating that they are overweight or obese. Overweight and obesity was most prevalent among Hispanics (77.7%), followed by blacks (71.6%), and whites (62.5%). The prevalence of overweight and obesity was higher among men (74.3%) compared to women (56.8%).

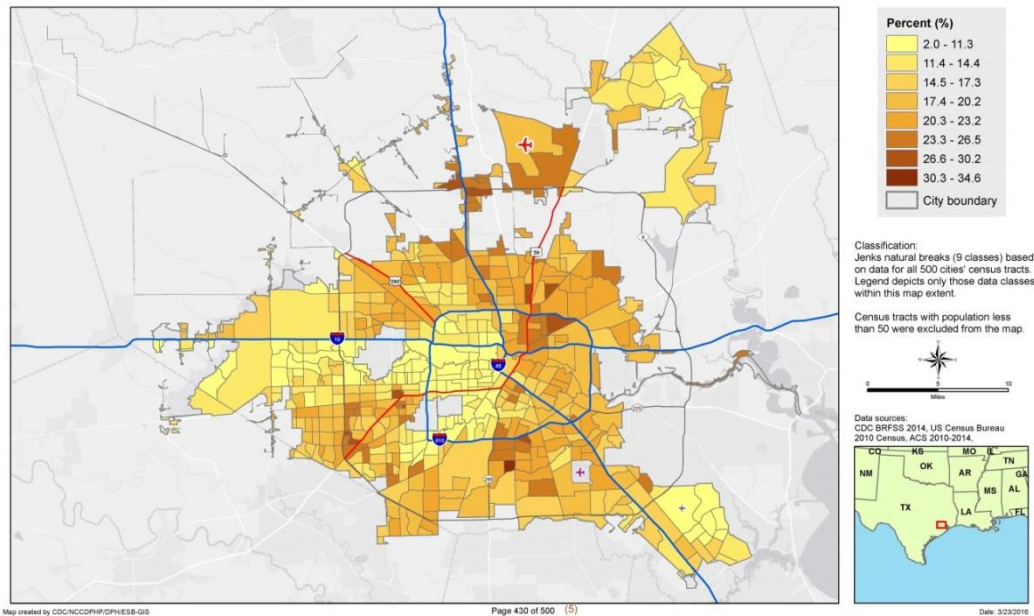
No leisure time physical activity was reported by 23.7% of the population in Harris County in 2010. The widest gap is seen at the different levels of education, with 37.9% of those with no high school diploma reporting no physical activity, compared to 15.3% of those with college education.

In 2015, the overall smoking rate was 15.9%. Whites smoked at the highest rate with 17.6% prevalence, followed by blacks (16.4%), and Hispanics (12.0%). Education levels show significant differences in regard to smoking, with 25.8% of high school graduates reporting current smoking compared to 8.1% among those with some college education.

The geographic distribution of these above-mentioned cancer risk factors is not homogenous throughout the Harris County area. Rather, as described in the maps below from CDC 500 Cities Project, risk behaviors are geographically clustered in pockets throughout the county.

Figure 3. Current smoking among adults 18 years of age and older; Houston, Texas, 2014.

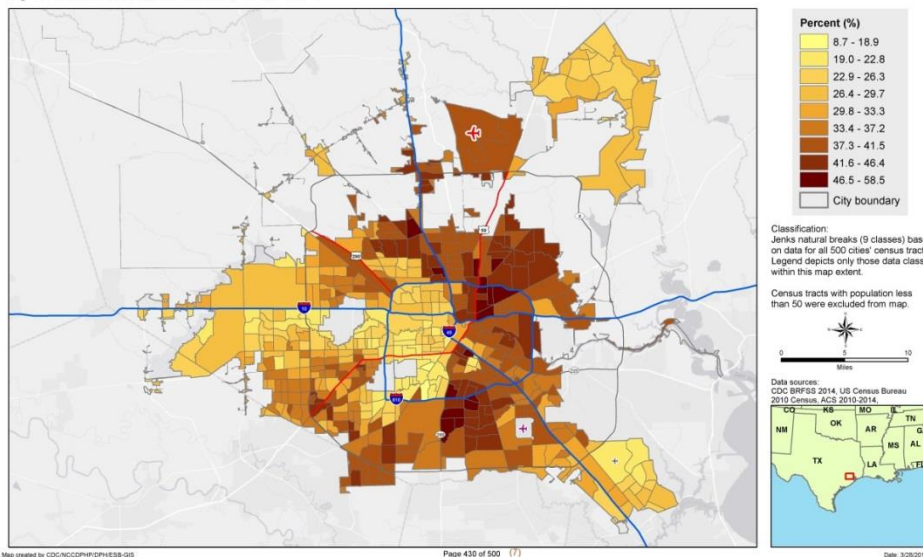
**Current smoking among adults aged ≥ 18 years
by census tract, Houston, TX, 2014**



Source: CDC 500 Cities Project, available at <https://www.cdc.gov/500cities/> [8]

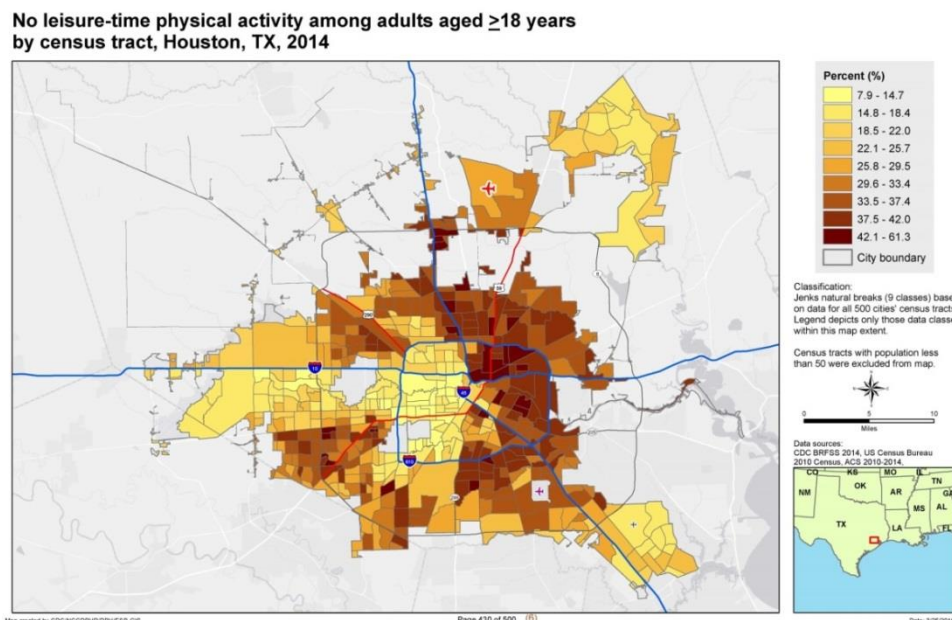
Figure 4. Obesity among adults 18 years of age and older; Houston, Texas, 2014.

**Obesity among adults aged ≥ 18 years
by census tract, Houston, TX, 2014**



Source: CDC 500 Cities Project, available at <https://www.cdc.gov/500cities/> [8]

Figure 5. Leisure-time physical activity among adults 18 years of age and older; Houston, Texas, 2014.



Source: CDC 500 Cities Project, available at <https://www.cdc.gov/500cities/> [8]

Healthcare Access and Cancer Screening

Health Insurance

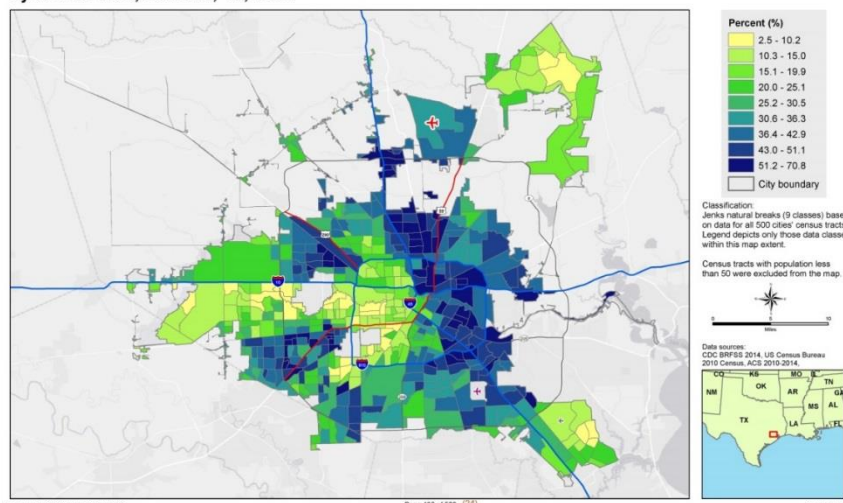
For the total population of Harris County (including children), 23.5% of residents had no health insurance coverage in 2015 [9]. Among adults ages 18-64 years, the rate increased to 30.8%. Lack of insurance is most prevalent among ethnic minorities and the poor. Among households with incomes of less than \$25,000, 35.4% lack health insurance coverage. Among the foreign born population, 48.9% lack health insurance. For Hispanics that rate was 39% [9]. Figure 6 describes the geographic distribution of individuals without health insurance coverage in Houston, TX.

Cancer Screening

Screening exams are tests that help find cancer at an early stage, before symptoms appear. For many cancers, screening increases the chances that the cancer is detected early, when it is most easily treated and most likely to be curable. The American Cancer Society has screening guidelines for cervical, breast, and colorectal cancer. For these cancers, research has shown that regularly using the recommended screening tests significantly reduces the risk of death from that particular cancer [2]. However, medically underserved populations are confronted with a number of barriers to cancer screening, including cost, transportation issues, lack of a regular medical provider, cultural differences, language barriers, limited literacy, and lack of knowledge about the disease and the benefits of screening [12]. The maps below describe the geographic patterns in terms of the use of these screening tests among residents of Harris County.

Figure 6. Current lack of health insurance among adults age 18-64 years; Houston, Texas, 2014.

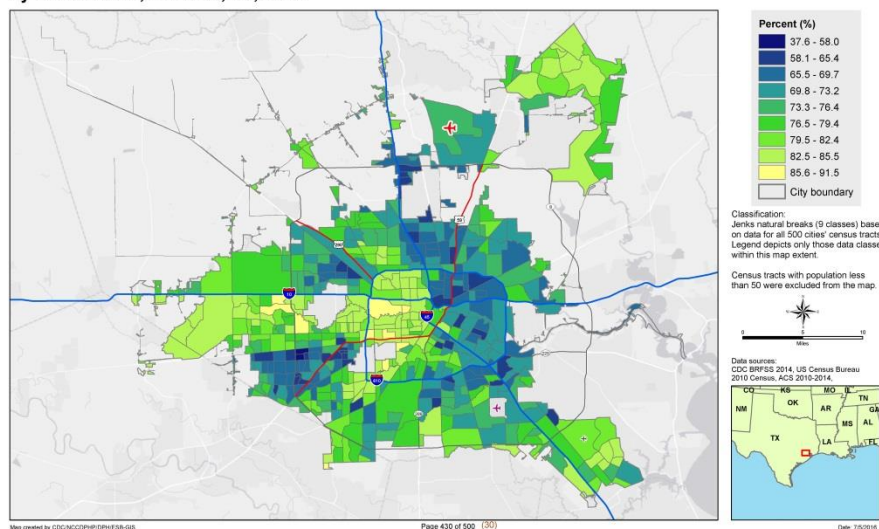
Current lack of health insurance among adults aged 18-64 years
by census tract, Houston, TX, 2014



Source: CDC 500 Cities Project, available at <https://www.cdc.gov/500cities/> [8]

Figure 7. Papanicolaou smear use for cervical cancer screening among adult women age 21-65 years; Houston, Texas, 2014.

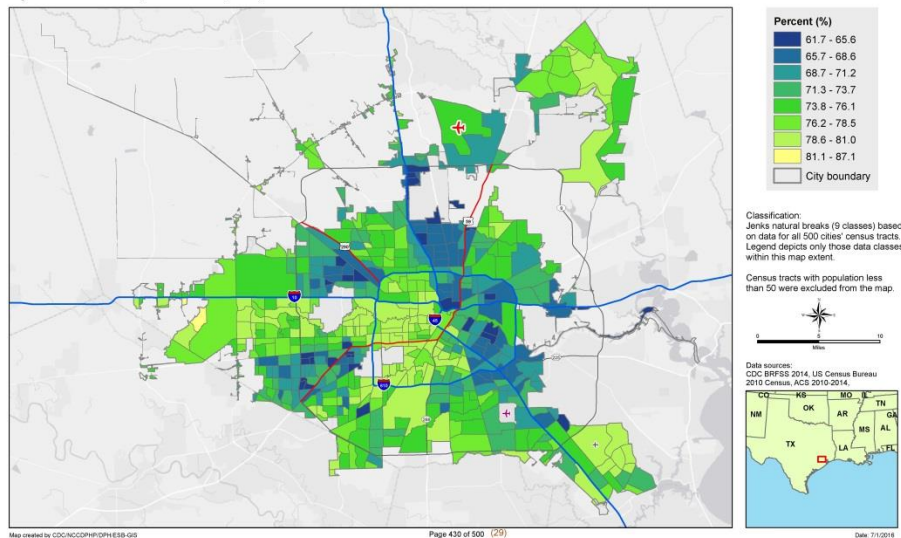
Papanicolaou smear use among adult women aged 21-65 years
by census tract, Houston, TX, 2014



Source: CDC 500 Cities Project, available at <https://www.cdc.gov/500cities/> [8]

Figure 8. Mammography use for breast cancer screening among adult women age 50-74 years; Houston, Texas, 2014.

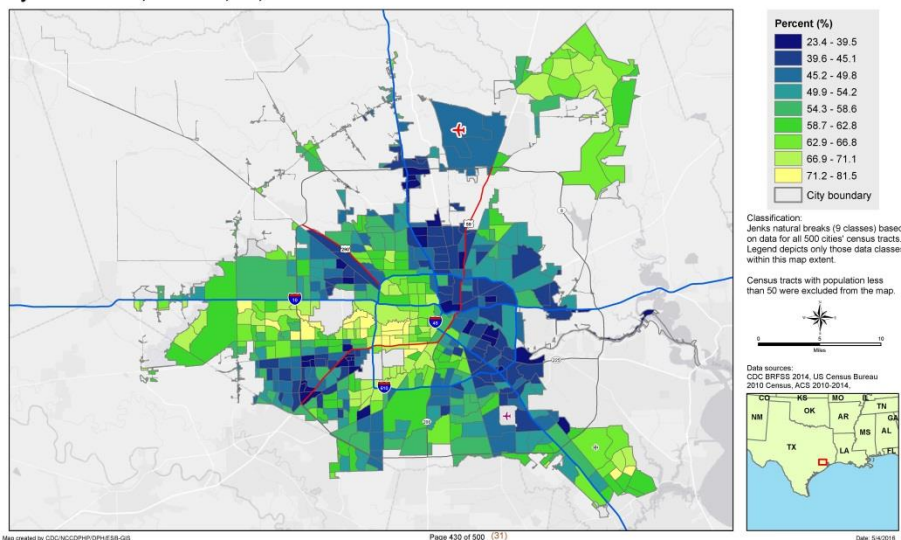
**Mammography use among women aged 50-74 years
by census tract, Houston, TX, 2014**



Source: CDC 500 Cities Project, available at <https://www.cdc.gov/500cities/> [8]

Figure 9. Fecal occult blood test, sigmoidoscopy, or colonoscopy for colorectal cancer screening among adult men and women age 50-75 years; Houston, Texas, 2014.

**Fecal occult blood test, sigmoidoscopy, or colonoscopy among adults aged 50-75 years
by census tract, Houston, TX, 2014**



Source: CDC 500 Cities Project, available at <https://www.cdc.gov/500cities/> [8]

Cancer Incidence and Mortality

This section provides a description of cancer incidence and mortality rates for cervical, colorectal, breast, and other cancers in Harris County. Cancer incidence rates describe the number of newly diagnosed cases over a specified period of time. Mortality rates describe the number of cancer-specific deaths that occurred over a specified period of time. Rates are age-adjusted to allow for comparison of communities with different age structures. Between 2010 and 2014, the three leading causes of cancer for men in Harris County and Texas were prostate, lung and bronchus, and colon and rectum. For women, the leading causes were breast, lung and bronchus, and colon and rectum. Cervical cancer, a disease that can be almost entirely prevented through screening and early detection, was among the top ten cancers for Black and Hispanic women in Harris County and Texas.

Breast cancer

Incidence. Table 1 describes the incidence of in-situ breast cancer in Harris County. For the period 2010-2014, the overall age-adjusted incidence rate was 26.8 per 100,000 (95% confidence interval 25.8-27.8). This rate is higher than the statewide age-adjusted rate of 22.9 per 100,000 (95% confidence interval 22.6-23.3).

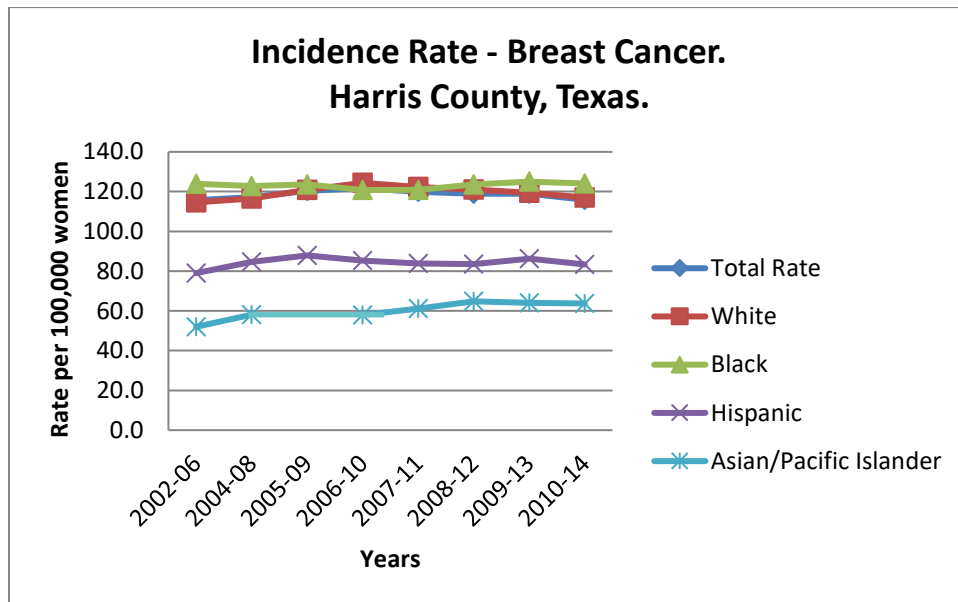
Table 1. *In-situ* breast cancer incidence rates in Harris County, Texas, 2010-2014

| Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2010-2014 |
|---|---------|---------|---------|---------|---------|-----------|
| Population at Risk | 2063212 | 2102304 | 2142073 | 2187620 | 2235287 | 10730496 |
| Total Cases | 555 | 528 | 504 | 569 | 555 | 2711 |
| Crude Rate | 26.9 | 25.1 | 23.5 | 26 | 24.8 | 25.3 |
| Age-Adjusted Rate | 29.8 | 27 | 24.6 | 27.3 | 25.5 | 26.8 |
| 95% Confidence Interval Lower | 27.3 | 24.7 | 22.4 | 25 | 23.4 | 25.8 |
| 95% Confidence Interval Upper | 32.5 | 29.4 | 26.9 | 29.6 | 27.8 | 27.8 |
| Statewide Age-Adjusted Rate | 24 | 22.5 | 22 | 23.8 | 22.3 | 22.9 |
| Statewide 95% Confidence Interval Lower | 23.1 | 21.7 | 21.2 | 22.9 | 21.6 | 22.6 |
| Statewide 95% Confidence Interval Upper | 24.9 | 23.4 | 22.8 | 24.6 | 23.1 | 23.3 |

Source: Cancer Incidence File, available at: <http://www.cancer-rates.info/tx/>. Note: Rates are age-adjusted to the 2000 U.S. Standard Population. Rates generated on June 2, 2017.

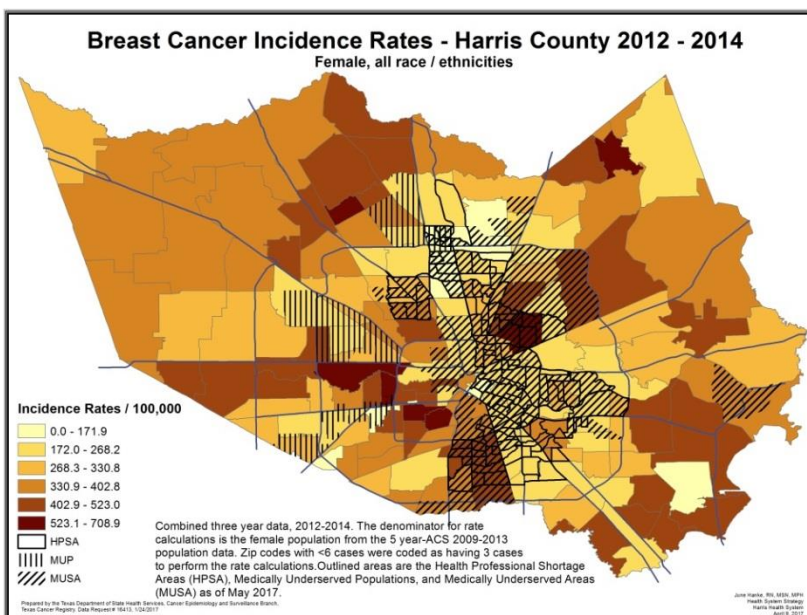
In Harris County, breast cancer incidence is highest among white and black women, with a 4-year cumulative incidence between 2010-2014 of 117 and 124.1 per 100,000, respectively (Figure 10). This rate is roughly 1.4 times greater than that observed among Hispanic women (83.4 per 100,000) and almost a two-fold greater than that observed for Asian/Pacific Islanders (63.7 per 100,000). Figure 11 describes the geographic distribution of breast cancer incidence.

Figure 10. Incidence of breast cancer, Harris County, Texas 2002-2014



Source: National Cancer Institute and U.S. Centers for Disease Control and Prevention. State Cancer Profiles. Available at <http://statecancerprofiles.cancer.gov>. Updated August 23, 2017.

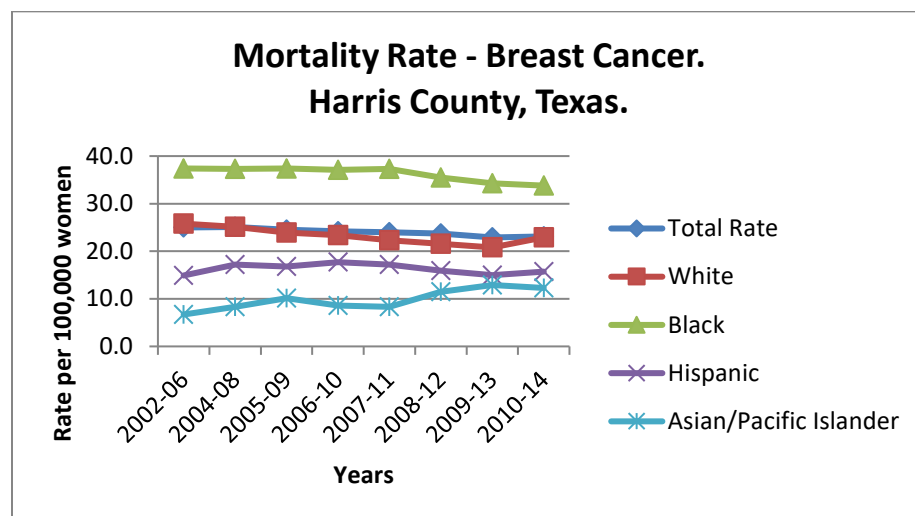
Figure 11. Geographic distribution of breast cancer incidence in Harris County, Texas, 2012-2014. Boundaries of medically underserved areas are indicated in diagonal stripes.



Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System.

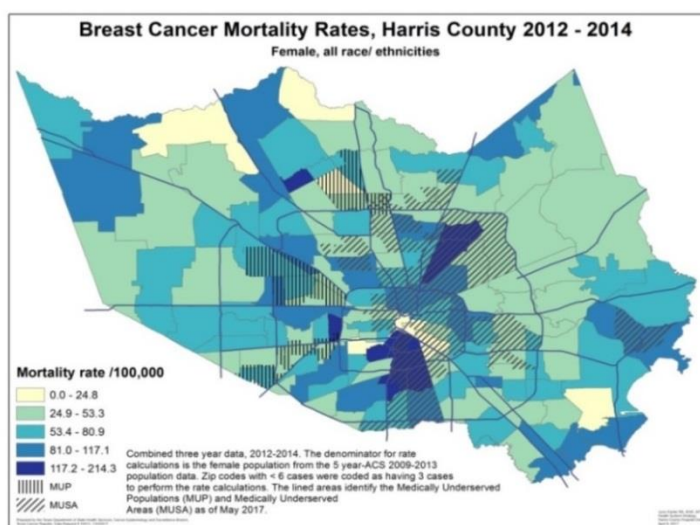
Mortality. The Healthy People 2020 goal for breast cancer deaths is 20.7 per 100,000 [13]. In Harris County, the overall rate was 23.1/100,000 in 2010-2014 (Figure 12). Racial/ethnic disparities are evident, with the lowest mortality rate among Asian/Pacific Islanders (12.3 per 100,000) and the highest among black women (33.8 per 100,000). It is important to note that although breast cancer incidence for black women in Harris County is lower compared to white women, mortality is disproportionately higher for black women. And research has shown that African American women tend to have biologically more aggressive tumors [14], resulting in earlier distant spread and ultimately death.

Figure 12. Breast cancer mortality rates in Harris County, Texas 2002-2014.



Source: National Cancer Institute and U.S. Centers for Disease Control and Prevention. State Cancer Profiles. Available at <http://statecancerprofiles.cancer.gov>. Updated August 23, 2017.

Figure 13. Geographic distribution of breast cancer mortality in Harris County, Texas, 2012-2014. Boundaries of medically underserved areas are indicated in diagonal stripes.



Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System.

Cervical cancer

Incidence. Table 2 describes the incidence of invasive cervical cancer in Harris County. For the period 2010–2014, the overall age-adjusted incidence rate was 11.2 per 100,000 (95% confidence interval 10.6–11.9), which was greater than the statewide age-adjusted rate of 9.2 per 100,000 (95% confidence interval 9.–9.5).

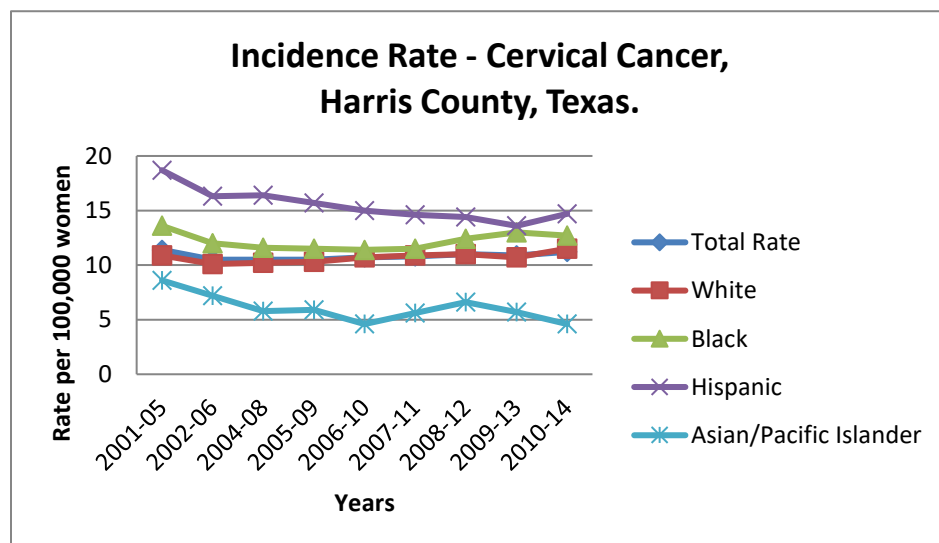
Table 2. Invasive cervical cancer incidence rates in Harris County, Texas, 2010–2014

| Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2010–2014 |
|---|---------|---------|---------|---------|---------|-----------|
| Population at Risk | 2063212 | 2102304 | 2142073 | 2187620 | 2235287 | 10730496 |
| Total Cases | 225 | 210 | 247 | 209 | 271 | 1162 |
| Crude Rate | 10.9 | 10 | 11.5 | 9.6 | 12.1 | 10.8 |
| Age-Adjusted Rate | 11.4 | 10.5 | 12 | 9.8 | 12.4 | 11.2 |
| 95% Confidence Interval Lower | 10 | 9.1 | 10.5 | 8.5 | 10.9 | 10.6 |
| 95% Confidence Interval Upper | 13 | 12 | 13.6 | 11.3 | 14 | 11.9 |
| Statewide Age-Adjusted Rate | 9.5 | 9.2 | 9.2 | 9 | 9.2 | 9.2 |
| Statewide 95% Confidence Interval Lower | 9 | 8.7 | 8.6 | 8.5 | 8.7 | 9 |
| Statewide 95% Confidence Interval Upper | 10.1 | 9.8 | 9.7 | 9.5 | 9.8 | 9.5 |

Source: Cancer Incidence File, available at: <http://www.cancer-rates.info/tx/>. Note: Rates are age-adjusted to the 2000 U.S. Standard Population. Rates generated on June 2, 2017.

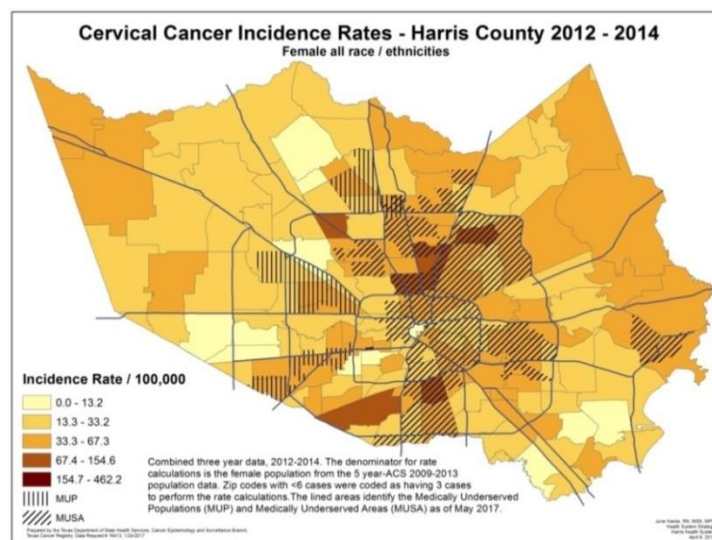
As shown in Figure 14, there were significant racial/ethnic disparities in the incidence of cervical cancer. Incidence was highest among Hispanic women, with a rate of 14.7 per 100,000 in 2010–2014, compared to a rate 11.5 per 100,000 among non-Hispanic whites. Incidence was also consistently higher among blacks compared to non-Hispanic whites. Figure 15 describes the geographic distribution of cervical cancer incidence in the county.

Figure 14. Incidence of cervical cancer, Harris County, Texas 2001–2014.



Source: National Cancer Institute and U.S. Centers for Disease Control and Prevention. State Cancer Profiles. Available at <http://statecancerprofiles.cancer.gov>. Updated August 23, 2017.

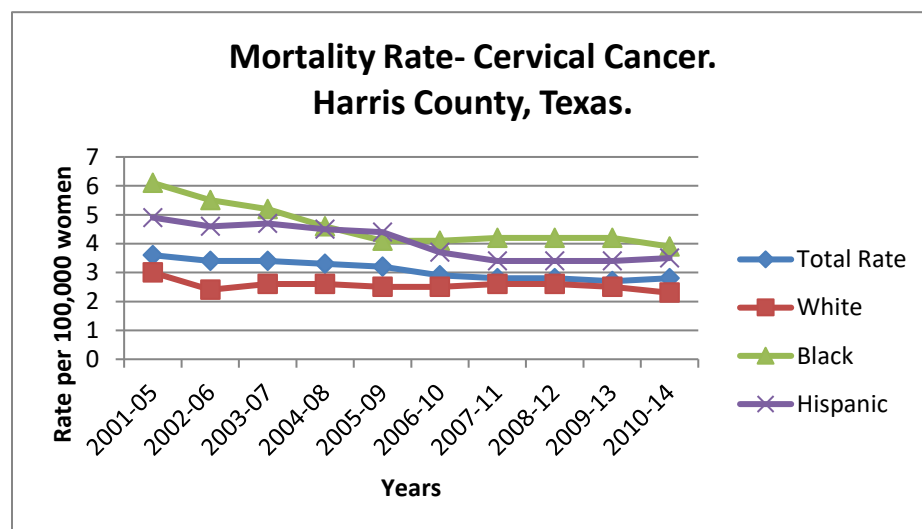
Figure 15. Geographic distribution of cervical cancer incidence in Harris County, Texas, 2012-2014. Boundaries of medically underserved areas are indicated in diagonal stripes.



Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System

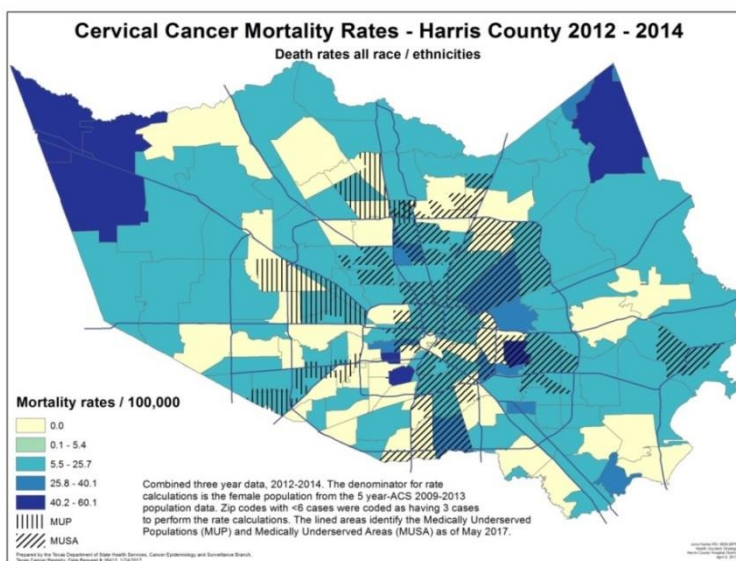
Mortality. The Healthy People 2020 goal for cervical cancer mortality is 2.2 deaths per 100,000 [13]. In 2010-2014, the overall rate in Harris County was 2.8 deaths per 100,000. As seen in Figure 16, this has been a steady decline from the 2001-2005 rate of 3.6 per 100,000. Racial/ethnic disparities are evident, with the highest cervical cancer mortality rate among black women (3.9 per 100,000) and the lowest among white women (2.3 per 100,000). Note that while cervical cancer incidence is highest among Hispanic women, mortality is highest among black women. Figure 17 describes the geographic distribution of cervical cancer mortality in Harris County.

Figure 16. Cervical cancer mortality rates in Harris County, Texas 2001-2014.



Source: National Cancer Institute and U.S. Centers for Disease Control and Prevention. State Cancer Profiles. Available at <http://statecancerprofiles.cancer.gov>. Updated August 23, 2017.

Figure 17. Geographic distribution of cervical cancer mortality in Harris County, Texas, 2012–2014. Boundaries of medically underserved areas are indicated in diagonal stripes.



Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System.

Colorectal cancer

Incidence. Table 3 describes the incidence of invasive colon and rectal (colorectal) cancer in Harris County. For the period 2010-2014, the overall age-adjusted incidence rate was 39.9 per 100,000 (95% confidence interval 38.9-40.9), which was greater than the statewide age-adjusted rate of 38.6 per 100,000 (95% confidence interval 38.2-38.9).

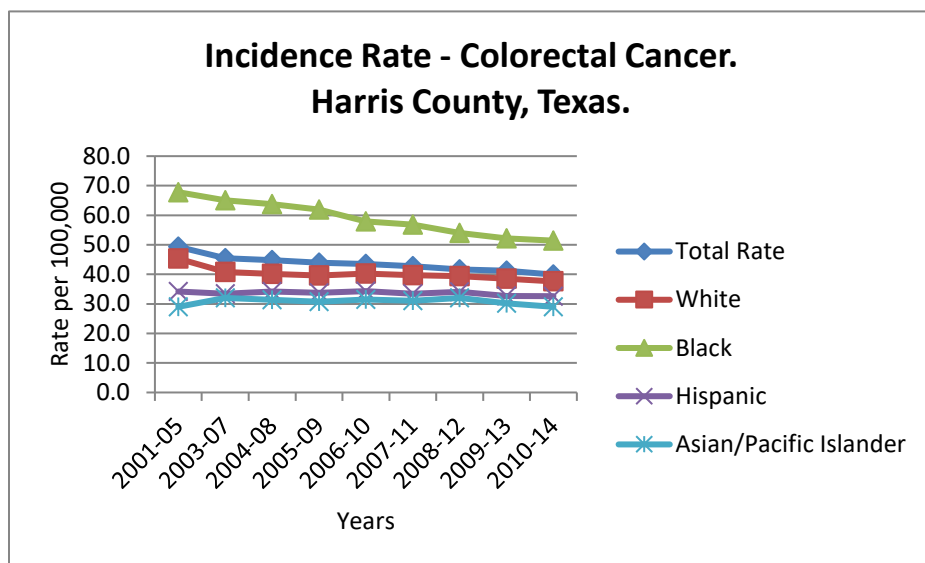
Table 3. Invasive colon and rectum cancer incidence rates in Harris County, Texas, 2010-2014

| Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2010-2014 |
|---|---------|---------|---------|---------|---------|-----------|
| Population at Risk | 4108187 | 4181238 | 4262504 | 4352462 | 4447577 | 21351968 |
| Total Cases | 1383 | 1344 | 1429 | 1438 | 1439 | 7033 |
| CrudeRate | 33.7 | 32.1 | 33.5 | 33 | 32.4 | 32.9 |
| Age-Adjusted Rate | 42.4 | 39.7 | 41 | 39.2 | 37.7 | 39.9 |
| 95% Confidence Interval Lower | 40.1 | 37.5 | 38.8 | 37.1 | 35.7 | 38.9 |
| 95% Confidence Interval Upper | 44.8 | 41.9 | 43.2 | 41.4 | 39.7 | 40.9 |
| Statewide Age-Adjusted Rate | 40.4 | 39.1 | 38.6 | 37.9 | 37.2 | 38.6 |
| Statewide 95% Confidence Interval Lower | 39.5 | 38.3 | 37.8 | 37.1 | 36.5 | 38.2 |
| Statewide 95% Confidence Interval Upper | 41.2 | 39.9 | 39.4 | 38.7 | 38 | 38.9 |

Source: National Cancer Institute and U.S. Centers for Disease Control and Prevention. State Cancer Profiles. Available at <http://statecancerprofiles.cancer.gov>. Updated June 3, 2017.

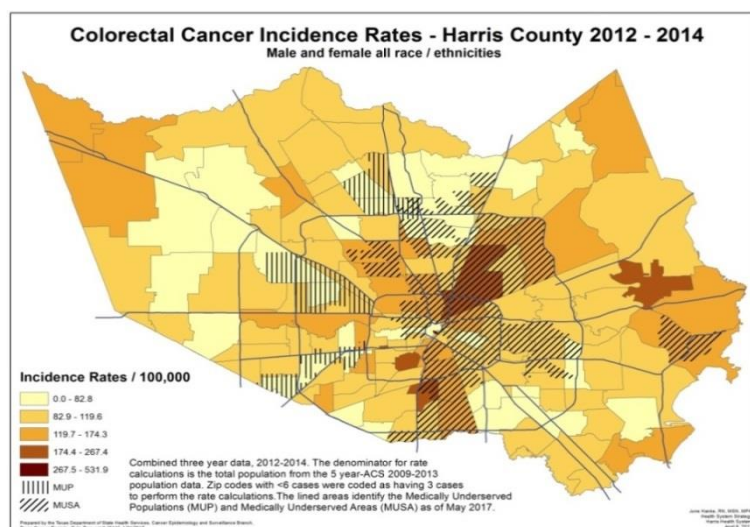
As with cervical cancer, there are significant racial/ethnic disparities in colorectal cancer incidence and mortality (Figure 18). Between 2001 and 2014, incidence was consistently highest among blacks, with a rate of 51.4 per 100,000 in 2010-2014. This rate is ~1.4 times higher than that among whites (37.6 per 100,000) during the same time period. Incidence was lowest among Asian/Pacific Islanders and Hispanics (29.0 and 32.6 per 100,000 respectively in 2010-2014). Figure 19 depicts the geographic distribution of colorectal cancer incidence in Harris County.

Figure 18. Incidence of colorectal cancer, Harris County, Texas 2001-2014.



Source: National Cancer Institute and U.S. Centers for Disease Control and Prevention. State Cancer Profiles. Available at <http://statecancerprofiles.cancer.gov>. Updated August 23, 2017.

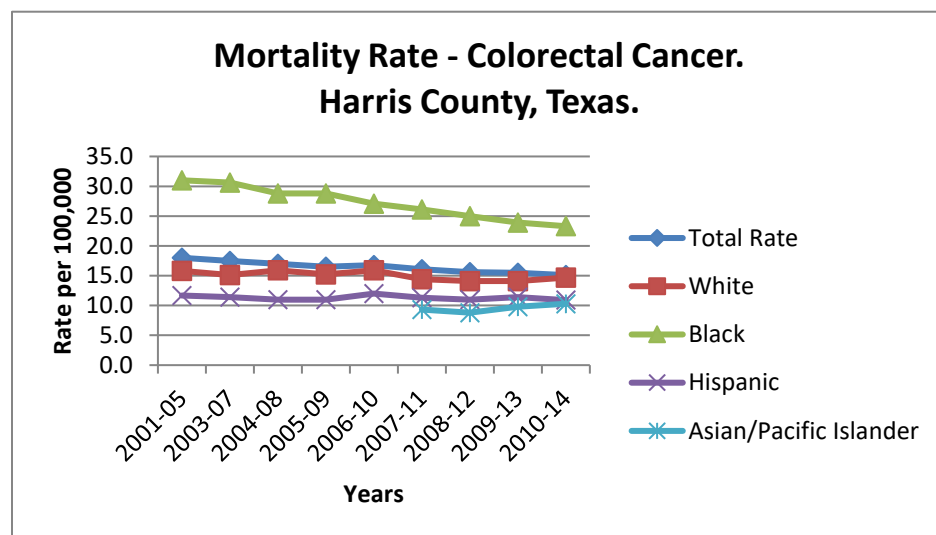
Figure 19. Geographic distribution of colorectal cancer incidence in Harris County, Texas, 2012-2014. Boundaries of medically underserved areas are indicated in diagonal stripes.



Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System.

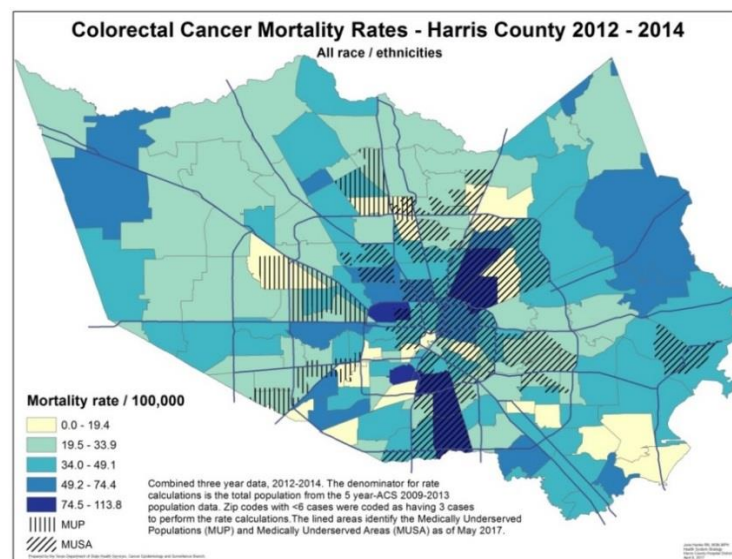
Mortality. The Healthy People 2020 goal for colorectal cancer deaths is 14.5 per 100,000 [13]. The overall rate in Harris County for the four-year period of 2010-2014 was 15.1/100,000 (Figure 20). Mortality disparities mirror incidence disparities with the highest mortality rate among blacks (23.3 per 100,000) and the lowest among Asian/Pacific Islanders (10.3 per 100,000). Note that the mortality rate is over two times greater among blacks compared to Hispanics. Figure 21 indicates the geographic distribution of colorectal cancer mortality in Harris County.

Figure 20. Colorectal cancer mortality rates in Harris County, Texas 2001-2014.



Source: National Cancer Institute and U.S. Centers for Disease Control and Prevention. State Cancer Profiles. Available at <http://statecancerprofiles.cancer.gov> Updated August 23, 2017.

Figure 21. Geographic distribution of colorectal cancer mortality in Harris County, Texas, 2012-2014. Boundaries of medically underserved areas are indicated in diagonal stripes.

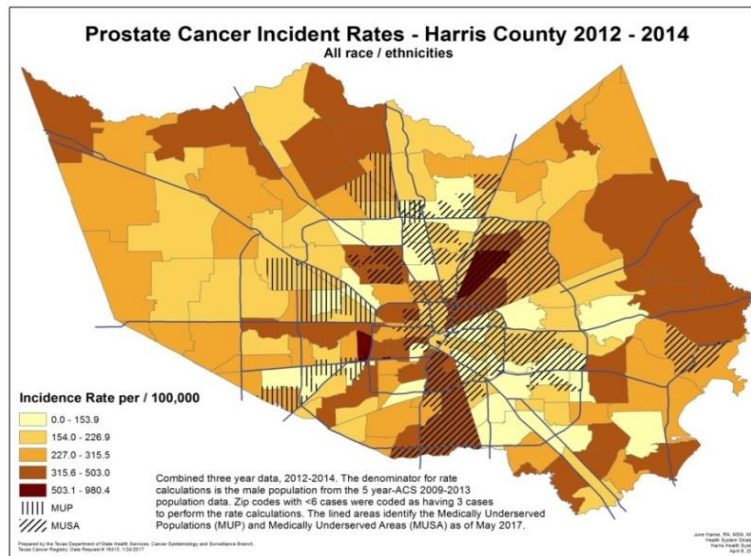


Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System.

Other Cancers

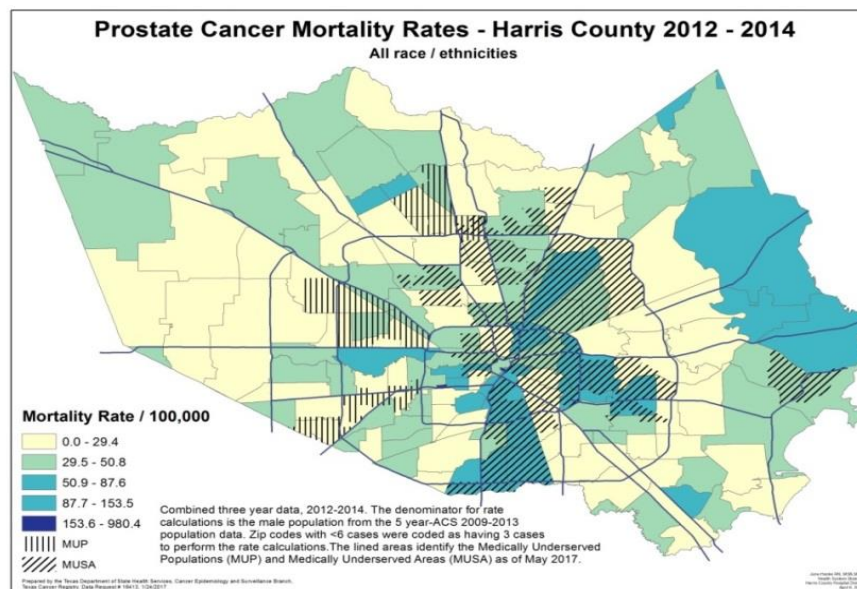
Figures 22-27 depict the geographic distribution of prostate cancer, lung cancer and hepatocellular carcinoma incidence and mortality in Harris County.

Figure 22. Geographic distribution of prostate cancer incidence in Harris County, Texas, 2012-2014. Boundaries of medically underserved areas are indicated in diagonal stripes.



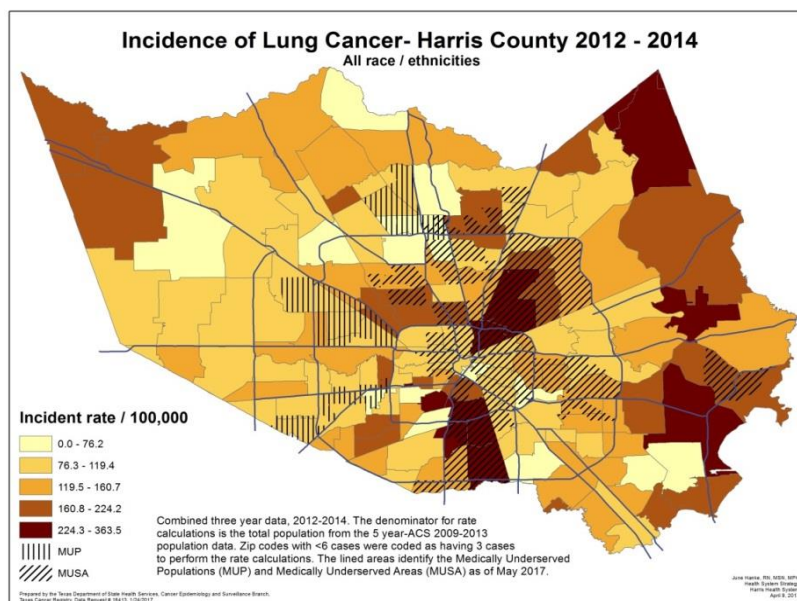
Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System.

Figure 23. Geographic distribution of prostate cancer mortality in Harris County, Texas, 2012-2014. Boundaries of medically underserved areas are indicated in diagonal stripes.



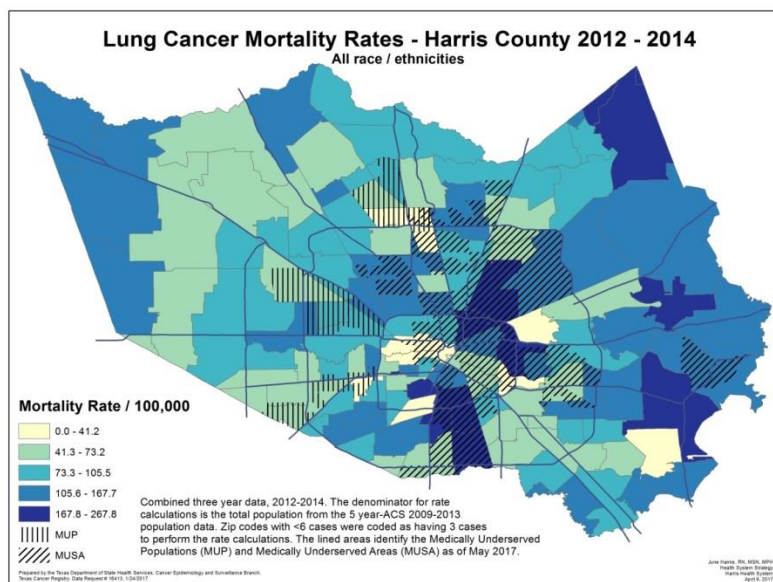
Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System.

Figure 24. Geographic distribution of lung cancer incidence in Harris County, Texas, 2012-2014. Boundaries of medically underserved areas are indicated in diagonal stripes.



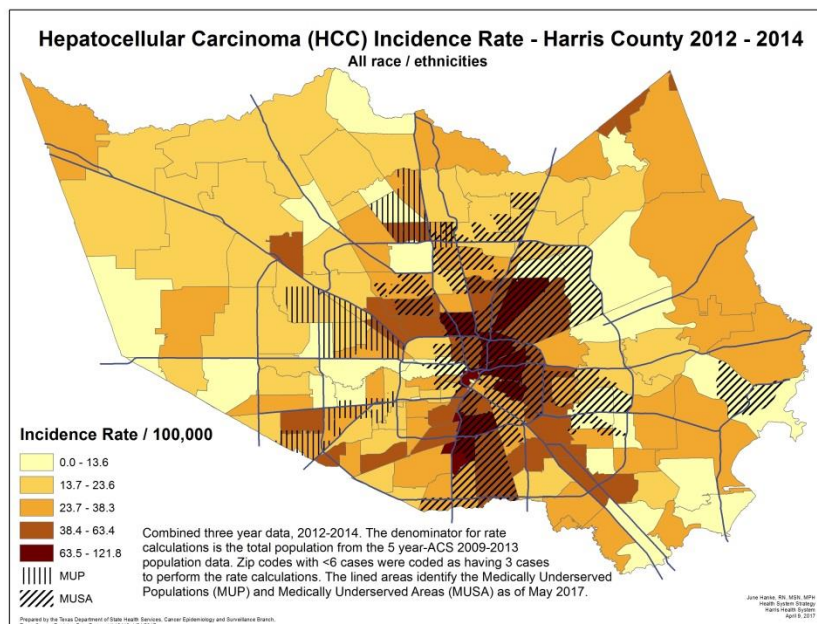
Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System.

Figure 25. Geographic distribution of lung cancer mortality in Harris County, Texas, 2012-2014. Boundaries of medically underserved areas are indicated in diagonal stripes.



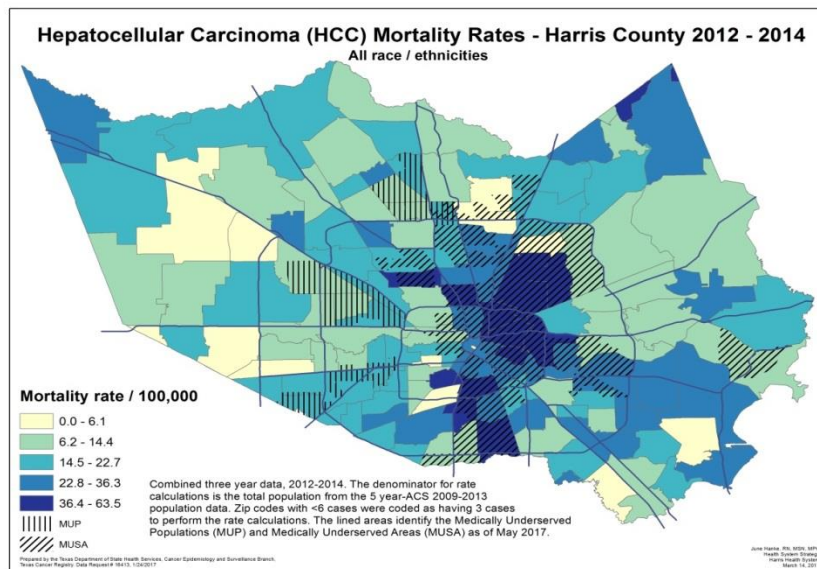
Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System.

Figure 26. Geographic distribution of hepatocellular carcinoma incidence in Harris County, Texas, 2012-2014.



Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System.

Figure 27. Geographic distribution of hepatocellular carcinoma mortality in Harris County, Texas, 2012-2014.



Source: Texas Cancer Registry. Maps produced by Ms. June Hanke, Harris Health System.

Patient Navigation at Harris Health System

Introduction

Cancer-related patient navigation within Harris Health System began in the late 1990s and arose from the need to maximize systems efficiency and ensure that patients with abnormal cancer screening test results obtained timely diagnostic and therapeutic follow-up. Since then, cancer-related patient navigation activities within Harris Health System have expanded to include not only those aimed at ensuring follow-up among patients with abnormal screening tests but also to those aimed at increasing screening and vaccination coverage. Patient navigation programs currently operate within the Breast, Cervical, Colorectal, Hepatocellular, and Gastric Cancer programs, as well as in the Pediatric Service line to improve human papillomavirus (HPV) vaccination rates, the Outreach Services Department to provide healthcare access navigation, and the Oncology Diagnostic and Screening Clinics to provide oncology care coordination.

In Harris Health System's first Cancer Community Needs Assessment and Patient Navigation Report (2014), we described the development and state of patient navigation services within Harris Health System's cancer service lines. At that time, patient navigation had been integrated into the breast, cervical, and colorectal cancer service lines, resulting in significant improvements in the flow of patients across the cancer continuum of care, particularly from screening to diagnostic follow-up. However, no similar programs existed in other cancer service lines. The recommendations from the report were that 1) that patient navigation process be extended to other cancer service lines currently without patient navigation; 2) that existing grant-funded patient navigation positions at Harris Health be transitioned to permanent positions funded by the Harris Health System's operations budget; and, 3) that the Cancer Committee champion patient navigation programs to promote their expansion within the Cancer Program and facilitate the transition of presently grant-funded positions to a more sustainable funding source. As described in this report, significant headway has been made over the past three years to expand patient navigation to other cancer and non-cancer service lines. However, most patient navigation services remain grant funded, presenting an area for improvement over the coming years.

In this report, we summarize the history of these cancer-specific navigation programs, their current state, and the challenges they might face in the future. Readers are referred to the 2014 report for greater detail on the history of each program. Following this overview, we provide recommendations to the Harris Health Cancer Committee, urging members to champion the transition of at least some of the patient navigation components to an internal funding source to ensure the sustainability of the programs.

What is Patient Navigation?

What is patient navigation? What do patient navigators do? Patient navigation is a patient-centered healthcare services delivery model that aims to reduce barriers to care by guiding patients through the complexities of the healthcare system. Patient navigators are trained, culturally sensitive healthcare workers who support individual patients through the continuum of care for their specific disease, helping them overcome barriers at each stage [15]. Patient navigators' work focuses on processes and transitions within the continuum of cancer care, particularly from entry into the healthcare system to screening, from screening to diagnosis, and from diagnosis to treatment. The most important role of patient navigators is to

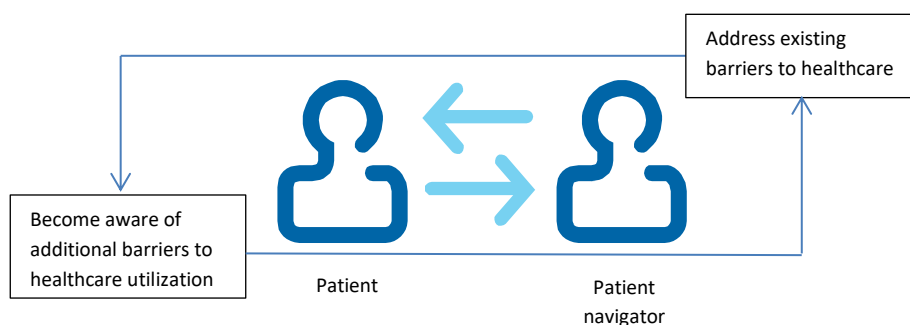
ensure that individuals with findings suspicious for cancer receive timely diagnosis and treatment. Specifically, patient navigators may help to:

- Coordinate appointments with doctors' offices, clinics, hospitals, outpatient centers, insurance and payment systems, patient-support organizations, and other components of the health care system.
- Maintain communication with patients, survivors, families, and health care providers, and monitor patient satisfaction with the cancer care experience
- Ensure appropriate medical records are available at scheduled appointments
- Arrange language translation or interpretation services
- Facilitate financial support and helping with paperwork
- Arrange transportation and/or child or elder care
- Conduct community outreach, provide access to clinical trials, and build partnerships with local agencies and groups (e.g., referrals to other services and/or cancer survivor support groups) [16].

As in the 2014 Report, in this report we differentiate patient navigation from clinical case management. A key difference between the two is that, whereas clinical case management is responsive to calls to navigate patients known to need the services, patient navigation proactively identifies patients at risk and then works with the provider to ensure that they receive the care they need. This healthcare services delivery model thus requires the availability of timely data and a database management system that allows such data to be actively monitored and queried to proactively identify patients at risk and track patients' progress through the cancer continuum of care. Patient navigation also requires a team-based approach; specifically, administrators who support the program, supervisors who enable the navigators to do their job, and, of course, the patient navigators, who deliver the navigation services.

In the 2014 Report, we described the critically important dual role of patient navigation. Patient navigation, by definition, is meant to address gaps that hinder the flow of patients through the cancer continuum of care. However, a key finding in our last report is that patient navigators not only address gaps but also help identify gaps. In our experience, it is often through the active communication and triangulation between patients, providers, and support staffs, that patient navigators and cancer service line leadership learn about barriers of which the program might otherwise be unaware. Patient navigation thus serves two dual roles: it both addresses barriers in the systems that are known to exist at the time, and simultaneously informs the understanding and awareness of additional barriers that may exist. In this sense, patient navigation serves as a feedback loop, whereby navigators and administrators learn about barriers and address them through further patient navigation (Figure 28).

Figure 28. The dual role of patient navigation in informing awareness and addressing patients' barriers to healthcare utilization



In the following sections, we describe the patient navigation programs that are integrated into specific cancer service lines. While each program is unique, they all strive to address barriers and improve outcomes throughout the cancer continuum of care.

Breast Cancer Service Line

A Brief History of the Program

Patient navigation within Harris Health began in the Breast Cancer program in 1997. At that time the Breast Program did not have a comprehensive patient navigation component but rather utilized mammography case managers to conduct patient navigation for all cases suspicious of malignancy. This use of clinical case managers for patient navigation was feasible at the time given the large but manageable volume of patients and necessary given the lack of funding for non-clinical support personnel. Under this system, the mammography case managers worked with agencies outside the Harris Health System who had patients needing services to facilitate eligibility processing for Harris Health-eligible patients who required diagnostic and therapeutic procedures following an abnormal screening test. Once patients were within the system, the mammography case managers worked to fast-track them through primary and specialty care appointments in order to expedite their services.

During this time, an electronic database was developed to meet the data needs of the case managers who were navigating an ever-increasing number of patients through follow-up. All patients within the Breast Imaging program who had findings suspicious of malignancy were placed in this abnormal follow-up database. Using this database, patients were tracked and assisted in obtaining expedited care. This was accomplished by leveraging collaborative relationships with other healthcare organizations and with key individuals within the various care teams at Harris Health.

When patient volumes grew too large for the mammography case managers to handle alone, the Breast Program's leadership began to look for ways to delegate some of their tasks. Several meetings with the case managers were held to brainstorm and evaluate the various functions they performed. Through these discussions, it was determined that many of the tasks for which they were responsible could be performed by staff with less clinical knowledge and expertise. Based on these findings, a position was created in 2001 for a patient navigator/data specialist whose role was to help maintain the abnormal follow-up database and assist patients in overcoming barriers to care following an abnormal breast imaging finding. Thus during this time, patient navigation within the program primarily focused on follow-up of patients with abnormal findings.

Over the next ten years, the Breast Program expanded to include multiple screening facilities, placing increasingly greater demands on the data specialist/patient navigator. At the time, there was an extremely high no-show rate for screening, with over 40% of patients scheduled for mammography not attending their appointment. Consequently, mammography appointments were overbooked with the expectation that many patients would not attend. This effort to maintain an increasing number of mammograms came at the price of patient satisfaction. Furthermore, there was a large discrepancy across the Harris Health screening facilities in regard to appointment availability. It became clear that patient navigation services were needed to assist patients on the front end of screening to ensure that those who needed screening were able to make an appointment and that those who had an appointment were able to attend. Through grant funding from Avon and later Komen, a program began in 2009 to reduce the no-show rate for mammography, balance the volume

and access to services across all Harris Health System screening facilities, and increase the efficiency in the overburdened diagnostic imaging section. The program was enormously successful. In just the first year, the no-show rate for mammography dropped from 40% to 10%. The program was also able to balance the schedule for diagnostics between facilities and decrease the wait times. This, in turn, led to greater patient satisfaction. Furthermore, the volume of mammography increased by over 6,000 procedures each year.

In 2013, the Breast Program's patient navigation services expanded as part of the Community Network for Cancer (CNCP) Prevention Breast Program (PP130084), a comprehensive prevention program funded by the Cancer Prevention and Research Institute of Texas (CPRIT). In addition to patient education interventions and a Breast Care Specialist to increase the capacity for breast cancer screening, the program helped fund two patient navigators/data specialists/patient care technicians who served as clinical support staff to the Breast Care Specialist and assisted Harris Health-eligible community residents from outlying community clinics in obtaining screening and diagnostic services at Harris Health. In order to identify patients for the breast specialist's clinic, the patient navigators iteratively reviewed a database of approximately 20,000 women age 40 years and older who have not received a mammogram in the past three years. From this database, the team was able to screen approximately 1,000 charts each month to identify patients who are eligible for services. Approximately 250-350 of these women were contacted each month and offered an appointment with the Breast Specialist.

Unfortunately, reductions in Komen grant starting in 2014 have caused patient navigation services for screening mammography to become ever-more narrow in scope. The program currently focuses on providing patient navigation services for African American patients who receive care at three Harris Health clinics with a highly African American patient population. It is worth noting that the loss of the Komen patient navigators for other patients within Harris Health resulted in the no-show rate for screening mammography to rebound from 10% to over 40%. Further funding cuts from Komen are expected in 2017. Similarly, CPRIT grant funding for the Community Network for Cancer Prevention, Prevention Breast Program, ended in May 2017. The program's leadership is attempting to find alternative funding sources to provide continued support for the patient navigators/data specialists/patient care technicians funded under this program, in hopes that renewed grant funding can be obtained in the near future. However, the nature of grant funding is that it is uncertain and thus the program may have to undergo permanent restructuring.

Fortunately, within the Breast Cancer Service Line, there are three case managers funded through the Harris Health operations budget who provide case management for all patients with abnormal mammogram results as they move through their continuum of care in the hospital system. Case management involves maintaining a database of patients with abnormal mammograms who require follow-up, calling and scheduling patients for procedures, helping patients identify and overcome barriers to care, enrolling eligible patients in the BCCS program, reconciling medications for those undergoing invasive procedures, and connecting patients to support resources. Additionally, the case managers work with a large network of external providers to facilitate expedited entry into Harris Health System for eligible patients and facilitate appropriate handoff to external facilities for patients who are not eligible for Harris Health services. Additionally, three data specialists work in the BCCS program and assist with tracking patients with abnormal screening test results, conducting in-basket messaging to alert the patients' physicians, and conducting appointment reminders.

In regard to patient navigation from diagnosis through treatment, there are two Avon-funded patient navigators who work at the Lyndon B. Johnson Hospital. These navigators work to address barriers among patients diagnosed with breast cancer to ensure that they successfully complete their treatment. Specifically, they provide educational information about diagnosis, treatment, and treatment side-effects; make appropriate referrals to external resources and support groups; assist patients in applying for outside resources and programs; facilitate appointments for lymphedema, radiation, and other clinics; make appointment reminders; and ensure that all newly diagnosed patients are scheduled for follow-up. Grants from the Avon and Komen at Smith Clinic support a bilingual medical assistant (Spanish), a bilingual clinical trial navigator (Spanish), and a bilingual community health care worker (Vietnamese) who, in addition to fulfilling their clinical roles, provide patient navigation services to breast cancer patients at Smith Clinic. These staff members assist cancer patients by scheduling appointments, ensuring all medical records have been received, calling patients who did not come to visits, scheduling tests and procedures in a timely manner, helping patients understand what clinical trials are and the importance of participation on clinical trials, compiling survivorship care plans and helping with any other needs they may have. They provide live translation in both Spanish and Vietnamese, help patients get access to more resources by leveraging resources from other non-profits by helping patients fill out and submit the applications for these resources and run our monthly support groups. They are essential to the support of these uninsured/underserved patients at Smith Clinic.

Table 4 describes the current composition of the Breast patient navigation program and the specific roles of the patient navigators.

Table 4. Patient navigators employed in Harris Health System's Breast Cancer Program

| Navigation to screening | Navigation of patients with abnormal screening test results | Navigation to reduce no-show rate for diagnostic mammography and balance appointments across system | Navigation of patients diagnosed with cancer through their treatment plan |
|---|---|---|--|
| 3 mammography case managers 3 data specialists | | 1.36 patient navigator, for African American patients only | 2 patient navigator at Lyndon B. Johnson Hospital funded by Avon 1 medical assistant, 1 clinical trial navigator, and 1 community health worker to assist with navigation at Smith Clinic |

Challenges Moving Forward

The main challenge faced by the Breast Program's patient navigation program is sustainable funding. Patient navigation focused on increasing access to mammography screening has been severely cut due reductions in Komen grant funding and the loss of CPRIT grant funding. The program's leadership is pursuing alternative avenues of funding. However, the future of alternative funding sources is uncertain. There is also much need for

comprehensive patient navigation from diagnosis through treatment.

Cervical Cancer Service Line

A Brief History of the Program

Patient navigation for the Cervical Cancer Program began in 2010 and was modeled after that of the Breast Program. Prior to 2010, there was no particular focus on following-up patients with abnormal screening test results or any dedicated assistance for access navigation. Through an academic partnership with Baylor College of Medicine, Harris Health System became the primary provider for the Community Network for Cancer Prevention (CNCP), which was established through grant funding from CPRIT (PP100201, PP140028; PP170094 PI: Jibaja-Weiss). In preparation for the grant application, two Clinical Advisory Boards (CAB) were formed (one for cervical cancer, one for colorectal cancer) to guide the development and implementation of the project. The CABs held regular discussions and reviewed patient data to identify gaps in the continuity of care related to these cancers. This process revealed that a large proportion of individuals eligible for Harris Health services did not receive the recommended screening tests for colorectal and cervical cancer. Specifically, for cervical cancer, 66% of screening-eligible patients within the Harris Health System did not receive the recommended Pap test screening test. Furthermore, follow-up rates for the necessary diagnostic and therapeutic procedures among screen-positive patients was sub-optimal, with over 40% of patients with an abnormal Pap test being lost to follow-up. Similar challenges were observed for colorectal cancer. Based on these data, the CABs concluded that suboptimal screening rates and the lack of continuity of care over the screening-diagnostic continuum contributed to the disproportionately high rates of cervical and colorectal cancer among Harris County's medically underserved population. Patient navigation was therefore a large component of the comprehensive program that has been implemented at Harris Health from 2010 to present.

The CNCP's patient navigation component primary focuses on navigation of patients from an abnormal screening test through diagnostic follow-up and clinical management. Due to funding cuts, the size of the team was reduced between the 2010-2013 and 2014-2017 project periods. However, the scope of work remains the same. Specifically, the patient navigators/data specialists and nurse case managers funded by the program use a database modeled after the one developed for breast to actively and manually populate and maintain a Tickler File database to track and navigate all patients with abnormal screening tests through their diagnostic and care plan. Patient navigation involves numerous activities, including contacting patients to remind them of appointments, working with patients to overcome barriers to their continuity of care, reminding healthcare providers to notify patients of their results, and ensuring that healthcare providers complete the diagnostic referrals. The patient navigators and nurse case managers thus intervene on two levels: with the patient to ensure their timely flow through the system and with providers to ensure that appropriate notifications and referrals are being made.

The CNCP's patient navigation program was further strengthened by another CPRIT-funded program (PP120091 and PP160049; PI: Anderson) with aims to expand and decentralize the capacity for Pap testing and colposcopy within the Harris Health System by making these services available at the Community Health Centers. Whereas Pap testing and colposcopy were once available only at three Community Health Centers, they are now available at 11. The CPRIT-funded project funds a nurse practitioner who provides these services at five of

the Community Health Centers. The project also helps fund two patient navigators/patient care technicians who provide clinical support to the nurse practitioner and navigate patients to screening and from an abnormal screening test to diagnostic/therapeutic follow-up. Collectively, the CPRIT-funded programs have had a dramatic impact on cervical cancer screening at Harris Health. The loss-to-follow-up rate for patients with abnormal Pap test screening has dropped from 40% in 2009 to <5% in 2017.

In addition to the CPRIT-funded patient navigators, the cervical cancer service line has a patient navigator funded through BCCS who also works on tracking patients with abnormal screening tests and intervening to ensure timely diagnostic follow-up. There are currently no patient navigators who serve patients diagnosed with cervical cancer through their treatment plan.

Table 5 describes the composition of the current patient navigation program that exists within the Cervical Cancer Program.

Table 5. Patient navigators employed in Harris Health System's Cervical Cancer Program

| Navigation to screening | Navigation of patients with abnormal screening test results | Navigation of patients diagnosed with cancer through their treatment plan |
|--|---|---|
| 1 nurse case manager, shared with Colorectal Cancer Program 5 patient navigators/patient care technicians | | 0 |

Challenges Moving Forward

Ensuring that no patients are lost in the system is an intense and relentless job, requiring daily manual updating of the Ticker File and constant communication with patients and providers. Without the ongoing efforts of the patient navigators and nurse case managers, the loss-to-follow-up rate would soon return to baseline. However, funding for these positions is always a challenge. The navigation and case management services that make such a difference are not reimbursable and are therefore not funded through the Harris Health System's operations budget. The program thus faces the uncertainty inherent to grant funding. A CNCP continuation/expansion grant awarded in August 2017 will continue to fund patient navigation services in the cervical cancer service line.

Colorectal Cancer Service Line

A Brief History of the Program

Also as part of the CPRIT-funded CNCP program (2010 to present, with interim funding from the American Cancer Society during CPRIT moratorium), the colorectal cancer service line has a team of patient navigators that navigate patients from an abnormal screening test through diagnostic follow-up. Similar to the cervical program, a tickler file database is used to track and follow-up all patients with positive fecal immunochemical test (FIT) results through follow-up. Additionally, these patient navigators conduct motivational reminder calls one week prior to the appointment to emphasize the importance of keeping the appointment, verify the patient's understanding of the colonoscopy prep instructions, and assist patients with any eligibility issues as needed. The program has resulted in significantly reduced turnaround times and increased completion of follow-up testing, in addition to greatly

increased volumes. While over 50% of patients with abnormal FIT screening tests were lost to follow-up in 2009, the current loss-to-follow-up is <5%. Through the program, the no-show rate for colonoscopy has dropped from 24% to less than 10%.

One of the major challenges to FIT screening for colorectal cancer is ensuring that patients who receive the take-home test return it for laboratory testing. In May 2016, Harris Health System adopted a single-collection FIT that can be returned to the laboratory by mail. This has been a major improvement over the three-time collection FIT that had to be returned in person to the clinic. Since the adoption of the mail-in FIT, test completion rates have increased dramatically from ~42-45% to the current completion rate of 53% to over 70% at some clinics. To further improve completion rates, another CPRIT-funded prevention program (PP160122, PI: Rustveld) funds 2 patient navigators to recall and remind patients who have not returned test 2 weeks after receiving it.

The colorectal cancer service line also has three nurse case managers funded through the Harris Health operations budget who provide case management for patients scheduled for colonoscopy and endoscopy (see GI service line below). In regard to colorectal cancer, their primary role is to call patients 2 weeks ahead of their scheduled colonoscopy to educate them on how to prep for the procedure. The case managers also facilitate patient referrals to the GI clinic by working with primary care providers to ensure that the necessary work-up tests are ordered and performed ahead of patients' GI clinic appointment.

Table 6 describes the composition of the current patient navigation program that exists within the Colorectal Cancer Program.

Table 6. Patient navigators employed in Harris Health System's Colorectal Cancer Program

| Navigation to screening | Navigation of patients with abnormal screening test results, to reduce no-show rate for diagnostic colonoscopy and reinforce patient education. | Provide primary education for diagnostic colonoscopy prep for direct scheduled patients | Navigation of patients diagnosed with cancer through their treatment plan |
|---|---|---|---|
| 1 nurse case manager, shared with Cervical Cancer Program | | 3 nurse case managers | 0 |
| 2 patient navigator/data specialist | | | |

Challenges moving forward

The patient navigator positions in the colorectal cancer service line are entirely grant funded, which makes them vulnerable to loss of funding. As mentioned, a newly awarded CNCP continuation/expansion grant will continue to fund patient navigation services in the colorectal cancer service line.

Gastrointestinal Service Line

A Brief History of the Program

In Specialty Case Management there is a team of three GI Nurse case managers who are funded by Harris Health System. The role of the case managers is to educate and motivate patients from the Community Health Centers about their upcoming colonoscopy or endoscopy procedure, remind them of appointments and how to prep for the procedure, address any barriers that patients might have, and follow-up on abnormal pathology reports to ensure that patients with positive pathology are referred back to Gastroenterology for their treatment plan. Additionally, with funding from the American Cancer Society, there is currently a patient navigator who works at Smith Clinic and Ben Taub with Surgical Oncology and Medical Oncology. Specifically, the navigator attends the Medical Tumor Board and follows up with the recommended plan of care; attends both the Medical Oncology and Surgical Oncology clinics to coordinate care with the multidisciplinary team, connect patients to external resources, and assists patients in their plan of care; and assists patients at the Cancer Resource Center.

Table 7 describes the current composition of the GI service line patient navigation program.

Table 7. Patient navigators employed in Harris Health System's Gastrointestinal Cancer Program.

| Navigation to screening | Navigation of patients with abnormal screening test results | Provide primary education for diagnostic colonoscopy prep for direct scheduled patients | Navigation of patients diagnosed with cancer through their treatment plan |
|-------------------------|---|---|---|
| 0 | | 3 GI nurse case managers | 1 patient navigator funded by American Cancer Society |

Hepatocellular Cancer Service Line

A new CPRIT-funded prevention program (PP160089, PI: Thrift) has expanded patient navigation to the hepatocellular (liver) cancer service line. Most cases of hepatocellular carcinoma are caused by chronic hepatitis B (HBV) and hepatitis C virus (HCV). Highly efficacious treatments are available to induce HBV remission and cure HCV infection, with dramatic reductions in the subsequent risk of hepatocellular carcinoma. Additionally, HBV vaccination has >90% efficacy in preventing HBV infection. The role of the two patient navigators funded under this program is to track all patients who are screened for HBV and/or HCV. They track patients who have an initial positive screening for HBV and/or HCV to make sure that they receive confirmatory testing followed by either referral to vaccination or referral to specialty care as appropriate.

Head and Neck Cancer Service Line

In regard to patient navigation from diagnosis through treatment, there is a head and neck patient navigator who works at Ben Taub Hospital. This navigator works to address barriers among patients diagnosed with head and neck cancer to ensure that they successfully complete their treatment. Specifically, the patient navigator provide educational information about diagnosis, treatment, and treatment side-effects; makes appropriate referrals to external resources and

support groups; assist patients in applying for outside resources and programs; facilitate appointments, radiation, and other clinics; make appointment reminders; and ensure that all newly diagnosed patients are scheduled for follow-up.

Oncology Diagnostic and Screening Clinics

The Diagnostic and Screening Clinics at Smith Clinic and Lyndon B. Johnson Hospital provide additional patient navigation services to patients with a suspected malignancy who require further work-up and referral. Patients are those with a suspected malignancy (based on laboratory results, physical findings, and/or imaging) who are referred to the clinic from the Emergency Department or the Ambulatory Care Clinics. The clinics are staffed by a nurse practitioner at Smith Clinic with supervision from a panel of hematology/oncology physicians and an internist at LBJ. These practitioners are able to order diagnostic testing, which is most often performed the same day, while the patient is at the clinic. Patients with a confirmed malignancy are then referred to the appropriate surgery or oncology clinic for follow-up care. The clinics thus serve as a bridge between the Ambulatory Care Clinics/Emergency Departments and the relevant cancer service lines by fast-tracking patients through the necessary work-up to initiate cancer treatment.

Case Management for Patients Diagnosed with Cancer

Although not patient navigation per se, the Oncology Case Management Department provides case management services to cancer patients at Smith Clinic and Lyndon B. Johnson Hospital. Services include facilitating appointments for radiation, assisting with home health services, helping patients obtain medical equipment, assisting with hospice placement, following up with positive pathology reports to ensure that patients receive follow-up, and following-up with cases lost in the system. Additionally, they guide patients through the eligibility process and coordinate services with other departments and outside institutions for qualified patients.

Healthcare Access Navigation

While the above-described patient navigation programs primarily assist Harris Health patients in obtaining and completing cancer-specific care, another major focus for patient navigation at Harris Health involves the navigation of Harris County residents into a medical home within the Harris Health System and promoting healthy living and cancer prevention within the community. This is the work of the Harris Health Community Outreach Services. The Community Outreach Services department grew out of the Making a Difference program (1995) and officially became a department in 1999 through strategic planning recommendations by the Early Detection, Prevention, and Community Outreach Subcommittee. The department was developed to ensure that Harris Health had a presence and a focus regarding prevention in the community. This was part of a larger strategy to target prevention and early detection among Harris Health patients, rather than only providing sick care.

The primary focus of Harris Health's Community Outreach Services is to promote health and wellness for our patients and community members residing in Harris County. Outreach staff includes health educators and community health workers who provide educational services, health screenings, and navigation to medical and social services. Patient navigation activities include promoting access to primary care services at Harris Health Patient-Centered Medical Homes and how to access Same Day Clinics when care is more urgent. For example, health educators assist cancer patients and their families at the Cancer Resource Centers located at

Lyndon B. Johnson Hospital and Lester & Sue Smith Clinic and serve as a resource to the care team providers. Additionally, community health workers link patients in the Obstetrics Navigation program to appointments, coverage, and other resources to assist women throughout their prenatal care, delivery and post-partum to reduce preterm birth and other poor birth outcomes. Community Outreach Services is an approved Texas Department of State Health Services certification training program and provides continuing education training to Community Health Workers. The outreach team facilitates community events and special projects for both patients and community and actively collaborates with local, state, and national coalitions to improve population health in Harris County.

Patient Navigation for the HPV Vaccine

Also outside of the cancer service line but impacting cancer is a patient navigation program that aims to improve human papillomavirus vaccine rates within Harris Health. The program is funded by a CPRIT prevention services grant (PP160079, PIs: Jibaja-Weiss and Montealegre) and is part of a larger comprehensive program to improve the uptake and completion of the HPV vaccine among adolescent and pre-adolescent Harris Health patients. The program, which started in 2016, funds two patient navigators who use a tickler file database to track and manage all patients who are age-eligible for the vaccine (boys and girls ages 11-18 years). The patient navigators are currently focused on ensuring that all children who started the HPV vaccine series complete it. This involves verifying vaccine status through the electronic medical record and other sources, contacting parents/caregivers to remind and motivate them to complete their child's vaccine series, and addressing patient/parent barriers. An important discovery made through the new patient navigation program is that up to 25% of patient records may be inaccurate in terms of HPV vaccine status. In particular, after verifying the HPV vaccine status listed in the electronic medical record for a subset of patients, the patient navigators found that 25% of children with "partial" vaccination status had in fact completed the series. The documentation of such vaccine records, however, had to be extracted from the state Immunization Tracking system (ImmTrac) and scanned media within the electronic medical record. This provides another example of the dual role of patient navigators in both addressing and identifying barriers to excellent patient care.

Conclusions and Recommendations for Patient Navigation at Harris Health

Patient navigation has grown to be a critical part of cancer prevention and care within Harris Health. Originating in 1997 in the Breast Cancer service line, patient navigation is now integrated within the Breast, Cervical, Colorectal, Hepatocellular, and Gastric Cancer programs. Additionally, there are patient navigation services to improve HPV vaccine uptake and completion, healthcare access navigation through Harris Health's Outreach Services Department, and oncology care coordination through the new Diagnostic and Screening Clinics. Collectively, these programs assist tens of thousands of patients each year in navigating the complex healthcare system.

While the benefits of patient navigation have been palpable, the future of the programs is unfortunately uncertain. As in 2014, the primary challenge to patient navigation at Harris Health System in 2017 remains the sustainability of the programs. CPRIT, Komen, and other grant funding have allowed for the development and implementation of comprehensive patient navigation programs for several cancer service lines. These have proven to be extremely effective in navigating patients into screening and through the continuum of care. However, grant funding is not a sustainable solution. The granting agencies expect that the recipient organizations ultimately will adopt the positions funded by the grant. Unfortunately, this has not

occurred, causing granting institutions to question the sustainability plans laid out in the grant proposals. It is thus our strong recommendation that:

- At least some of the existing grant-funded patient navigation positions at Harris Health be transitioned to permanent positions funded by the Harris Health System's operations budget.
- The Cancer Committee champion patient navigation programs to promote their internal funding by Harris Health System and facilitate the transition of presently grant-funded positions to a more sustainable funding source.

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Appendices

Appendix A. Members of Breast Cancer Clinical Advisory Board

Julie R. Nangia, M.D. Breast Center, Baylor College of Medicine

Glori S. Chauca, M.D., M.Ed. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Roshanda S. Chenier, Ed.D. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Loretta Hanser, RT (RM). Radiology, Harris Health System

Janet G. Hoagland, MD, CCD, CWS. Harris Health System

Maria L. Jibaja-Weiss, Ed.D. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Jane Montealegre, Ph.D, MSPH. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Alyssa Rieber, M.D. Oncology, Lyndon B. Johnson Hospital, The University of Texas M.D. Anderson Cancer Center

Emily Sedgwick, M.D. Radiology, Baylor College of Medicine

Karla A. Sepulveda, M.D. Radiology, Baylor College of Medicine

Eric J. Silberfein, M.D. Surgery, Baylor College of Medicine

Appendix B. Members of Cervical Cancer Clinical Advisory Board

Matthew L. Anderson, M.D., Ph.D. Obstetrics and Gynecology, Baylor College of Medicine

Glori S. Chauca, M.D., M.Ed. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Roshanda S. Chenier, Ed.D. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Maria Daheri, RN. Harris Health System

June Hanke, RN, MSN, MPH. Health System Strategy, Harris Health System

Loretta Hanser, RT (RM). Radiology, Harris Health System

Maria L. Jibaja-Weiss, Ed.D. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Jane Montealegre, Ph.D, MSPH. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Lois Ramondetta, M.D. Gynecology Oncology & Reproductive Medicine, The University of Texas M.D. Anderson Cancer Center

Appendix C. Members of Colorectal Cancer Clinical Advisory Board

Milena Gould Suarez, M.D., Medicine–Gastroenterology, Baylor College of Medicine

Glori S. Chauca, M.D., M.Ed. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Roshanda S. Chenier, Ed.D. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

June Hanke, RN, MSN, MPH. Health System Strategy, Harris Health System

Loretta Hanser, RT (RM). Radiology, Harris Health System

Maria L. Jibaja-Weiss, Ed.D. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Stefanos G. Millas, M.D. Surgery, The University of Texas Health Science Center–Houston

Jane Montealegre, Ph.D, MSPH. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Benjamin L. Musher, M.D. Medicine–Hematology & Oncology, Baylor College of Medicine

Allison Rosen, M.S. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Hardeep Singh M.D., BS. Medicine–Health Services Research, Baylor College of Medicine

Curtis Wray, M.D. Surgery, Lyndon B. Johnson Hospital, The University of Texas Health Science Center–Houston

Appendix D. Members of HPV Vaccine Clinical Advisory Board

Lindy McGee, M.D., Pediatric-General Academics, Baylor College of Medicine

Matthew L. Anderson, M.D., Ph.D., Obstetrics and Gynecology-Oncology, Baylor College of Medicine

Julie A. Boom, M.D., Pediatrics-General Academics, Baylor College of Medicine

Glori S. Chauca, M.D., M.Ed. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Maria Daheri, RN. Radiology, Harris Health System

Loretta Hanser, RT (RM). Radiology, Harris Health System

Maria L. Jibaja-Weiss, Ed.D. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Kimberly Kline, Ph.D., Communication, The University of Texas at San Antonio

Marva Mallory-McRae, MSPH. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Jane Montealegre, Ph.D, MSPH. Dan L Duncan Comprehensive Cancer Center, Baylor College of Medicine

Michael E. Scheurer, Ph.D., MPH, Pediatrics-Hematology Oncology, Baylor College of Medicine