The Cancer Prevention and Research Institute of Texas Prevention Program's First Ten Years: A Comprehensive Assessment

Phase II Summary Report

TEXAS HEALTH INSTITUTE

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TEXAS HEALTH INSTITUTE

EXECUTIVE SUMMARY

PURPOSE

Texas Health Institute (THI) collaborated with The University of Texas MD Anderson Cancer Center (MD Anderson) to thoroughly assess the effectiveness, reach, and impact of the Cancer Prevention Research Institute of Texas (CPRIT) Prevention Program.

BACKGROUND

Texas lawmakers established CPRIT in 2010 to invest in cancer prevention and research to reduce cancer incidence and mortality through prevention, early intervention, and research while also improving the lives of cancer survivors. The CPRIT Prevention Program funds evidence-based interventions across the prevention continuum for all cancer types.

METHODOLOGY

- 1 Evaluability Assessment
- 1 Statewide Cancer Assessment
- 3 Case Studies
- 10 Program Stakeholder Interviews
- 21 Program Director Interviews
- 23 Key Program Collaborator Surveys
- 68 Program Director Surveys
- 244 Grants Analyzed

KEY FINDINGS

94% OF FUNDING, 196 PROGRAMS TO MEDICALLY UNDERSERVED COUNTIES.

AT LEAST 1 CPRIT-FUNDED PREVENTION PROGRAM IN EVERY COUNTY IN TEXAS.

CPRIT EFFORTS IN CANCER PREVENTION HEALTHCARE AND WORKFORCE

More Health Professional Development and Education

Professional development and education lays the groundwork for improving skills and knowledge among health professionals.

More Technological Advancements for Screening

With improved capacity, facilities can invest in technology and equipment that support better early detection methods.

More Health Care Industry Capacity

Better-trained professionals enhance institutional capabilities to support cancer prevention efforts.

More Research on How to Prevent Cancer

These advancements support research and innovation, driving further progress in prevention strategies.

CPRIT EFFORTS IN POPULATION-LEVEL CANCER PREVENTION

More Texans Informed about Prevention

1.5 million Texans educated on cancer prevention.

Enhanced community education through culturally tailored programs.

Implementation of workshops and educational campaigns addressing language and cultural barriers.

More Texans Screened

Expanding screening services in rural and underserved areas and improved access through mobile units and community- based programs help diagnose more cancers earlier.

- Breast Cancer Screening[1] increased from 76.7% (2014) to 77.7% (2020)
- Colorectal Cancer Screening[2] increased from 60.8% (2014) to 66.8% (2020)

⚠ Cervical, colorectal, and liver cancer all saw an increase in late-stage incidence

More Texans Diagnosed Early

Increased early-stage cancer detection due to enhanced screening efforts supports a reduction in late-stage cancers.

- Lung cancer late-stage incidence reduced on average by 15.2% across all PHRs[4]
- Breast cancer late-stage incidence reduced by 3.3% across Texas

⚠ Cervical Cancer Screening[3] decreased from 77.7% (2014) to 75.0% (2020)

More Texans Saved

A reduction in late-stage cancer means more time and opportunity for effective treatments and more lives saved.

- All cancer mortality decreased by 11.4% across Texas
- Breast, colorectal, and lung cancer all saw a reduction in mortality
- Reduction in mortality among priority populations[5]

RECOMMENDATIONS

- Enhance Evaluation Frameworks
- Reduce Reporting Burdens
- Expand Priority Population Prevention Support
- Increase Access to Screening Services
- Strengthen Community Engagement

LIMITATIONS

- Causality Challenges
- Data Availability Issues
- External Factors
- Moratorium and Evaluation Gaps

CONCLUSION

The evaluation of CPRIT's Prevention Program underscores its role in supporting cancer prevention efforts across the state. However, challenges remain, including disparities in screening rates and rising late-stage incidences of some cancers. Implementing the recommended strategies could further strengthen CPRIT's efforts, ensuring continued progress in reducing cancer incidence and improving health outcomes for all Texans.

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1. *Females 50-74 who had a mammogram*
2. *Females 21-65 who had a pap test in the past 3 years*
3. *Adults 50-75 up-to-date on colorectal cancer screenings*
4. *Texas Public Health Regions*
5. *Defined as populations who are racial or ethnic minorities, reside in rural or medically underserved areas (MUAs), or have limited English speaking households.*

INTRODUCTION

BACKGROUND

In 2010, state lawmakers established the Cancer Prevention and Research Institute of Texas (CPRIT), a historic investment in cancer prevention and research. CPRIT has funded more than 244 grants in eight areas of cancer prevention since 2010. The goals of the CPRIT Prevention Program are to reduce overall cancer incidence and mortality and to improve the lives of those who survived or are living with cancer.

While CPRIT Prevention Program grantees have reported various assessment indicators to measure their activities, the Prevention Program, as a whole, has not previously been evaluated. Accordingly, in the summer of 2021, CPRIT released a Request for Applications (P-22.1-PPA), to determine the progress and impact of the CPRIT Prevention Program between 2010-2020.

Texas Health Institute (THI) responded to the request and was awarded a contract in February 2022. THI conducted a two-year, two-phase assessment that used a mixed methods approach[1]. THI subcontracted with The University of Texas MD Anderson Cancer Center (MD Anderson) to collaboratively conduct the assessment. The following report describes the findings of this assessment, organized by the key objectives and assessment questions identified by CPRIT.

ABOUT TEXAS HEALTH INSTITUTE

THI is a nonprofit, objective public health institute with the mission of advancing the health of all. Since 1964, THI has served as a trusted, leading voice on public health and healthcare issues in Texas and the nation. Our expertise, strategies, and nimble approach make THI an integral and essential partner in driving systems change. THI works across and within sectors to lead collaborative efforts and facilitate connections to foster systems that provide the opportunity for everyone to lead a healthy life.

[1] THI requested and was granted a six-month no-cost extension, which extended the assessment period to two and a half years.

As the primary contractor, THI played a pivotal role in both phases of the assessment of the CPRIT Prevention Program by applying its extensive expertise in public health and utilization-focused program evaluation. THI's deep understanding of community health principles guided the evaluation framework, ensuring that the assessment accurately measured how effectively CPRIT's programs addressed the needs of priority populations and tackled structural barriers to cancer prevention. Through rigorous program evaluation processes, THI provided comprehensive insights into program outcomes, identifying successful practices and areas for improvement. By facilitating this assessment, THI contributed to a deeper understanding of how well CPRIT's programs advanced community and individual patient health through cancer prevention and supported systems change, ultimately fostering environments where all individuals can achieve optimal health.

ABOUT THE UNIVERSITY OF TEXAS MD ANDERSON CANCER CENTER

THI's collaborating partner in this project, MD Anderson, is one of the world's most respected centers focused on cancer patient care, research, education, and prevention. Experts in cancer prevention, impact assessment, public health practice, systems change, stakeholder engagement, and research methodologies from MD Anderson provided strategic and technical contributions to this report, especially related to quantitative analysis of state-level cancer-related data. The collaborative approach and thoughtful governance structure were designed to ensure that MD Anderson served as a resource to support the evaluation design and implementation; however, THI conducted the primary data collection and analysis and led the overall assessment.

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ASSESSMENT OVERVIEW

ASSESSMENT OBJECTIVES

The following are the key questions that were established by CPRIT to assess the impact and effectiveness of the CPRIT Prevention Program:

- Over the first 10 years, to what extent and how well has CPRIT enhanced the infrastructure for cancer prevention and control services in Texas?
- To what extent is Texas currently reaching underserved regions and populations through CPRIT and other state-guided cancer prevention and control efforts (e.g., increasing community health)?
- Since the state investment in CPRIT was initiated, what progress has Texas made in improving preventable cancer risk factors, early detection, and cancer morbidity and mortality across the state?
- Moving forward, what additional data should CPRIT collect from funded Prevention Program projects to demonstrate future progress?

Additionally, the following were the secondary assessment questions of inquiry:

- Are CPRIT stakeholders engaged and satisfied?
- Are the CPRIT-funded programs developing capacity among public health entities and health care providers?
- For funded projects, do sustainable benefits remain after CPRIT funding ends? How commonly does this occur?

To answer these assessment questions, THI established the following goals and corresponding sub-objectives. These goals were presented to and approved by the CPRIT Prevention Review Council, designated to oversee the assessment.

- Goal 1: Conduct an assessment of CPRIT's Prevention Program measurement and evaluation system for grantees and develop recommendations related to what additional data should be collected from future funded Prevention Program projects.
    - Objective 1.1: Conduct an evaluability assessment to determine the plausibility, feasibility, and utility of conducting a full assessment of the CPRIT Prevention Programs from 2010-2020.

    - Objective 1.2: Propose refinements for evaluating future CPRIT Prevention Program grantees, according to the evaluability assessment findings.
- Goal 2: Assess the reach and impact of CPRIT's investment in cancer prevention and control in Texas during 2010-2020 from the perspective of whether the program improved community and patient health.
    - Objective 2.1: Identify enhancements to the infrastructure for cancer prevention and control services among organizations that received CPRIT Prevention Program funding.
    - Objective 2.2: Describe the reach of CPRIT's Prevention Programs to priority populations[1] in Texas during 2010-2020, including underserved and disproportionately impacted populations and regions.
- Goal 3: Identify and compare changes at the county and/or health service region level for preventable cancer risk factors, early detection and cancer morbidity and mortality in Texas between 2010 and 2020.
    - Objective 3.1: Identify county or health service region-level changes in preventable cancer risk factors, early detection and cancer morbidity and mortality rates.
    - Objective 3.2: Describe the engagement and satisfaction of CPRIT Prevention Program stakeholders.
    - Objective 3.3: Describe the sustainable and/or long-term benefits that grantees identify as an outcome of CPRIT funding during 2010-2020.

METHODS

THI employed a mixed-methods approach to comprehensively assess CPRIT-funded cancer prevention programs in Texas. This approach integrated quantitative and qualitative research techniques, leveraging the expertise of both THI and MD Anderson to provide actionable insights and recommendations.

The assessment was conducted in a two-phased approach. Phase I, lasting approximately six months, involved an evaluability assessment, detailed in Appendix A, which involved exploring

[1] Defined as populations who are racial or ethnic minorities, reside in rural or medically underserved areas (MUAs), are underinsured or uninsured, or have limited English speaking households.

the plausibility of program impact, the feasibility of measuring that impact, and the potential utility of conducting a comprehensive assessment.

Phase I: Evaluability Assessment

THI conducted an evaluability assessment, detailed in Appendix A, to determine:

1. The plausibility of the impact of the Prevention Program, based on its activities, goals, and design;
2. The feasibility of measuring program impact, based on the quantity and quality of available data; and
3. The potential utility of conducting a comprehensive assessment.

The assessment team reviewed public programmatic documents (e.g., strategic plans, annual reports, legislative documents) and internal data (e.g., grantee report data) to assess the quality and quantity of programmatic data. Additionally, THI conducted 10 key informant interviews (KIIs) with key program stakeholders to understand key activities, data, and potential uses for assessment findings. Finally, the assessment team developed a logic model, (Appendix B) and conducted in-depth meetings with CPRIT Prevention Program leadership. Table 1 describes the full list of activities throughout Phase I.

Activities

Table 1. Description of Phase I: Evaluability Assessment Activities

Activity	Description
Meet with CPRIT Prevention Program leadership to determine scope and purpose of evaluability assessment	• THI held two meetings with the Chief Prevention Officer (CPO), Prevention Review Council (PRC) members, and assessment partners at MD Anderson. • THI met separately with the CPO three times for specific guidance.
Study CPRIT Prevention Program's history, design, and operation	• THI compiled programmatic documents (e.g., strategic plans, annual reports, legislative documents) from public and internal sources. • Through a systematic review, THI determined the program's history, goals, and fundamental activities according to the documents.

Identify available data and quality	• CPRIT Prevention Program provided THI with 10 years of quantitative and qualitative data submitted by grantees, including quarterly and annual progress reports. Grantee data were not shared with MD Anderson or anyone outside of THI. • THI documented data indicator categories from each data source. • THI consolidated quantitative data into analyzable datasets. • THI randomly selected 30 grantee reports to determine the completeness and quality of the qualitative information. • MD Anderson compiled public data regarding cancer mortality and outcomes to understand the availability and quality of external data that could be used with internal data.
Determine potential uses for assessment findings	• In June 2022, THI conducted key informant interviews with 10 stakeholders and decision-makers of the Prevention Program. • Interviewees were asked about the program's key activities, data, and potential uses for assessment findings. • MD Anderson staff thematically analyzed the interview transcripts to understand areas of consensus and disagreement within the topic areas.
Build a draft logic model	• Using program documents, interview findings, input from CPRIT Prevention Program staff, and logic models from comparable cancer prevention programs, THI iteratively developed a draft logic model to describe the Prevention Program. • MD Anderson staff, PRC members, an evaluability expert consultant, and Prevention Program staff reviewed the logic model.
Determine the extent to which and in what ways the Prevention Program can be assessed	• The final report was a compilation of findings and recommendations for the preceding assessment of the Prevention Program.

Phase II: Comprehensive Assessment

The insights gained from the evaluability assessment (Appendix A) conducted in Phase I directly informed the design and execution of Phase II. Specifically, Phase I's findings highlighted which aspects of the programs were most critical and possible to assess, identified gaps in data that most required addressing, and clarified the overall utility of a detailed assessment. This informed the focus of Phase II, which spanned 18 months and involved a more in-depth analysis based on the preliminary recommendations and insights from Phase I. Consequently, Phase II built upon the initial assessment's groundwork, ensuring a more targeted and effective assessment of the program's impact and implementation.

Activities

Phase II of the comprehensive assessment involved a structured approach to gather and analyze data on various aspects of CPRIT cancer prevention programs. This phase included several key activities designed to address the assessment questions and objectives. The assessment encompassed a range of methodologies, including a survey of program directors (PD), a program collaborator survey, program director key informant interviews, grantee data analysis, a statewide assessment of cancer-related metrics, and the development of case studies. See Table 2 for detailed information on the methodologies employed in each of these activities.

Table 2. Description of Phase II: Comprehensive Assessment Methodology

Activity	Description and Considerations
Program Director Survey	• **Purpose.** Explored themes related to program implementation and sustainability, reporting, and partnership impact and reach. • **Design.** Designed by the assessment team and approved by CPRIT staff. • **Deployment and Response.** Programmed into Qualtrics. Link sent via email from the assessment team to a listserv of PDs with Prevention Program grants from 2010-2020. Fielding Period of six weeks (Fall 2023). Total of 68 surveys completed out of 171 recipients, participation rate of 39.8%. No incentives offered. • **Analysis.** Responses downloaded from Qualtrics and analyzed via Excel; findings interpreted in collaboration with CPRIT leadership and PRC.
Public Health and Health Care Entity Collaborator Survey	• **Purpose.** Explored themes related to organizational impact, community impact, program sustainability, reporting and collaboration. • **Design**. Designed collaboratively by the assessment team, incorporating Phase I findings and insights from the first survey. • **Deployment and Response**. Programmed into Qualtrics. Link sent via email from the assessment team to collaborators identified in the first survey. Fielding Period was eight weeks (Spring 2023). Total of 23 surveys completed out of 216 recipients, participation rate of 10.6%. No incentives offered. • **Analysis.** Responses downloaded from Qualtrics and analyzed via Excel; findings interpreted in collaboration with CPRIT leadership and PRC.

Key Informant Interviews	• **Purpose.** Explored themes related to implementation and sustainability, reporting, partnerships, optimal care, and program impact. • **Design**. Semi-structured key informant interviews of Primary Program Directors and key stakeholders. • **Recruitment and Interviews**. 21 key informant interviews conducted. Sample of 37 PDs represented all funded areas and both urban and rural areas, distributing interviews based on project funding percentages. Priority was given to those with multiple projects. • **Analysis.** Verbatim interview transcription. Utilized an inductive thematic analysis to identify key themes. Peer debriefing and record-keeping of coding and theme development ensured accuracy and rigor in reflecting the perspectives of CPRIT program directors and stakeholders.
Grantee Data Analysis	• **Purpose.** Assess the impact of grantee activities on cancer prevention infrastructure. • **Data Source.** Grantee quarterly and annual reports. • **Analysis.** Developed qualitative codes to identify and describe the infrastructural changes made by grantee activities.
Statewide Assessment	• **Purpose.** Assess changes in preventable cancer risk factors, cancer morbidity, and mortality in Texas from 2010 to 2020. • **Data Source.** Texas Cancer Registry (TCR), American Community Survey (ACS), Behavioral Risk Factor Surveillance System (BRFSS), and National Immunization Survey-Teen (NIS-Teen). • **Analysis.** Emphasized age-adjusted mortality rates and cancer incidence, using data from 2010-2012 and 2017-2019. Statistical significance and variability were assessed with error bars.
Case Studies	• **Purpose.** Developed to illustrate the impact and implementation of select CPRIT-funded projects. • **Data Source.** Utilized qualitative data to provide detailed narratives and insights. Built upon insights from KIIs and surveys. • **Selection Process.** Focus areas chosen through an iterative process involving the assessment team, which selected illustrative cases based on findings from KIIs, surveys, and other activities. • **Case Aggregation.** Each case study is an aggregate of three individual cases, selected for their comparability in geography, focus of grant activities and populations served • **Content.** Aggregated data and details from individual cases were combined to illustrate general themes, challenges, and outcomes.

Data Analysis

An interdisciplinary team of researchers analyzed the 10 years of data provided by CPRIT using qualitative and quantitative data analysis software. This mixed-methods approach facilitated data triangulation, enhancing the validity and reliability of findings. Qualitative data were coded thematically, while quantitative data were statistically analyzed to uncover patterns and trends in cancer prevention outcomes. The separate strands of data were synthesized through a meta-analytical approach, integrating insights from both qualitative themes and quantitative trends to provide a comprehensive understanding of the effectiveness of various cancer prevention strategies. By interpreting the data collectively, the team identified overarching patterns and correlations, offering a more nuanced view of how different interventions contribute to improved health outcomes and informing future efforts.

Data Limitations and Considerations

Several key data considerations must be acknowledged in assessing the impact of the CPRIT Prevention Program from 2010 to 2020, particularly regarding the challenges of establishing clear causality.

Firstly, cancer prevention efforts are inherently long-term initiatives, which may require one or more decades to produce observable changes in cancer incidence or mortality rates. This extended timeline complicates the assessment of immediate impacts and makes it difficult to draw direct connections between program activities and observed health outcomes.

Additionally, various external factors, including state and national policies, cancer control efforts among partners, shifts in funding for health initiatives, and the effects of the COVID-19 pandemic, have likely influenced cancer trends during this period. These confounding variables introduce additional complexity, as they can obscure the specific impact of the CPRIT Prevention Program, making it challenging to isolate its effects from broader public health influences and complicating the ability to establish clear causality or attribution.

Data availability presents another significant consideration. The primary data sources include quarterly and annual progress reports submitted by grantees over the past decade, which exhibit variability in disaggregation and reporting requirements. Notably, reporting standards changed in mid-2017, creating challenges in data comparison and geospatial analysis across different time periods.

Furthermore, the period of inactivity caused by a temporary moratorium on new grants from December 2012 to October 2013 and the initial lack of a structured evaluation framework present additional challenges for retrospective analysis. Without a consistent baseline or uniform reporting criteria, establishing causality becomes even more difficult, as changes in data collection practices can obscure trends and impact assessments.

Data conversion to machine-readable formats and alignment of pre- and post-2017 indicators have been undertaken to address these limitations. Nevertheless, supplementary external data sources, such as the Behavioral Risk Factor Surveillance System and the Texas Cancer Registry, were necessary to provide a comprehensive assessment. The assessment also considered the broad, non-specific objectives of the CPRIT Prevention Program and ensured that chosen indicators accurately reflected program effectiveness.

Optimal Care Lens

The comprehensive assessment utilized a lens focusing on optimal care for all by adhering to the definition developed by the American Cancer Society: "*Everyone has a fair and just opportunity to prevent, detect, treat, and survive cancer."* Optimal care for all does not mean everyone gets the same treatment. Rather, it means everyone gets what they need to improve their health.[1] Recognizing that barriers such as where a person lives, educational attainment, income, health care and health insurance access, and cultural issues can impact cancer outcomes, the approach focused on factoring these non-medical drivers of health into the assessment.

THI adapted the following principles from the American Cancer Society to guide the assessment:

1. Help people with the greatest need
2. Address non-medical drivers of health
3. Understand the community's historical, social, cultural, and economic context
4. Implement sustainable community solutions
5. Leverage the power of volunteers
6. Prevent and address unintended consequences
7. Partner with different sectors
8. Value community expertise

This lens assesses how processes, partnerships, and outcomes align with American Cancer Society principles. This included assessing, through a program director survey (Appendix C),

and key informant interviews of program directors (Appendix D), how the principles informed program development and were integrated into program activities. Challenges and facilitators in advancing optimal care for all were also examined, such as the need for intentional community engagement, the benefits of leveraging partnerships, engaging with priority populations, and addressing systemic obstacles to care.

PHASE I SUMMARY

ASSESSMENT OF CPRIT PREVENTION PROGRAM METRICS AND DATA COLLECTION

OBJECTIVE 1.1: Conduct an evaluability assessment to determine the plausibility, feasibility, and utility of conducting a full assessment of the CPRIT Prevention Programs from 2010-2020

Activities

Beginning in March 2022, THI conducted a six-month CPRIT Prevention Program evaluability assessment (Appendix A) as Phase I of the assessment. This was done through a systematic document review, 10 key informant interviews, development of a program logic model (Appendix B), and consultation with the CPRIT Prevention Program staff. This was done to determine whether the program was ready to be comprehensively assessed in such a way that it would lead to actionable findings. The findings of this evaluability assessment (Appendix A) were used in Phase II of the assessment to assess the initial progress of the CPRIT Prevention Program since 2010 and to develop an assessment plan for the next stage of the CPRIT Prevention Program. The evaluability assessment (Appendix A) explored three primary domains:

1. The plausibility of the impact of the Prevention Program based on program design, activities, and goals;
2. The feasibility of measuring program impact based on the quantity and quality of readily available data; and
3. The potential utility for a comprehensive assessment.

Key Findings

Plausibility of Impact. It was found plausible that the CPRIT Prevention Program could have a meaningful impact. The program's theory of change was supported by realistic causal assumptions, and there was a clear connection between program activities and expected outcomes. Stakeholders generally agreed on the program's objectives and intended impacts. However, the assessment noted that measuring long-term impacts, such as reductions in cancer incidence or mortality, was challenging due to external factors like national policies and

the COVID-19 pandemic, as well as the time lag for prevention activities to impact cancer incidence and mortality.

Feasibility of Measuring Impact. Measuring the program's impact was deemed feasible with limitations. Available data allowed for tracking various outcomes, such as increased screening services, but did not support clear causal attributions due to the program's complexity and extensive external influences. The assessment recommended using supplemental qualitative data and external sources to enhance the understanding of program effects despite the challenges in establishing causality.

Utility of a Comprehensive Assessment. It was concluded that conducting a comprehensive assessment would be useful. Such an assessment would provide valuable insights for program decision-makers, help communicate the program's progress, and guide future improvements. Recommendations included focusing on both quantitative and qualitative data, addressing data reporting requirements, and understanding the program's overall impact and sustainability.

OBJECTIVE 1.2: Propose refinements for the design of measurement and evaluation for CPRIT Prevention Program grantees in future grantmaking cycles.

Activities

An assessment of the measurement and processes for CPRIT prevention programs involved efforts such as the development of a logic model (Appendix B), a program director survey (Appendix C), program director key informant interviews (Appendix D), and a program collaborator survey (Appendix E) which led to proposed refinements for assessing future CPRIT Prevention Program grantees. These activities collectively provided a robust foundation for enhancing assessment practices. The logic model (Appendix B) offered a structured framework for understanding program impacts, while surveys and interviews gathered comprehensive feedback on program implementation and effectiveness. THI analysts contributed expertise on community health and assessment methodologies, ensuring that future assessments are both rigorous and inclusive. This integrated approach aims to maximize the impact of CPRIT-funded initiatives and ensure they effectively benefit communities statewide.

Key Findings

Feasibility of Data Collection. A program director survey (Appendix C) determined that a substantial majority (93.4%) of respondents felt it was feasible for their organizations to collect the data currently required for the CPRIT Prevention Program's quarterly and annual reports.

Burdensome Reporting Requirements. Through key informant interviews of program directors, it was confirmed that although collecting the data needed for reporting requirements was feasible, the reporting processes were seen as administratively burdensome, hindering both grantees and program staff. The extensive volume of required reports is perceived as excessive, especially compared to other funders. This time-intensive reporting process can detract from service delivery, particularly for smaller organizations without funds for dedicated reporting staff. To address the burdensome nature of current reporting requirements, it is recommended to streamline these processes, particularly for smaller organizations that may lack dedicated reporting staff. Standardizing the reporting of partnerships and coalitions will also improve consistency and clarity in submissions, making the process more manageable for grantees.

Reporting System Difficult to Navigate. The CPRIT Grant Management System (CGMS) is often described as “clunky” and difficult to navigate. Issues reported include frequent glitches and a steep learning curve. Clearer definitions for data fields would assist grantees in understanding what information or data to report. Improving the CPRIT Grant Management System (CGMS) is recommended, particularly by providing clearer definitions for data fields and enhancing user support. These changes will facilitate easier navigation and data entry, ultimately reducing frustration for grantees.

Data Quality and Relevance. Gathering data from community partners can prove problematic due to distrust between researchers and community members or technical issues, such as the integration of clinic electronic medical records. Cultural barriers also hinder data collection from certain populations. Data requirements do not align well with prevention-focused programs, which often deal with education, screening, or navigation rather than clinical outcomes. To enhance data quality and relevance, it is important to align data requirements more closely with the unique contexts of prevention-focused programs, emphasizing education and community engagement rather than solely clinical outcomes.

PHASE II FINDINGS

REACH AND IMPACT OF CPRIT'S PREVENTION PROGRAM INVESTMENTS

OBJECTIVE 2.1: Identify enhancements to the infrastructure for cancer prevention and control services among organizations that received CPRIT Prevention Program funding

Research Question	
Over the first 10 years, to what extent and how well has CPRIT enhanced the infrastructure for cancer prevention and control services in Texas?	
Operationalized Areas	
Job Creation and Maintenance	New positions created and existing roles supported.
Organizational-Level Policies or Protocols	Development or revision of cancer prevention policies or protocols.
Workforce Training and Education	Programs aimed at improving the skills and knowledge of the cancer prevention workforce.
Grants and Funding	New funding opportunities, expansions of existing grants, and shifts in organizational funding priorities.
Built Environment	Improvements to physical and digital spaces that support cancer prevention efforts.
Community Education	Training and educational programs for community members on cancer prevention.
Data Sources	
To answer the research question, an analysis was conducted on CPRIT grant recipient data regarding jobs created and maintained over 10 years, examining grant details, recipient types, and public health regions (PHRs) through a quantitative review of annual and final reports, which were coded and statistically analyzed to assess infrastructure impact.	

Activities

As part of the grant reporting process, CPRIT grant recipients were asked to report on the number of jobs created and maintained during a given grant period annually and at the close of the grant. Due to this, THI was able to analyze data from three different points of time for each grantee during individual grant periods. THI reviewed over 10 years of grantee annual and final report data regarding program location, focus area, period of implementation, and infrastructure impact. The variables of interest included:

- Total number of grants awarded during 2010-2021
- Grant periods
- Grant recipient organization types
- Total number of grants awarded per recipient type
- Number of jobs (1) created and (2) maintained
- Public Health Region (PHR)
- Number of jobs created and maintained per recipient type
- Number of jobs created and maintained per recipient PHR

Recipient organization types were categorized based on institution type: public or private academic institutions of higher education, nonprofit or community-based organizations (CBO), government entities, or others[2]. The data were coded and reviewed for consistency by a team of evaluators. A quantitative analysis was conducted in which nominal, ordinal, and interval data were statistically analyzed. The analysis aimed to measure the frequency and impact of infrastructural changes resulting from the grants.

Key Findings

Cancer Prevention Job Creation and Sustainability. The analysis determined that 174 CPRIT-funded grants created over 1,300 jobs and sustained more than 3,700 jobs across all PHRs in Texas, detailed in Table 3.

[2] Subcategories of 'Other' recipient types include but are not limited to professional partnerships, advocacy groups, faith-based medical clinics, and research institutes.

Table 3. Reported Jobs Created and Maintained per Public Health Region						
PHR	PHR Population (2020)[2]		Jobs Created (2010-2021)		Jobs Maintained (2010-2021)	
	Percent	Total (in millions)	Percent	Total	Percent	Total
1	3%	0.9	5%	72	4%	165
2	2%	0.6	0%	0	0%	0
3	28%	8.0	14%	186	15%	560
4	4%	1.1	0.3%	4	1%	51
5	3%	0.8	0%	0	0%	0
6	25%	7.3	39%	541	42%	1591
7	13%	3.7	13%	184	13%	492
8	10%	3.0	9%	130	8%	295
9	2%	0.6	0.9%	12	1%	45
10	3%	0.9	10%	141	8%	300
11	8%	2.3	3%	44	3%	96
Unknown	N/A		5%	63	5%	172
TOTAL	**29.2 M**		**1377**		**3767**	

The distribution of these PHRs is illustrated in the accompanying map in Figure 1. PHR 6 had the highest concentration of jobs created during the study period, at 39% (n=60).

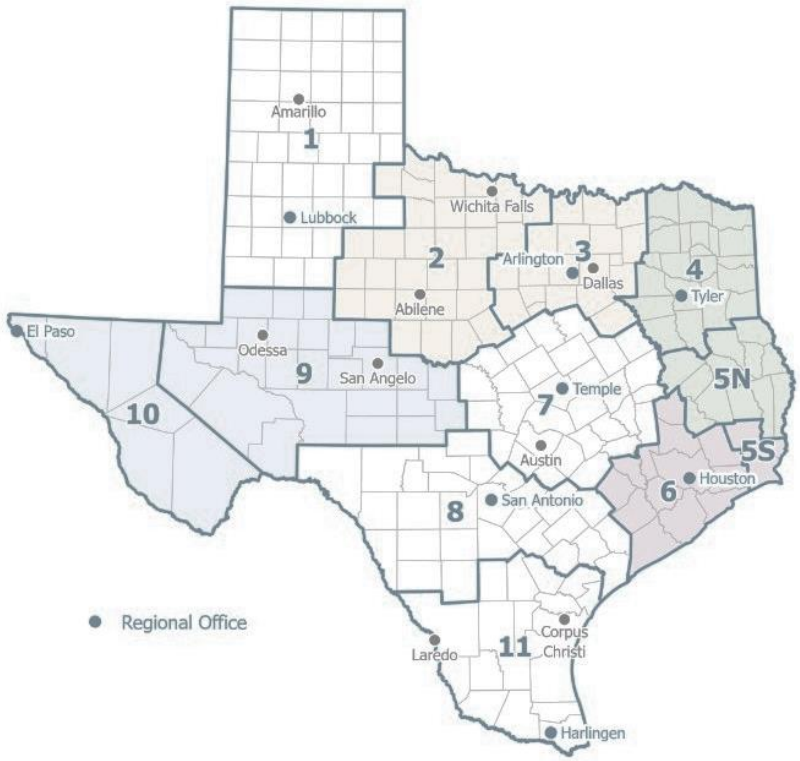

Figure 1. Map of Texas Public Health Regions

These sustained jobs contribute significantly to local economies through various channels. Employees in these positions tend to spend their income on goods and services, fostering local businesses and stimulating economic activity. Additionally, the income generated from these jobs contributes to tax revenues, which can be allocated to funding essential services like education and public infrastructure. Research shows that job creation has a multiplier effect of at least 1.5, meaning that for every new job, local economies benefit by an additional 1.5 times the initial economic impact through increased spending and support for local businesses[3]. This ripple effect underscores the broader economic benefits of CPRIT's funding, highlighting its potential impact on public health and the economic well-being of communities across Texas.

Furthermore, of jobs created through CPRIT programs, academic institutions generated 84% (n=1158) of these throughout the 2010-2021 grant period, as seen in Table 4. Academic institutions also had the highest concentration of grants awarded during the study period (74%, n=128).

Table 4. Jobs Created and Sustained per Organization Type

Organization Type	Jobs Created in 2010-2021 (%)	Jobs Maintained in 2010-2021 (%)
Academic Institution	84% (n=1,158)	84% (n=3,155)
Nonprofit/CBO	4% (n=57)	2% (n=64)
Government Entity	9% (n=131)	12% (n=438)
Other	2% (n=31)	3% (n=110)
TOTAL	**1377**	**3767**

Infrastructure Assessment. The data suggests that CPRIT funding notably impacts cancer prevention practices by influencing how organizations implement changes across various levels. The emphasis on professional practices (32.9%) indicates a strong commitment to enhancing the skills of cancer prevention professionals through targeted training and education. This approach aims to improve the quality and consistency of care, leading to better screening rates and patient outcomes. Meanwhile, community-level education (30.5%) highlights efforts to engage and inform underserved populations through culturally tailored curricula and workshops (Table 5). The focus on policy/protocol changes (18.3%) reflects a commitment to embedding cancer prevention within organizational practices through updated clinical protocols and organizational policies. This approach aims to systematically standardize care and integrate best practices, ensuring more consistent and effective prevention efforts. On the other hand, environmental changes (15.9%) highlight efforts to enhance the physical and informational infrastructure supporting cancer prevention, such as installing screening

systems and updating public resources. These modifications improve accessibility to services and support both patients and professionals in their cancer prevention efforts.

Table 5. Infrastructure Assessment per Change Type

Change Type	% of Orgs	Description	Examples
Professional Practices	32.9%	Training or education for cancer prevention professional workforce (physicians, nurses, CHWs, etc.)	• Screening criteria training • Clinical best practices training • Curriculum developed for professionals
Community-Level Education	30.5%	Training or education related to cancer prevention that is intended for community members	• Culturally tailored curriculum about cancer prevention lifestyle changes • Workshop materials designed to educate community members about cancer screening options
Environmental	15.9%	Changes to enhance the built environment to support cancer prevention	• Installation of physical screening systems, tools, and machines (i.e., mammography machines) • Installation of sunshades
Policy/Protocol	18.3%	New or revised organizational-level policy or protocol related to cancer prevention	• Clinical protocols for screening/referral • Organizational policies for cancer risk reduction (i.e., physical activity, smoking cessation)
Funding	2.4%	Used to leverage additional funding or change funding priorities, potentially securing more resources.	• New grants or other funding, add-ons to existing grants and funding • Changes in funding/budget priorities at organizational level

These findings indicate CPRIT funding, at least for grantees, is having a positive impact on cancer prevention infrastructure in Texas. The data suggest that CPRIT is influencing how organizations approach cancer prevention in a number of ways, including by implementing new practices, educating communities, and making environmental changes.

CPRIT Scholarly Productivity. To assess the impact of CPRIT's Prevention portfolio on cancer prevention research, a literature review was conducted to identify publications resulting from CPRIT-funded prevention projects between 2010-2020. Some of these publications have been identified as having a high likelihood of contributing to future research, based on their approximate potential to translate (APT) score. The APT score ranges from 0 to 1, with higher

values indicating greater potential for impact[4]. A sample of CPRIT-funded prevention projects with an APT score of 0.95 are in Table 6. A more detailed list of related publications can be found in Appendix F.

Table 6. Publications from CPRIT-funded projects

APT Score	Authors	Grant #	Journal Title	Article Title
0.95	Shokar N.K.; Byrd T.; Salaiz R.; Flores S.; Chaparro M.; Calderon-Mora J.; Reininger B.; Dwivedi A.	PP110156	Against colorectal cancer in our neighborhoods (ACCION): A comprehensive community-wide colorectal cancer screening intervention for the uninsured in a predominantly Hispanic community	Preventive Medicine
0.95	Kaul S.; Do T.Q.N.; Hsu E.; Schmeler K.M.; Montealegre J.R.; Rodriguez A.M.	PP160097	School-based human papillomavirus vaccination program for increasing vaccine uptake in an underserved area in Texas	Papillomavirus Research
0.95	Rodriguez A.M.; Do T.Q.N.; Goodman M.; Schmeler K.M.; Kaul S.; Kuo Y.-F.	PP160097	Human Papillomavirus Vaccine Interventions in the U.S.: A Systematic Review and Meta-analysis	American Journal of Preventive Medicine
0.95	Parra-Medina D.; Morales-Campos D.Y.; Mojica C.; Ramirez A.G.	PP110057	Promotora Outreach, Education and Navigation Support for HPV Vaccination to Hispanic Women with Unvaccinated Daughters	Journal of Cancer Education
0.95	Piñeiro B.; Vidrine D.J.; Wetter D.W.; Hoover D.S.; Frank-Pearce S.G.; Nguyen N.; Zbikowski S.M.; Vidrine J.I.	PP120191	Implementation of Ask-Advise-Connect in a safety net healthcare system: Quitline treatment engagement and smoking cessation outcomes	Translational Behavioral Medicine
0.95	Rodriguez A.M.; Zeybek B.; Vaughn M.; Westra J.; Kaul S.; Montealegre J.R.; Lin Y.-L.; Kuo Y.-F.	PP160097	Comparison of the long-term impact and clinical outcomes of fewer doses and standard doses of human papillomavirus vaccine in the United States: A database study	Cancer
0.95	Balakrishnan M.; George R.; Sharma A.; Graham D.Y.	PP160089	Changing Trends in Stomach Cancer Throughout the World	Current Gastroenterology Reports
0.95	Gupta S.; Balasubramanian B.A.; Fu T.; Genta R.M.; Rockey D.C.; Lash R.	PP100039	Polyps With Advanced Neoplasia Are Smaller in the Right Than in the Left Colon: Implications for Colorectal Cancer Screening	Clinical Gastroenterology and Hepatology

OBJECTIVE 2.2: Describe the reach of CPRIT's Prevention Programs to priority populations in Texas during 2010-2020, including underserved and population groups and geographic areas of the state disproportionately affected by cancer incidence, mortality, or cancer risk factors.

Research Question	
To what extent is Texas currently reaching underserved regions and populations through CPRIT and other state-guided cancer prevention and control efforts?	
Operationalized Areas	
Priority Populations	HRSA-Defined Rural Counties[3]
	HRSA-Defined Medically Underserved Counties[4]
	Counties with 20% or more households identify as limited English-speaking[5]
	Counties with 20% or more of population below the Federal Poverty Level[6]
Data Sources	
To answer the research question, a comprehensive analysis of CPRIT prevention programs was conducted using quantitative data from grantee reports, qualitative insights from surveys and interviews, and case studies that examined program impacts across various regions.	

Activities

To assess the reach and impact of CPRIT prevention programs, a thorough analysis was conducted using a combination of quantitative and qualitative data sources. The primary data were collected from CPRIT grantee reports, which include annual and final reports submitted

[3]A "rural" county is either a non-metro county, all metro census tracts with RUCA codes 4-10, or large area metro census tracts of at least 400 sq. miles in area with population density of 35 or less per sq. mile with RUCA codes 2-3.
[4]A "medically underserved" county is one in which there is a shortage of primary care health services.
[5] A "limited English-speaking household" is one in which no member 14 years and over speaks only English or speaks a non-English language and speaks English "very well".
[6] "Federal Poverty Level" is a set of money income thresholds that vary by family size and composition to determine who is in poverty.

by grant recipients over the past decade. These reports provided insights into the geographic locations of prevention program activities. These data were further analyzed alongside HRSA-defined information on rural and medically underserved counties, as well as US Census data indicating counties with 20% or more limited English-speaking households and those with 20% or more of the population living below the Federal Poverty Level (FPL). This integration allowed us to identify the priority populations and assess the extent of the programs' reach within these communities.

Qualitatively, the program director survey (Appendix C) and program collaborator survey (Appendix E) were conducted to gain insights into the implementation and outcomes of the prevention programs. Additionally, program director key informant interviews (Appendix D) provided a contextual understanding of the programs' impacts and relevance to priority populations.

Three case studies, detailed in Appendices G, H, I, were developed to offer a detailed examination of the CPRIT Prevention Programs across different regions. The first case study (Appendix G) focused on screening programs in rural Texas counties, exploring the unique challenges and successes encountered in these areas. The second case study (Appendix H) investigated cervical cancer prevention efforts in PHR 10, assessing the program's approach and effectiveness in the region. The third case study (Appendix I) examined primary prevention programs in the Houston area, analyzing the strategies employed and the outcomes achieved in an urban setting. By synthesizing qualitative and quantitative data through these case studies, a comprehensive understanding of the reach and impact of CPRIT prevention programs emerged.

Key Findings

Priority Population Reach. Through analysis of CPRIT grantee data, funding patterns emerged that reflected CPRIT's strategic emphasis on addressing health disparities and reaching populations with the greatest need. Table 7 offers a snapshot of CPRIT's prevention program funding from 2010 to 2020, illustrating the organization's targeted efforts to reach various priority populations. A notable 57.2% of the total funded programs were allocated to HRSA-defined rural counties, with 119 programs addressing health needs in these less accessible areas. The largest share of funding, comprising 94.2% of all programs, was directed towards medically underserved counties, with a total of 196 programs aimed at these critical areas.

In addition, CPRIT focused on counties where 20% or more of the population resided in limited English-speaking households, funding 51 programs—24.5% of the total—specifically to address language barriers and improve health communication. Furthermore, 50.5% of the programs, totaling 105, were allocated to counties where at least 20% of the population lives below the Federal Poverty Level (FPL), highlighting a commitment to supporting underserved communities.

Table 7. Reach of CPRIT's Prevention Program (2010-2020) to Priority Populations (n=208)

Priority Population	Number of Programs Funded	% of Programs Reporting Reach	Estimated Number of Texas Counties (2020)[56]	% of All Texas Counties
HRSA-Defined Rural Counties	119	57.2%	217	85.4%
HRSA-Defined Medically Underserved Counties	196	94.2%	151	59.4%
Counties with 20% or more Limited English-Speaking Households	51	24.5%	10	3.9%
Counties with 20% or more below the Federal Poverty Level	105	50.5%	44	17.3%

It is important to note that some programs may address multiple priority populations simultaneously. For example, a single prevention program might be implemented in a county that is both rural and has a high percentage of limited English-speaking households or in a medically underserved area with higher poverty levels. This overlap means that the total number of programs serving priority populations is not simply additive, as many programs are designed to address the needs of more than one priority population. CPRIT prevention programs targeted and focused on reaching the diverse populations across Texas. A substantial proportion of the programs, 27.3%, focused on serving Hispanic or Latino populations. Black or African American individuals are served by 13.4% of the programs, which is closely aligned with the population representation in Texas (12.1%). Additionally, a significant number of programs, 68.4%, did not focus on any specific population. Table 8 provides further details on the identified program target populations.

Table 8. Comparison of CPRIT Prevention Program (2010-2020) Target Populations vs. Texas Population (2020) (n=231)			
Program Target Population	**Number of Programs Serving Target Population**	**Percentage of Total Programs (n=231)**	**Percentage of Target Population in Texas**
Asian	27	11.7%	6.1%
Black or African American	31	13.4%	12.1%
Hispanic or Latino	63	27.3%	39.3%
Native Hawaiian or Pacific Islander	18	7.8%	0.4%
White	25	10.8%	41.5%
No Ethnicity Target	158	68.4%	N/A

Strategies for Effective Reach. CPRIT-funded programs have employed several effective strategies to address challenges. Notably, CPRIT has funded at least one prevention program in every county in Texas, as seen in Figure 2, ensuring widespread access to crucial services.

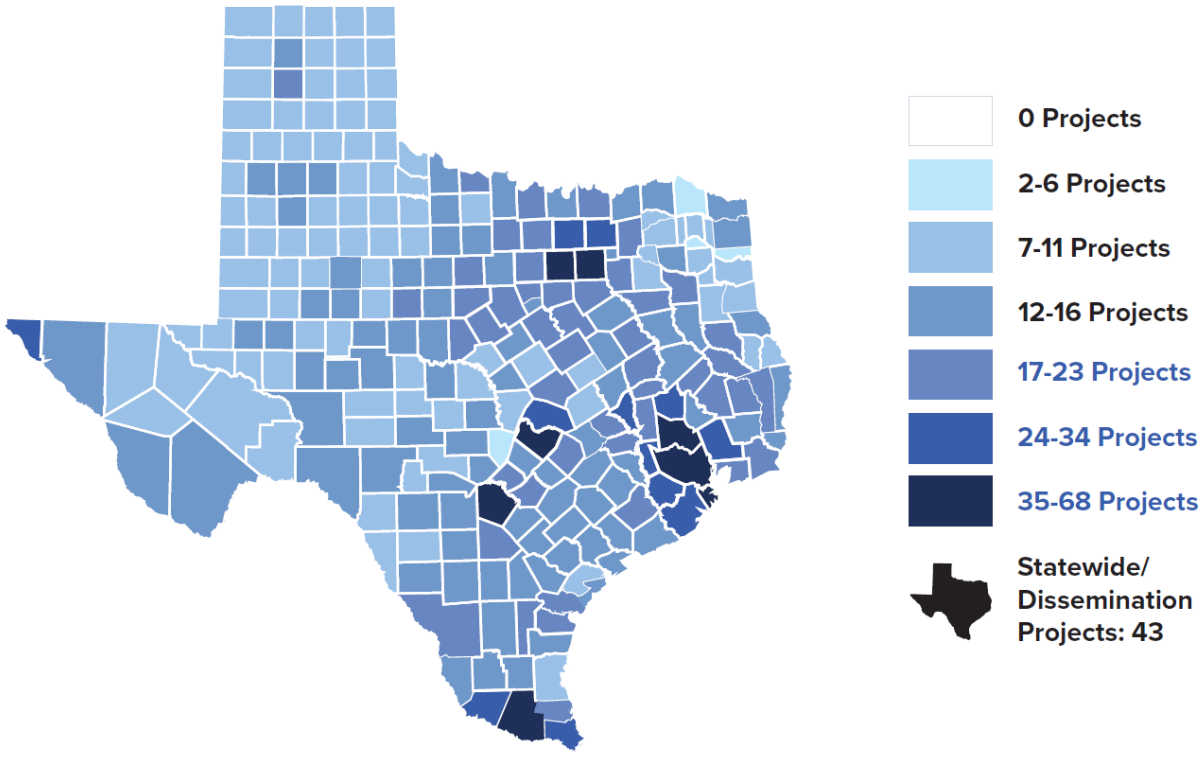

Figure 2. Map of Cumulative CPRIT Prevention Program Projects by Texas County

Successful programs have leveraged inter-organizational partnerships between healthcare providers and community organizations, enhancing access to screenings, follow-up care, and educational outreach.

Programs have been designed flexibly to meet the specific needs of various communities, incorporating culturally relevant education and community-based participatory approaches. Integrating optimal care principles has been central to these efforts, with a focus on serving often overlooked racial, ethnic, and gender populations, as well as low-income and rural populations. Addressing non-medical drivers of health, such as transportation and language barriers, has been crucial in ensuring the effectiveness and accessibility of interventions.

Data and Evidence of Success. Data from the surveys and interviews with program directors indicate positive outcomes, including increased professional competency among staff, improved patient navigation services, and strengthened community partnerships.

CPRIT's financial benefits were addressed anecdotally by grantees as well as in research-backed findings. One grantee noted a clear return on investment for CPRIT funding, stating that each dollar CPRIT invests in the program saves Texas between five and six dollars. This statement reflects a broader perspective on financial returns. In contrast, a report from The Perryman Group[7] reveals that every dollar spent through CPRIT for screening and prevention saves $2.05 in direct health spending and a total of $27.82 in treatment cost savings and economic benefits from earlier detection. While both emphasize the importance of investing in preventive healthcare, the grantee perspective captures a general view of direct state-level savings, while the report focuses specifically on the cost-effectiveness of early cancer detection, as well as direct and indirect savings, demonstrating how proactive measures lead to significant health and financial outcomes for Texans.

> *"We're actually saving Texans money by finding early-stage cancers rather than late-stage cancers... show a return on investment, and it's going to say* ***for every dollar [CPRIT] invests in the program, we saved the state of Texas between five and six dollars****." - CPRIT Grantee*

Despite these successes, there are concerns about the sustainability of programs targeting priority populations, particularly in the absence of continued funding. Focused funding and strategic partnerships have noticeably improved health outcomes in these communities.

CASE STUDIES

With the analysis of quantitative and qualitative data establishing a comprehensive overview of CPRIT prevention programs, the focus now shifts to the findings derived from three detailed case studies (Appendices G, H, I). These case studies, which examine screening programs in rural Texas counties, cervical cancer prevention efforts in PHR 10, and primary prevention programs in the Houston area, provide a closer look at CPRIT-funded initiatives. By integrating insights from these case studies with the broader data analysis, a clearer understanding emerges of how these programs have addressed the needs of priority populations and their overall impact on cancer prevention and control. The following sections will present the findings from each case study, illustrating the unique challenges and successes encountered and evaluating the strategies employed to achieve program objectives.

Rural Screening Programs

CPRIT's initiatives have advanced access to cancer prevention services in Texas, particularly for rural and underserved populations. These areas, characterized by higher cancer incidence and mortality rates compared to urban regions, face significant challenges exacerbated by the expansive size of Texas. The vast geographical spread contributes to limited healthcare access, particularly in rural populations, which are associated with higher rates of risk factors such as smoking and obesity, as well as lower availability of protective factors like primary care providers.

The funding from CPRIT has increased the availability of cancer screening technologies, including mammography machines and mobile units, which are crucial in regions with limited healthcare facilities. This has led to improved early cancer detection rates, particularly among historically underserved groups. While data on diagnostic follow up and treatment were not available, early detection rates improve cancer outcomes. Additionally, CPRIT's programs have fostered the development of infrastructure and professional training, contributing to the sustainability of these initiatives. Partnerships with local organizations have further supported the continuity of program activities beyond initial funding periods (Appendix G).

Cervical Cancer Programs in West Texas Border Counties

PHR 10, encompassing El Paso and surrounding rural counties, exemplifies the challenges rural border regions face in cancer prevention. This area, predominantly Hispanic, Spanish-speaking population and a significant distance from comprehensive cancer care centers, has seen notable, although not statistically significant, changes in cervical cancer statistics. Between 2010 and 2020, PHR 10's cervical cancer incidence rate remained stable, while late-stage incidence and mortality rates decreased (Figure 3).

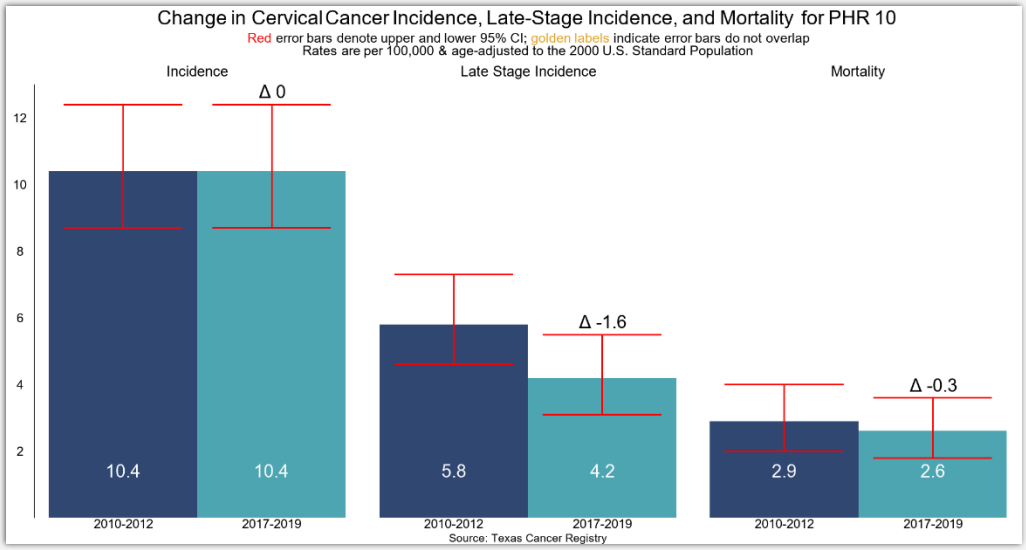

Figure 3. Changes in Cervical Cancer Incidence and Mortality in PHR 10

These improvements align with CPRIT's substantial investment in cervical cancer prevention, which funded six targeted regional projects. Despite these positive trends, PHR 10 faces persistent barriers such as limited healthcare access and provider shortages, exacerbated by its vast and sparsely populated geography. CPRIT Prevention Programs in PHR 10, which amounted to over $10 million in funding, has substantially increased cervical cancer screenings and early detection services. The funded projects have reached nearly 444,000 people and provided direct services to over 51,000 individuals. These efforts highlight the effectiveness of tailored, community-based approaches in improving cervical cancer outcomes despite ongoing challenges such as inadequate provider availability and limited access to health insurance. While cervical cancer rates in PHR 10 show some improvement, continued support and targeted interventions are crucial for addressing the persistent disparities and enhancing preventive care in this underserved region (Appendix H).

Urban Area Primary Prevention

Houston, with a population of 2.3 million, a median household income of $53,600, and nearly half (48.0%) of the residents speaking a language other than English at home[8], faces unique challenges, including a high uninsured rate of 23.0%. Despite the presence of two prominent NCI-designated cancer centers, cancer incidence and mortality rates exhibit disparities. For instance, while the general cancer prevalence in Harris County is relatively low, specific areas show higher rates and mortality rates vary across racial and ethnic groups, with non-Hispanic Black individuals experiencing the highest rates (Appendix I).[9]

*"**We've had an impact on thousands of people... especially the African American and Hispanic population**...raising awareness about the importance of early detection and screening and healthy living... I feel that it's been extremely worthwhile." - CPRIT Grantee*

CPRIT's nearly $19.7 million investment from 2010 to 2020 has substantially supported cancer prevention in the region. The program facilitated over 280,000 screenings and provided first-time screenings for more than 46,000 individuals. Noteworthy projects include enhancing tobacco cessation services, culturally tailored programs for Asian communities, and a comprehensive cancer prevention initiative that improved screening rates and reduced patient follow-up gaps. These efforts underscore the success of tailored, community-based approaches in overcoming barriers to care, such as language, insurance, and access, ultimately advancing cancer prevention and improving outcomes.

STAKEHOLDER ENGAGEMENT, CAPACITY BUILDING, AND SUSTAINABLE BENEFITS

OBJECTIVE 3.1: Identify and compare changes at the county and/or health service region for preventable cancer risk factors, early detection, and cancer morbidity and mortality in Texas between 2010 and 2020.

Research Question	
Since the state investment in CPRIT was initiated, what progress has Texas made in improving preventable cancer risk factors, early detection, and cancer morbidity and mortality across the state?	
Operationalized Areas	
Cancer Risk Factors	Variables such as age, gender, socioeconomic status, and health behaviors.
Early Detection	Changes in screening rates and early detection practices, metrics included the frequency and coverage of cancer screenings for different types of cancer.
Cancer Morbidity	Number of new cancer cases reported in various counties and health service regions.
Cancer Mortality	Mortality data assessing death rates due to cancer.
Data Sources	
To answer the research question, a statewide assessment was conducted, analyzing secondary data on risk factors, screening, morbidity, and mortality from 2010 to 2020, with a focus on demographic and behavioral trends, age-adjusted rates, and disparities.	

Activities

THI partnered with MD Anderson to conduct a statewide assessment (Appendix J) of secondary data sources related to risk factors, screening and early detection, morbidity, and mortality from 2010 to 2020. To complete the statewide assessment (Appendix J), the research team analyzed demographic and behavioral risk factors, cancer incidence, late-stage incidence, and mortality both statewide and by PHR. Data sources included the TCR, ACS, BRFSS, and NIS-Teen. Cancer data were analyzed for two periods (2010-2012 and 2017-2019) to account for annual variance, with 2019 selected to avoid pandemic-related disruptions. Age-adjusted rates

were reported, and trends and disparities in behavioral risk factors were examined from 2014 to 2020. Limitations of the analysis include the reliance on self-reported behavioral data, which may introduce bias, the use of aggregated cancer data without individual-level statistical significance testing, and the time period of analysis which may be too short in which to see the benefit of preventive measures.[10]

Key Findings

Decreased Cancer Mortality. During the study period from 2010 to 2019, cancer mortality rates in Texas decreased notably, from 162.1 to 143.6 per 100,000 population (Figure 4).[11] This decline was observed across most PHRs, with the most notable improvement in PHR 5, where mortality rates dropped by 28.0 per 100,000. During the same period, the U.S. mortality rate for all cancers declined from 171.8 to 146.0 (Appendix J).

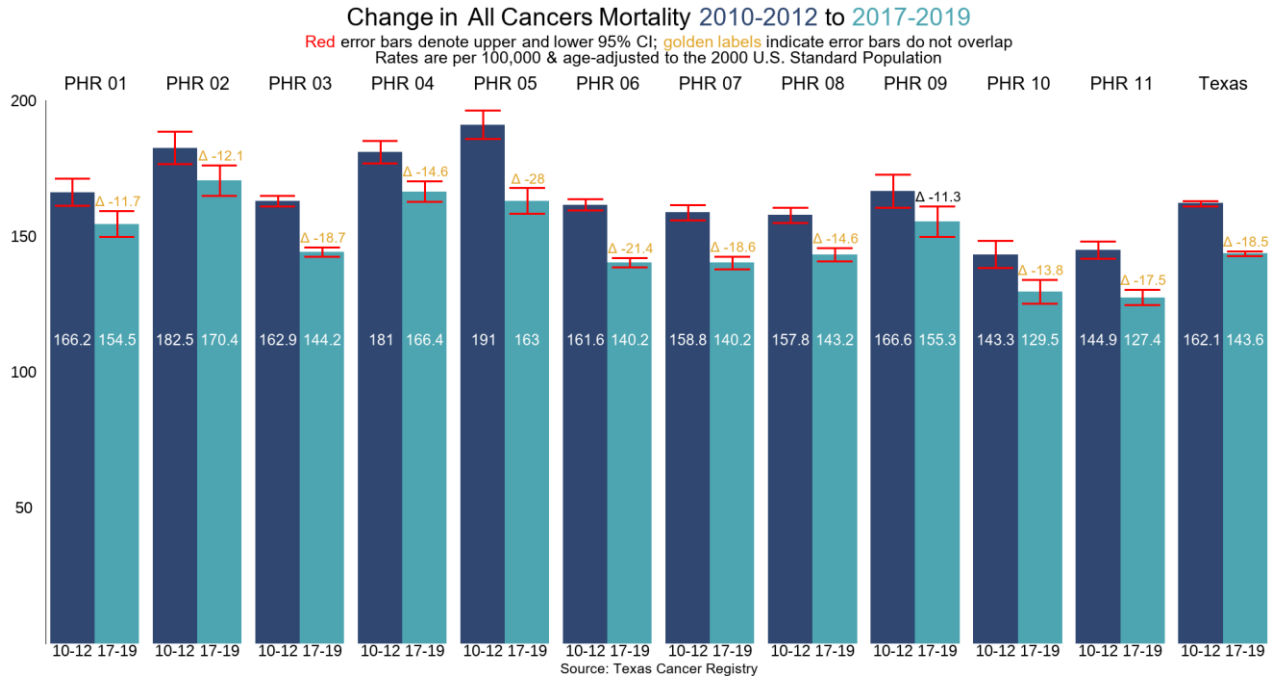

Figure 4. Change in All Cancer Mortality Rates in Texas, 2010-2012 to 2017-2019

Specific cancer types also showed varying trends; breast cancer mortality decreased from 20.7 (2010-2012) to 19.8 (2017-2019), while colorectal cancer mortality fell from 15.0 to 13.7 per 100,000 during the same periods. Lung cancer mortality rates also decreased notably, from 37.5 to 31.0 per 100,000. In contrast, cervical cancer mortality showed no change, and liver cancer mortality slightly increased from 7.8 to 8.2 per 100,000. The decline was also observed across all reported Race/Ethnicity groups (Figure 5).[12] The largest decrease in cancer mortality among groups was in Non-Hispanic Black individuals, with a rate decrease of 32.7 per 100,000.

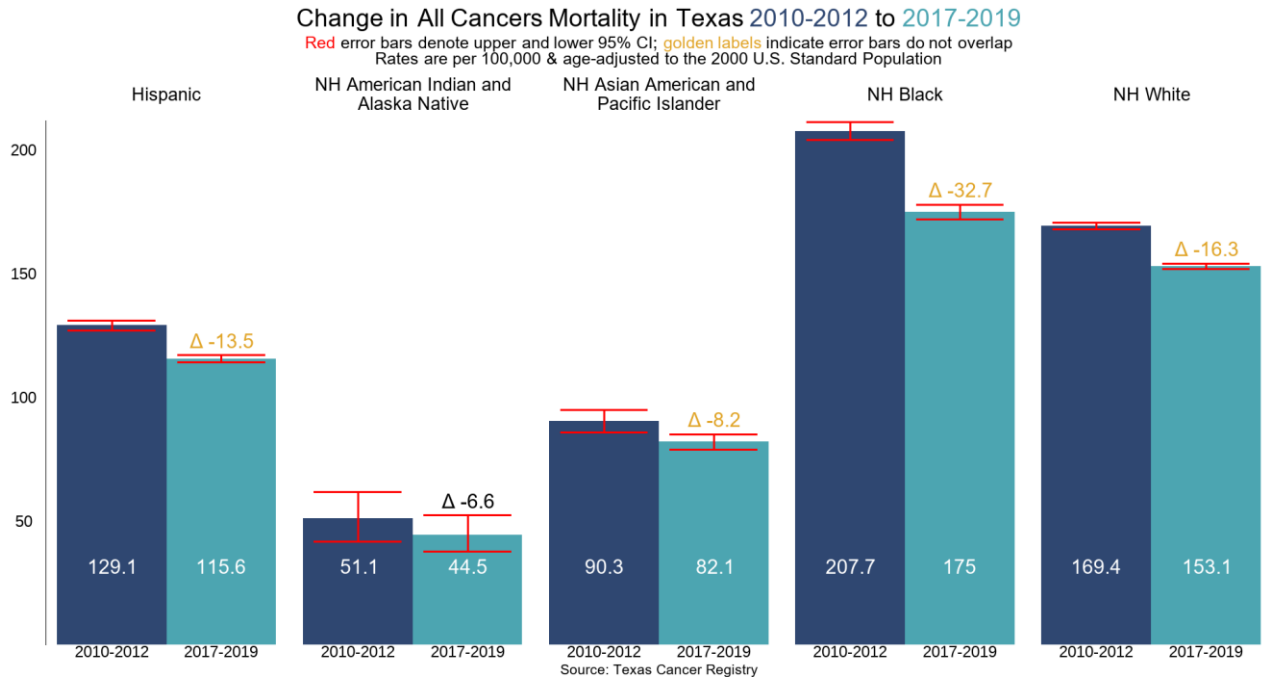

Figure 5. Change in All Cancer Mortality Rates in Texas by Race/Ethnicity, 2010-2012 to 2017-2019

This reduction in cancer mortality is likely attributed to a combination of factors, including early detection advancements, treatment improvements, and increased prevention efforts. The collective impact of these factors has contributed to the overall decline in cancer-related deaths, though no single factor can be concluded as the sole cause of this positive trend.

Consideration of Risk Factors. Risk factors play a crucial role in understanding changes in cancer incidence and mortality. Over the study period, Texas saw mixed progress in addressing behavioral risk factors. Obesity rates increased by 3.8% from 2014 to 2020, while physical inactivity remained a challenge despite some improvements[13]. On the other hand, smoking rates declined slightly, and HPV vaccination rates for adolescents rose steadily, surpassing 50% by 2020.[14] In the U.S., obesity rates have also increased in this period, while smoking rates have declined modestly.[15] In terms of cancer screening, breast cancer screening rates among females aged 50 to 74 improved from 76.7% in 2014 to 77.7% in 2020. For cervical cancer screening, the percentage of females aged 21 to 65 who had a Pap test in the past three years declined from 77.7% to 75.0% during this period. Colorectal cancer screening rates for adults aged 50 to 75 also increased, rising from 60.8% to 66.8%. However, despite these improvements in mammography and colorectal screenings, the decline in cervical cancer screening rates highlights an area that requires further attention. Texas is similar to the U.S. in that breast cancer and colorectal cancer screening rates have improved some while cervical cancer screening declined slightly.[16]

Behavioral risk factors are critical areas of focus for CPRIT grants, which often target interventions such as vaccination programs and screening initiatives to mitigate cancer risks. These efforts aim to address both preventable behaviors and to promote healthier lifestyles, which are essential for reducing cancer incidence and mortality.

Increased Incidence. Despite the overall decrease in cancer mortality, some specific cancer types have experienced an increase in incidence (Figure 6). [17] This trend can be partly attributed to enhanced screening efforts leading to earlier cancer detection.

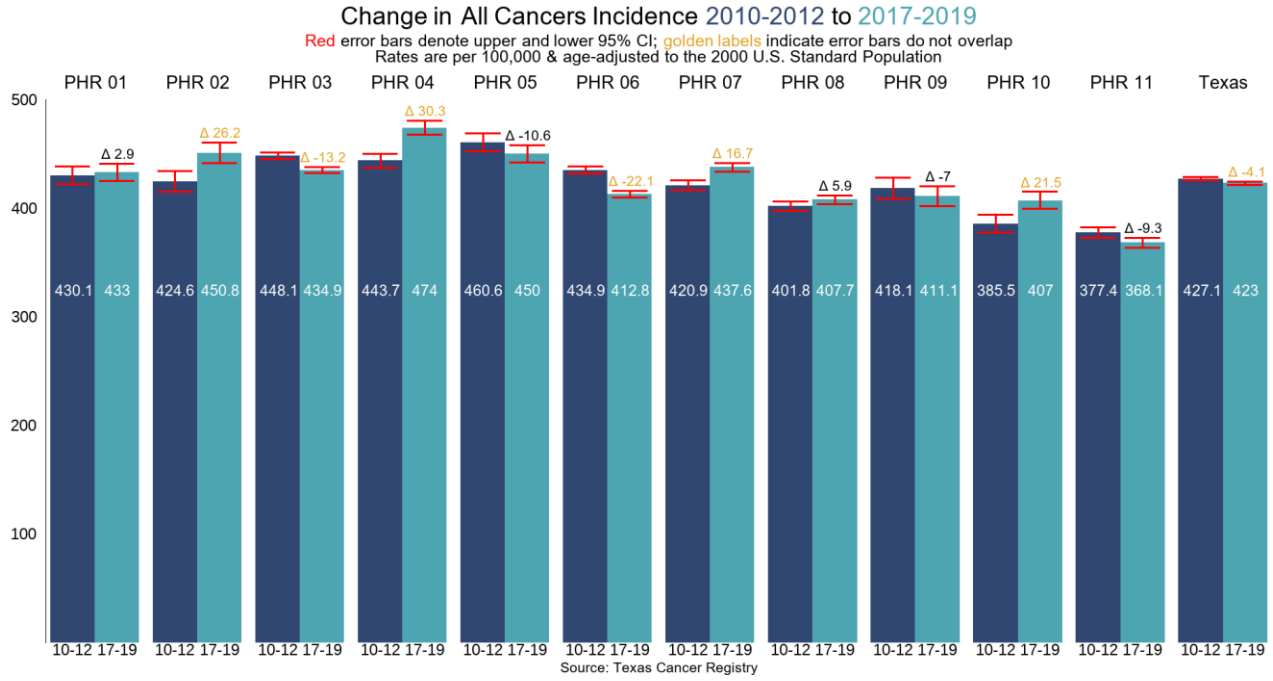

Figure 6. Change in All Cancer Incidence Rates in Texas, 2010-2012 to 2017-2019

While overall cancer incidence in Texas declined similar to the national rate, breast cancer rates increased, specifically in PHR 10. Cervical cancer incidence also rose slightly, particularly in PHRs 5 and 9. Additionally, liver cancer incidence increased considerably in PHRs 2 and 4. [18] These increases may reflect improvements in screening practices that allow for more frequent and earlier diagnoses rather than solely indicating a rise in actual cancer cases.

OBJECTIVE 3.2: Describe the engagement and satisfaction of CPRIT-funded grantees and additional key collaborating stakeholders during 2010-2020.

Research Question	
Are CPRIT stakeholders engaged and satisfied?	
Operationalized Areas	
Engagement and Satisfaction	Specific actions or assistance by CPRIT that considerably contributed to the success of the program.
	Specific actions or changes needed by CPRIT to achieve a greater program outcome.
	Overall experiences and observations gained from grant program directors.
Data Sources	
To address the research question, surveys were administered to CPRIT Prevention Program directors and collaborators to collect quantitative and qualitative feedback on program experiences, challenges, and successes, which, along with semi-structured key informant interviews, provided critical insights into program effectiveness and informed adjustments to assessment criteria and methodologies.	

Activities

Surveys were conducted with CPRIT Prevention Program directors (Appendix C) and collaborators (Appendix E) to gather both quantitative and qualitative feedback on their program experiences, challenges, and successes. Designed with input from evaluation experts and program administrators, the surveys provided critical insights into program effectiveness and identified areas for improvement, which informed adjustments in assessment criteria and methodologies. In addition to the surveys, semi-structured program director key informant interviews (Appendix D) were conducted to add depth to the qualitative insights explored in the survey. These interviews explored various aspects of program implementation and stakeholder perspectives, enriching the understanding of engagement and satisfaction among those involved.

Key Findings

High Program-Level Satisfaction. The collective findings across assessment activities emphasize a high level of stakeholder satisfaction with the CPRIT Prevention Program.

> *"I have **a tremendous sense of gratitude that CPRIT exists** for so many reasons. And the prevention program, in particular, because it allows us to do work that doesn't have a different home." - CPRIT Grantee*

In general, stakeholders perceive the Prevention Program as having a positive impact on cancer prevention and detection services, efficient grant allocation processes, fair proposal review procedures, and supportive guidance provided by project officers. Stakeholder satisfaction with the CPRIT Prevention Program is demonstrated at multiple levels of grant activities.

Improved Patient-Level Outcomes. Program directors reported notable improvement in access to and quality of cancer prevention and detection services for individual patients. According to PDs and collaborators, people who received services funded by CPRIT grants were positively impacted.

> *"There is no question that... **we're building a pattern of regular screening into a population that wasn't getting it**... Our work is actually shifting the behavior of an entire population of people at-risk." - CPRIT Grantee*

For example, many PDs noted that CPRIT grants provided people with services that they otherwise would not have access to, allowing hundreds of thousands of people to be screened for cancer for the first time.

Improved Provider-Level Capacity. Stakeholder feedback indicates that CPRIT funding is empowering healthcare providers with the resources and knowledge necessary to deliver enhanced cancer prevention and detection services. Many PDs indicated that receiving CPRIT grant funding allowed them to pursue other national grant awards, such as from NIH, thereby enabling them to bring additional funding into the state of Texas. Additionally, the findings from KIIs, surveys, and grantee report data suggest that CPRIT grants improved competency among providers of all levels (e.g., MDs, DOs, NPs, CHWs) related to the best practices for cancer prevention screening.

Organizational-Level Systems and Protocols. CPRIT funding has impacted the internal systems and protocols within healthcare and community-based organizations, streamlining processes and improving the overall delivery of cancer prevention and detection services.

> *"[Our grant activities] made [clinical partners] realize that just **offering the HPV vaccine needs to be standard of care,** whereas before I started this work, they saw it as optional." – CPRIT Grantee*

Organizational improvements undertaken with CPRIT funding had lasting benefits for patients, creating sustainable change to cancer prevention infrastructure.

Barriers and Challenges. Program directors identified several barriers that have affected the delivery and effectiveness of CPRIT Prevention Programs. Geographic and logistic challenges, particularly in the vast and diverse landscape of Texas, have complicated the delivery of consistent cancer prevention and screening services. Limited transportation options further exacerbate difficulties in accessing screenings and follow-up care.

> *"We focus on the underserved and the under and uninsured and we really try to reach the rural areas of [Texas]. At last count, **we're providing prevention services to 50 counties, which is essentially the geographic size of the state of West Virginia**." – CPRIT Program Director*

Financial and administrative barriers also pose significant challenges. The CPRIT funding reimbursement model frequently causes delays in starting programs because it requires upfront cash flow. Moreover, the low indirect rates put additional pressure on grantees by restricting their capacity to cover administrative and operational expenses. Grantees also highlight a need for more community outreach efforts, but insufficient funding is available to support these activities.

> *"Overhead costs on our CPRIT grants are around 30%, and it's been that way since the beginning of time… And what do we get from CPRIT? At the beginning, we didn't get anything. And now we get either 5 or 10%, but it's nowhere near enough." – CPRIT Program Director*

Maintaining long-term prevention services for uninsured and underinsured populations without adequate health insurance coverage and continuing services previously funded by CPRIT becomes difficult. This gap often results in cancer being identified at more advanced stages, which can result in poorer prognoses and more aggressive and expensive treatments.

OBJECTIVE 3.3: Describe the sustainable and/or long-term benefits that grantees identify as an outcome of CPRIT prevention funding during 2010-2020.

Research Question	
Are the CPRIT-funded programs developing capacity among public health entities and health care providers? *For funded projects, do sustainable benefits remain after CPRIT funding ends? How commonly does this occur?*	
Operationalized Areas	
Continued Maintenance of Programs	Program director insights on the challenges and facilitators of sustaining CPRIT-funded programs post-grant.
Prevalence of Sustainability Issues	Program director perception on how well CPRIT-funded activities were maintained after the grant period ended.
Duration and Continuation of Activities	Program collaborator insights into the length of time and ongoing nature of CPRIT-funded activities.
Factors Influencing Sustainability	Specific instances of CPRIT-funded programs and their approaches to maintaining activities beyond the grant period.
Data Sources	
To answer the research questions a multi-faceted approach was used, including key informant interviews with program directors, surveys to quantify and assess sustainability issues, and case studies to gain a detailed understanding of the factors influencing the continuation of CPRIT-funded prevention programs.	

Activities

A multi-faceted approach was employed to examine the sustainability of CPRIT-funded prevention programs, incorporating key informant interviews, surveys, and case studies. Program director key informant interviews (Appendix D) were conducted to gather in-depth insights into the challenges and facilitators of sustaining CPRIT-funded programs. A program director survey (Appendix C) was utilized to quantify the prevalence of sustainability issues and assess how CPRIT-funded activities were maintained post-grant. The Program Collaborator Survey (Appendix E) provided additional insights into the duration and continuation of CPRIT-funded activities. Case studies (Appendices G, H, I) were developed to provide a detailed

understanding of the factors influencing program sustainability. These case studies explored specific instances where CPRIT-funded programs were implemented and assessed their approaches to maintaining activities beyond the grant period.

Key Findings

Primary Threat to Sustainability is Funding. A major barrier to the sustainability of CPRIT-funded prevention programs is the end of grant funding. Key informant interviews with program directors revealed that the discontinuation of funding often results in staff positions being eliminated, which can severely impact project momentum and sustainability. Even when grantees secure new funding sources, gaps in financial support can hinder the continuation of services.

> ***"Well, the biggest barrier to sustainability is that the patient navigators themselves are paid for by the CPRIT grant**, and it's unlikely that the healthcare institution would pick up that cost later" – CPRIT Grantee*

Specifically, a lack of Medicaid, Medicare, or health insurance coverage among target populations limits the long-term impact of prevention services, as CPRIT funds are crucial for covering costs for uninsured or underinsured individuals. The lack of ongoing funding is a significant challenge, as highlighted in the program director survey (Appendix C), where 55.2% of respondents indicated financial barriers as a major issue. This includes both the end of CPRIT funding and difficulties in securing alternative funding.

Partnerships and Diversification of Activities Facilitate Sustainability. Building and maintaining partnerships with other organizations that are willing and able to continue grant activities is crucial.

> *"The good thing about this grant was that we were able to find and make those connections to the community. **So even though the grant ended for us, we still knew that there was partners in the community who could help out and get things done. That was key for everything**." – CPRIT Program Director*

This approach can help ensure the continuity of services after CPRIT grants end, along with embedding grant activities into existing organizational practices and protocols helps ensure ongoing implementation.

Duration of Program Activities. The survey of program directors (Appendix C) found that 64.5% of respondents reported that some or all the CPRIT Prevention Program activities were sustained after the grant ended. These activities were often sustained through infrastructure development, such as electronic health record (EHR) systems, professional training, and organizational processes. Respondents indicated that pursuing additional funding and leveraging the infrastructure developed during the grant period were common strategies for maintaining activities. Program directors reported funding (55.2%) and lack of staff capacity (34.5%) as the primary barriers to sustained activities post-grant (Figure 7).

Figure 7. Barriers to sustaining grant activities

The program collaborator survey (Appendix E) showed that among the activities that continued, 66.7% lasted more than one year but less than two years, while 33.3% lasted three or more years. However, survey respondents reported that a substantial portion of activities (50.0%) did not continue after the grant ended, primarily due to lack of funding. Identifying ways to support long-term sustainability could help to ensure that the important impact of these CPRIT projects is able to continue to support cancer prevention efforts.

IMPLICATIONS

POPULATION LEVEL IMPACT

Successful Strategies for Healthier Texans. Successful strategies used by CPRIT grantees may be replicated and leveraged through policy, practice, and research. Three interrelated program components that proved essential to improving patient-level outcomes and have population-level implications were fostering strategic partnerships, increasing access to cancer prevention technology and care, and conducting customized outreach to people in underserved, under-screened communities. Partnerships were formed between hospitals or clinics of varying sizes, social service organizations, and community-based groups. The ensuing inter-organizational teamwork enabled resource-sharing resources, care coordination, and community-based partnerships that could support outreach to priority populations.

As a result, rates of screening increased, more early-stage cancer diagnoses were made, and successful navigation into treatment occurred more frequently following positive screenings, especially among individuals in underserved populations (e.g., who are uninsured, live in rural areas, or live below the FPL). The expansion of mobile imaging efforts and vaccine access has made prevention and detection services available to more Texans. Developing culturally relevant materials for people in diverse communities has increased awareness of cancer prevention, detection, and diagnostic follow-up services. Individuals now have a better chance of detecting cancer early, recovery, and overall, a healthier future.

Implications for the future may include exploring comprehensive policies related to more consistent deployment of evidence-based strategies such as HPV vaccines or colorectal screening. Initiatives that address non-medical drivers of health, such as cancer treatment programs for uninsured individuals or those who suffer from substance abuse, may be explored and implemented. Community-based participatory research may be conducted to ensure programs are designed with enough flexibility to meet the emerging needs of communities. To address growing risk factors, funding could be focused on interventions targeting preventable behaviors, such as promoting healthier lifestyles and increasing physical activity. By focusing on these risk factors, CPRIT can play a pivotal role in mitigating the future cancer burden in Texas, particularly by addressing the rising rates of obesity and liver cancer. These efforts will support reducing cancer incidence and mortality across the state, especially as the population ages and grows. Lastly, partnerships between academic institutions,

healthcare providers, and community organizations should continue to be cultivated and leveraged to enhance access to screenings, follow-up care, and educational outreach across the state. This type of cross-sector collaboration is important, as academic organizations provide research expertise and evidence-based practices, while community-based organizations excel in grassroots outreach and building trust within underserved populations and help to ensure the long-term sustainability of funded projects.

WORKFORCE & HEALTHCARE INFRASTRUCTURE IMPACT

Sustainable Jobs and Healthier Communities: Knowledge gained through grantees' experiences can be leveraged to strengthen Texas's healthcare workforce and infrastructure. CPRIT-funded programs that valued high-quality provider training, quality staff retention, and sustainable job creation generated results beyond employing clinics and hospitals. Prevention Program grant funding contributed to employee retention, job creation, and increased capacity of clinics, hospitals, and communities. These successes could inform efforts to reinforce healthcare infrastructure, increase medical competency across the cancer prevention and care field, and inform future grant development.

Technology, research, and service delivery advances require facilities to incorporate new practices into training and protocols, continuously increasing their capacity to adapt to a changing healthcare landscape. Increasing capacity requires establishing new roles, such as patient navigators and data administration. Patient navigators are highly effective in cancer screening, detection, and care, and progress monitoring necessitates a robust data collection, governance, and reporting system. Grant resources may be applied to fund positions in these areas and supplement the salaries of those in low-paying but essential provider roles. Communities and community healthcare workers also benefit from grant funds, as well-trained and knowledgeable providers positively impact community education and awareness.

Investments from grants or other sources may be used to increase the number and type of jobs related to cancer prevention. A comprehensive, statewide initiative could be adopted to ensure preventive care is made available for every individual who visits a clinic and patient navigators are available to connect individuals who have a positive screening with diagnostic treatment and follow-up services. Expanding cancer prevention curricula and training could improve the quantity and quality of these navigation services and increase the likelihood of a patient receiving consistent care. Research should continue to monitor new practices as they are implemented so that lessons learned from these adaptations may be more widely shared.

RECOMMENDATIONS

ENHANCE EVALUATION FRAMEWORKS

To ensure more consistent and impactful assessments of program outcomes, CPRIT should develop and implement a structured utilization-focused evaluation framework that standardizes data collection and reporting practices across all funded programs. By adopting such a framework, CPRIT can significantly improve its ability to assess the effectiveness of its programs, track progress over time, and make data-driven decisions that enhance overall program impact. A standardized evaluation framework would provide several key benefits:

- **Consistency and Comparability:** Standardizing data collection methods across diverse programs will allow for clearer comparisons of outcomes and effectiveness across different initiatives. This consistency will help identify best practices, highlight areas of improvement, and ensure that findings are comparable and reliable when aggregated at the state level.
- **Clarity in Measuring Impact:** By developing common evaluation metrics and reporting structures, CPRIT will be able to more accurately measure the specific outcomes each program is achieving, whether it's in terms of reduced cancer incidence, increased screening rates, or improved community awareness. This clarity will enable more effective measurement of program success, providing actionable insights into what strategies are working and which need refinement.
- **Data-Driven Decision Making:** A standardized framework will enhance the program's ability to gather actionable data to inform ongoing decision-making. By accessing consistent data from all programs, CPRIT can make evidence-based adjustments to current funding priorities and respond more quickly to emerging needs or challenges.
- **Longitudinal Tracking:** A structured evaluation framework will allow for more robust longitudinal tracking, enabling CPRIT to assess the long-term impact of its investments. For instance, tracking the long-term effects of prevention programs on cancer incidence or mortality will provide a clearer picture of how CPRIT-funded initiatives contribute to overall public health outcomes in Texas.
- **Stakeholder Engagement and Accountability:** A standardized framework will make it easier to communicate the results and impact of CPRIT-funded programs to stakeholders, including policymakers, funders, and the public. This transparency will

foster greater accountability and ensure that CPRIT's work is aligned with its mission to reduce cancer incidence and mortality across the state.

In implementing this recommendation, CPRIT should consider ongoing training for grantees on collecting and reporting data within this standardized framework. Ultimately, enhancing evaluation frameworks will not only improve CPRIT's ability to track progress and make data-informed decisions, but it will also strengthen the program's ability to demonstrate its efforts, build trust with stakeholders, and ensure that funding is used effectively.

STREAMLINING REPORTING REQUIREMENTS AND IMPROVING THE CPRIT GRANT MANAGEMENT SYSTEM

To address the administrative burden associated with CPRIT's reporting requirements, it is recommended that the reporting processes be streamlined, particularly for smaller organizations that lack dedicated staff for reporting tasks. Simplifying and reducing the volume of required reports would alleviate time constraints and allow grantees to focus more on service delivery. Standardizing the reporting of partnerships and coalitions would improve consistency and clarity, making the reporting process more manageable and less time-consuming for all grantees.

Furthermore, to address the challenges with the CPRIT Grant Management System (CGMS), improving the system's user interface is recommended by making it more intuitive and easier to navigate. This can be achieved by providing clearer definitions for data fields and offering enhanced user support. These improvements would reduce the system's learning curve, minimize technical glitches, and ultimately improve the reporting experience for grantees.

Increase Access to Screening Services

To support reduced cancer incidence and mortality, it is important to enhance access to cancer screenings, particularly in rural and underserved areas of Texas, where access to healthcare services remains a significant barrier. Potential strategies include:

- **Investing in Mobile Screening Units.** Mobile units equipped with essential screenings (e.g., mammograms, Pap smears) can reach remote areas, overcoming access challenges and improving convenience.
- **Expanding Community-Based Programs.** Partnering with local organizations and clinics to provide education, outreach, and screenings helps overcome cultural,

financial, and logistical barriers. These programs also offer transportation, interpretation services, and follow-up care.

- **Targeted Outreach and Education**. To increase participation, outreach campaigns should address misconceptions and emphasize the importance of screenings, particularly for high-risk groups, such as those with family histories or lower socioeconomic status.
- **Addressing Financial and Logistical Barriers.** Offer free or low-cost screenings, transportation, and language services to ensure access for underserved populations. Financial assistance can alleviate out-of-pocket costs for low-income individuals.
- **Monitoring and Evaluation.** Track screening participation and trends by demographic factors (age, race, income) to identify disparities and improve outreach efforts. Continuous evaluation ensures that mobile units and community programs reach target populations effectively.
- **Integration with Healthcare Systems.** Ensure continuity of care by connecting individuals to follow-up services if abnormal results are detected. Partnerships with local healthcare providers can facilitate smooth transitions from screening to diagnosis and treatment.

By prioritizing expanding mobile and community-based screening services, CPRIT can address the ongoing challenges of screening disparities in rural and underserved areas. These efforts will be essential in reversing the recent declines in participation rates for cervical and colorectal cancer screenings and ultimately help reduce the burden of cancer in Texas.

STRENGTHENING RURAL AND UNDERSERVED COMMUNITY CANCER PREVENTION INITIATIVES

To further enhance cancer prevention efforts in rural and medically underserved areas, CPRIT should continue to expand investments in community-based, culturally relevant strategies that address local needs. Key recommendations include:

- **Increase Inter-organizational Partnerships**: Foster stronger collaborations between healthcare providers, community organizations, and local stakeholders to improve access to screenings, follow-up care, and educational outreach in rural and underserved regions.

- **Tailor Programs to Local Needs**: Maintain flexible program designs that integrate culturally relevant education, community-based participatory approaches, and optimal care principles, especially for historically overlooked populations such as rural, low-income, and racial/ethnic minorities.
- **Address Non-Medical Barriers**: Continue efforts to mitigate transportation, language, and other non-medical barriers that hinder access to cancer prevention services, particularly in remote areas with limited healthcare infrastructure.
- **Sustain Infrastructure and Capacity-Building**: Support long-term sustainability by continuing investments in infrastructure and professional training, ensuring that healthcare providers in underserved regions can deliver high-quality care beyond initial funding periods.

These strategies, which have shown promise in areas like Public Health Region 10, will help further reduce disparities in cancer prevention, improve early detection, and ultimately enhance health outcomes for Texas' rural and underserved populations.

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APPENDIX A

The Cancer Research and Prevention Institute of Texas (CPRIT) Prevention Program's First 10 Years: An Evaluability Assessment – Phase I Summary Report

TEXAS HEALTH INSTITUTE

September 2022

ABOUT TEXAS HEALTH INSTITUTE

Texas Health Institute is a nonprofit, nonpartisan public health institute with the mission of advancing the health of all. Since 1964, we have served as a trusted, leading voice on public health and health care issues in Texas and the nation. Our expertise, strategies, and nimble approach makes us an essential partner in driving systems change. We work across and within sectors to lead collaborative efforts and facilitate connections to foster systems that provide the opportunity for everyone to lead a healthy life. For more information, visit texashealthinstitute.org and follow us on Twitter, Facebook, and LinkedIn.

THI's collaborating partner in this project, **The University of Texas MD Anderson Cancer Center** in Houston, is one of the world's most respected centers focused on cancer patient care, research, education, and prevention. Experts in cancer prevention, impact evaluation, public health practice, systems change, stakeholder engagement, and research methodologies from MD Anderson's Impact Evaluation Core, a transdisciplinary team led within the institution's Cancer Prevention and Control Platform, have provided strategic and technical contributions to this report.

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INTRODUCTION

Beginning in March 2022, Texas Health Institute (THI) conducted a six-month evaluability assessment of the Cancer Prevention and Research Institute of Texas (CPRIT) Prevention Program as part of the first phase of a two-year, two-phase assessment. Phase II of the assessment will use the findings in this report to evaluate the initial progress of the CPRIT Prevention Program since 2010 and develop an assessment plan for the next stage of the CPRIT Prevention Program. Texas Health Institute is leading both phases of the assessment and is working collaboratively with a team from The University of Texas MD Anderson Cancer Center in Houston (MD Anderson) who are providing their expertise in quantitative analysis and cancer prevention.

The purpose of the evaluability assessment was to determine the CPRIT Prevention Program's readiness for a comprehensive assessment. To make this determination, THI sought to understand:

1. The plausibility of the impact of the Prevention Program based on program design, activities, and goals;
2. The feasibility of measuring program impact based on the quantity and quality of readily available data; and
3. The potential utility of a comprehensive assessment.

This report describes the overall theory of evaluability assessments, the methodology and process of this assessment, and its findings. Finally, this report provides recommendations for the proceeding 18-month comprehensive assessment (Phase II) that begins in September 2022.

OVERVIEW OF EVALUABILITY ASSESSMENTS

The theory of evaluability assessments was first introduced in 1974 by Pamela Horst and colleagues, who recommended a "pre-assessment of evaluability" that would help programs determine the extent to which program objectives are well defined and plausible, and whether

there is a consensus on the use of program data and evaluation findings.[1] Understanding such factors facilitates more effective, relevant, and timely evaluations whose findings are more likely to contribute to programmatic improvements.

Building on this recommendation, Strosberg and Wholey (1983) developed the basic elements of an evaluability assessment.[2] These include an exploration of the following questions:

1. What resources, activities, objectives, and causal assumptions make up the program?
2. Is there consensus among both program managers and the highest-level decision-makers on the program's objectives?
3. To what extent does the program have agreed upon measures and data sources?
4. Does the description of the program correspond to what is actually found in the field?
5. Are the program's activities and resources likely to achieve the program's objectives?
6. Does the program have well-defined uses for information on progress towards its measurable objectives?
7. What portion of the program is ready for evaluation?
8. What evaluation and management options should program decision-makers consider?

In combination, the answers to these questions indicate the plausibility of program impact, the feasibility of measuring that impact, and the potential utility of a comprehensive assessment. In other words, these questions can determine whether a program is able to be comprehensively assessed in such a way that will lead to actionable findings that can and will be implemented by program staff.

METHODOLOGY

Between March and August 2022, THI conducted an evaluability assessment, detailed in Appendix A, of the CPRIT Prevention Program. THI subcontracted with a team from MD Anderson on activities related to quantitative analyses; but only THI staff had access to grantee data.

[1] Horst, P., Nay, J.N., Scanlon, J.W., & Wholey, J.S. (July/August 1974). Program Management and the Federal Evaluator. Public Administration Review, 301.

[2] Strosberg, M. A., & Wholey, J. S. (1983). Evaluability Assessment: From Theory to Practice in the Department of Health and Human Services. Public Administration Review, 43(1), 66–71. https://doi.org/10.2307/975301

The evaluability assessment process involved six steps (Table 1):

Table 1: Description of Evaluability Assessment Activities

Step	Description
1. Meet with CPRIT Prevention Program leadership to determine scope and purpose of evaluability assessment	• THI held two meetings with the Chief Prevention Officer (CPO), Prevention Review Council (PRC) members, and evaluation partners at MD Anderson. • THI met separately with the CPO three times for specific guidance.
2. Study CPRIT Prevention Program's history, design, and operation	• THI compiled programmatic documents (e.g., strategic plans, annual reports, legislative documents) from public and internal sources. • Through a systematic review, THI determined the program's history, goals, and fundamental activities according to the documents.
3. Identify available data and its quality	• CPRIT Prevention Program provided THI with ten years of quantitative and qualitative data submitted by grantees, including quarterly and annual progress reports. Grantee data were not shared with MD Anderson or anyone outside of THI. • THI documented data indicator categories from each data source within grantee data. • THI consolidated quantitative data into analyzable datasets. • THI randomly selected 30 grantee reports to determine the completeness and quality of the qualitative information (Appendix A). • MD Anderson compiled public data regarding cancer mortality and outcomes to understand the availability and quality of external data that could be used in concert with internal data.

Table 1: Description of Evaluability Assessment Activities	
4. Determine potential uses for evaluation findings	• In June 2022, THI conducted key informant interviews with 10 people who are familiar with the Prevention Program (Appendix B). • Interviewees were asked about the program's key activities, data, and potential uses for evaluation findings (Appendix C). • MD Anderson staff thematically analyzed the interview transcripts to understand areas of consensus and disagreement within the topic areas.
5. Build a draft logic model	• Using program documents, interview findings, input from CPRIT Prevention Program staff, as well as logic models from comparable cancer prevention programs, THI iteratively developed a draft logic model to describe the Prevention Program (Appendix D). • MD Anderson staff, PRC members, an evaluability expert consultant (see below), and Prevention Program staff reviewed the logic model.
6. Determine the extent to which and in what ways the Prevention Program can be evaluated	• This report is the compilation of findings and recommendations for the preceding assessment of the Prevention Program.

Throughout the evaluability assessment, THI staff consulted with Ross Brownson, PhD and Laura Leviton, PhD, as well as the subcontracted team from MD Anderson. Leviton and Brownson are experts in evaluability assessments and provided literature and guidance on evaluability assessment theory. Additionally, they provided feedback on THI's methodology and the logic model development. Dr. Brownson is also a member of CPRIT's Prevention Review Council.

FINDINGS

THI sought to answer three overarching questions through this evaluability assessment:

1. Is it plausible to expect impact from the CPRIT Prevention Program?
2. Is it feasible to measure impact?
3. Is it useful to conduct a comprehensive assessment?

1. Plausibility of Programmatic Impact

PROCESS

The first step in an evaluability assessment is **to understand the likelihood that a program's activities and outputs will result in the intended changes**.

To determine the plausibility of the CPRIT Prevention Program's impact, THI explored:

a. Whether the Prevention Program's objectives and intended outcomes were explicitly known and agreed upon by stakeholders and within program documents; and
b. Whether those objectives and outcomes were realistic based on the causal assumptions of the program theory, the availability of resources (financial, human, and otherwise), and the expected influence of external factors.

Through Steps 2 and 4 (See Table 1), THI gathered initial information regarding the program theory and key objectives. Next, THI constructed a draft logic model, which was iteratively refined based on feedback from program stakeholders.[3] The draft logic model (See Appendix D) describes the program's activities, outputs, and outcomes at multiple levels.

FINDINGS

Based on the document review, interviews, and corresponding draft logic model, our conclusion is that it is plausible to expect impact from the CPRIT Prevention Program **for the following reasons:**

- **The Prevention Program's theory of change has realistic causal assumptions about the mechanisms by which change occurs at the individual, provider, community, health care system, and policy levels.**
- **There is a logical connection between CPRIT Prevention Program activities, and those activities conducted by Program grantees; this connection is likely to generate measurable outputs at multiple levels.**

[3] The reviewers included Drs. Ross Brownson and Laura Leviton, experts in evaluability assessments, as well as the subcontracted team of evaluators and cancer prevention experts from the MD Anderson.

- The expected outputs of CPRIT Prevention Program and its grantees are related to the types of activities conducted.
- There is a general consensus among program stakeholders about the Prevention Program's purpose, activities, intended outcomes, and intended beneficiaries.

CONSIDERATIONS

Although we determined that it is reasonable to expect impact from the Prevention Program, we do so with a few notable considerations.

The Phase II assessment must account for the effect of time on program impact. Cancer prevention efforts likely take multiple decades to generate measurable change in rates of cancer incidence or mortality.[4,5,6]

Many external factors, such as national policies or the COVID-19 pandemic, likely influenced the intended outcomes of the Prevention Program. These factors may make causality or attribution impossible to confidently determine.[7] A full assessment should acknowledge and, when possible, account for these influences on programmatic impact.[7,8]

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2. Feasibility of Measuring Impact

PROCESS

Prior to conducting a comprehensive assessment, **it is also essential to determine the quality, relevancy, and accuracy of data that can measure quantitative program outcomes.** This will determine the feasibility of measuring program impact.

To determine the feasibility of measuring the CPRIT Prevention Program's impact, THI explored:

a. The quality and quantity of available programmatic data, which was assessed through the document review and key informant interviews (Table 1, Steps 2, 3, and 4); and
b. The availability and quality of external, public data that could be used to supplement program data in measuring impact.

FINDINGS

Based on our assessment of the grantee data and the potentially available external data, we conclude it is feasible to measure some levels of program impact given the type of data available, as well as the scope of the intended outcomes. It is possible to determine how CPRIT has contributed to a wide range of outcomes, although it will not be possible to assess clear causality due to the complexity of the program and other related endeavors.

Even well-designed observational studies of public health interventions have limited ability to determine or estimate a causal relationship between an intervention and a population-level outcome.[7] Many confounding factors influence the outcomes of an intervention and the ways in which a population does or does not interact with the intervention. The limitation in determining causality is especially true for population-level interventions,[7] mortality studies,[9] or cases where randomization is not possible.

[9] Robins, J. (1986). A new approach to causal inference in mortality studies with a sustained exposure period—application to control of the healthy worker survivor effect. Mathematical modelling, 7(9–12), 1393-1512. https://doi.org/10.1016/0270-0255(86)90088-6

For example, although a CPRIT Prevention Program activity may be funded in a certain Public Health Region, and there may also have been a measurable decrease in cancer mortality in this region during the program period, it is not possible to directly attribute this change to the Prevention Program activities. It may, however, be possible to demonstrate an increase in screening services or an increase in the number of trainings provided in this region. These indicators can be informative even if the attribution of change or measurement of program impact on cancer incidence or mortality is not possible.

Although it is not possible to determine causality, THI recommends the following for the Phase II Assessment:

- Include the use of supplemental qualitative data, such as through key informant interviews and surveys with primary investigators and directors of CPRIT-funded programs, or possibly with key contributing partners of grantees.
- Use external data to demonstrate change over the 10-year period for which grantee data may not be available, with the understanding that the time period is too short to expect an impact on measures of incidence or mortality, and any changes should not be interpreted as causality.
- Consider the systems-level impact of the Prevention Program, rather than looking at impacts of individual grantees or a group of grantees in a specific geographic area.

While these additions will not determine causality, they allow for a triangulation of data in such a way that will provide a fuller understanding of program impact within specific geographies and outcomes.

CONSIDERATIONS

Although we determined that it is feasible to measure some levels of program impact, we do so with the following considerations.

First, the programmatic data that is available for a comprehensive assessment primarily includes quarterly and annual progress report data submitted by grantees. There are ten years of data available, including both quantitative and qualitative indicators. **However, there are some notable limitations to the available data:**

- The level of disaggregation (e.g., by cancer type, ethnicity, etc.) varies by indicator and time period (e.g., before and after FY2017 Q2).

- The reporting requirements for grantees changed in quarter two of FY2017, at which point county-level reporting was required. As a result:
    a. Grantee data from 2010-2017 is difficult to compare or combine with data submitted after 2017—for example, time trend analyses across the entire program period would not be possible for every indicator; and
    b. Geospatial analyses over the entire ten years may be limited due to the varying degrees of geolocation data submitted by grantees across reporting years.
- All CPRIT programs, including those related to prevention, were under a moratorium from December 18, 2012, to October 30, 2013, while the Texas State Auditor's Office conducted an audit. While programs that were already in progress continued operations, no new grant awards were made during this period.
- The CPRIT Prevention Program was originally established and implemented without an evaluation framework or methodology. While this is a somewhat common occurrence, this limits what can be determined retrospectively with available data from grantees.

To mitigate some of these limitations, THI took the following steps:

1. All quantitative datasets were converted into machine-readable (i.e., analyzable) formats.
2. Indicators from pre-2017 datasets were matched to post-2017 indicators wherever possible.

Although these steps enabled some continuity across reporting years, there are still analytical limitations to the program data. (For more details on the internal data review process, see Appendix A.)

Given these limitations, it will be necessary to supplement grantee data in the Phase II assessment with external, publicly available data regarding rates of cancer incidence, vaccinations, cancer stage at diagnosis, and other indicators. THI has worked with the collaborating team at MD Anderson to identify potential data sources for these indicators, such as the Behavioral Risk Factor Surveillance System (BRFSS) or the Texas Cancer Registry. Appendix E includes a list of the internal and external data sources that THI and MD Anderson jointly identified—in relationship to the proposed indicators that measure program impact.

One of the known limitations of public data is the variability in the type of data available at each geographic level (ZIP code, county, region, state) over time. Additionally, data at different geographic levels may not be available in some Texas counties due to the small population size.

One final consideration regarding measurement of impact is that the CPRIT Prevention Program itself does not have measurable objectives, although individual grantee activities do. The Prevention Program was given a broad directive by state mandate with overarching priorities and guidance. Consequently, there must be a consensus about appropriate and meaningful indicators to be used in the comprehensive assessment. A discussion regarding the recommended indicators is included in the final section of this report.

3. Utility of a Comprehensive Assessment

PROCESS

A final determination that must precede a comprehensive assessment is **the extent to which and in what ways an assessment would be helpful and used by program decision-makers.**

To determine the utility of a comprehensive assessment, THI explored:

a. The potential applications of findings from a comprehensive assessment;
b. The types of findings that would be most useful;
c. By whom the findings would be used; and
d. Any potential risks of a comprehensive assessment.

THI conducted key informant interviews with stakeholders and decision-makers of the CPRIT Prevention Program to explore these topics (Table 1, Step 4). See Questions 10, 11, 14, and 15 of the interview guide (Appendix C).

FINDINGS

Based on the results of the key informant interviews (Appendix F) and consultation with Prevention Program staff, and given that no prior assessment has been conducted, our conclusion is that it would be useful to conduct a comprehensive assessment. Specifically, we noted the following:

- Prevention Program Staff, the PRC, and Prevention Advisory Committee (PAC) would be the primary users of the findings. Findings would be used to inform future program focus, grant-making determinations, and direction of the overall Prevention Program.
- CPRIT could use the findings to communicate the progress of the first ten years of the program to various public audiences.

- Given the potential uses, the assessment should generate findings that include both quantitative data and qualitative vignettes that are accessible to various audiences.

THI intends to conduct a comprehensive assessment of the Prevention Program, which will include both quantitative and qualitative data. The data will be primary (such as key informant interview findings) and secondary (such as from the Texas Cancer Registry). Based on the findings of this evaluability assessment, THI has determined that **a comprehensive assessment would be most beneficial if it included:**

- Recommendations about how to best augment grantee reporting requirements, with a focus on what types of data would be most feasible to report and most informative to analyze
- Data that demonstrate the impact of Prevention Program activities, such as the following:
  - Number of people served by prevention and screening activities
  - Number and types of infrastructure and partnership improvements
  - Barriers to implementation
  - Factors influencing sustainability and replicability of prevention activities
  - Overall impact of CPRIT Prevention Program activities, as demonstrated by qualitative data such as grantee stories, perspectives, and descriptions
- Data that indicate which populations are being served by program activities (e.g., certain ethnicities, rural populations, etc.)
- Descriptions of the impact of the Prevention Program that are accessible and actionable to diverse audiences including policymakers, researchers, and communities served
- Data that provides the context of overall progress made in the state
- Data that include information from key stakeholders, including grantees
- Recommendations for a long-term assessment plan for the Prevention Program

CONSIDERATIONS

Although we determined that it would be useful to conduct a comprehensive assessment (Phase II), we do so with the following considerations.

- Given that this will be the first comprehensive assessment, it is likely that CPRIT Prevention Program staff, PRC and PAC members, and other stakeholders intend to learn a large amount of information from this assessment. However, there may be limitations to the types of conclusions that can be determined, as previously discussed, including limitations related to the retrospective initiation of a comprehensive

assessment. THI and its partners should, therefore, work collaboratively with the intended users of the assessment to develop appropriate expectations and agreements about the potential findings.

- As with any assessment, there is the potential that the analyses may imply the program has inefficiencies or sub-optimal outcomes, or that true impact cannot be confidently determined. As such, the assessment should, to the fullest extent possible, contextualize findings within external influences (e.g., national policies, the COVID-19 pandemic) and also account for barriers that are beyond the control of the Prevention Program.

RECOMMENDED NEXT STEPS

Based on the results of the evaluability assessment, **THI recommends conducting a comprehensive assessment of the CPRIT Prevention Program.** The findings of the evaluability assessment suggest that the objectives and measures originally submitted by THI in April 2022 are accurate, realistic, and informative goals for a comprehensive assessment plan. However, the following modifications may be considered:

- Due to the variation in demographics across a single county, consider including some analyses at the smaller geographic area (e.g., Census tract, ZIP code) when possible. Although grantee data generally only includes county-level reporting, Census tract locations of program activities may be extrapolated from external data sources and may offer a more descriptive insight of program impact.
- In the planned Phase II survey of grantees, consider inquiring about the grantees' perspective of data collection and reporting, including recommended changes to the data reporting process.
- Develop the proposed case studies that describe grantee stories and systems change impacts (e.g., by region, by cancer type, by grant type) in aggregate so as to capture multiple perspectives of grantee work through a combination of individual grantees' data.
- Consider adding additional case studies (suggested total of four) that contextualize key findings in ways most useful to the Prevention Program's future directions to provide a breadth of vignettes and incorporate an optimal amount of data.
- Modify the proposed survey of Prevention Program Grantees to include indicators identified in key informant interviews as the most informative for program stakeholders.

CONCLUSIONS

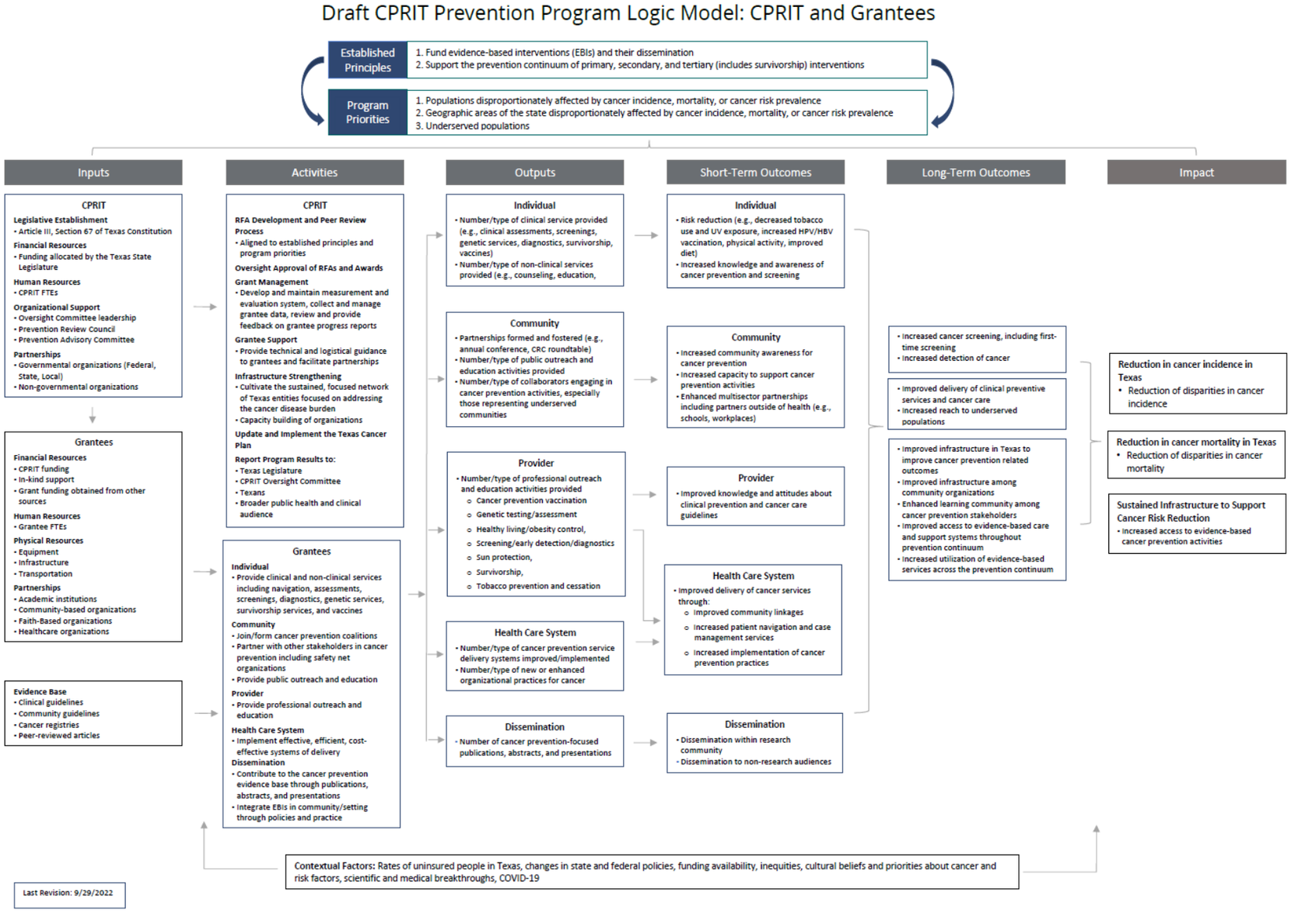
THI conducted an evaluability assessment of the CPRIT Prevention Program to determine whether the program is ready to be comprehensively assessed in such a way that will lead to actionable findings. The evaluability assessment explored three primary domains:

- The plausibility of the impact of the Prevention Program based on program design, activities, and goals
- The feasibility of measuring program impact based on the quantity and quality of readily available data
- The potential utility for a comprehensive assessment

Through a systematic document review, ten key informant interviews, the development of a logic model, and consultation with Prevention Program staff, THI has determined that **the program is poised for a comprehensive assessment, with a few considerations.** The assessment should consider the limitations of available data, the assumptions of the program theory, and the expected uses for the findings. THI and its subcontracted collaborator, MD Anderson, expect to continue close collaboration with CPRIT Prevention Program staff and the PRC in refining the assessment plan and conducting the comprehensive assessment.

APPENDIX B

CPRIT Logic Model



APPENDIX C

CPRIT Program Director Survey Analysis

SCREENING QUESTIONS

Have you served as the Program Director on at least one Prevention Program Grant funded by the Cancer Prevention and Research Institute of Texas (CPRIT) between 2010-2021?

Yes	63	96.9%
No	2	3.1%
TOTAL	65	

Did you work on a CPRIT Prevention Program Grant between the years of 2010-2021? [Required Question if Previously Answered "No"]

Yes	2	100%
No	0	0%

For what length of time did you serve as PD or work on the CPRIT Prevention Program Grant?

The entire grant period	51	81%
Most of the grant period	5	7.9%
Some of the grant period	6	9.5%
Very little of the grant period	1	1.6%
TOTAL	63	

SECTION 1: APPLICATION AND IMPLEMENTATION

Which of the following factors, if any, were barriers to your organization implementing the CPRIT Prevention Program grant(s) activities. [Mark all that apply]

54 RESPONSES

COVID-19 pandemic (e.g., restrictions on in-person services, pandemic response demands, etc.)	28	51.9%
Administrative barriers related to implementation	18	33.3%
Financial barriers	11	20.4%
Lack of interest in the community	7	13.0%
Lack of staff capacity for implementation	7	13.0%
Lack of support from organizational leadership	6	11.1%
Lack of collaboration with other prevention-focused organizations	5	9.3%
Lack of adequate facilities	3	5.6%
Lack of staff training	3	5.6%
Lack of support or guidance from CPRIT	2	3.7%
Lack of interest from my organization	1	1.9%
Other (Please specify)	13	24.1%

OTHER RESPONSES:

Most "Other" responses (27.3%) indicated there were no barriers. "Other" descriptions included limitations of partners and staffing, data collection barriers, or external events like Hurricane Harvey (in order of frequency)

Has the most recent CPRIT Prevention Program grant(s) on which you served as Program Director ended?

No, it is still active	31	50.0%
Yes, it has ended	31	50.0%
TOTAL	62	

Were some or all of the CPRIT Prevention Program activities sustained after the grant ended?

Yes	20	64.5%
No	5	16.1%
Not sure	6	19.4%
TOTAL	31	

Please describe how the CPRIT Prevention Program grant activities were sustained after the end of the grant(s).

16 RESPONSES

Most respondents described that grant activities were sustained through:

- **Infrastructure developments** that were made in the grant period (e.g., EHR protocols, equipment purchased, websites, professional training curriculum)
- **Patient services, professional development, and organizational processes** were the most-mentioned sustained activities, largely because the grant activities developed products or procedures that could last beyond the funding period
- **Additional grant funding** from either other CPRIT grants or awards from CDC, tobacco settlement funds, and other entities

Which of the following factors, if any, were barriers to sustaining the CPRIT Prevention Program grant activities after the grant ended? [Mark all that apply]

29 RESPONSES

Financial barriers	16	55.20%
Lack of staff capacity for implementation	10	34.50%
Lack of interest from my organization	5	17.20%
Lack of support from organizational leadership	5	17.20%
Lack of support or guidance from CPRIT	3	10.30%
Lack of collaboration with other prevention-focused organizations	3	10.30%
Lack of interest in the community	2	6.90%

COVID-19 pandemic (e.g., restrictions on in-person services, pandemic response demands, etc.)	2	6.90%
Lack of adequate facilities	1	3.40%
Lack of staff training	1	3.40%
Administrative barriers related to implementation	1	3.40%
Other (Please specify)	8	27.6%

OTHER RESPONSES:

Included “lack of funding,” lack of provider support, or program had finished

Please indicate the degree to which you agree or disagree with the following statements: [Currently funded only]
I am confident that the grant activities can be sustained over the long term without CPRIT funding.

Strongly agree	5	16.1%
Somewhat agree	8	25.8%
Neither agree nor disagree	5	16.1%
Somewhat disagree	6	19.4%
Strongly disagree	7	22.6%
TOTAL	31	

I am confident that my organization will be able to acquire other funding to support the work of this grant.

Strongly agree	5	16.1%
Somewhat agree	13	41.9%
Neither agree nor disagree	5	16.1%
Somewhat disagree	5	16.1%
Strongly disagree	3	9.7%
TOTAL	31	

SECTION 2: REPORTING

Please indicate the degree to which you agree or disagree with the following statements:

It is/was feasible for my organization to collect the data required for the CPRIT Prevention Program quarterly and annual reports.

Strongly agree	36	59.0%
Somewhat agree	21	34.4%
Neither agree nor disagree	1	1.6%
Somewhat disagree	2	3.3%
Strongly disagree	1	1.6%
TOTAL	61	

The CPRIT Prevention Program reporting system for quarterly and annual reports accurately captures the impact of Prevention Program grant activities.

Strongly agree	22	36.1%
Somewhat agree	26	42.6%
Neither agree nor disagree	6	9.8%
Somewhat disagree	6	9.8%
Strongly disagree	1	1.6%
TOTAL	61	

How feasible would it be/would it have been for your program to collect and report on the following measures:

% of participants with a positive diagnosis for cancer (*all respondents*)

Very feasible	25	41.0%
Somewhat feasible	9	14.8%
Not very feasible	4	6.6%
Not feasible at all	0	0.0%
N/A, my program does/did not conduct screening services	23	37.7%
TOTAL	61	

% of participants with a positive diagnosis for cancer (*excluding those who responded "N/A"*)

Very feasible	25	65.8%
Somewhat feasible	9	23.7%
Not very feasible	4	10.5%
Not feasible at all	0	0.0%
TOTAL	38	

% of participants with a positive diagnosis of cancer who are referred to oncology treatment (*all respondents*)

Very feasible	22	36.1%
Somewhat feasible	9	14.8%
Not very feasible	6	9.8%
Not feasible at all	0	0.0%
N/A, my program does/did not conduct screening services	24	39.3%
TOTAL	61	

% of participants with a positive diagnosis of cancer who are referred to oncology treatment (*excluding those who responded "N/A"*)

Very feasible	22	59.5%
Somewhat feasible	9	24.3%
Not very feasible	6	16.2%
Not feasible at all	0	0.0%
TOTAL	37	

Of those participants referred to oncology treatment, the % who begin treatment (*all respondents*)

Very feasible	13	21.3%
Somewhat feasible	15	24.6%
Not very feasible	6	9.8%
Not feasible at all	2	3.3%
N/A, my program does/did not conduct screening services	25	41.0%
TOTAL	61	

Of those participants referred to oncology treatment, the % who begin treatment (*excluding those who responded "N/A"*)

Very feasible	13	36.1%
Somewhat feasible	15	41.7%
Not very feasible	6	16.7%
Not feasible at all	2	5.6%
TOTAL	36	

How could CPRIT improve the structure of quarterly, annual, and final reports?

40 RESPONSES

Most responses suggested improving the reporting structure by:

- **Updating the reporting layout** with more options for upload-able material types, removing categories that may not apply to every grant
- **Standardizing or tailoring reporting requirements** because many required data points do not apply to all projects (for example, reporting on every cancer type, every county, is not relevant for all grantees)
- **Reducing time-intensiveness of reporting**, such as length of time required to complete the template and number of reports per year

How could CPRIT improve the reporting requirements to more accurately capture the positive impact of Prevention program grant activities?

31 RESPONSES

Most respondents suggested improving reporting requirements by:

- **Making the required metrics more applicable to all grantees** through either:
- **More standardization** of key metrics to allow for comparison across programs, despite different approaches/focuses; or
- **Allowing grantees to tailor some metrics** to more accurately reflect progress/outcomes
- **Including more qualitative data** could better capture processes and outcomes (both successes and challenges)
- **Providing compensation for data collection staff** to better ensure adequate data collection capacity
- **Including additional measures (in order of prevalence):**
    - qualitative descriptions of outcomes/successes;
    - more tailored or project-specific measures;
    - successes and lessons learned reported quarterly, not only in final report;
    - process-oriented measures (vs. outcome measures) reported during implementation period of the grant;
    - return on investment of intervention;
    - estimated costs of not doing the intervention;
    - # of people navigated to treatment;

reporting base population (e.g., # of people screened)

SECTION 3: PARTNERSHIP, IMPACT AND REACH

How many different organizations does/did your organization partner with to carry out activities for your CPRIT Prevention grant? If you were the PD on for more than one grant, respond for your most recently funded grant prior to 2022.

Sample Size	Median	Mean	Mode
53	5	15.1	5

Q	NA	0	1	2	3	4	5	6	8	10	13	15	20	22	23	25	26	35	50	60	85	99
A	15	2	2	7	4	2	10	2	2	7	1	1	2	1	1	1	2	1	1	1	1	2
%	22.1	2.9	2.9	10.3	5.9	2.9	14.7	2.9	2.9	10.3	1.5	1.5	2.9	1.5	1.5	1.5	2.9	1.5	1.5	1.5	1.5	2.9

For the following questions, please indicate your level of agreement with the statement.

My organization developed new partnerships in one or more communities because of participation in the CPRIT Prevention program grant(s).

Strongly agree	44	72.1%
Somewhat agree	14	23.0%
Neither agree nor disagree	3	4.9%
Somewhat disagree	0	0.0%
Strongly disagree	0	0.0%
TOTAL	61	

My organization strengthened existing partnerships in our community because of participation in the CPRIT Prevention Program grant(s).

Strongly agree	44	72.1%
Somewhat agree	12	19.7%
Neither agree nor disagree	5	8.2%
Somewhat disagree	0	0.0%
Strongly disagree	0	0.0%
TOTAL	61	

The CPRIT Prevention Grant(s) strengthened resource sharing between my organization and other organizations or healthcare providers in our grant service region, as it relates to cancer prevention.

Strongly agree	38	62.3%
Somewhat agree	16	26.2%
Neither agree nor disagree	6	9.8%
Somewhat disagree	0	0.0%
Strongly disagree	1	1.6%
TOTAL	61	

Please indicate if your CPRIT Prevention Program grant(s) led to any of the following positive changes or impact in your organization or collaborating organizations: [PDs could select all that apply]

59 RESPONSES

Positive changes to my organization's policies or practices related to cancer prevention	25	42.4%
Strengthened partnerships with prevention-focused organizations	41	69.5%
Increased or improved patient navigation	39	66.1%
Increased professional competency of staff for cancer prevention	37	62.7%
Improved knowledge and attitudes about clinical prevention and cancer care guidelines among providers/medical staff	35	59.3%
Positive changes to policies or practices of collaborating organizations related to cancer prevention	33	55.9%
Increased number of jobs related to cancer prevention	27	45.8%
Improved organizational capacity to develop and implement novel prevention-focused projects	27	45.8%
Increased funding for cancer prevention from non-CPRIT sources	15	25.4%
Other [please specify]	2	3.4%

OTHER RESPONSES:

One respondent said, “Improved organizational capacity for rehabilitation services”; the other respondent said “N/A”

You indicated that the CPRIT Prevention Program grant led to positive changes in policies or practices in your organization or collaborating organizations. Please describe these changes below.

31 RESPONSES

Three main categories of changes were described:

- **Provider-level changes** including protocols, trainings, and competencies about screenings, vaccinations, etc.
- **Organizational-level changes** including protocols, EHR infrastructure, services (like patient navigation), and staff
- **Community partnerships** with grassroot collaborators

The changes made in these areas through grant activities became routine and embedded enough that they eventually benefited non-CPRIT patients. For example, patient navigation services and staff developed under CPRIT grants became standard services for other patients in a clinic/hospital

Please indicate if your CPRIT Prevention Program grant(s) led to any of the following positive changes or impact in the community: [Mark all that apply]

55 RESPONSES

Increased access to prevention services among underserved populations (defined as racial or ethnic minorities, rural populations, medically underserved populations, or underinsured / uninsured populations)	43	78.2%
Increased awareness of cancer prevention in the community	42	76.4%
Increased number of prevention services offered (e.g., screenings, vaccinations)	41	74.5%
Other [please specify]	4	7.3%

OTHER RESPONSES:

Increased awareness of different prevention and treatment services, increased number of patients referred, and development/adoption of tools for prevention services

To what degree did the activities that that your organization led under the CPRIT Prevention Grant effectively reach underserved populations (defined as populations who are racial or ethnic minorities, rural, medically underserved, or underinsured/uninsured)?

To a large degree	42	71.2%
To a moderate degree	13	22.0%
To a small degree	3	5.1%
Not at all	1	1.7%
TOTAL	59	

To what degree did your CPRIT Prevention Program grant(s) engage racially, ethnically, and socioeconomically diverse community members to co-design or implement activities?

To a large degree	32	56.1%
To a moderate degree	14	24.6%
To a small degree	6	10.5%
Not at all	5	8.8%
TOTAL	57	

To what degree did your CPRIT Prevention program grant(s) engage community-based organizations to implement activities?

To a large degree	30	50.8%
To a moderate degree	20	33.9%
To a small degree	5	8.5%
Not at all	4	6.8%
TOTAL	59	

Of the work performed by community-based organizations for the CPRIT Prevention Program, which of the following options best describes the proportion that was compensated from Prevention Program grant funds (vs. in-kind or other sources of funding, such as patient navigator salary within a FQHC)?

100% from CPRIT grant funds	15	27.3%
75% from CPRIT grant funds	18	32.7%
50% from CPRIT grant funds	5	9.1%
25% from CPRIT grant funds	6	10.9%
0% from CPRIT grant funds	6	10.9%
Unable to answer	5	9.1%
TOTAL	55	

Describe one way in which your CPRIT Prevention program grant(s) integrated health equity principles into the funded project? *(For an example of health equity principles, see Health Equity Principles from the American Cancer Society).*

39 RESPONSES

In order of frequency, respondents described the following ways in which their project(s) integrated health equity principles:

- **Intentionally serving people** who identify as racial, ethnic, or gender minorities population, people who are low-income, have a low level of literacy, speak limited English, are uninsured, or live in a rural area.
- **Leveraging community partnerships to increase engagement of priority populations** (for example, partnering with churches, schools, FQHCs)
- **Addressing structural barriers to care** such as clinic hours, locations, costs of services, language of materials, etc.
- **Engaging community members in decision-making or as staff members**

Which of the following factors, if any, were facilitators of your organization's ability to reach priority populations activities (defined as populations who are racial or ethnic minorities, rural, medically underserved, or underinsured/uninsured) through CPRIT Prevention Program grant? [Mark all that apply]

56 RESPONSES

Support from CPRIT	42	75.0%
New or existing partnerships with community organizations	41	73.2%
Tailoring interventions or materials to priority populations	39	69.6%
Previous work in the community	38	67.9%
Work with a community-based coalition	25	44.6%
Strong community interest	22	39.3%
Support from my organization's leadership	22	39.3%
Other factors (please specify)_____	4	7.1%

OTHER RESPONSES:

Factors such as other state and federal funding or work with federal agencies

Which of the following factors, if any, were barriers to your organization's ability to reach priority populations (defined as racial and ethnic minority and rural populations, medically underserved populations, the underinsured, or uninsured) through CPRIT Prevention Program grant activities? [Mark all that apply]

48 RESPONSES

Challenges working with community partners	19	39.6%
Limited amount of funding	15	31.3%
Administrative barriers or delays with sub-grantees	15	31.3%
Lack of sufficient staff	15	31.3%
Staff training needs	10	20.8%
Mistrust in the community	4	8.3%
Administrative barriers or delays with CPRIT	3	6.3%
Other (Please specify) _____	15	31.3%

OTHER RESPONSES:

COVID-19, competing priorities among organizational leaders (within grantee organization and sub-grantees) and perceived sense of competition among partner organizations.

In your own words, what was/were the impact(s) of the CPRIT Prevention Program Grant(s) that you led on priority populations (defined as populations who are racial or ethnic minorities, rural, medically underserved, or underinsured/ uninsured)? If your grant is currently active, please respond on impact to date.

40 RESPONSES

The primary way in which grant projects impacted priority populations was by **substantially increasing access to services** for people who have historically been underserved.

Services included screenings, patient navigation, vaccines, referrals to treatment and follow-up care, etc. The increase in access to care was possible by:

- **Intentionally designing programs** with target populations in mind
- **Addressing structural barriers to care** such as (language, cost, bringing screening services and patient education to community sites, etc.)

What one thing could the CPRIT Prevention Program do differently in the future to increase the impact of the Prevention Program throughout the state?

38 RESPONSES

In order of frequency, the following suggestions were provided:

- **Increased funding** to sustain and expand services once established, to pay for personnel, to offset costs of treatments
- **Facilitate inter-grantee partnerships and networking** to increase resource-sharing, develop collective impact strategies, and avoid duplication of services/programs
- **Expand opportunities to share findings, including with the Texas Legislature.** More channels and means by which to share data, provider-level and community-level education, grant outcomes
- Respondents desire engagement with Texas Legislators in order to provide data generated by CPRIT-supported programs that indicates a need for expanding Medicaid
- **Improve accessibility for smaller organizations.** Consider funding for smaller entities that provide community-based services directly. Facilitate partnerships and networking between large institutions and grassroot organizations to promote collaboration

SECTION 4: BACKGROUND AND FUTURE

How would you categorize your organization?

Academic Institution	40	71.4%
Non-profit organization	9	16.1%
Health care organization	4	7.1%
County/local government	0	0.0%
Other (please specify)	3	5.4%
TOTAL	56	

OTHER RESPONSES:

Categories such as: Foundation (1), Health Care and Allied Academic Institution (1), State agency (1)

How many CPRIT Prevention Program grants have you led (Program Director) since 2010?

One	24	43.6%
Two	14	25.5%
Three	9	16.4%
Four or more	8	14.5%
TOTAL	55	

What additional comments can you provide about your organization's participation in the CPRIT Prevention Program?

22 RESPONSES

The majority of responses had a positive sentiment:

- *"It has been **incredibly helpful** to our organization"*
- *"The availability of CPRIT funds has **dramatically increased** our organization's ability to provide cancer prevention services"*

- *"We are very thankful for all the support provided by CPRIT. **The focus on priority populations and health equity is especially important** and appreciated."*
- *"The **funding has been crucial** to enable us to move evidence-based interventions into practice, especially for areas like exercise/physical activity that are not covered by payers"*
- *"Thank you CPRIT - you are **making a huge difference** for cancer prevention in Texas!"*

Main themes among responses:

- The partnership has been "productive," "beneficial," "positive"
- CPRIT funding has been "crucial," "incredibly helpful," and "dramatically increased" capacity
- Without Medicaid expansion, sustainability of programs and outcomes is limited

We will be conducting an additional survey of organizations identified as key collaborators on CPRIT Prevention Program grants (e.g., community-based organizations, health care organizations, public health departments). The survey will focus on perceived capacity development and sustainability of cancer prevention activities. Would you be willing to provide the contact information of 1-2 key collaborators on your most recent Prevention Program grant so that we can reach out to them?

Yes	27	50.9%
No	26	49.1%
TOTAL	53	

APPENDIX D

CPRIT Program Director – Key Informant Interviews Analysis Summary

IMPLEMENTATION

Main Takeaways

- **Large organizations with strong systems for staffing, referring, administration, etc.** found this to be a key facilitator for implementation.
- **Access to sufficient upfront cashflow is critical for implementation,** given that CPRIT operates on a reimbursement model, which can delay hiring staff and jumpstarting activities.

Key facilitators

- **Partnerships with large organizations** and/or **innovative partnerships** (such as with schools, CBOs, etc.) can lead to smoother implementation
- **Name recognition of CPRIT** facilitated partnerships and trust between grantees, partnering organizations, and the community
- **Flexibility** to spend grant funding on direct services allows activities to operate with fewer delays and barriers related to paying for services

Key barriers

- **General**
    - **Large geographic service areas** of many programs/populations, coupled with limited transportation options and large areas for providers to cover, can inhibit implementation
    - **Lack of Medicaid expansion** or other means for patients to pay for treatment services when needed, leads to hesitation to test/be screened
    - **COVID** was a barrier to implementation for some due to having to cancel in-person events, over-burdened clinics, patient hesitancy, etc.
- **Organizational**
    - **Grant administration requirements** require ample staff time and can detract from focusing on grant activities
    - **Staff turnover** results in gaps in coverage and knowledge, delays in implementation
- **Patient-level**
    - **Transient characteristics of populations,** such as migrant workers, refugees, people with low income who move frequently, etc., makes it challenging to engage and follow-up with people

Relevant quotes

- *"**One factor that really helped us is collaboration with other groups because we realize this is something that we cannot do by ourselves alone.** We expanded the initial coverage of the grant to include over 26 counties. So now we're covering about 32 counties... To cover that wide range of counties, we need partners on multiple levels, partners with physician offices, partners with home health services."*
- ***"Having existing collaborations or ongoing collaborations already are helpful,** that way you can just kind of build on those."*
- *"CPRIT is a reimbursement model**. So, you really need to have capital ahead to be able to implement these things.** And at least when we were a smaller organization, that was a barrier in trying to hire people on your own penny until you got the reimbursement from CPRIT."*
- ***"One of [our] biggest advantages is all the years of experience we have in the community**. I mean, everybody here knows us, they know what we're doing. Public health schools, medical schools, new programs are coming, and everyone wants to work with us, because by working with us they will save ten years of learning. **So, the factors that make it easier for us to continue to offer services, mainly is -- all of us here... have more than 25 years working together."***
- *"Within [partner] agencies... they happen to have a **high level of turnover**. And what that means is that the expertise that we have embedded within the organizations can leave. It sometimes leaves in the middle of our implementation, which then puts us at a place where we kind of have to start over. **This leads to longer implementations. This leads to more expensive implementations."***

SUSTAINABILITY

Main Takeaways

- **The end of CPRIT funding is a main barrier to sustaining grant activities**. Often, staff positions are linked to grant funding and will discontinue after a grant ends. Any gap in funding can impact project momentum, even among grantees that have successfully linked together funding from new CPRIT grants or other funding sources in order to continue services.
- **Integrating grant activities into organizational protocols, staffing plans, and budgets** helps ensure sustainability after grant funding. This requires support from organizational leadership, creatively leveraging other funding sources, or building in practices/protocols to organizational operations to ensure they are continued.
- **At the patient-level, the lack of Medicaid/Medicare/health insurance coverage** limits the long-term impact of prevention services and the ability to continue services without CPRIT funding, especially because CPRIT funding can be used to cover screening costs for populations who are uninsured/underinsured.

Key facilitators

- **Diverse and established partnerships** with organizations that are able and willing to continue grant activities can ensure continuation of activities
- **Integrating grant activities into organizational protocols** can ensure they are continuously implemented

- **Pursuing additional grant funding (CPRIT or otherwise)** is often necessary to continue grant activities, especially among populations who are uninsured or underinsured

Key barriers

- **General**
  - **Lack of Medicaid/Medicare/health insurance coverage among uninsured and underinsured populations** limits the ability to continue services that were covered by CPRIT funding
- **Organizational**
  - **Funding drop-offs can negatively impact project momentum** by leading to changes in organizational priorities, reduced collaboration with partners, and staff restructuring
  - **Staff positions may be discontinued after funding**, resulting in vacancies and turnover that negatively impact sustainability of program activities
- **Patient-level**
  - **Difficulty maintaining contact with patients limits opportunities for routine follow-ups**, especially among communities who are refugees, immigrants, transient, or who do not engage in preventative health care due to other cultural priorities and understandings

Relevant quotes

- ***"Private dollars are not going to make up for the lack of - frankly - federal and state partnership to cover the kinds of services that Medicaid should or does in other states and has not in Texas."***
- ***"Well, the biggest barrier to sustainability is that the patient navigators themselves are paid for by the CPRIT grant,*** *and it's unlikely that the healthcare institution would pick up that cost later."*
- ***"The patients we serve would be handled in other states by the Medicaid expansion…*** *Because we don't have that, we find advanced polyps that need surgical consultation or they have cancer, then navigating them into treatment is very difficult sometimes because* ***we've got to explore patient assistance programs and that sort of thing."***

IMPACT

Main Takeaways

- **Patient-level impact**:
  - There has been notable positive impact on patient-level outcomes, including **increased rates of screening, identifying cancer at earlier stages, and successful navigation into treatment**. These outcomes have especially benefited high-need populations such as those who are uninsured, live in rural areas, and racial and ethnic minorities.
- **Provider-level impact**:
  - Prevention Program grants have **increased capacity and improved competency** for clinical (e.g., physicians, nurses) and para-clinical providers (e.g., CHWs). Notable numbers of professionals and trainees have been educated in protocols and service-delivery, **reducing major gaps in knowledge** especially in rural areas of Texas.

Additionally, many PDs reported **increased professional opportunities** in research and grant acquisitions due to involvement in CPRIT PP.

- **Organizational-level impact**:
    - Many grantee organizations and their partners have **initiated and enhanced organizational systems and protocols for prevention activities** as a result of CPRIT involvement. Additionally, many organizations report having **greater capacity and readiness for securing additional grant fundin**g. CPRIT funding has also improved organizational reputation within the research community, often leading to **strengthened partnerships** and opportunities for community impact.

Key facilitators

- **Funding from CPRIT increases credibility of the grantee organization**, which facilitates partnerships and community trust
- **Strong partnerships** multiply the potential impact of grant activities by engaging more providers, reaching more community members, etc.

Key barriers

- **Limited health insurance coverage and access to primary care** inhibits the overall impact of grant activities, especially among populations who do not have adequate insurance or primary care and therefore do not have viable options for treatment or for ongoing prevention services outside grant activities
- **CPRIT's low reimbursement rate of indirect costs** can result in CPRIT funding being deprioritized by institutions during both the RFP period and throughout implementation
- **Limited infrastructure at some grantee organizations** results in heavy focus on establishing processes and systems, which diverted focus from grant activities

Relevant quotes

- *"**We're actually saving Texans money** by finding early-stage cancers rather than late-stage cancers."*
- *"There is no question that... **we're building a pattern of regular screening into a population that wasn't getting it**... [Our work] is actually shifting the behavior of an entire population of people who are at-risk."*
- *"[The CPRIT grant] started a **whole array of research** that wasn't there before."*
- *"The simple answer is - **a lot of the patients that have benefited from our services would have otherwise never received these services.**"*
- *"[Our grant has] contributed to **strengthening the cancer prevention control service infrastructure** at our institution in the sense that we have facilitated early detection and also diagnostic services."*
- *"[Our grant activities] made [clinical partners] realize that just **offering the HPV vaccine needs to be standard of care,** whereas before I started this work, they saw it as optional."*
- *"We've used [the grant].. to help people, but we've [also] **created a lot of science with the CPRIT programs through our publications, as well as through the other careers that we've been able to launch** within our population science and public health schools."*

COMMUNITY PARTNERS

Key Barriers

DIVERSITY AND CULTURAL COMPETENCE:

- Challenges in partnerships with diverse communities due to limited services and understanding of unique needs.
- Importance of tailored approaches for various cultural groups.

"Well, they were sending letters out in English and Spanish. And so, refugees were getting these letters in English and Spanish, ***and they don't speak either language."***

"So, it's also essential addressing social determinants of health… Collaborating with people, understanding transportation barriers. What impedes people from getting screened? And we may think that we know because we do PubMed research, right? But that doesn't necessarily fly in certain communities. It does not address the issue in some instances. So, we need to understand. It needs to be - how can I say it? - tailored, basically. ***It has to be tailored to that community. To that population."***

GEOGRAPHIC CHALLENGES AND VISIBILITY:

- Challenges in connecting with and collaborating in rural and geographically distant areas.
- Staffing complexities in expansive geographic regions.
- Difficulties in sustaining relationships from a distance.
- Highlighting the significance of local presence and understanding community dynamics for effective outreach.

"***The biggest is their capacity and turnover.*** *Many of the health clinics in rural counties don't have bandwidth for preventive care. They're barely staying afloat taking care of people with acute care needs and so that preventive care falls by the wayside."*

"… keeping that relationship active because we do serve such a large geographic area and we do have so many providers that refer to us that visiting with them and providing new education resources and updated forms and also updating them on new services or change in services, ***that's tricky and takes a lot of manpower involvement****."*

ADMINISTRATIVE AND FUNDING BARRIERS:

- Administrative burdens, including data reporting and fund management, can hinder partnerships.
- Low salaries for specialized roles, like nurses, contribute to turnover, impacting day-to-day operations.

- Resource constraints in public schools hinder participation, affecting the success of health initiatives.
- Resource constraints and personnel challenges in community health clinics.

"Having that day-to-day presence of a nurse who is an oncology expert was really a challenge."

"But if a kid doesn't have food, clothing, and shelter, it hurts with the academics."

"But one deal with the grant, we need correct data, we need a report, and we need to manage the funding..."

"But that preventive care falls by the wayside. There's high turnover of staff, even sometimes where we have hired outreach workers for those particular settings."

CHANGES OR MISALIGNMENT IN PARTNERSHIP FOCUS

- Long-term commitment from healthcare systems is uncertain, affecting the planning of prevention programs.
- Personality dynamics play a significant role in the success or failure of collaborations.
- Importance of clearly defining the terms and expectations of partnerships to ensure alignment.
- Challenges in collaborations between community organizations and academia.
- Academic partnerships often pose significant challenges, with a potential mismatch between research questions and community needs.
- Changes in funding priorities from sponsors pose challenges for sustained support.

"I think the hardest partnerships are not the community ones, they are the ones with academia. That, to me, have always been the most challenging partnerships that I've had."

"The challenges that are also generated with the change of the priorities of the sponsors."

“Whenever you'd have different organizations that have aims beyond things that they have to consider beyond ours, there's always some negotiation.”

“So, there's just a lot of barriers from the organization. It's very territorial.”

“They would agree that something was part of their mission at the time, but then you had no way of knowing whether in three or four years, that would still be the case.”

COMMUNITY ENGAGEMENT AND TRUST:

- Building trust is crucial for successful community interventions.
- Changes in sponsor priorities can impact community trust and the organization's credibility.

“I think that strengthening the outreach piece at the programmatic level. Because when you do it at the programmatic level, you also bring in the realization that it needs to be funded. And what I'm talking about is it's very difficult to maintain visibility from an outreach point of view if we're not actually in the community doing those things.”

Overall Sentiment:

The challenges in building partnerships with diverse communities are evident in the struggle to provide services tailored to unique needs. Geographic challenges pose difficulties connecting with rural areas, emphasizing the significance of local presence for effective outreach. Administrative barriers, including data reporting and funding management, hinder day-to-day operations. Changes or misalignment in partnership focus, especially with academia, present challenges, with personality dynamics and funding priorities influencing success. Community engagement and trust are crucial, requiring a focus on strengthening outreach at the programmatic level to maintain visibility and credibility within the community.

Key Facilitators

STRATEGIC PARTNERSHIPS FOR SERVICE DELIVERY:

- Identify partners with a clear alignment with the objectives and focus areas of the project.
- Prioritize collaborations that bring unique resources, skills, or perspectives to address unmet needs.
- Assess the capacity of potential collaborators to administer and support the proposed interventions effectively.

“We developed county needs assessment tools to determine whether the county, not individual partners, was prepared, had the capacity to partner with us, and we defined what that meant in terms of who our partners could be within that county, their level of need.”

UTILIZATION OF EXISTING INFRASTRUCTURE AND RESOURCES:

- Provider clinic infrastructure provided resources such as space, screenings, and vaccine administration, playing a crucial role in successful projects.
- Leveraging existing clinic relationships helped increase reach rates.
- Utilize existing relationships within the community to establish partnerships.

"They have screened all the patients for their financial status. They have administered most of the vaccines. They've been our greatest partner."

"Most of the relationships were intact, and that helped. We weren't starting from scratch when we started the program."

“They had all the tools to education, everything they needed to do testing and follow-up, and we had the population. We could get the population there. So that worked really well.”

EFFECTIVE MULTICULTURAL COLLABORATION:

- Long-standing collaboration with diverse community groups and leaders helped reach multicultural communities.

- Regular meetings with representatives from various racial groups facilitated information sharing and education.
- Tailor education and materials to be culturally and linguistically appropriate.

"And through our CPRIT grants, we worked with them to be able to reach to the multicultural communities in Houston."

"So over all this time, we've maintained this group of organizations so that we have a pulse on the diversity and access to the different communities."

EFFECTIVE COLLABORATIONS WITH HEALTHCARE PROVIDERS:

- Collaborations with schools and associations proved to be successful for projects.
- Collaborate with healthcare organizations that have the tools and expertise.
- Establish partnerships with organizations that align with the project goals.

"The benefit of partnering with people who deliver behavioral healthcare is that it's like people who do this work talking to people who do this work."

SUSTAINABLE PROGRAM DEVELOPMENT:

- Build alliances with local professionals and institutions for ongoing support.
- Establish data collection systems from subcontractors to avoid challenges.
- Establish advisory committees and community boards to facilitate information flow.
- Emphasizing expectations in MOUs strengthened partnerships and ensured a shared vision.
- Having a clear understanding of community needs and expectations contributed to successful collaborations.

"Addressing social determinants of health is important. Collaborating with people, understanding transportation barriers."

"Folks at our end of these need to realize how it's not challenges as much as going in with a strong MOU, going in with, 'Here's what we expect of you, and here's what we are going to provide.'"

"We have alliances with local GI doctors and local surgeons that can not only perform colonoscopies but also take care of the polyps at the same time if found."

"We have advisory committees. We have community advisory boards. So these are people who are brought into the project, providing different avenues to get information."

Overall Sentiment:

The interviews emphasize the importance of strategic partnerships for effective service delivery, highlighting the need to align with partners who bring unique resources, skills, and perspectives. It underscores the significance of utilizing existing infrastructure and resources, such as clinic relationships, to enhance project success. Additionally, it highlights the value of

multicultural collaboration, effective partnerships with healthcare providers, and sustainable program development through alliances with local professionals, data collection systems, advisory committees, and clear expectations.

HEALTH EQUITY

Key Achievements

ADDRESSING SOCIAL DETERMINANTS OF HEALTH

- Addressing social determinants of health, such as transportation, food insecurity, and language barriers to reach and engage underserved populations.
- Culturally relevant services and materials.

"We were doing outreach specifically for rural area colonias. So it was hard to reach colonias in the Rio Grande Valley, which encompasses the four counties, with limited transportation or other types of social determinants of health that didn't allow them to get to a health center on time."

"We always had to have bilingual in the education. Anything written had to be offered in Spanish and English."

SCREENING AND NAVIGATION SERVICES

- Targeting largely under-screened populations with a higher burden of disease to lower the average time from initial screening to diagnosis.
- Established navigation practices and staff to reduce those lost to follow-up.

"Our average time from initial screening to clinical diagnosis is 22 days. In a North Dallas practice, the average time is 30 days."

"We'll touch over 10,000 patients this year. Less than 2% of those are lost to follow-up."

"...they had a big problem with losing patients after they had a positive screening test. They had up to 40 or 50 percent of the patients before our projects that were not followed up. In other words, they lost them. They had a positive, and then they lost them. So now, we have narrowed that gap to nearly zero."

BUILDING PARTNERSHIPS

- Partnerships with other healthcare organizations were essential for ensuring that patients had access to the full range of cancer prevention services.
- Partnerships with community organizations were essential for providing services that the grant did not cover.

"We had to find ways to make being-- creative ways to find those partners that are parental services in the community, while not putting a strain on the community member themselves, which is really hard."

"We recognize that actually facilitating people that we identified as having cancer into treatment was a bigger chunk of the work that we anticipated and an expense that we needed additional partners to help us take on."

EDUCATION AND ENGAGEMENT

- Providing culturally relevant and linguistically appropriate education and outreach materials.
- Using community-based participatory approaches to develop and implement education and outreach programs to ensure that programs were responsive to the needs of the community.

"We've always collected disaggregated-- we've always disaggregated our data, we've always asked very detailed data from our patients, not only racial, ethnicity, but also language, and also social economical data way before it became trendy."

TAILORED PROGRAMMING

- Tailored programs to the specific needs of the populations served.
- Flexible and adaptable to the community's changing needs to achieve long-term impact.

"What impedes people from getting screened? And we may think that we know because we do PubMed research, right? But that doesn't necessarily fly in certain communities. It does not address the issue in some instances. So we need to understand. It needs to be - how can I say it? - tailored, basically. It has to be tailored to that community, to that population."

OVERALL SENTIMENT:

The interviews revealed a solid commitment to health equity in cancer prevention initiatives. Addressing Social Determinants of Health proved crucial, with success seen in overcoming barriers like transportation and language disparities. Screening and Navigation Services played a key role in reducing the time to diagnosis and minimizing patient loss. Building Partnerships, both within healthcare and with community organizations, was essential for comprehensive services. Education and Engagement strategies focused on cultural sensitivity and community involvement. Tailored Programming, emphasizing flexibility, proved vital for sustained impact. Overall, interviewees emphasized a dedication to inclusivity and community-tailored approaches for meaningful health equity in cancer prevention.

Key Barriers

SOCIAL DETERMINANTS (SUBTHEMES: TRANSPORTATION, CULTURE, AND LANGUAGE):

- Transportation was a major barrier; participants from rural areas and those who were caregivers had particular difficulty getting to appointments.

- Language barriers were another major barrier; it was important to have bilingual staff and educational materials.
- Social determinants of health, such as poverty, food insecurity, and housing instability, also made it difficult to engage participants.

“So for us, it was really hard when they didn't have transportation to get them to an appointment. So we had to find those partnerships in the community that could provide services to them, and yet, get them back in place, back from the clinic to the residence without any problems. Transportation was a huge one.”

“We always had to have bilingual in the education. Anything written had to be offered in Spanish and English.”

HEALTH LITERACY:

- Difficulty understanding and using health information, which can make it difficult to make informed decisions about their health.
- Need to develop and disseminate health education materials that are tailored to the needs of different populations, including those with limited English proficiency.
- Importance of working with community members and organizations to develop and implement health literacy interventions.

"Low health literacy. You have to devote a significant amount of time to education."

STAFFING AND OTHER RESOURCES:

- Difficulty finding and retaining qualified staff, and that they needed more resources to support their programs.
- Importance of having flexible funding that could be used to respond to emerging needs.

“Cultural competency and sensitivities are not a challenge. And this goes to training of staff and the turnover of staff, and to make sure that the staff continually understand the need to be culturally competent and the need to be very sensitive to our community.”

COMMUNITY AND PROVIDER PARTNERSHIPS:

- Some partners were unwilling to collaborate with them or to adopt new approaches to cancer prevention.
- Partners' priorities and agendas sometimes conflicted with their own, which made it difficult to collaborate effectively.
- Some partners were not interested in addressing health equity in their work, which made it difficult to develop and implement collaborative programs.

"... the biggest challenge that we had were with other health and social service providers. There was a lack of willingness to work with us in any kind of meaningful way."

OVERALL SENTIMENT:

The interviews identified a number of barriers to healthy equity in cancer prevention, including equity of health, partnerships, challenges with staffing and resources, health literacy, and cultural competency and sensitivity. Some partners were unwilling to collaborate and were not committed to addressing health equity. Challenges with staffing and resources included finding and retaining qualified staff. Additionally, flexible funding is needed to adapt to the needs of the community. Health literacy was another barrier as people have difficulty understanding and using health information, which can make it difficult for them to make informed decisions about their health. Culturally appropriate health education materials are essential for reaching underserved populations. Finally, cultural competency and sensitivity were important factors in developing and implementing effective cancer prevention programs. Staff must be able to understand and respect the cultural values and beliefs of the communities they serve. These barriers made it difficult for the interviewees to provide underserved populations access to high-quality cancer prevention programs.

REPORTING

Key Barriers

ARS IS NOT USER-FRIENDLY.

- Grantees describe CPRIT Grant Management System (CGMS) user interface as “clunky” and difficult to navigate.
- Grantees experience frequent glitches with the system.
- There is a steep learning curve for using CGMS, but afterwards, using it is not too much of a problem.
- Data fields should be better defined so that grantees know exactly what to report (e.g., “direct interaction”, “outreach”).

“That whole reporting system, especially data part, could be more user-interface-friendly. I mean, it's just clunky. It has different sections and you're never really sure what you’re entering the data for and what it means to get back the data.”

“I think we had some issues with some definitions, … We'd often get called off on one, be like, "No, you need to move that to another section…But intuitively, the way it was written, it seemed like it should go in that section. So clear definitions of what is meant…”

REPORTING REQUIREMENTS ARE PERCEIVED AS EXTENSIVE BY MANY GRANTEES.

- The volume of reports, including quarterly and annual reports, exceeds the number required by other funders.
- Reporting is time consuming and may take away from other service delivery activities.
- Multiple grantees stated that they have staff dedicated specifically to reporting; this may not be possible for smaller organizations with less infrastructure.

"What I can remember is that they were very extensive, very substantial reports. In other words, they required a lot of information. But for me it was a very drastic change, because the agencies that I sent my reports were small reports. But I can understand the importance of every detail, of every question that was asked to report to CPRIT every three months, and especially the annual report. For me, as a nonprofit, it was time-consuming, because I walk outside in the community a lot; But I understand that it was necessary. It was necessary to know all that, all that data."

THE DATA REQUIRED IS NOT TAILORED TO THE PREVENTION WORK FOR SOME GRANTEES.

- Some required data seems too clinical for prevention programs.
- Some programs overlap education, screening, navigation categories, but report fields are tailored to grant type, making accurate and thorough reporting difficult.

"The system wasn't tailored to the nature of the grant you had. So in other words, some of the prevention programs were education grants, some of the programs were services grants, and some might be combinations of… our staff would consistently get confused about whether they were reporting outcomes because, for example, our program might provide some education to providers, but it wasn't the point of the program, and it wasn't a measured outcome."

THERE ARE CHALLENGES WITH COLLECTING DATA FROM COMMUNITY PARTNERS.

- Some populations, such as those who are immigrant or underserved, are reluctant to share information or data due to distrust of the government or academia.
- Clinic EMRs present data integration issues which make it difficult to pull data for CPRIT reporting purposes.
- Community partners doing implementation don't always collect the right data, or collect all data consistently.

"…this has to do with the culture in the community that we're working with, but our community, because we deal with a lot of people who might or are undocumented, it was really hard … for them to trust us, even though they knew who we were in the community. It was hard to gauge and gather some information from them."

Key Facilitators

GRANTEES HAVE ADJUSTED THEIR OPERATIONS TO MEET REPORTING REQUIREMENTS.

- Budgeting for administrative/data entry/project management staff can create economies of scale for PDs with multiple grants, and allows the PDs to focus on implementation.
- Experienced/repeat grantees have developed internal systems or standard processes for tracking and reporting data
- Having access to EMRs to independently pull data facilitates reporting, but is not always possible; grantees know to communicate in advance and consistently with partners.

- When these proactive measures are not enough, grantees appreciate CPRIT's flexibility regarding due dates for reporting.

"So at this point… we are sort of a well-oiled machine being that we've been doing this for 10 years plus. So we've gotten a sense of the data that we need to collect and we've developed systems for collecting that data on a regular basis so that we are able to report it."

"We have data entry people that their time is spread between grants so that data is entered in a timely manner so that reports can be run because if the navigators… have to be bogged down with data entry, then they're not out there … reaching out to the community and talking to individuals…We've managed to be somewhat cost-effective because we have multiple grants, and so we're able to share people's times across them."

Reporting Data Key Takeaways:

GRANTEES MADE SUGGESTIONS FOR DATA TYPES AND METHODS THAT SHOULD BE INCLUDED IN REPORTING.

- Multiple grantees requested that CPRIT addresses equity by disaggregating data by race and ethnicity.
- There were suggestions to begin using national data practices or frameworks, such as HEDIS, PCMH, and reporting on SDOH.
- Grantees recommend using standardized tools, e.g., PRAPARE.
- Some grantees express a desire to report more contextual, qualitative data that tells the story, versus "hard numbers" of outputs and achievement of project goals and outputs, while others like the amount of qualitative/anecdotal data already required.

"I think that CPRIT needs to align itself with national practices like the HEDIS measures, measures for patient-centered medical home, the need to capture more SODH data and use a standardized tool to measure that, either the PRAPARE… or something that the federal government has endorsed. In that way, there's not just CPRIT data, but it's cross-referenced with national data. And so, I think that from that point of view, CPRIT has always been a step behind in what national trends are."

CPRIT FEEDBACK

Positive Feedback

POSITIVE IMPACT OF CPRIT FUNDING:

- Significant impact in cancer prevention, detection, and navigation services after positive screenings.

- Positive sentiments towards the substantial beneficial impact of the dollars and a clear return on investment for each CPRIT dollar spent.
- Consistent expressions of gratitude for CPRIT's existence and contribution to cancer prevention.

"Last year, we found somewhere around 1,000 either cancer as precursors or cancers that we were able to send for treatment. So these dollars are making a huge beneficial impact..."

"I just have a tremendous sense of gratitude that CPRIT exists for so many reasons. And the prevention program, in particular, because it allows us to do work that doesn't have a different home."

"I think CPRIT is a national model of a very successful program. And I'm quite proud of Texas for having it."

EFFICIENCY IN GRANT PROCESSES:

- CPRIT's efficiency in putting out Requests for Proposals (RFP) and securing grant dollars.
- Emphasis on the fairness and sensibility of grant reviews.
- Importance of project quality over personal connections.

"For the most part, I feel that the grant reviews have been fair and well done."

"I always had to put CPRIT up at the top because their application process was pretty straightforward."

"...it really lays out a road map for grant recipients. I think it's easy to know how to be successful because the grants are structured"

SUPPORTIVE PROJECT OFFICERS:

- Recognition of the role of project officers; their roles are essential to the success of grantees and CPRIT overall.
- Emphasis on the personal aspect and the need for direct communication.
- Emphasis on individualized support and how the program officer's knowledge about each grantee is essential to successful collaboration

"Ramona, our project officer, was always awesome. She was always available for questions. She would always reach out when something didn't look right."

"I think CPRIT has great program officers. My program officer, Ramona Magid, has been such a wonderful person. She's passionate about cancer prevention. And she has an incredible memory. I mean, she knows about every grantee. It's important to me in the sea of grantees that there's an individualized approach to it."

"And then with CPRIT, particularly Ramona, the program officer, being so flexible with changing things in response to developing dynamics along the way, that's such a great asset."

CPRIT PRAISE (FLEXIBILITY, ACCESSIBILITY, APPROACHABILITY)

- Positive experiences with CPRIT's flexibility in adapting to unforeseen challenges during project implementation, especially during the pandemic.
- Consistent praise for CPRIT's accessibility, approachability, and willingness to address issues.
- Appreciation for the quick decision-making process for requested changes.
- Highlighting CPRIT's supportive stance and desire for grantees to succeed.

"That's been a very-- it's also a very quick process, right? It's not like, 'Oh man, we need to request a change or an amendment,' or whatever, and then it takes months or weeks to come back. I mean, it's a few days or two."

"I would just like to say that the CPRIT staff themselves have been just incredible. So if you do have a problem with a barrier and you need to try to figure out how to solve it, I have found that you can talk with them, that they're approachable."

"I think it was the flexibility to respond to things like that that allowed it to work because there could have been challenges if CPRIT was less flexible."

"One of the things that was pivotal over time for reporting was how accessible the CPRIT team was within the prevention programs to guide us through that."

"They see your success as their success, and so that's what I've appreciated about working with CPRIT because I really feel that they are rooting for us to succeed and continue to provide the services."

NETWORKING

- Recognition of CPRIT's network and efforts to connect grantees with providers.
- Successfully leveraging the CPRIT award to attract major clinical and community partners for sustained initiatives.
- Positive experiences with collaboration and networking among CPRIT grantees, emphasizing the benefits of collaboration.
- Recognition of project officer's role in making valuable connections among grant recipients.

"When we first got funded, Ramona said, 'Hey, we have identified unique challenges in lung cancer screening; therefore, I'm going to set you up a meeting with all the other PIs of our other lung grants.' And that has now turned into a quarterly meeting where we meet every quarter and discuss successes and challenges."

"The fact that we were able to pull in not just like minor stakeholders but a major clinical partner that was very committed to the screening activity..."

OVERALL SENTIMENT:

The interviews reflected a deep appreciation for the impact of CPRIT funding on cancer prevention and detection services, with a clear acknowledgment of the program's efficiency in grant processes and its emphasis on fairness and sensibility in reviews. Supportive project officers are highlighted as essential to grantees' success, with praise for their personal approach and direct communication. Furthermore, there is consistent praise for CPRIT's flexibility, accessibility, and approachability, especially in adapting to unforeseen challenges during project implementation. CPRIT's efforts to connect grantees and foster collaboration ultimately contribute to the success and sustainability of initiatives.

Critical Feedback

RELATIONSHIPS / ENGAGEMENT:

- Dissatisfaction with the focus shifting primarily to reporting and a desire for more meaningful post-award engagement with CPRIT.
- Request for more frequent opportunities for grantees and collaborative organizations in the prevention space to convene. Underscores the potential value of more regular interactions, facilitating the exchange of ideas, best practices, and solutions to specific challenges.
- Grantees need to sustain visibility and community outreach, but constraints in funding and reporting mechanisms can sometimes hinder these efforts.

"But once you're awarded, all they're focused on now is just the reporting part of it..."

"It would have probably been better if we had a little bit more relationship building with them..."

"I think continuity...after the grant was over, we were completely disengaged..."

“I think that strengthening the outreach piece at the programmatic level. Because when you do it at the programmatic level, you also bring in the realization that it needs to be funded. And what I'm talking about is it's very difficult to maintain visibility from an outreach point of view if we're not actually in the community doing those things.”

DATA COLLECTION AND REPORTING CHALLENGES:

- The reporting system and website of CPRIT are noted for their lack of user-friendliness and intuitiveness.
- Patience and feedback from CPRIT staff play crucial roles as new grantees adapt to the reporting process.
- Challenges arise from the inability to report data beyond the scope of CPRIT’s required reporting.
- Need for exploring innovative reporting indicators calls for a more flexible approach.
- The rigorous reporting demands exert strain on community collaborations.

"The reporting system, especially the data part, could be more user-interface-friendly..."

“Sometimes when you build an interface, you may build one that's great for reporting, but it's not great for the user who's entering the data, and you may build one that's great for the person who's entering the data but doesn't provide the reports that you need. And so, it just is a clunky interface to enter data.”

“If an individual is compliant within church attendance, therefore, they may be more compliant with their medical attendance because church is there.”

“They just don't want to do that, or they don't have the capability to do that. So finally, they gave up. They said, "I don't want the CPRIT fund anymore, but we still want to do this kind of things.”

FUNDING ISSUES:

- Consistent call for increased indirect rates to support marketing and promotion efforts.
- Need for CPRIT to allow additional funding to support community outreach adequately
- Medic

“It's very difficult to maintain visibility from an outreach point of view if we're not actually in the community doing those things.”

“They want us to do community outreach, but there's no support.”

“It's basically a suggestion that in order to do outreach, we may need to look at the budget. I think it needs to be monitored so there's no abuse, definitely. But I think that it would be a good idea to have a line item justified. It needs to be justified for community outreach.”

“…it may help us to be able to argue for more institutional-based support if the institution got higher indirect rates”.

ACADEMIC VS. PRACTICAL FOCUS:

- Concerns about grant reviewers being too academic and disconnected from the practical aspects of the projects.
- Concerns have been raised regarding a shift towards favoring academic projects over non-profit, community-based initiatives.

"A lot of these grant reviewers are academic theorists and either don't understand what we do or don't believe that we can do what we do..."

“CPRIT will award funding to universities, academics, academia, which is not [inaudible] what I'm doing. Academic is going to-- they're going to try to get a cohort. They're going to try to write a white paper out of this. They're going to try to do something out of it, while not benefiting the community.”

COMPLEX GRANT APPROVAL PROCESS:

- Frustration with the multistep grant approval process, including external and internal reviews and misalignment between external reviewers and internal priorities.
- Challenges of a tight timeline between receiving the funding notice and the grant start date, emphasizing the difficulty in initiating necessary processes like hiring.

"...you get your funding notice, and then your grant starts the next day. It's not quite the next day, but it feels like it".

"What the oversight board wants and what the internal strategic priorities of CPRIT want aren't necessarily reflected in the outside reviewers..."

"You've got to write to an audience of academic out-of-staters who really don't understand what it is you're doing..."

OVERALL SENTIMENT:

The interviews revealed several challenges and concerns among grantees regarding their grant with CPRIT. Grantees expressed a desire for more meaningful and continuous engagement beyond reporting obligations. The need for more frequent opportunities for grantees and collaborative organizations to convene underscores a longing for regular interactions to exchange ideas and address challenges. Grantees also highlight data collection and reporting challenges, citing the lack of user-friendliness in CPRIT's systems and the need for more flexibility in reporting indicators. Funding issues are prevalent, with calls for increased indirect rates to support marketing and community outreach efforts, and concerns are raised about the academic focus of grant reviewers, potentially favoring academic projects over community-based initiatives. The complex grant approval process, including tight timelines and misalignment between external and internal priorities, adds to the frustration expressed by grantees. Overall, these sentiments suggest a need for CPRIT to enhance post-award engagement, streamline reporting processes, address funding issues, and balance academic and practical considerations in its grant management approach.

Other Feedback

FUNDING:

Sub-themes: Overhead Costs, No-Cost Extensions, and Funding Challenges.

- Challenge of aligning CPRIT's focus on service provision with the need for additional support staff, especially for complex cases.
- Concern about the capacity of smaller organizations to manage large grants effectively and the potential challenges associated with audits.
- Difference in funding periods between CPRIT and NIH, emphasizing that having realistic goals and objectives is crucial due to the passage of time.
- Importance of no-cost extension is highlighted, enabling projects to fulfill mission and disseminate work effectively.

"My overhead costs on my CPRIT grants are around 30%, and it's been that way since the beginning of time."

"CPRIT has shorter funding periods than NIH does. Three years, typically, versus five."

"CPRIT wants as much of these funds to go to the actual delivery of services as possible."

"I think sometimes... smaller organizations might not always have that infrastructure to manage big grants."

IMPACT MEASUREMENT AND REPORTING:

- Participants emphasize the importance of demonstrating the impact of CPRIT funding, with a focus on return on investment (ROI).
- Explore ways to connect CPRIT-funded projects with existing programs to maximize efficiency and impact, particularly in areas such as cancer screenings.
- Expressions of hope and optimism about the long-term impact of CPRIT-funded programs, citing examples of ongoing initiatives and collaborations even after the official grant period concludes.

"We're actually saving Texans money by finding early-stage cancers rather than late-stage cancers… I'm going to show them an ROI, and it's going to say that for every dollar that the foundation invests in my overhead, we saved the state of Texas between 5 and 6 dollars."

GEOGRAPHIC AND STRUCTURAL CHALLENGES:

- Challenges implementing projects across diverse geographic regions and varying healthcare structures within Texas.
- Acknowledge and address challenges associated with diverse geographic regions and healthcare structures within Texas, considering tailored approaches for different contexts.

"It's a challenge to understand or think about how to implement similar projects... in other counties that don't have that basic structure."

HEALTH EQUITY CHALLENGES

- Challenges related to equity, such as literacy and language issues, particularly in diverse communities.
- Suggestion that CPRIT could play a role in facilitating resources such as a database of clinics and networks.

"There are dozens of the minority groups in Houston, which is a major catchment for first-arriving immigrants. And so we are reaching with our education materials, remembering, again, that we're largely focusing on clinic staff. But our education materials do not accommodate that sort of variety. And so there is inequity"

TECHNICAL ASSISTANCE AND SUPPORT

- The interviewee acknowledges the support received from CPRIT in terms of technical assistance and responsiveness.

- Having a dedicated project officer and a supportive team are identified as facilitators in the successful implementation of CPRIT-funded projects.
- Respondents express the need for workforce development.

"Advocating for just workforce development across the areas... where is our treatment pathway to do that would be helpful."

OVERALL SENTIMENT:

The interviews highlighted various aspects of the experience with CPRIT funding. Challenges related to funding are apparent, including the struggle to align CPRIT's focus on service provision with the need for additional support staff, especially for complex cases, and concerns about the capacity of smaller organizations to effectively manage large grants. Differences in funding periods between CPRIT and NIH are noted, emphasizing the importance of realistic goals and no-cost extensions to fulfill project missions effectively. Impact measurement and reporting are crucial, with participants emphasizing the need to demonstrate the impact of CPRIT funding, connect projects with existing programs, and showcase return on investment. Geographic and structural challenges in implementing projects across diverse regions and healthcare structures within Texas are acknowledged, calling for tailored approaches. Health equity challenges, mainly related to literacy and language in diverse communities, are highlighted, suggesting a potential role for CPRIT in facilitating resources. Despite challenges, there is recognition of CPRIT's support through technical assistance and the importance of dedicated project officers and supportive teams in successful project implementation, with a call for additional workforce development. Overall, the sentiments reflect nuanced experiences with both challenges and positive aspects of CPRIT funding, emphasizing the need for strategic alignment, flexibility, and support to maximize impact.

PROGRAM DIRECTOR – KEY INFORMANT INTERVIEW GUIDE

Introduction and Interview Protocol

Interviewer: Hello, thank you for giving me some time to speak with you today. My name is [INTERVIEWER'S NAME] and I am from the Texas Health Institute. The Cancer Prevention and Research Institute of Texas (CPRIT) has contracted Texas Health Institute to conduct a two-year assessment of the CPRIT Prevention Program from 2010 through 2020. We are partnering with MD Anderson Cancer Center for the assessment. As part of the assessment's second phase, we have surveyed Program Directors to understand the perspectives of CPRIT grantees. In this interview, we would like to learn more about barriers and facilitators to implementation, program sustainability, reporting, partnerships, and program impact, in your own words.

Our discussion today will take about 60 minutes. Your participation is entirely voluntary. I would like to record the conversation so I do not miss any of your comments. You may, however, ask that I pause the recording at any time if you do not want to be recorded for a specific comment. You may also choose to skip any question that you do not wish to answer. After this interview, my team and I will analyze the responses from all participants and identify themes for our final report. Your responses will be de-identified and will not be reported in any way that could identify you. Recordings from the interview will be destroyed after analysis is complete.

Do you have any questions about this?

Is it okay to start the recording? **[If YES, proceed with interview]**

As we go through these questions, please answer based on your knowledge of the CPRIT Prevention Program specifically. While CPRIT also funds academic research and product development, the focus of this assessment is CPRIT's Prevention Program.

Before we begin, we'd like to confirm our understanding of your work as a grantee of the CPRIT Prevention Program: [The interviewer will review the following and obtain consensus]

- Number of CPRIT Prevention Program grants led by PI since 2010
- Prevention Focus
- [Interviewer will ask the PD to briefly describe the following; if multiple grants were awarded, the PD may choose to highlight one or two]
- Goal of the grant(s)
- Priority Population(s)

Section 1: Implementation and Sustainability

First, we have a few questions about program implementation and sustainability. If you received multiple grants, specify which you are referring to, as applicable.

1. What factors facilitated your organization's ability to implement grant activities?
2. What factors were barriers to implementation of grant activities?
    a. Did these barriers originate in your organization or within CPRIT, or both?
3. What factors facilitated your organization's ability to sustain grant activities or outcomes after the CPRIT Prevention Program grant ended?
4. What factors were barriers to your organization's ability to sustain grant activities or outcomes after the CPRIT Prevention Program grant ended?
    a. Did these barriers originate in your organization, within CPRIT, or both?
    b. Did your project overcome or address these barriers? If so, how?

Section 2: Reporting

Now we would like to talk about your experience with quarterly and annual reporting for the CPRIT Prevention Program grant(s) you led:

5. Who on your team was responsible for collecting and submitting required reporting data to CPRIT?
    a. [Prompt if needed] Did you (or they) experience challenges with collecting the required data for reporting? [IF YES] Please describe those challenges.
6. How could CPRIT improve the data collection to best capture the impact of the Prevention Program?

Section 3: Partnerships, Health Equity, and Program Impact

In this last portion, we want to discuss partnerships, health equity, and impact of the CPRIT Prevention Program grants.

7. Did principles of health equity inform your CPRIT Prevention program activities? *(For an example of health equity principles, see Health Equity Principles from the American Cancer Society)* [IF YES] How so?
    a. What challenges, if any, did you experience in advancing health equity in cancer prevention during the CPRIT Prevention Program grant?
    b. What factors facilitated advancing health equity in cancer prevention during the CPRIT Prevention Program grant?
    c. What additional support is needed from CPRIT to advance health equity in the CPRIT cancer Prevention Program?
8. We are interested in learning about the partners and collaborators you engaged to deliver the CPRIT Prevention program grant activities.
    a. What examples can you give of partnerships or collaborations that you consider successful?

        i. [Prompt if needed] What factors contributed to that success?
    b. What examples can you give of partnerships or collaborations that you consider challenging or unsuccessful?
        i. [Prompt if needed] What factors contributed to those challenges?
9. Has the CPRIT Prevention Program impacted one or more communities of focus? You can speak to your grant or the program more broadly. [If Yes] How?
    a. What about communities that are medically underserved, racial or ethnic minorities, rural, or underinsured/uninsured?
    b. [Prompt, if needed] What about the infrastructure for cancer prevention and control services in the communities served? [If examples needed:] These could include new screening services, more accessible screening services, initiatives promoting healthy behaviors, cancer prevention education, etc.
10. In what ways did the CPRIT Prevention Program grant impact your organization?
    a. [Prompt if needed]New resources/staff, new ideas, new areas of focus for your organization
11. How has leading a CPRIT Prevention Program grant/grants impacted you professionally?
    a. [Prompt if needed]: Your institution?
    b. [Prompt if needed]: Your career growth?
    c. [Prompt if needed]: Your skills and ability to implement prevention projects?
12. Thinking of CPRIT's role in supporting grantees, what is the most important thing CPRIT did to support your program?
13. What could CPRIT could have done differently that would have enabled your program grant to have had a greater impact?
14. What else would you like to tell us about your experience leading a CPRIT Prevention Program grant?

Wrap Up

Thank you again for your time and the valuable information you shared today. The Final Assessment Report will be finalized by the end of February 2024 and disseminated to CPRIT leadership and stakeholders, including you and other key informants.

APPENDIX E

CPRIT Collaborator Survey Analysis

SCREENING QUESTIONS

Did you participate as a collaborator and/or sub-contractor on one or more CPRIT Prevention Program Grant(s) at any time between 2016-2020? [Required Question]

27 RESPONSES

Category	Count	Percent
Yes (If YES, go to #2)	22	81.5%
No (If NO, terminate survey)	5	18.5

We acknowledge that some individuals/organizations may have collaborated/acted as a sub-contractor on multiple CPRIT Prevention Program Grants. For the remaining questions, please think about the most recent CPRIT Prevention Program Grant on which you collaborated.

Which of the following best describe the type of organization you worked for as a collaborator and/or subcontractor on the CPRIT Prevention Program Grant? [Select all that apply].

21 RESPONSES

Category	Count	Percent
Academic Institution	11	52.4%
Nonprofit Organization	5	23.8%
Healthcare Facility	4	19.0%
State/County/City Health Department	3	14.3%
Community Based Organization	2	9.5%
Other part of State/County/Local Government	0	0.0%
Other (please specify):	0	0.0%

Which of the following describes the primary focus or focuses of the Prevention Program Grant? [Select all that apply].

21 RESPONSES

Category	Count	Percent
Screening and Early Detection	14	66.7%
Public Education and Outreach	8	38.1%
Primary Prevention	7	33.3%
Professional Education and Training	6	28.6%
Navigation to Clinical Services	5	23.8%
Dissemination of CPRIT interventions	5	23.8%
Other (please specify)	0	0.0%

Please indicate if participation as a collaborator and/or sub-contractor in the CPRIT Prevention Program grant(s) led to any of the following positive changes or impact in your organization: [Select all that apply]

20 RESPONSES

Category	Count	Percent
Improved knowledge and attitudes about clinical prevention and cancer care guidelines among providers/medical staff	14	70.0%
Strengthened partnerships with prevention-focused or cancer-focused organizations	12	60.0%
Increased or improved skills of staff working on cancer prevention	10	50.0%
Increased or improved patient navigation	9	45.0%
Increased or more efficient use of resources	9	45.0%
Increased number of staff working on cancer prevention	7	35.0%
New or strengthened partnerships	7	35.0%
Positive changes to my organization's policies or practices related to cancer prevention	7	35.0%
Increased number of jobs related to cancer prevention	5	25.0%

Improved organizational capacity to develop and implement novel prevention-focused projects	5	25.0%
Increased funding for cancer prevention from non-CPRIT sources	4	20.0%
Infrastructure improvements	1	5.0%
Other [please specify]	0	0
None of the above		

[If A, skip to #5; [and/or] if D, skip to #6. If neither, skip to #7]

You indicated that your participation as a collaborator led to positive changes in your organization's policies or practices related to cancer prevention. Please describe the change(s) made and if those changes were incorporated into your organization's standard operating procedures. [Open text]

6 RESPONSES

Summary: Survey responses (n=6) indicated that collaborator participation led to:

- **Changes in organizational policies and practices** related to screening services and cancer prevention services and education
- **Increased access to screening services** and other evidence-based interventions that reportedly led to increase in vaccine rates, navigation through services, and early referrals

You indicated that your participation as a collaborator increased or improved patient navigation. Please describe how your organization increased or improved patient navigation. [Open text]

7 RESPONSES

Summary: Survey responses (n=7) indicated that collaborator participation had a positive impact on:

- **Hiring additional patient navigators**
- **Improving quantity and quality** of patient navigation services
- **Improving patient outcomes,** especially for patients without insurance, through increased access to screening services, vaccinations, diagnostic studies, and treatment,

In your own words, what was the impact of the CPRIT Prevention Program Grant on your community? If your grant is currently active, please respond on impact to date. [Open text]

19 RESPONSES

Summary: The most commonly reported impact on the community included:

- **Notable increase in access to screening and detection services**
- **Improved patient outcomes** due to increased access to service
  - Patient-level outcomes included increased access to preventative screenings, access to follow-up tests, improved awareness of available services, and overall "saved lives"
- **Increased awareness of available services and prevention education** among community members and community health care providers
- **Leadership issues of the Project Director Grantee** was mentioned by one respondent as a primary barrier to community impact

In your opinion, did your work as a sub-contractor/collaborator with the CPRIT Prevention Program Grant contribute to any of the following outcomes related to cancer prevention in your community? [Select all that apply]

18 RESPONSES

Category	Count	Percent
Increased cancer screening rates	13	72.2%
Increased access to prevention services among underserved populations (defined as racial or ethnic minorities, rural populations, medically underserved populations, or underinsured/uninsured populations)	12	66.7%
Increased awareness of cancer prevention in priority populations	10	55.6%
Increased HPV vaccination rates	8	44.4%
Increased availability of sites for colorectal cancer screening	7	38.9%
Increased availability of sites for cervical cancer screening	7	38.9%
Increased educational programs for cancer patients and survivors	5	27.8%
Increased availability of sites for mammography	4	22.2%
Increased programming for cancer survivors	1	5.6%
Other, please specify:	0	0.0%
None of the above	2	11.1%

Has the CPRIT Prevention Program grant ended?

19 RESPONSES

Category	Count	Percent
Yes	8	42.1%
No	11	57.9%

[If YES, skip to #10. If NO, skip to #12]

Did some or all the activities that were funded by the CPRIT Prevention Program continue after the grant ended? [Select all that apply]

8 RESPONSES

Category	Count	Percent
Yes, some or all continued with internal funding	3	37.5%
Yes, some or all continued with external funding	0	0.0%
No, no activities continued after the CPRIT Prevention Program grant ended.	4	50.0%
I don't know.	1	12.5%

[If A or B, skip to #11. If C or D, skip to #12]

For how long did the activities that were sustained continue? If more than one activity, consider the primary activity that was sustained after grant ended

3 RESPONSES

Category	Count	Percent
Less than 1 year	0	0.0%
More than 1 year but less than 2 years	2	66.7%
More than 2 years but less than 3 years	0	0.0%
3 or more years	1	33.3%

Which of the following factors, if any, were barriers to sustaining the CPRIT Prevention Program grant activities after the grant ended? [Mark all that apply] (only ask for projects that have ended)

8 RESPONSES

Category	Count	Percent
Lack of funding for program supplies and non-personnel expenses	4	50.0%
Lack of staff salary support	3	37.5%
Lack of adequate facilities	1	12.5%
Lack of staff training	1	12.5%
Lack of collaboration with other prevention-focused organizations	1	12.5%
COVID-19 pandemic	1	12.5%
Lack of interest from my organization	0	0.0%
Lack of interest in the community	0	0.0%
Lack of support from organizational leadership	0	0.0%
Lack of staff capacity for implementation	0	0.0%
Lack of support or guidance from CPRIT	0	0.0%
Administrative barriers related to implementation	0	0.0%
Other (Please specify)	0	0.0%
No barriers	0	0.0%

If CPRIT required grantees and their collaborators/subcontractors to report on patient referral to and enrollment in cancer treatment after a positive test result from cancer screening, how feasible would it be for your organization to regularly collect and report on that type of information?

19 RESPONSES

Category	Count	Percent
Very feasible	8	42.1%
Somewhat feasible	5	26.3%
Not very feasible	0	0.0%
Not feasible at all	3	15.8%
Not relevant (my organization's role as a subcontractor does not include screening services)	3	15.8%

I would be willing to collaborate/be a sub-contractor with another CPRIT grantee in the future.

19 RESPONSES

Category	Count	Percent
Strongly disagree	0	0.0%
Disagree	0	0.0%
Neither agree nor disagree	2	10.5%
Agree	2	10.5%
Strongly agree	15	78.9%

[If STRONGLY DISAGREE or DISAGREE, skip to #15. If any other option, skip to #16]

What is the primary reason why you would not be willing to be a collaborator or subcontractor on a future CPRIT project? [Open text]

0 RESPONSES

Please describe any specific needs that your organization had related to the CPRIT Prevention Program grant that were not met by the primary grantee: [Open text]

4 RESPONSES

The following needs were not met by the primary grantee:

- Sustainability of grant activities
- Communication and logistics coordination
- Limited funding/financial support for treatment services, especially for “unfunded patients”

Did you have any challenges with the contracting process with the primary CPRIT Prevention program grant recipient?

19 RESPONSES

Category	Count	Percent
Yes	0	0.0%
No	19	100.0%

[If YES, go to #18. If NO, go to #19]

Please describe these challenges with the contracting process: [Open text]

0 RESPONSES

What, if anything, would have made the CPRIT Prevention Program collaboration/subcontract more successful for your organization? [Open text]

7 RESPONSES

Summary:

- **Increasing type and quantity of prevention/detection services**, such as through expanding mobile services, increasing test availability, or decreasing eligibility requirements
- **Sub-awardees receiving funds directly** and/or improving inter-agency payment processes
- **Reducing administrative requirements** related to contracting, data, and payments

APPENDIX F

Publications from CPRIT-Funded Projects

Publications from CPRIT-funded projects				
APT Score	**Authors**	**Grant #**	**Journal Title**	**Article Title**
0.95	Shokar N.K.; Byrd T.; Salaiz R.; Flores S.; Chaparro M.; Calderon-Mora J.; Reininger B.; Dwivedi A.	PP110156	Against colorectal cancer in our neighborhoods (ACCION): A comprehensive community-wide colorectal cancer screening intervention for the uninsured in a predominantly Hispanic community	Preventive Medicine
0.95	Kaul S.; Do T.Q.N.; Hsu E.; Schmeler K.M.; Montealegre J.R.; Rodriguez A.M.	PP160097	School-based human papillomavirus vaccination program for increasing vaccine uptake in an underserved area in Texas	Papillomavirus Research
0.95	Rodriguez A.M.; Do T.Q.N.; Goodman M.; Schmeler K.M.; Kaul S.; Kuo Y.-F.	PP160097	Human Papillomavirus Vaccine Interventions in the U.S.: A Systematic Review and Meta-analysis	American Journal of Preventive Medicine
0.95	Parra-Medina D.; Morales-Campos D.Y.; Mojica C.; Ramirez A.G.	PP110057	Promotora Outreach, Education and Navigation Support for HPV Vaccination to Hispanic Women with Unvaccinated Daughters	Journal of Cancer Education
0.95	Piñeiro B.; Vidrine D.J.; Wetter D.W.; Hoover D.S.; Frank-Pearce S.G.; Nguyen N.; Zbikowski S.M.; Vidrine J.I.	PP120191	Implementation of Ask-Advise-Connect in a safety net healthcare system: Quitline treatment engagement and smoking cessation outcomes	Translational Behavioral Medicine

0.95	Rodriguez A.M.; Zeybek B.; Vaughn M.; Westra J.; Kaul S.; Montealegre J.R.; Lin Y.-L.; Kuo Y.-F.	PP160097	Comparison of the long-term impact and clinical outcomes of fewer doses and standard doses of human papillomavirus vaccine in the United States: A database study	Cancer
0.95	Balakrishnan M.; George R.; Sharma A.; Graham D.Y.	PP160089	Changing Trends in Stomach Cancer Throughout the World	Current Gastroenterology Reports
0.95	Gupta S.; Balasubramanian B.A.; Fu T.; Genta R.M.; Rockey D.C.; Lash R.	PP100039	Polyps With Advanced Neoplasia Are Smaller in the Right Than in the Left Colon: Implications for Colorectal Cancer Screening	Clinical Gastroenterology and Hepatology
0.75	Poplack D.G.; Fordis M.; Landier W.; Bhatia S.; Hudson M.M.; Horowitz M.E.	PP100090 PP130070	Childhood cancer survivor care: Development of the Passport for Care	Nature Reviews Clinical Oncology
0.75	Lyons E.J.; Baranowski T.; Basen-Engquist K.M.; Lewis Z.H.; Swartz M.C.; Jennings K.; Volpi E.	PP130079	Testing the effects of narrative and play on physical activity among breast cancer survivors using mobile apps: Study protocol for a randomized controlled trial	BMC Cancer
0.75	Correa-Fernández V.; Wilson W.T.; Kyburz B.; O'Connor D.P.; Stacey T.; Williams T.; Lam C.Y.; Reitzel L.R.	PP130032 PP170070	Evaluation of the taking Texas Tobacco free workplace program within behavioral health centers	Translational Behavioral Medicine
0.75	Farias A.J.; Savas L.S.; Fernandez M.E.; Coan S.P.; Shegog R.; Healy C.M.; Lipizzi E.; Vernon S.W.	PP140183	Association of physicians perceived barriers with human papillomavirus vaccination initiation	Preventive Medicine
0.75	Savas L.S.; Fernández M.E.;	PP100077 PP110081	Human papillomavirus vaccine: 2-1-1 helplines	American Journal of Preventive Medicine

	Jobe D.; Carmack C.C.		and minority parent decision-making	
0.75	Yek C.; de la Flor C.; Marshall J.; Zoellner C.; Thompson G.; Quirk L.; Mayorga C.; Turner B.J.; Singal A.G.; Jain M.K.	PP150079	Effectiveness of direct-acting antiviral therapy for hepatitis C in difficult-to-treat patients in a safety-net health system: A retrospective cohort study	BMC Medicine
0.75	Bui T.C.; Piñeiro B.; Vidrine D.J.; Wetter D.W.; Frank-Pearce S.G.; Vidrine J.I.	PP120191	Quitline treatment enrollment and cessation outcomes among smokers linked with treatment via Ask-Advise-Connect: Comparisons among smokers with and without HIV	Nicotine and Tobacco Research
0.75	Murphy C.C.; Halm E.A.; Skinner C.S.; Balasubramanian B.A.; Singal A.G.	PP160075	Challenges and approaches to measuring repeat fecal immunochemical test for colorectal cancer screening	Cancer Epidemiology Biomarkers and Prevention
0.75	Falk D.; Cubbin C.; Jones B.; Carrillo-Kappus K.; Crocker A.; Rice C.	PP120099 PP150089	Increasing Breast and Cervical Cancer Screening in Rural and Border Texas with Friend to Friend Plus Patient Navigation	Journal of Cancer Education
0.75	Ojinnaka C.; Vuong A.; Helduser J.; Nash P.; Ory M.G.; McClellan D.A.; Bolin J.N.	PP110176	Determinants of Variations in Self-reported Barriers to Colonoscopy Among Uninsured Patients in a Primary Care Setting	Journal of Community Health
0.75	Mojica C.M.; Flores B.; Ketchum N.S.; Liang Y.	PP100067	Health Care Access, Utilization, and Cancer Screening Among Low-Income Latina Women	Hispanic Health Care International
0.75	Turner B.J.; Rochat A.; Lill S.; Bobadilla R.; Hernandez L.; Choi A.; Guerrero J.A.	PP150079	Hepatitis C virus screening and care: Complexity of implementation in primary care practices	Annals of Internal Medicine

			serving disadvantaged populations	
0.75	Milenkov A.R.; Felini M.; Baker E.; Acharya R.; Diese E.L.; Onsa S.; Fernando S.; Chor H.	PP170012 PP130074	Uptake of cancer screenings among a multiethnic refugee population in North Texas, 2014-2018	PLoS ONE
0.75	Yi J.K.; Lackey S.C.; Zahn M.P.; Castaneda J.; Hwang J.P.	PP100016	Human papillomavirus knowledge and awareness among vietnamese mothers	Journal of Community Health
0.75	Murphy C.C.; Sen A.; Watson B.; Gupta S.; Mayo H.; Singal A.G.	PP160075	A systematic review of repeat fecal occult blood tests for colorectal cancer screening	Cancer Epidemiology Biomarkers and Prevention
0.75	Victory M.; Do T.Q.N.; Kuo Y.-F.; Rodriguez A.M.	PP160097	Parental knowledge gaps and barriers for children receiving human papillomavirus vaccine in the Rio Grande Valley of Texas	Human Vaccines and Immunotherapeutics
0.75	Yi J.K.; Anderson K.O.; Le Y.-C.; Escobar-Chaves S.L.; Reyes-Gibby C.C.	PP100016	English proficiency, knowledge, and receipt of HPV vaccine in Vietnamese-American Women	Journal of Community Health
0.5	Montealegre J.R.; Mullen P.D.; L. Jibaja-Weiss M.; Vargas Mendez M.M.; Scheurer M.E.	PP100201	Feasibility of Cervical Cancer Screening Utilizing Self-sample Human Papillomavirus Testing Among Mexican Immigrant Women in Harris County, Texas: A Pilot Study	Journal of Immigrant and Minority Health
0.5	Gerber D.E.; Hamann H.A.; Chavez C.; Dorsey O.; Santini N.O.; Browning T.; Ochoa C.D.; Adesina J.; Natchimuthu V.S.;	PP190052	Tracking the Nonenrolled: Lung Cancer Screening Patterns Among Individuals not Accrued to a Clinical Trial	Clinical Lung Cancer

	Steen E.; Zhu H.; Lee S.J.C.			
0.5	Correa-Fernández V.; Wilson W.T.; Shedrick D.A.; Kyburz B.; L. Samaha H.; Stacey T.; Williams T.; Lam C.Y.; Reitzel L.R.	PP130032	Implementation of a tobacco-free workplace program at a local mental health authority	Translational Behavioral Medicine
0.5	Fernández-Esquer M.E.; Nguyen F.M.; Atkinson J.S.; Le Y.-C.; Chen S.; Huynh T.N.; Schick V.	PP130075	Sức Khỏe là Hạnh Phúc (Health is Happiness): promoting mammography and pap test adherence among Vietnamese nail salon workers	Women and Health
0.5	Marquez E.; Geng Z.; Pass S.; Summerour P.; Robinson L.; Sarode V.; Gupta S.	PP100039 PP120229	Implementation of routine screening for Lynch syndrome in university and safety-net health system settings: Successes and challenges	Genetics in Medicine
0.5	Vidoni M.L.; Lee M.; Mitchell-Bennett L.; Reininger B.M.	PP110163	Home Visit Intervention Promotes Lifestyle Changes: Results of an RCT in Mexican Americans	American Journal of Preventive Medicine
0.5	Lairson D.R.; Huo J.; Ball Ricks K.A.; Savas L.; Fernández M.E.	PP100077	The cost of implementing a 2-1-1 call center-based cancer control navigator program	Evaluation and Program Planning
0.5	Garey L.; Neighbors C.; Leal I.M.; Lam C.Y.; Wilson W.T.; Kyburz B.; Stacey T.; Correa-Fernández V.; Williams T.; Zvolensky M.J.; Reitzel L.R.	PP130032 PP160081 PP170070	Tobacco-related knowledge following a comprehensive tobacco-free workplace program within behavioral health facilities: Identifying organizational moderators	Patient Education and Counseling
0.5	Gramatges M.M.; de Nigris F.B.; King J.; Horowitz M.E.; Fordis M.; Poplack D.G.	P130070 PP100090 PP170036	Improving childhood cancer survivor care through web-based platforms	ONCOLOGY (United States)

0.5	Molokwu J.C.; Penaranda E.; Shokar N.	PP110156	Decision-Making Preferences Among Older Hispanics Participating in a Colorectal Cancer (CRC) Screening Program	Journal of Community Health
0.5	Parra S.; Oden M.; Schmeler K.; Richards-Kortum R.	P150012	Low-cost instructional apparatus to improve training for cervical cancer screening and prevention	Obstetrics and Gynecology
0.5	Higashi R.T.; Jain M.K.; Quirk L.; Rich N.E.; Waljee A.K.; Turner B.J.; Lee S.C.; Singal A.G.	PP150079	Patient and provider-level barriers to hepatitis C screening and linkage to care: A mixed-methods evaluation	Journal of Viral Hepatitis
0.5	Walker T.J.; Rodriguez S.A.; Vernon S.W.; Savas L.S.; Frost E.L.; Fernandez M.E.	PP140183	Validity and reliability of measures to assess constructs from the inner setting domain of the consolidated framework for implementation research in a pediatric clinic network implementing HPV programs	BMC Health Services Research
0.5	McClellan D.A.; Ojinnaka C.O.; Pope R.; Simmons J.; Fuller K.; Richardson A.; Helduser J.W.; Nash P.; Ory M.G.; Bolin J.N.	PP110176	Expanding access to colorectal cancer screening: Benchmarking quality indicators in a primary care colonoscopy program	Journal of the American Board of Family Medicine
0.5	Balakrishnan M.; George R.; Sharma A.; Graham D.Y.; Malaty H.M.	PP160089	An Investigation into the Recent Increase in Gastric Cancer in the USA	Digestive Diseases and Sciences
0.5	Gross T.T.; Rahman M.; M. Wright A.; M. Hirth J.; Sarpong K.O.; Rupp R.E.; D. Barrett A.; Berenson A.B.	PP120150	Implementation of a Postpartum HPV Vaccination Program in a Southeast Texas Hospital: A Qualitative Study Evaluating Health Care Provider Acceptance	Maternal and Child Health Journal

0.25	Balakrishnan M.; El-Serag H.B.	PP160089	Editorial: NAFLD-related hepatocellular carcinoma - increasing or not? With or without cirrhosis?	Alimentary Pharmacology and Therapeutics
0.25	Deng F.; Chen D.; Swartz M.C.; Sun H.	PP120100	A Pilot Study of a Culturally Tailored Lifestyle Intervention for Chinese American Cancer Survivors	Cancer Control
0.25	Salinas J.J.; Sheen J.; Carlyle M.; Shokar N.K.; Vazquez G.; Murphy D.; Alozie O.	PP180026	Using electronic medical record data to better understand obesity in hispanic neighborhoods in El Paso, Texas	International Journal of Environmental Research and Public Health
0.25	Tenner L.; Melhado T.V.; Bobadilla R.; Turner B.J.; Morgan R.	PP150079	The cost of cure: Barriers to access for hepatitis C virus treatment in South Texas	Journal of Oncology Practice
0.25	Singal A.G.; Murphy C.C.	PP170121	Hepatocellular Carcinoma: A Roadmap to Reduce Incidence and Future Burden	Journal of the National Cancer Institute
0.25	Edwardson N.; Bolin J.N.; McClellan D.A.; Nash P.P.; Helduser J.W.	PP110176	The cost-effectiveness of training US primary care physicians to conduct colorectal cancer screening in family medicine residency programs	Preventive Medicine
0.25	Austin J.D.; Rodriguez S.A.; Savas L.S.; Megdal T.; Ramondetta L.; Fernandez M.E.	PP140208	Using Intervention Mapping to Develop a Provider Intervention to Increase HPV Vaccination in a Federally Qualified Health Center	Frontiers in Public Health
0.25	Chen L.-S.; Goodson P.; Jung E.; Popoola O.; Kwok O.-M.; Muenzenberger A.	PP100214 PP140210	A survey of Texas health educators' family health history-based practice	American Journal of Health Behavior
0.25	Chen L.-S.; Yeh Y.-L.; Goodson P.; Zhao	PP100214	Training Texas Public Health Professionals and	American Journal of Health Promotion

	S.; Jung E.; Muenzenberger A.; Kwok O.-M.; Ma P.		Professionals-In-Training in Genomics	
0.25	Pruitt S.L.; Leonard T.; Murdoch J.; Hughes A.; McQueen A.; Gupta S.	PP100039	Neighborhood effects in a behavioral randomized controlled trial	Health and Place
0.25	Berenson A.B.; Patel P.R.; Barrett A.D.	*PP120150*	Is administration of the HPV vaccine during pregnancy feasible in the future?	Expert Review of Vaccines
0.25	Hughes A.E.; Lee S.C.; Eberth J.M.; Berry E.; Pruitt S.L.	PP180018	Do mobile units contribute to spatial accessibility to mammography for uninsured women?	Preventive Medicine
0.25	Montealegre J.R.; Gossey J.T.; Anderson M.L.; Chenier R.S.; Chauca G.; Rustveld L.O.; Jibaja-Weiss M.L.	PP100201	Implementing targeted cervical cancer screening videos at the point of care	Patient Education and Counseling
0.25	Rustveld L.O.; Valverde I.; Chenier R.S.; McLaughlin R.J.; Waters V.S.; Sullivan J.; Jibaja-Weiss M.L.	PP100201	A novel colorectal and cervical cancer education program: Findings from the community network for cancer prevention forum theater program	Journal of Cancer Education
0.25	Cui Y.; Sangi-Haghpeykar H.; Patsner B.; Bump J.M.M.; Williams-Brown M.Y.; Binder G.L.; Masand R.P.; Anderson M.L.	PP120091	Prognostic value of endocervical sampling following loop excision of high grade intraepithelial neoplasia	Gynecologic Oncology
0.25	Perales J.; Reininger B.M.; Lee M.; Linder S.H.	PP110163	Participants' perceptions of interactions with community health workers who promote behavior change: A	International Journal for Equity in Health

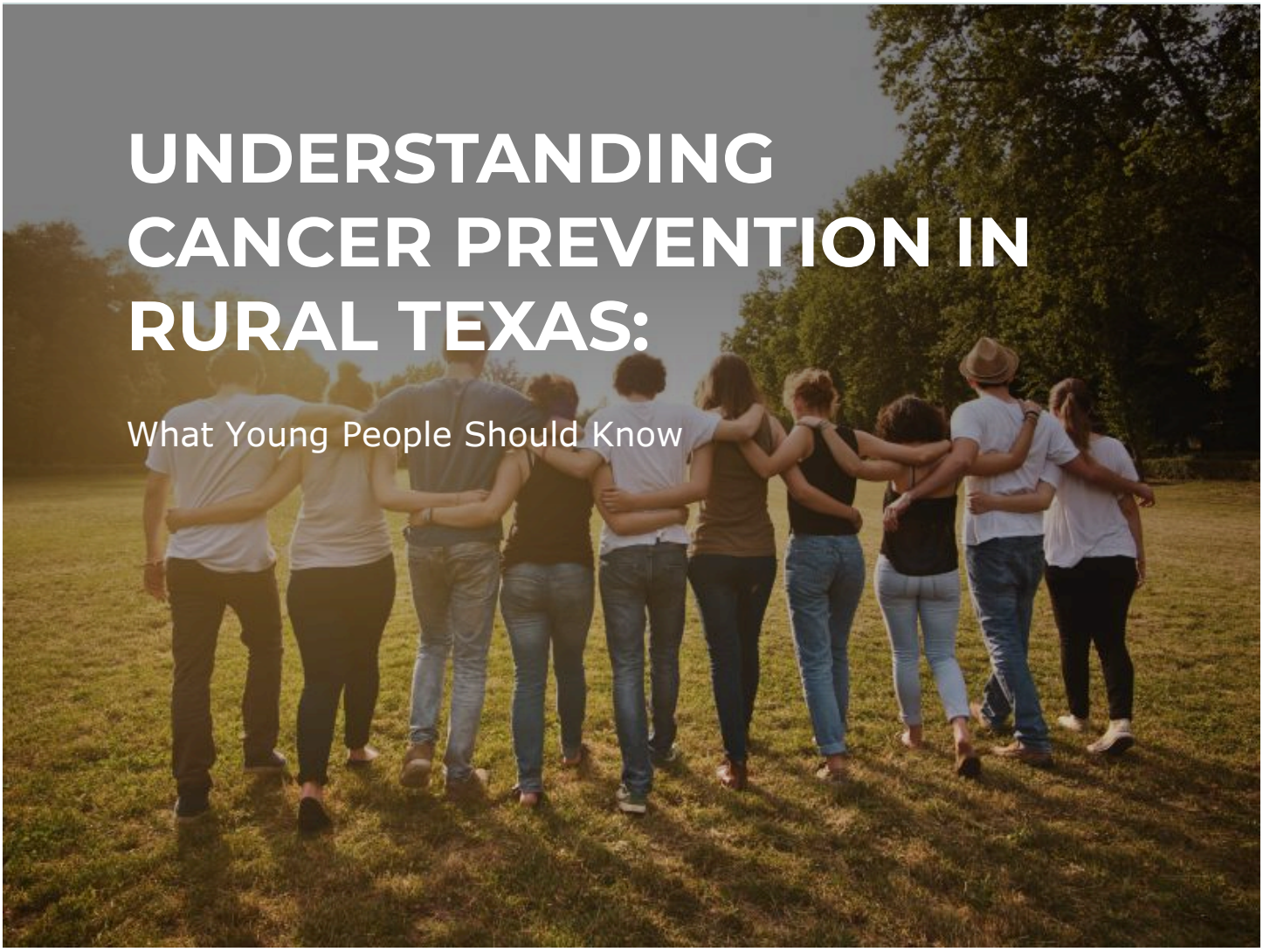
			qualitative characterization from participants with normal, depressive and anxious mood states	
0.25	Turner B.J.; Craig K.; Makanji V.S.; Flores B.E.; Hernandez L.	PP150079	Improving support and education of low-income baby boomers diagnosed with chronic hepatitis C virus infection through universal screening	Journal of Clinical Nursing
0.25	Turner B.J.; Wang C.-P.; Melhado T.V.; Bobadilla R.; Jain M.K.; Singal A.G.	PP150079	Significant Increase in Risk of Fibrosis or Cirrhosis at Time of HCV Diagnosis for Hispanics With Diabetes and Obesity Compared With Other Ethnic Groups	Clinical Gastroenterology and Hepatology
0.25	Orsak G.; Allen C.M.; Sorensen W.; McGaha P.	PP140018	Risk of Colorectal Polyps and Malignancies Among Predominantly Rural Hispanics	Journal of Immigrant and Minority Health
0.05	Faqih A.; Singal A.G.; Fullington H.M.; Hewitt B.; Burstein E.; Gopal P.; Wylie A.; Abrams J.; Murphy C.C.	PP160075	Colorectal neoplasia among patients with and without human immunodeficiency virus	Cancer Epidemiology Biomarkers and Prevention
0.05	Talwar D.; Zhao S.; Goodson P.; Chen L.-S.	PP100214 PP140210	Evaluating a genomics short course for undergraduate health education students	Personalized Medicine
0.05	Gemmell A.P.; Mauer C.B.; Reys B.D.; Pirzadeh-Miller S.; Ross T.S.	PP160103	Family still matters: Counseling patients with complex family histories of colon and endometrial cancers	Molecular Genetics and Genomic Medicine
0.05	Cho D.; Basen-Engquist K.; Acquati C.; Pettaway C.; Ma H.; Markofski M.; Li Y.; Canfield S.E.;	PP130079 PP170023	Cultural Adaptation of Evidence-Based Lifestyle Interventions for African American Men With Prostate Cancer: A Dyadic Approach	American Journal of Men's Health

	Gregg J.; McNeill L.H.			
#N/A	Vernon S.W.; Savas L.S.; Shegog R.; Healy C.M.; Frost E.L.; Coan S.P.; Gabay E.K.; Preston S.M.; Crawford C.A.; Spinner S.W.; Wilber M.A.	PP190041	Increasing HPV Vaccination in a Network of Pediatric Clinics using a Multi-component Approach	Journal of Applied Research on Children
#N/A	Mette L.A.; Pulido Saldívar A.M.; Poullard N.E.; Torres I.C.; Seth S.G.; Pollock B.H.; Tomlinson G.E.	PP120089	Reaching high-risk underserved individuals for cancer genetic counseling by video-teleconferencing	Journal of Community and Supportive Oncology
#N/A	Shinn E.H.; Jensen K.; McLaughlin J.; Garden A.S.; Fellman B.M.; Liang L.; Peterson S.K.	PP150077	Interactive website for head and neck cancer patients: Adherence and coping program to prevent dysphagia after radiation	Internet Interventions
#N/A	Crawford C.A.; Shegog R.; Savas L.S.; Frost E.L.; Healy C.	PP140183	Using Intervention Mapping to Develop an Efficacious Multicomponent Systems-Based Intervention to Increase Human Papillomavirus (HPV) Vaccination in a Large Urban Pediatric Clinic Network	Journal of Applied Research on Children
#N/A	Kim H.-S.; Guerrero R.; Reader S.W.; Daheri M.; Balakrishnan M.; Troisi C.L.; El-Serag H.B.; Thrift A.P.	PP160089	Low yield of Hepatitis C infection in an outreach screening program in Harris County, Texas	Open Forum Infectious Diseases
#N/A	Ojinnaka C.O.; Bolin J.N.; McClellan D.A.; Helduser J.W.; Nash P.; Ory M.G.	PP110176	The role of health literacy and communication habits on previous colorectal cancer screening among	Preventive Medicine Reports

			low-income and uninsured patients	
#N/A	Piñeiro B.; Wetter D.W.; Vidrine D.J.; Hoover D.S.; Frank-Pearce S.G.; Nguyen N.; Zbikowski S.M.; Williams M.B.; Vidrine J.I.	PP120191	Quitline treatment dose predicts cessation outcomes among safety net patients linked with treatment via Ask-Advise-Connect	Preventive Medicine Reports
#N/A	Khatami S.; Xuan L.; Roman R.; Zhang S.; McConnel C.; Halm E.A.; Gupta S.	PP100039	Modestly Increased Use of Colonoscopy When Copayments Are Waived	Clinical Gastroenterology and Hepatology
#N/A	Cancino R.S.; Su Z.; Mesa R.; Tomlinson G.E.; Wang J.	PP120089 PP160011	The impact of COVID-19 on cancer screening: challenges and opportunities	JMIR Cancer
#N/A	Reader S.W.; Kim H.-S.; El-Serag H.B.; Thrift A.P.	PP160089	Persistent challenges in the hepatitis C virus care continuum for patients in a central Texas public health system	Open Forum Infectious Diseases

APPENDIX G

CPRIT Case Study 1: Rural Screening Programs



UNDERSTANDING CANCER PREVENTION IN RURAL TEXAS:

What Young People Should Know

Understanding Cancer

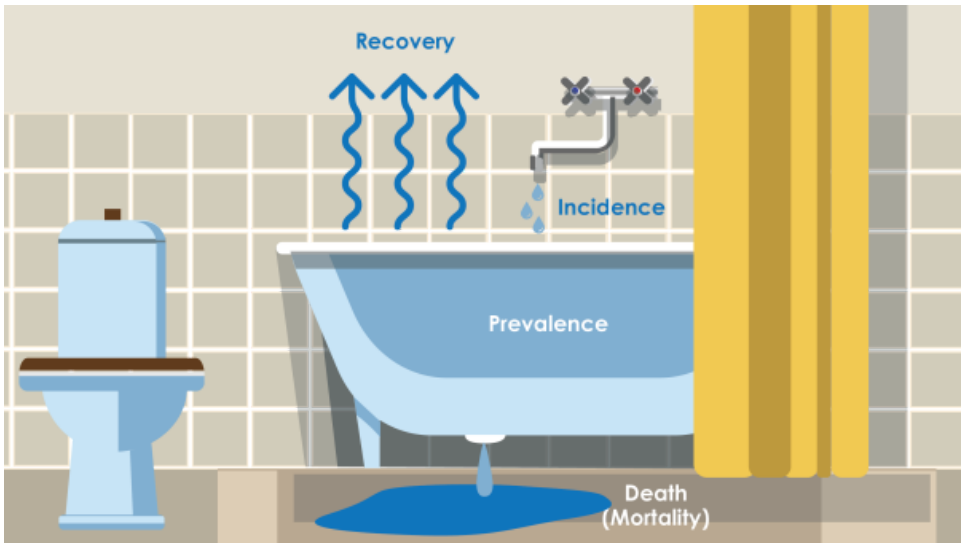
Knowledge is Power

Cancer might sound scary but understanding what it is can help us address it. Simply put, cancer happens when our body's cells grow out of control. Normally, our cells grow, divide, and die in an organized way. But sometimes, something goes wrong. These abnormal cells can form lumps called tumors. Some tumors are benign, which means they are not cancerous, while others are malignant, meaning they can spread to other parts of the body and

cause serious harm. There are many different types of cancer, affecting various organs like the lungs, breasts, and skin. Knowing what cancer is helps us understand why preventing it is so important.

The Epidemiologist's Bathtub: Understanding Incidence, Prevalence, and Mortality

Imagine an old-fashioned bathtub. This bathtub represents a community's overall health when it comes to cancer.



Source: https://www.technologynetworks.com/immunology/articles/incidence-vs-prevalence-329073

Prevalence is the total amount of water currently in the bathtub. This means *it includes all the existing cases of cancer—both new and previously diagnosed individuals*. If the prevalence of breast cancer in a community is 200 cases per 100,000 people, it is like saying the bathtub is filled with 200 gallons of water, representing all those living with breast cancer at that moment.

Incidence is like the water that is being poured into the bathtub. *It represents the number of new cancer cases diagnosed in a specific population during a certain time.*

For example, if rural Texas has an incidence rate of 429 cases per 100,000 people, that means 429 new people have been diagnosed with cancer within a certain timeframe. When the water flows into the tub, it fills up, just like new cases add to the total cancer burden in the community.

Mortality is like the water draining out of the bathtub. *It reflects the number of deaths caused by cancer over a specific period,* expressed as a mortality rate (like deaths per 100,000 people). When people pass away from cancer, it is as if the water is being drained from the tub. The more that drains out, the more we see the impact of cancer on our community.

Recovery or Remission can be likened to water evaporating from the bathtub. When someone is in remission, it means their cancer is either undetectable or significantly reduced and removed from the prevalence. This evaporation does not mean the cancer is completely gone, but it is a hopeful sign that things are improving. Just as some water can evaporate over time while some remains, people in remission may still face challenges, but often enjoy a better quality of life.

We measure health statistics in rates, like cases per 100,000 people, because it allows us to compare different communities fairly, regardless of their population size. This way, we can see where the health challenges are greatest and focus efforts where they are needed most.

By using this bathtub metaphor, we can better understand how incidence, prevalence, and mortality all shape the overall picture of cancer in rural Texas. Preventing new cases (keeping the tap turned down) and reducing the

number of deaths (slowly draining the tub) are critical for improving the health of our communities.

Addressing Cancer

CPRIT Prevention Programs in Rural Texas

Cancer significantly affects people living in rural Texas, creating barriers to essential screenings and health resources. Thankfully, organizations like the Cancer Prevention and Research Institute of Texas (CPRIT) are stepping up to address these challenges.

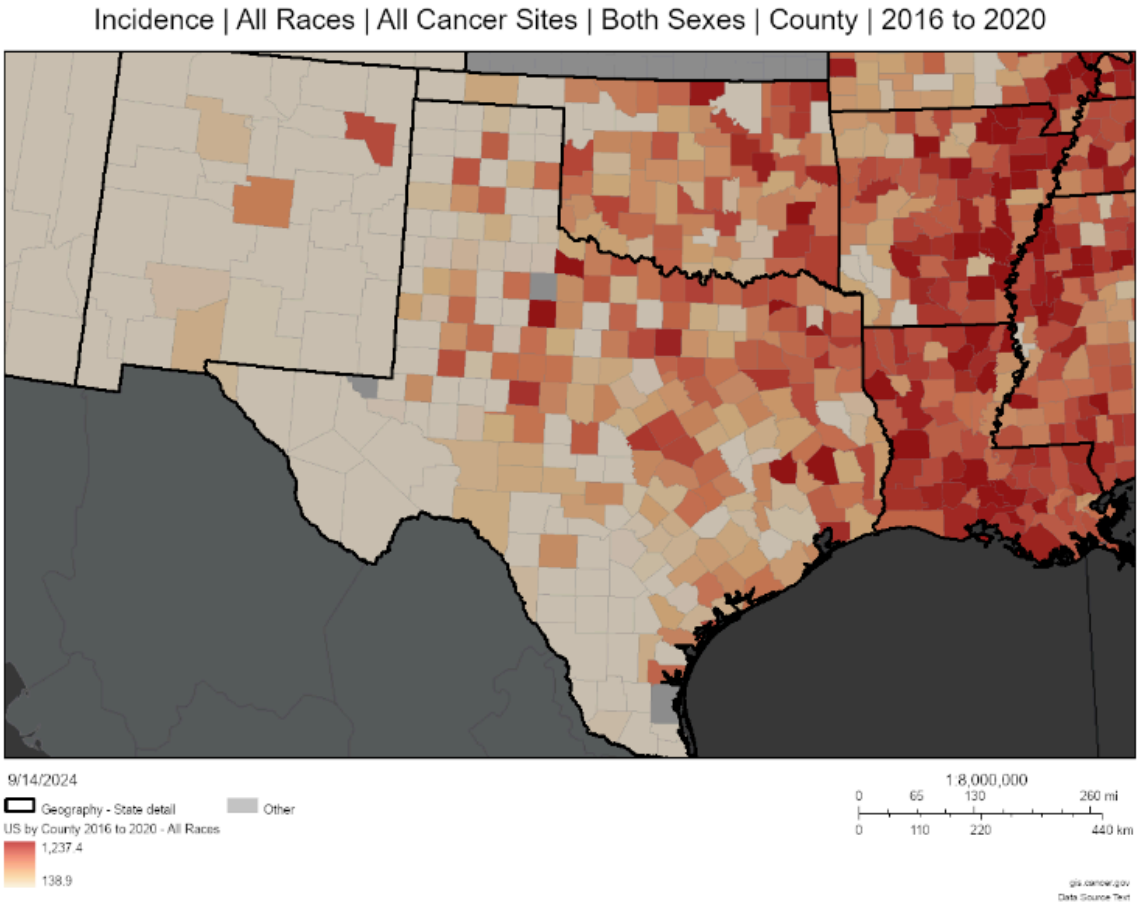
With CPRIT Prevention Programs, more individuals in rural communities are gaining access to vital screenings, which are crucial for detecting cancer early when treatment is more effective. This funding boosts detection rates and empowers local communities to take proactive steps in confronting cancer.

Key Facts[1,2]

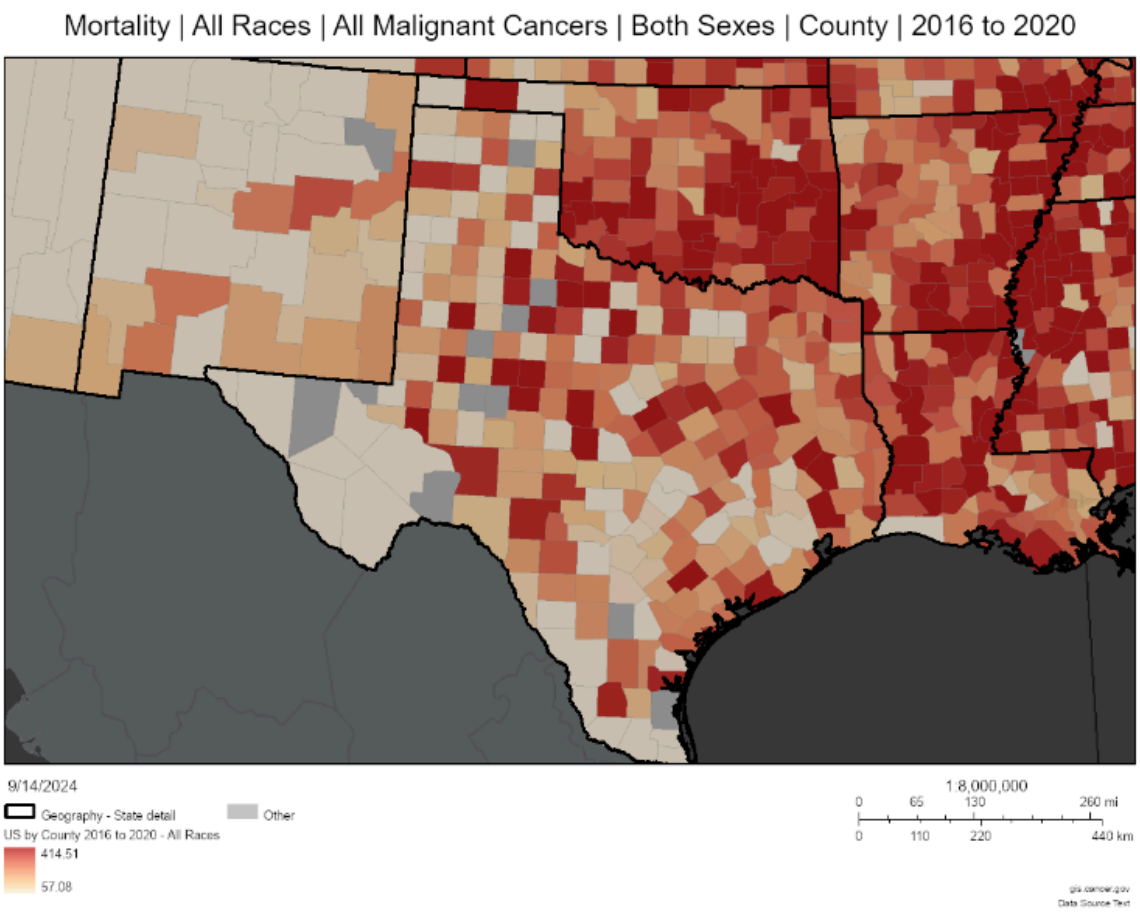
- **More Cases in Rural Texas:** From 2015 to 2019, the cancer incidence rate in rural Texas was 429.2 cases per 100,000 people, higher than the urban rate of 412.9 cases per 100,000.
- **Growing Rates:** While urban areas have seen a decline in cancer rates, rural areas are experiencing a slow increase.

Between 2010 and 2019, the overall cancer incidence rate declined in Texas. However, the incidence increased by 0.4% each year in rural counties while decreasing in urban counties by 0.5% each year.

- **Common Cancers:** For men, the most common types of cancer are prostate, lung, and colorectal. For women, they are breast, lung, and colorectal cancers.
- **Alcohol and Cancer:** Alcohol-related cancers are more prevalent in rural areas, with an annual increase of 1.6%. The incidence rate of all alcohol-related cancers combined was higher in rural areas from 2015 to 2019. The incidence rate of all alcohol-associated cancers combined (excluding colorectal cancer) increased by 1.6% each year in rural counties between 2010 to 2019.)
- **HPV and Cancer:** The incidence rate of all HPV-associated cancers increased by 3.1% each year in rural counties between 2010 to 2019.
- **Risk Factors:** Rural counties in Texas generally have higher rates of smoking[3], obesity[4], and physical inactivity[5] compared to predominately urban counties; these factors make people in rural Texas more at risk for cancer.



Cancer Incidence



Mortality

Why Does This Matter?

These facts show why cancer is such a big concern in rural communities. Many people find it hard to get the healthcare services and screenings they need, which can lead to late diagnoses and worse health outcomes. When cancer is discovered later, treatments can be more complicated and less effective, making it harder for patients to survive. Early detection is super important for improving health outcomes, but without access to screenings, folks in rural areas may miss the chance for timely care.

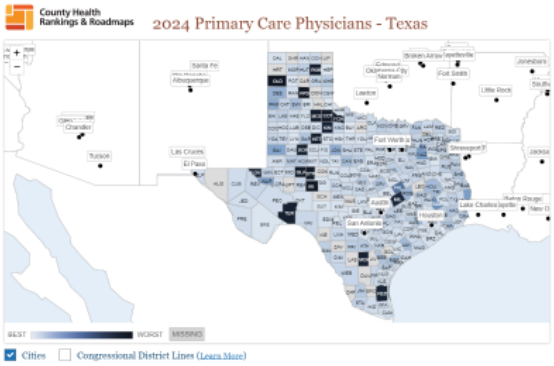
By highlighting these issues, we can understand why it is crucial to focus on cancer prevention efforts and boost resources for these communities. Tackling these

challenges is key to helping everyone in Texas live healthier lives and ensuring they have the support they need to stay well.

Overcoming Hurdles in Rural Texas

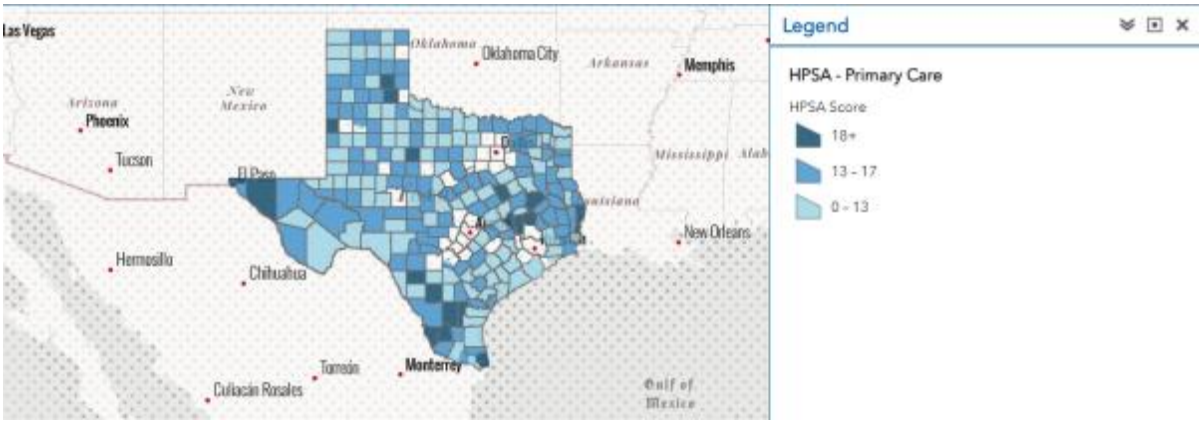
When facing cancer in rural Texas, the journey is not without its hurdles. While organizations like CPRIT work tirelessly to make a difference, they face several significant challenges that impact their efforts.

Imagine living in a small town where the nearest doctor is miles away. This is the reality for many of the *2.9 million people in Texas who live in non-metro areas—almost 10% of the state's population*[6]. In these rural communities, there are not enough primary care providers.



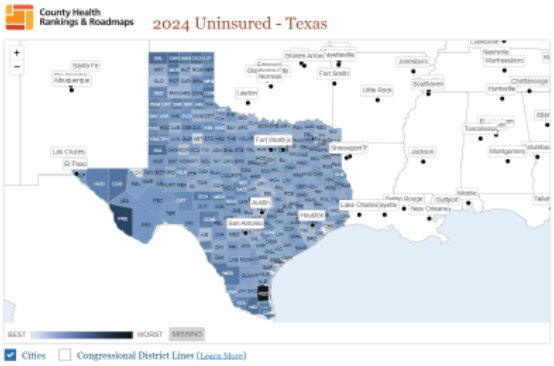
Number of Primary Care Physicians in 2024

In fact, ***out of 254 counties in Texas, a staggering 214 are designated as health professional shortage areas.***[7]



Healthcare Professional Shortage Areas (HPSAs)

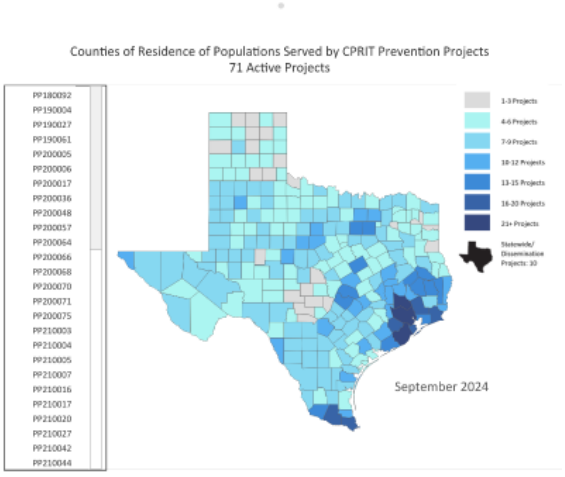
Now, picture trying to get medical help but not having the insurance to cover it. Many people in rural areas struggle with this issue***.*** *The poverty rate in rural Texas was* ***17% in 2021,*** *higher than the* ***14% in urban areas***. *Additionally, rural residents often have lower high school graduation rates, higher unemployment rates, and lower average incomes compared to those living in cities.*[8] All of these factors make getting health insurance more difficult.



The Uninsured Population

Lastly, think about the vast landscapes of rural Texas. With wide-open spaces and long distances between towns, CPRIT-funded projects often cover huge areas. This means that reaching everyone in need takes a lot of time and resources. Many rural communities do not have reliable public transportation, which poses a significant barrier for those needing screenings. For someone needing a mammogram, for instance, traveling to see a provider could involve a long journey, sometimes hundreds of miles round-trip, just to get the care they need. Throughout rural Texas, there are lower rates of mammography screening compared to urban counties.[9]

Adding to these challenges, people in rural Texas face higher rates of health risks. *Many areas have* ***higher rates of smoking, obesity, and physical inactivity****, all of which can increase the risk for cancer.* Furthermore, lower educational attainment and higher unemployment rates in these communities make it even harder for



individuals to focus on their health. Many people in these situations are often juggling multiple responsibilities, such as finding enough food, securing clothing, and ensuring stable housing for themselves and their families. When daily survival and meeting these essential needs become the top priorities, health care may take a backseat, even if they understand its importance.

Additionally, limited access to health education and resources can make it difficult for individuals to learn about the available options for taking care of their health. This complex situation highlights the importance of understanding the broader factors that influence health decisions.

Despite these challenges, the story does not end here. Organizations like CPRIT are committed to finding solutions. They are working to increase the number of healthcare providers, improve access to insurance, and create better transportation options. By tackling these obstacles head-on, they are paving the way for a healthier future for everyone in rural Texas.

CPRIT's Work in Rural Texas

Since 2009, CPRIT has been working hard to make things better. They have invested over $36 million into dozens of projects aimed at combating cancer in rural areas. CPRIT-funded prevention projects in rural Texas have been implemented through a variety of organizations, including academic medical centers and grassroot community organizations.

Making a difference

CPRIT-funded prevention programs have adopted several effective strategies in addressing cancer. These approaches focus on fostering partnerships, increasing access to screenings, and improving education about cancer risks.

Teamwork in Cancer Prevention

One of the most important strategies in confronting cancer in rural Texas is teamwork. CPRIT funds many projects that rely on partnerships between different organizations. These partnerships often bring together hospitals, clinics, and social service groups.

> “You couldn't do anything in the community if you didn't have partners and collaborators of some kind. If you really want to have collaboration, you've got to share resources. And I don't mean just the funding. You have to be able to share your systems and your people and all of those things. I can't say enough about collaboration. That lets you do things that you can never do by yourself.”
>
> – CPRIT Prevention Program Director

By working together, these organizations can help more people access important cancer prevention services, like screenings. Screenings are tests that help find cancer early when it is easier to treat.

These collaborations also make it easier for individuals who have had a screening to get the follow-up care they need. For example, if someone receives an abnormal screening result, the partnerships ensure that person is connected to local organizations that can provide further tests or treatment.

To make these connections even smoother, organizations use technology to share information and communicate effectively. They might even sign agreements that outline how they will work together, making sure everyone is on the same page. This teamwork is vital for ensuring that people in rural areas have the support they need to prevent and address cancer.

Bringing Screening Technology to Rural Texans

Another key focus of CPRIT-funded projects in rural Texas is making cancer screening technology more available. In many rural areas, people often struggle to find the tools they need for important cancer screenings, like mammography machines for breast cancer or CT scanners for other types of cancer. Sometimes, just one CT machine serves multiple counties, making it hard for people to get tested.

> “Mobile mammography. It's the great equalizer. It doesn’t matter if you were insured, uninsured, White, Black, or Green. You have the chance to be diagnosed at an

> early stage. I only had two people in the last two years that were diagnosed past stage II. Do you know the percentage of chance they got to live? 98%."
>
> – CPRIT Prevention Program Director

To tackle this problem, CPRIT is working to increase the number of screening tools available to communities in rural Texas. One innovative solution has been the use of mobile mammography units. These are special trucks equipped with mammography machines that travel to different towns, bringing screenings right to people's doorsteps. This way, more people can get tested without having to travel long distances, helping catch cancer early when it is most treatable.

Training Heroes

A crucial part of addressing cancer in rural Texas is making sure healthcare providers are well-trained. CPRIT-funded programs focus on teaching medical professionals about the latest standards for cancer screening. This training ensures that doctors, nurses, and medical students know how to perform screenings correctly and follow the best practices.

> "That's always kind of been ingrained in our program that these grants–have always been geared towards training for rural practice. And so we've always had rural in mind, and with that comes underserved."
>
> – CPRIT Prevention Program Director

These programs often involve hands-on training, where providers learn not just about the requirements for screenings but also how to use the tools needed for tests. By equipping healthcare workers with the right knowledge and skills, we can ensure that they are prepared to help patients effectively and confidently.

Well-trained providers are essential for improving cancer detection and treatment in rural areas, ultimately helping to save lives.

CPRIT's Impact in Rural Texas

The hard work of CPRIT-funded projects in rural Texas is making a real difference in the confronting cancer. Here are some of the positive changes we are seeing:

First, tens of thousands of people have been screened for cancer, including many who belong to underserved populations, like people who live in poverty, are immigrants, or don't have health insurance. These screenings are crucial for catching cancer early.

Thanks to these efforts, more people are being diagnosed at earlier stages of cancer, when it is much easier to treat. This means that individuals have a better chance of recovery and a healthier future.

> "In every single case, [the cancer] wouldn't have been diagnosed when it did if this [program] didn't exist. These patients would

> have ended up in the ER... suffering complications before they would have gotten a diagnosis. We've been able to find it early and navigate them into treatment. Without our program, that wouldn't have been possible."
>
> – CPRIT Prevention Program Director

Additionally, there has been a rise in the number of people who follow up after receiving abnormal screening results. Improved teamwork among different organizations has made it easier for patients to get the care they need after a screening.

Access to cancer prevention technology, like imaging machines, has also increased. Thousands of healthcare providers have been trained in the best practices for cancer prevention, ensuring they are ready to help their patients effectively.

The programs have created strategies and resources that can benefit even more people in the community, not just those directly involved in CPRIT projects. Many organizations have also been able to secure extra funding because of their successful work with CPRIT, leading to even more resources for cancer prevention across rural Texas. Together, these efforts are helping to create a healthier future for everyone in rural communities.

Eliminating Cancer

The Path Forward in Cancer Prevention in Rural Texas

Cancer has a big impact on people living in rural Texas, making it harder for them to get the screenings and resources they need to stay healthy. Fortunately, organizations like CPRIT are stepping up to change this situation.

With the support of CPRIT, more people in rural communities can now access important screenings, which helps catch cancer earlier when it is easier to treat. If you are interested in learning more about how CPRIT is making a difference or want to help bring these important resources to your own community, check out https://cprit.texas.gov/funding-opportunities to learn about eligibility for CPRIT grants. Together, we can make sure that all Texans, no matter where they live, have access to the healthcare resources they need to stay healthy and eliminate cancer.

◆ ◆ ◆

1 Texas Department of State Health Services. (2022). *Texas Cancer Registry Annual Report 2022.* https://www.dshs.texas.gov/sites/default/files/legislative/2022-Reports/Texas-Cancer-Registry-Annual-Report-2022.pdf

2 Cancer-Rates. (2024). *Texas Cancer Registry*. https://www.cancer-rates.com/tx/

3 County Health Rankings. (2024). *Texas. Adult Smoking.* County Health Rankings & Roadmaps. https://www.countyhealthrankings.org/health-data/texas?year=2024&measure=Adult%2BSmoking&tab=0

4 County Health Rankings. (2024). *Obesity Data*. Texas DSHS. https://www.dshs.texas.gov/obesity-texas/obesity-data

5 County Health Rankings. (2024). *Physical Inactivity*. County Health Rankings & Roadmaps. https://www.countyhealthrankings.org/health-data/texas?year=2024&measure=Physical%2BInactivity&tab=0

6 https://www.ruralhealthinfo.org/states/texas#:~:text=The%20ERS%20reports%2C%20based%20on,ACS%20data%20reported%20by%20ERS. NOTE: some data here is originally from ACS and USDA.

7 Texas Department of State Health Services. (2024). *Health Professional Shortage Area (HPSA) Application*. https://experience.arcgis.com/experience/323d93aa45fd43e88515cdf65365bf78/page/Page-1/?views=Primary-Care

8 Rural Health Information Hub. (2022). *Texas*. https://www.ruralhealthinfo.org/states/texas#:~:text=The%20ERS%20reports%2C%20based%20on,ACS%20data%20reported%20by%20ERS NOTE: some data here is originally from ACS and USDA.

9 County Health Rankings. (2024). *Mammography Screening*. County Health Rankings & Roadmaps. https://www.countyhealthrankings.org/health-data/texas?year=2024&measure=Mammography%2BScreening&tab=0

APPENDIX H

CPRIT Case Study 2: Cervical Cancer Programs in Public Health Region (PHR) 10

WHY PHR 10? WHY CERVICAL CANCER?

Located in the western most portion of Texas, Public Health Region (PHR) 10 – covering El Paso and 5 surrounding rural counties – is like other border regions of the state. Largely rural, Hispanic, Spanish-speaking and hundreds of miles from any comprehensive cancer care center, PHR 10 is both an excellent example of the rural, border experience in Texas and a unique geographic area.

Near the median of Texas PHRs in terms of rates of cervical cancer incidence, late-stage incidence, and mortality, nearly half (6 of 13) of the cancer prevention grants awarded to PHR 10 by the Cancer Prevention and Research Institute of Texas (CPRIT) over the analysis period (2012 to 2020) were focused on cervical cancer. While Texas observed a slight increase in cervical incidence, a slight increase in late-stage cervical incidence, and no change in cervical cancer mortality, PHR 10's incidence rate remained the same and its late-stage incidence and mortality rates dropped. Although causation cannot be established, positive trends in cervical cancer are occurring in PHR 10, an area where CPRIT has invested in cervical cancer prevention interventions.

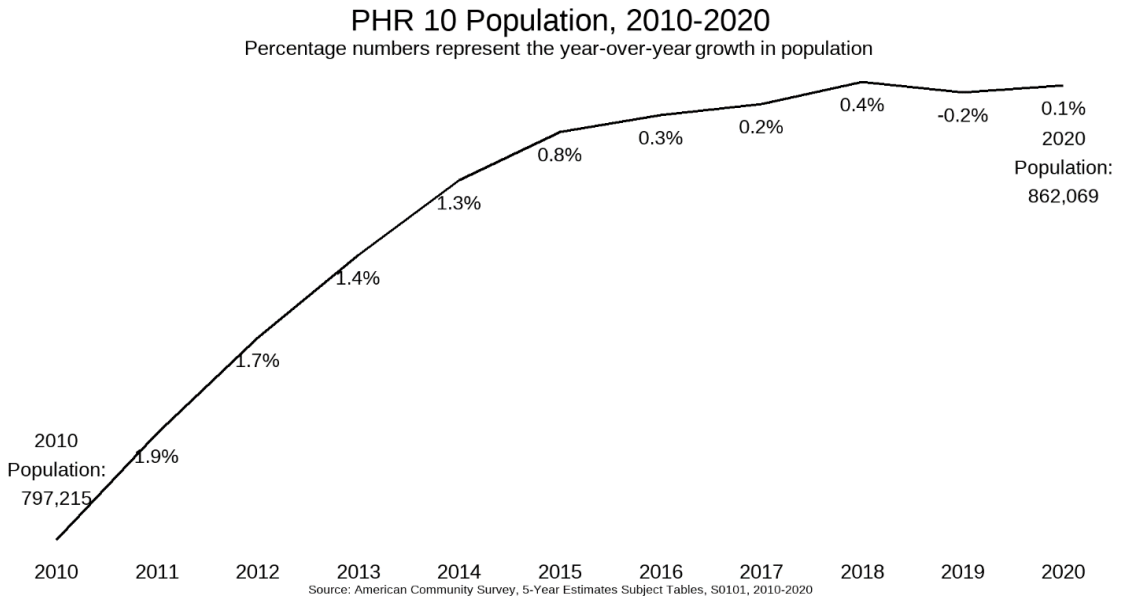
BACKGROUND AND INTRODUCTION

Population and Demographics

PHR 10 is a subsection of West Texas comprised of 6 counties: Brewster, Culberson, El Paso, Hudspeth, Jeff Davis, and Presidio. These counties are largely rural, except for the part of El Paso County containing the city of El Paso; the total population for the five counties excluding El Paso is less than 24,000.[1]

The population of PHR 10 has been growing each year from 2010-2020, per American Community Survey 5-year estimates[2] and grew overall from 797,125 to 862,069. However, the year-over-year percentage growth slowed at the end of the decade. Similarly, the population aged 65+ has increased each year though the growth did not plateau at the end of the decade like the overall population. See Figure 2.1.

Figure 2.1 Population Change in PHR 10



As of 2020, the majority of the population of PHR 10 identified as Hispanic or Latino, more so than Texas overall. All other racial and ethnic categories are represented at much lower rates than the rest of the state.[3] See Table 2.1.

Table 2.1. Race and Ethnicity in PHR 10 Compared to Texas

Race/Ethnicity	Percentage of PHR 10 Population	Percentage of Texas Population
Hispanic	82.0%	39.3%
White	12.0%	39.8%
Black	2.8%	11.8%
Asian	1.2%	5.4%
Two+ Races	1.3%	3.0%
American Indian/Alaska Native	0.3%	0.3%
Native Hawaiian/Pacific Islander	0.2%	0.1%

Other	0.3%	0.4%

Four of the counties in PHR 10 (Culberson, Hudspeth, Jeff Davis, and Presidio) are considered Medically Underserved Areas (MUAs) by the Health Resources & Services Administration (HRSA), and parts of El Paso County are also considered to be MUAs.[4] Five of the six counties (Brewster, Culberson, Hudspeth, Jeff Davis and Presidio) and parts of El Paso county are also considered healthcare provider shortage areas as defined by HRSA.[5] The percentage of people living in poverty in PHR 10 in 2020 was 20.6%, higher than the state average of 17.3%.[6]

Key Resources and Cancer Centers in the Area

Due to the rural nature of the area, there are fewer cancer resources and programs in the area, especially outside of El Paso, as compared to other areas of the state. The table below outlines key healthcare and community-based organizations and programs in PHR 10 and the services they provide.

Table 2.2 Cancer Resources and Programs in PHR 10

	Preventive Care	Screening & Diagnosis	Treatment	Education & Information	Assistance & Support
Cancer and Chronic Disease Consortium				X	X
Las Palmas Del Sol Healthcare*		X	X		
Pink the Basin					X
Rio Grande Cancer Foundation				X	X
Texas Oncology*		X	X		
Texas Tech University Health Sciences Center at El Paso*	X				
The Hospitals of Providence*		X	X		
University Medical Center of El Paso*	X				

*Organization or resource at only or primarily has locations in El Paso.

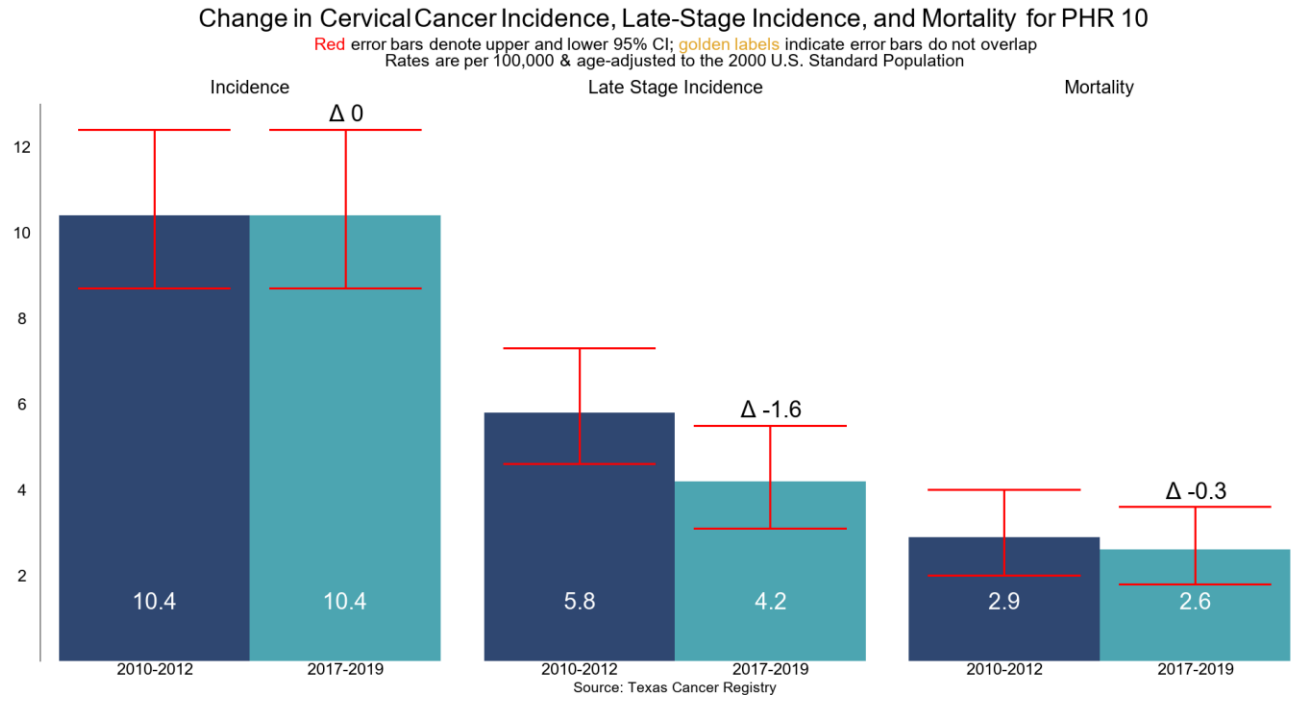
The nearest comprehensive cancer centers in Texas from PHR 10 are the Dan L Duncan Comprehensive Cancer Center and the Harold C. Simmons Comprehensive Cancer Center, both located in Dallas over 600 miles from El Paso. The Mays Cancer Center at the University of Texas Health Science Center at San Antonio is a clinical cancer center which is over 550 miles from El Paso. The University of New Mexico Cancer Research and Treatment Center is the closest comprehensive cancer center overall at less than 300 miles away from El Paso.

ANALYSIS

Cervical Cancer Incidence and Mortality

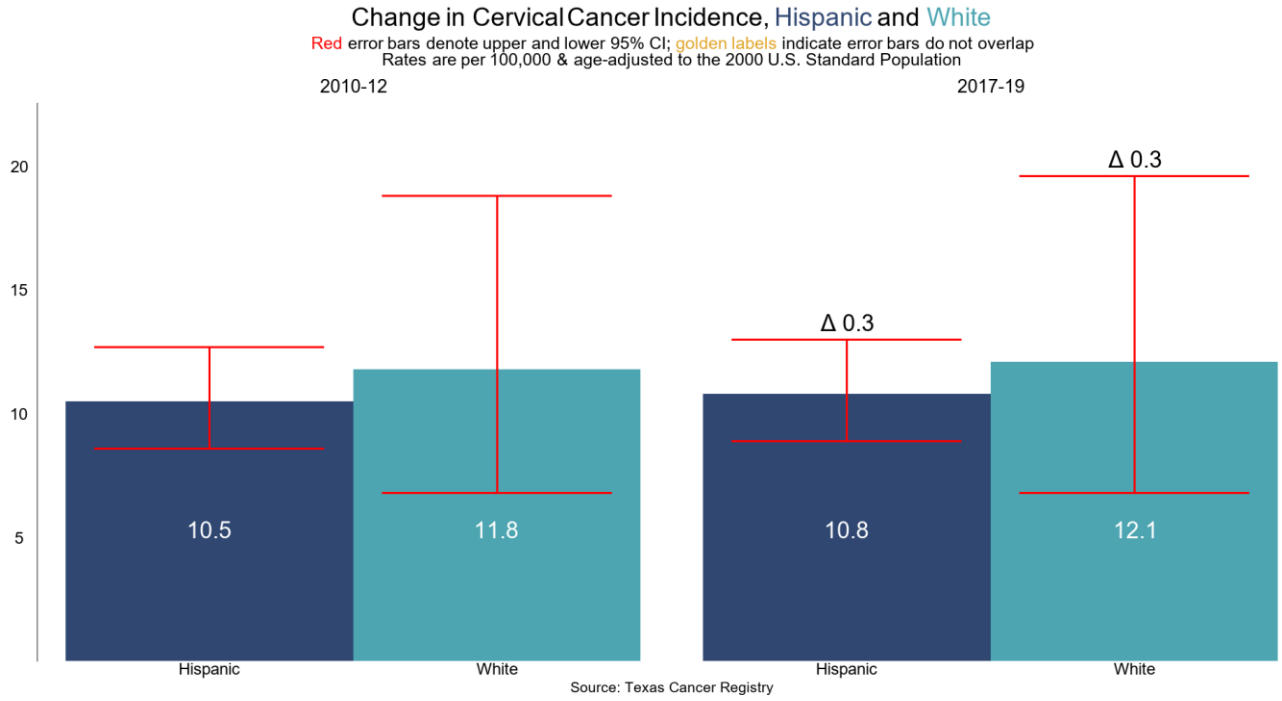
The figure below displays the age adjusted rate per 100,000 for cervical cancer incidence, late-stage incidence, and mortality comparing the years 2010-2012 to 2017-2019. The incidence rate remained the same when comparing baseline and endline, and while both late-stage incidence and mortality rates have fallen slightly during the period, statistical significance could not be determined. The rates of late-stage incidence and mortality in PHR 10 are similar to those in the state overall, 4.2 and 2.8 respectively. See Figure 2.2.

Figure 2.2 Changes in Cervical Cancer Incidence and Mortality in PHR 10



When examining cervical cancer incidence by ethnicity, individuals who identify as Hispanic have a slightly lower incidence rate than those who identify as white in both 2010-2012 as well as 2017-201, though statistical significance could not be determined. See Figure 2.3.

Figure 2.3 Change in Cervical Cancer Incidence Rate by Race/Ethnicity



Behavioral Risk Factors

Per the Behavior Risk Factor Surveillance System,[7] 72.5% of eligible women in PHR 10 were routinely screened for cervical cancer in 2020 which is lower than the state at 75%. Like the rest of Texas, the cervical cancer screening rate in PHR 10 has decreased somewhat from 2014 to 2020, 77.4% and 72.5% respectively.

HPV vaccination is another behavior that can affect a person's lifetime risk of developing certain types of cancer, including cervical.[8] Reliable HPV vaccination data are not available at the PHR level, however, for the state of Texas, HPV vaccinations rates have been increasing in recent years and reached more than 50% for both males and females aged 13-17 as of 2020. However, this is still well below the Healthy People 2030 goal of 80%.[9]

CPRIT Investment in Cervical Cancer in PHR 10

From March 2012 to February 2020 CPRIT awarded 13 grants in PHR 10. Of the 13 grants awarded, 6 grants focused on cervical cancer prevention, representing an investment of

$10,173,826. Four principal investigators at three organizations were awarded, implemented, and evaluated the six projects. The primary funded organizations engaged 68 collaborators across the projects. Five of the six projects involved screening and early detection, and two of the projects included HPV vaccination.

At the time of analysis, all funded projects had submitted their final reports to CPRIT and provided information related to the people who were reached and served as well as clinical services provided. CPRIT defines people reached as the overall number of people (members of the public and professionals) that were reached through indirect contact such as noninteractive public or professional education and outreach activities, mass media efforts, brochure distribution, public service announcements, newsletters, and journals. People served is defined as direct, interactive contact such as interactive public or professional education, outreach, training, navigation service, or clinical service, such as live educational and/or training sessions, vaccine administration, screening, diagnostics, case management/navigation services, and physician consults. Through the six funded projects a total of 443,967 people were reached and 51,380 people served related to cervical cancer screening and early detection.

Clinical services delivered is a measure of the overall number of services directly delivered to members of the public by the funded projects. This includes the number of evidence-based preventive services delivered by a health care practitioner in an office, clinic, or health care system. Only one project reported on this number indicating that 3,500 clinical services were delivered.

Focus on Key Projects

The evaluation team collected quantitative and qualitative data from the Program Directors of CPRIT-funded projects that focused on cervical cancer prevention based in PHR 10 through surveys and interviews. These data provide a deeper and richer understanding of the impact of the project and the facilitators and challenges experienced during implementation. Common themes are identified below along with key quotations that support those themes.

COMMON FACILITATORS

A common theme among awardees is that the CPRIT funding and the support that CPRIT provides is invaluable to organizations' ability to impact cervical cancer screening and early

detection. Program Directors noted that CPRIT as an organization was helpful to their projects by providing technical assistance and support along the way.

> *"So, the CPRIT support staff have just been totally amazing and supportive. And you get the sense that they want you to succeed… They see your success as their success."*

> *"First of all, the communication between my organization and CPRIT staff. There was always a very good disposition to conduct meetings, to clarify doubts, to answer questions related to administrative processes… Another thing that also made the implementation of the program much easier was that flexibility they presented to be able to allow us to make changes in the proposal, according to the design of the original plan, based on barriers that we never anticipated would be presented."*

Another benefit of having a CPRIT-funded project is the partnerships created and strengthened through the work. Program Directors referenced new collaborations with community partners and greater visibility within the community as benefits. They also felt that resource sharing improved because of the enhanced collaboration.

> *"Thanks to this grant, that we could be more exposed to schools and academic institutions and to all those entities that participate and receive funding from CPRIT, they were able to know us. So, as a result of that we began to receive and that also helped us a lot to sustainability. They began to contact us asking for collaboration to be part of the programs they designed."*

Finally, the ability to hire staff as well as train and develop these staff to have the skills needed to support the projects and support cancer prevention in the community.

> *"…staff development because that's a resource that is invaluable both for the institution and the community…that's just training and resource that we can't-- that just can't be quantified."*

> *"So those programs, like CPRIT funding, help us increase the staffing and the ability of programs to go get those women so they don't cross [the border], so they don't leave [the country]."*

COMMON CHALLENGES

Similar to the findings of the rural screening programs case study, the Program Directors for cervical cancer projects in PHR 10 identified challenges related to access to care, lack of providers and the geographic spread.

The lack of providers and healthcare access throughout PHR 10, which is rural and large, complicates cancer prevention efforts and fewer people have access to preventive services. This includes the lack of providers with the appropriate expertise to perform screening and diagnostic services.

> *"It's really the workforce development, especially in rural areas. While El Paso is considered an urban area, it's also a health provider shortage area as well."*
>
> *"A lot of our partnerships with our rural counties, it's a constant challenge. And the biggest is their capacity and turnover. Many of the health clinics in rural counties don't have bandwidth for preventive care."*
>
> *"...here there is such a short medical staff, 150 doctors for every 100,000 inhabitants - the appointments are given in three, four months."*
>
> *"Also with just the barriers of working in underserved areas, it just means that there's less availability of staffing, physicians, radiologists, places where people can get services, there's high turn-over...but it's just worse because you're setting up with a group in a rural health center to provide services there. You spend four or five months kind of getting everything set and, all of a sudden, that person has left and you're starting to process all over again or they lost their only radiologist."*

Similarly, the lack of access to health insurance creates notable challenges to cancer prevention in PHR 10.

> *"We have close to a 20, 22 percent uninsured rate, which is some of the highest in the state and so we have significantly impacted screening and outcomes in those two priority groups [Hispanic population and uninsured individuals]..."*

Like other areas of Texas, the broad geographic spread in PHR 10 presented a common challenge for the projects. Some of the counties in PHR 10 are larger than entire states,[10]

meaning that service areas span hundreds of miles. CPRIT-funded projects and their collaborators must dedicate more staff time and program funding to reach people throughout their entire service area. Much of PHR 10 severely lacks public transportation access, which poses a barrier to populations who may not have another way to access screening and treatment services.

> *"And so just the counties that we cover, where the nearest service to get a mammogram is 75 miles around, even with being able to provide transportation, which is challenging because most of those places don't have great taxi services. You probably can't get an Uber out there. If someone has to go 75 miles, that's a day of work for people who are having challenges with work, and so it just is-- and it's everything."*

CONCLUSION

Cervical cancer disproportionately affects rural Texans, and mortality rates have not changed substantively in the past ten years. Populations living in rural areas often face challenges accessing preventive screenings and supportive resources because of health insurance status and being far away from services. CPRIT has played a critical role in supporting cervical cancer detection in PHR 10, as noted by a Program Director:

> *"Since we started, we're hitting over 70,000 individuals. We've had people diagnosed with hundreds of cancers at very early stages. Many of these people will probably not have been diagnosed until they had more advanced cancer, which stage they would not have been able to get the help they needed or get cured from their disease."*

The ability of these funded programs to reach populations in need and deliver important services demonstrates CPRIT's unique role and impact in the community. Learn more about CPRIT's impact on cervical cancer and explore grant opportunities to bring these vital programs to your own community. Visit **cprit.texas.gov** to discover how you can advocate for continued funding and explore eligibility criteria for CPRIT grants.

[1] U.S. Census Bureau. (2024, June 18). *American Community Survey Data*. U.S. Census Bureau. https://www.census.gov/programs-surveys/acs/data.html.
[2] U.S. Census Bureau. (2020). HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE. *Decennial Census, DEC 118th Congressional District Summary File, Table P9*. Retrieved June 2, 2024, from https://data.census.gov/table/DECENNIALCD1182020.P9?q=P9.
[3] Health Resources and Services Administration. (2024). *MUA Find*. U.S. Department of Health and Human Services, Health Resources and Services Administration. https://data.hrsa.gov/tools/shortage-area/mua-find.
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[6] U.S. Census Bureau. (2022). Poverty Status in the Past 12 Months. *American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1701*. Retrieved June 20, 2024, from https://data.census.gov/table/ACSST5Y2022.S1701?q=poverty&g=010XX00US_040XX00US48,48$0500000.
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[10] U.S. Census Bureau. (2024). *United States Profiles*. U.S. Census Bureau. https://data.census.gov/profile?g=010XX00US.

APPENDIX I

CPRIT Case Study 3: Houston Area Primary Prevention

ADDRESSING CANCER IN HOUSTON:
THE ROLE OF CPRIT IN PRIMARY PREVENTION

TEXAS HEALTH INSTITUTE

UNDERSTANDING HOUSTON: A DEMOGRAPHIC SNAPSHOT

POPULATION:
Houston: **2.3 million** Harris County: **4.7 million**[1]

UNINSURED RATE:
Houston: **23%** Texas: **17%**[1]

MEDIAN HOUSEHOLD INCOME:
Houston: **$53,600** Texas: **$63,826**[1]

KEY RESOURCES AND CANCER CENTERS:
Two of Texas's four National Cancer Institute-Designated Cancer Centers are in Houston[2]

- *MD Anderson at The University of Texas*
- *Dan L. Duncan Comprehensive Cancer Center at Baylor College of Medicine*

LANGUAGE DIVERSITY:
48% of households speak a language other than English **38%** of households speak Spanish[1]

CANCER LANDSCAPE: PREVALENCE, INCIDENCE, AND MORTALITY RATES

PREVALENCE: In 2021, Harris County had a relatively low cancer prevalence rate of **5.2** per **100,000**. However, certain areas, such as West and Southwest Houston, experienced higher rates, reaching up to **8.6** per **100,000**.

MORTALITY RATES (2016-2020)

DEMOGRAPHIC	RATE (PER 100,000)
Texas	144.5
Harris County	139.4
Non-Hispanic Black	184.2
Non-Hispanic White	149.3
Hispanic	103.9
Asian/Pacific Islander	91.2
American Indian/Alaskan Native	58.8

THE IMPACT OF CPRIT FUNDING

Between **2010 and 2024**, a total investment of **$19,688,123.06** was provided by CPRIT to three grantees highlighted in this case study. These grantees included both university-based health systems and small community-based nonprofits, each receiving funding multiple times during this period.

SCREENINGS PROVIDED
Total Screenings: **281,170**

- *Vaccine: 124,358*
- *Clinical Assessment: 58,899*
- *Diagnostic: 40,587*
- *Screening: 30,725*
- *Survivorship: 16,129*
- *Tobacco Cessation: 10,448*
- *Genetic Testing: 24*

46,060 people screened for the first time in the Houston Area

As a result of grant activities, **359** policy and system changes were implemented

TRAININGS PROVIDED (2017-2022)
Professional: 19,585
Public: 214,831
Total: **234,416**

Project periods extended from 2010 to 2024; however, due to changes in data reporting, the available data years are 2017 to 2022.

1 U.S. Census Bureau. (n.d.). Houston city, Texas. Retrieved June 25, 2024, data.census.gov/profile/Houston_city,_Texas?g=160XX00US4835000
2 List of National Cancer Institute (NCI)-Designated Cancer Centers

HIGHLIGHTING KEY PROJECTS

OBJECTIVE	APPROACH	IMPACT
TOBACCO SCREENING AND CESSATION		
Enhance tobacco screening and cessation services.	Formed partnerships with mental health providers; integrated smoking cessation into routine care.	**Expanded reach and access to tobacco-related care; contributed to the professional growth of leaders in cancer prevention.**
CULTURALLY TAILORED SERVICES FOR ASIAN COMMUNITIES		
Provide cancer prevention, education and survivorship services to diverse Asian populations.	Developed multilingual educational materials; conducted community screenings; assisted with health insurance navigation.	**Addressed language and cultural barriers; improved access to preventive care; highlighted the role of grassroots organizations.**
COMPREHENSIVE CANCER PREVENTION PROGRAM		
Address screening, patient education, and navigation services.	Partnered with a large safety-net hospital; created accessible educational materials; improved follow-up care.	**Increased screening rates; reduced patient follow-up gaps from 40-50% to nearly zero; enhanced navigation through the healthcare system.**

OVERALL IMPACT

Summary: Tailored, community-based approaches and strategic partnerships have significantly advanced cancer prevention.

Benefits: Improved access to care, addressed barriers such as language and insurance, and enhanced patient follow-up and navigation.

"[The grant's focus was] educating the providers, working with them to develop sustainable ways of screening our patients, and to know where to refer them to for tobacco use care"

"We've had an impact on thousands of people... [especially] the African American and Hispanic population...raising awareness about the importance of early detection and screening and healthy living and taking care of yourselves...I really feel that it's been extremely worthwhile."

LESSONS LEARNED

PARTNERSHIPS

Crucial for success; balance between large entities and grassroots organizations. Large entities offer administrative support; grassroots organizations engage directly with underserved populations.

PROGRAM IMPACT

Significant impact on racial and ethnic minorities; focus on health insurance access and culturally relevant materials.

REPORTING CHALLENGES

Small organizations struggle with reporting; successful models include central organizations managing data for multiple partners.

OVERALL IMPACT

Resources and systems developed have long-term benefits beyond grant periods, enhancing cancer prevention and support for underserved communities.

APPENDIX J[1]

Texas Statewide Assessment Report

SECTION 1. CANCER PREVENTION OVERVIEW

Research estimates that close to 50% of cancer cases are preventable by more consistently applying current knowledge of primary prevention strategies, such as lifestyle and behavior modifications, and secondary preventive interventions (i.e., cancer screening programs) to discover and control cancer, to the population.[1,2] The potentially modifiable risk factors that are causally linked to cancer include cigarette smoking and secondhand smoke exposure; excess body weight; alcohol intake; dietary factors such as consumption of meat and processed foods and low consumption of fruits, vegetables and dietary fiber; physical inactivity; ultraviolet (UV) radiation exposure; and infection with viruses such as hepatitis B virus (HBV) and human papillomavirus (HPV).[3] Experts have routinely outlined cancer prevention recommendations[4] and defined evidence-based interventions that effectively prevent cancer and detect it at early stages.[5,6] Despite this body of evidence, an immense gap exists between what we know about cancer prevention and what we do, including what individuals and families incorporate into their personal lives as well as actions taken by educators, policymakers, employers, government agencies and others to promote healthier workplaces, cleaner environments, and a culture that values and enables health and wellness as population-level priorities. which can be more available, more commonly chosen, and more routinely practiced.

However, some large scale, population-level cancer prevention efforts have been implemented in the past few decades with proven results. For instance, lung cancer incidence and mortality rates in the United States and Texas have declined dramatically in the past 20-30 years due to evidence-based tobacco control actions such as public education campaigns; state and federal support of tobacco control programming; the design, adoption and defense of policies that promote smoke and tobacco-free environments in public spaces; public support for tobacco treatment services provided to those who smoke at low or no-cost to assist them in cessation

[1] The MD Anderson team led the statewide assessment with support from THI.

(e.g., state quitlines); state and federal policies to limit youth access to tobacco products (tobacco 21) and regulation of e-cigarettes; taxation on the sale of tobacco products with return of the generated revenues to tobacco prevention and treatment services; and most recently, improvements in lung cancer screening and early detection.[7] Retrospective research has suggested that as much as 40% of reductions in male lung cancer deaths between 1991 and 2003 are attributable to tremendous reductions in smoking over the past 50 years in the U.S. and Texas.[8]

In the early 2000s, the state of Delaware implemented a multi-modal plan to reduce the high rates of cancer incidence and mortality under the direction of the Delaware Cancer Consortium.[9] The primary elements of the program included facilitated screening for colorectal cancer to all eligible residents including patient navigation services, targeted outreach efforts to medically underserved populations such as Black residents who had experienced cancer disparities, including higher rates of colorectal cancer mortality for decades, and a cancer treatment program for all uninsured individuals. In just seven years between 2002 and 2009, colorectal cancer screening for Delawareans aged 50 plus increased from 57% to 74%. The percentage of patients diagnosed with advanced colorectal cancer decreased, incidence rates per 100,000 decreased for both white and Black individuals, and the mortality rate declined for both groups.[10] During this period, the data also demonstrated that disparities in colorectal cancer screening and incidence and mortality rates were significantly reduced between populations of white and Black people in Delaware.

In 2007, Australia was the first country to introduce a national publicly funded human papillomavirus (HPV) vaccination program, and it has attained high vaccination coverage in both males and females since that time. In addition to promoting HPV vaccination, Australia also transitioned its cervical cancer screening practice from cytology-based screening every two years to cervical sampling for HPV screening every five years, a strategy which clinical trials suggest is more effective at detecting cervical abnormalities and preventing cervical cancer. Owing to the multi-HPV vaccination program and the HPV-based cervical screening program, with high rates of participation in both programs over a period of approximately 17 years, Australia may be the first country to eliminate cervical cancer.[11] Recent modeling has projected the impact of these multiple interventions on cervical cancer incidence and mortality until 2035 at which point cervical cancer rates are expected to halve and mortality rates should decline by 45%.[12]

These examples illustrate the ways in which primary and secondary cancer prevention strategies have had and can have a profound impact on cancer incidence and mortality over a relatively short period of time (i.e., 20 years to 30 years) through the implementation of carefully chosen, highly coordinated, and faithfully implemented actions in evidence-based cancer control.

SECTION 2. TEXAS STATEWIDE ASSESSMENT OVERVIEW

In 2007, Texans made a historic vote in favor of a constitutional amendment creating the Cancer Prevention and Research Institute of Texas (CPRIT). In adopting the constitutional amendment, Texans also made a historic commitment to cancer prevention, dedicating 10% of CPRIT funds to support the delivery of evidence-based cancer prevention interventions to underserved populations in Texas. The CPRIT Prevention Program's guiding principles are "to fund evidence-based interventions across the prevention continuum for any cancer types that are culturally appropriate for the target population and validated by documented research or applied evidence."[13]

Since 2010, the prevention-focused funding has enhanced innovation in prevention in the state through the support of 244 grants in eight areas. CPRIT invests in effective community-based interventions so that new technologies and services are made available across the state, with priority given to areas and populations that are underserved. These programs have reached nearly every corner of the state and provided resources to fund important education and training, along with clinical services for cancer screenings, vaccinations (HPV and Hepatitis B), tobacco cessation counseling and treatment, genetic testing and counseling, and expansion of coalitions and networks delivering cancer prevention services.

The purpose of this report is to summarize the extent to which rates of preventable cancer risk factors and cancer morbidity and mortality have changed in the state of Texas in the first ten years of CPRIT Prevention Program funding (2010 to 2020). This analysis reviews key demographic factors and behavioral risk factors as well as cancer incidence, late-stage incidence, and mortality for all cancer types and five preventable cancers in particular: female breast (breast), cervix uteri (cervical), colon and rectum (colorectal), liver and intrahepatic bile duct (liver) and lung and bronchus (lung).

SECTION 3. DATA SOURCES AND METHODOLOGICAL APPROACH

The data presented in this report are derived from a variety of publicly available sources including the Texas Cancer Registry (TCR)[2], the American Community Survey (ACS), the Behavioral Risk Factor Surveillance System (BRFSS), and the National Immunization Survey-Teen (NIS-Teen). This analysis focuses on the period from 2010 to 2020 and presents data at the state and Public Health Region (PHR)[3] level where applicable and feasible. Data presented at the PHR level demonstrate the geographic and demographic variation of Texas. Throughout the report, PHRs are identified by their corresponding number and by the largest city in each.

The National Cancer Institute (NCI) suggests that the "best indicator of progress against cancer is a change in age-adjusted mortality (death) rates."[14] Although incidence rates are also important, the interpretation of these rates is not always straightforward. Increasing incidence could indicate a real increase in disease occurrence, or it could be due to factors such as new or improved screening techniques. Thus, to illustrate the burden of disease on Texas, this analysis focuses on mortality rates as well as cancer incidence rates and late-stage incidence rates. For clarity, definitions of incidence, late-stage incidence and mortality rates follow. Incidence rate is defined as number of new cancers of a specific site/type occurring in a specified population during a year per 100,000 population at risk,[15] and late-stage incidence is defined as new cancer cases that are Regional by direct extension (2), Regional to lymph nodes (3), Regional, both 2 and 3 (4), Regional NOS (5), and Distant (7).[16] Mortality rate is defined as the number of deaths, with cancer as the underlying cause of death, occurring in a specified population during a year per 100,000 population.[17]

Data on cancer incidence and mortality, were extracted from the publicly available TCR web query tool in the spring of 2024.[18] Rates change as new data are report to TCR, and thus, the numbers reported in this analysis may not match the rates currently available in the web query tool. A cluster of years at the beginning of the period (2010-2012) and at the end of the period (2017-2019) were selected to account for any variance that reviewing a single year's

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[2] Texas cancer data have been provided by the Texas Cancer Registry, Cancer Epidemiology and Surveillance Branch, Texas Department of State Health Services, 1100 West 49th Street, Austin, TX 78756 (www.dshs.texas.gov/tcr). Data from the Texas Cancer Registry is supported by the following: Cooperative Agreement #1NU58DP007140 from the Centers for Disease Control and Prevention, Contract #75N91021D00011 from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program, and the Cancer Prevention and Research Institute of Texas.

[3] https://www.dshs.texas.gov/regional-local-health-operations/public-health-regions

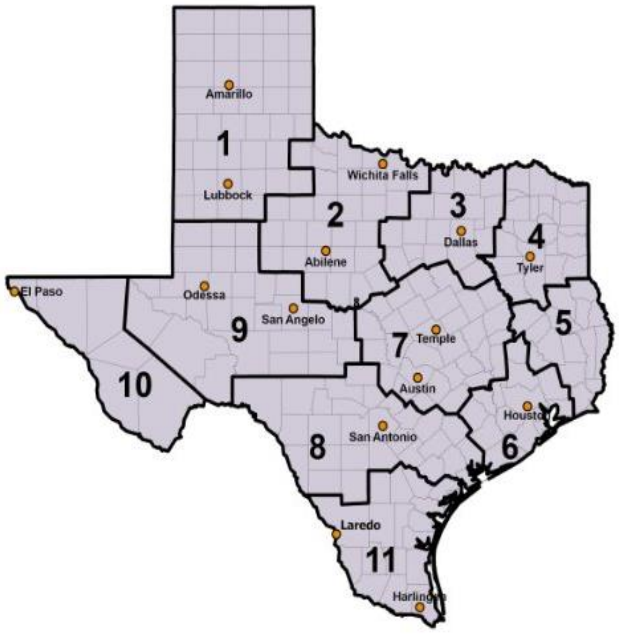
data could cause. Though data for 2020 were available at the time of the analysis, 2019 was chosen as the final year of analysis because of the potential effect of the COVID-19 pandemic on incidence and mortality data and reporting. The National Cancer Institute's Surveillance, Epidemiology, and End Results Program (SEER) and the TCR conducted analyses to determine the impact of COVID-19 on cancer data, and they found significant impact on cancer incidence in 2020; for many cancers, incidence rates did not fully recover to pre-pandemic levels.[19] All incidence and mortality rates reported throughout are age-adjusted. Where it was possible to calculate, increases or decreases in rates that are statistically significant are noted throughout. Error bars are provided on most charts to display the variability and uncertainty in the data and help determine statistical significance.

Demographic data from ACS were analyzed using the 5-year estimates to account for any variation when reviewing data from a single year. Data on behavioral risk factors were derived from BRFSS and PHR-level estimates were generated by the Texas Behavioral Risk Factor Surveillance System, Center for Health Statistics, Texas Department of State Health Services. Reliable estimates at the PHR level that could be compared to 2020 were only available starting in 2014, and for those indicators the period of analysis is 2014 to 2020.

SECTION 4. DEMOGRAPHICS OF TEXAS

To contextualize changes in cancer incidence and mortality rates, we must first understand how the demographics of Texas changed in terms of population, racial and ethnic makeup, median income, health insurance coverage, and educational attainment. This section explores these changes.

Figure 1.1 Public Health Regions in Texas

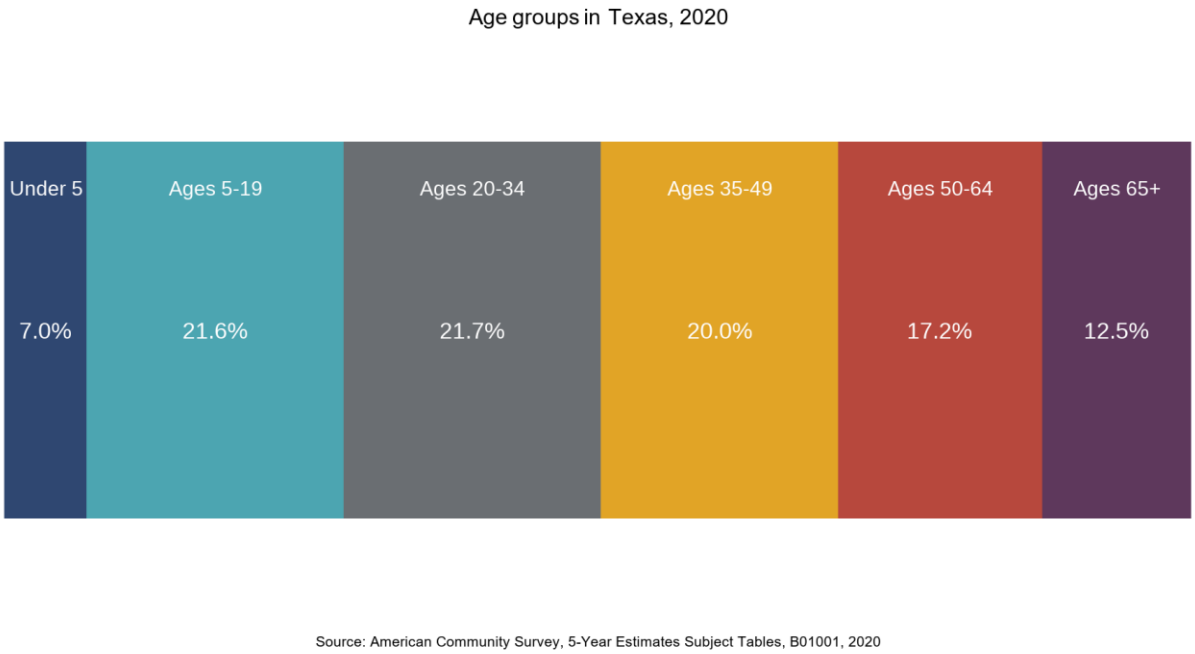


Population

Texas is the second largest state geographically (second to Alaska), and the second most populous state (second to California) in the United States.[20] The state is divided into 254 counties and 11 PHRs as determined by the Texas Department of State Health Services.[21] See Figure 1.1.

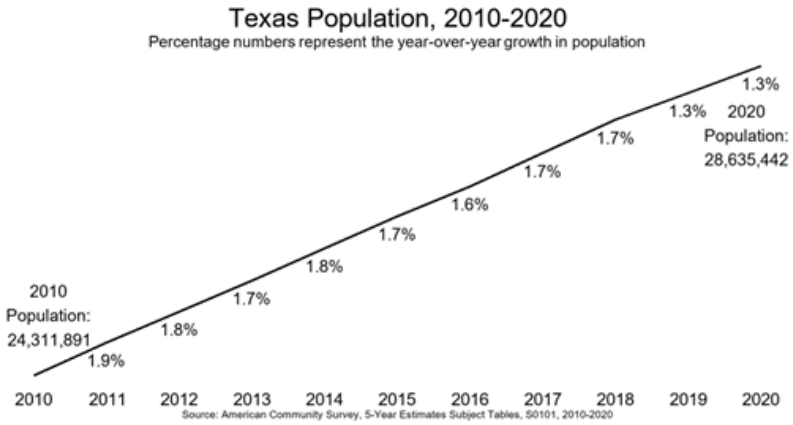
In 2020 the population of Texas was 28,635,442.[22] From 2010 to 2020, Texas had the largest increase in population in the country, gaining nearly 4 million residents, and had the third fastest population growth rate of all the states. Every PHR had a net increase in population from 2010 to 2020, and the three most populous PHRs (3, 6 and 7, covering Dallas, Houston, and Austin, respectively) had the highest percentage increase in population. The median age of Texas residents in 2020 was 34.8. The percentage of the population in each age group as of 2020 is illustrated in Figure 1.2. The Texas population that is 65 years of age or older generally increased statewide. PHRs 4 (Tyler), 6 (Houston) and 7 (Austin) had the largest percentage increase in the population 65 years of age or older. See Figure 1.3.

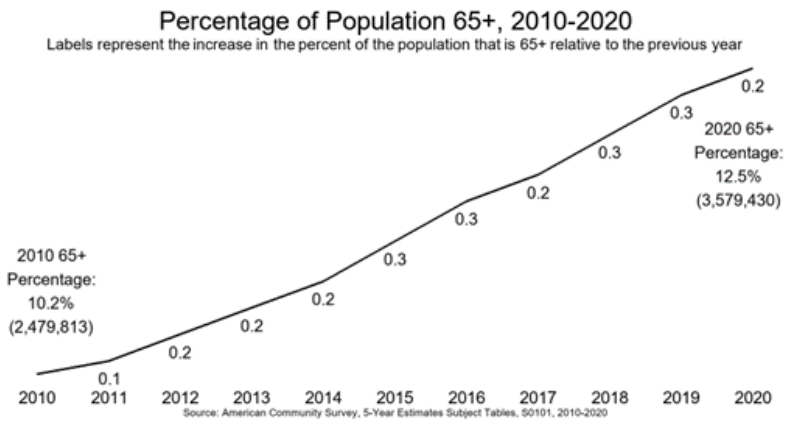
Figure 1.2 Age Groups in Texas, 2020



Source: American Community Survey, 5-Year Estimates Subject Tables, B01001, 2020

Figure 1.3 Texas Population Growth from 2010 to 2020

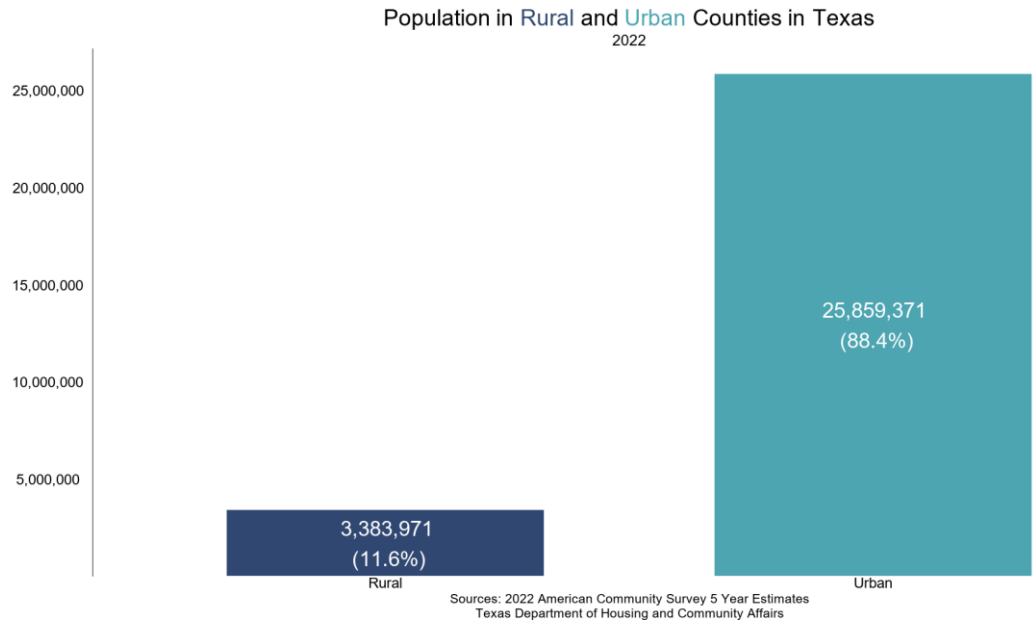




Rurality

Most Texas residents (88.4%) lived in counties classified as urban in 2022. See Figure 1.4.

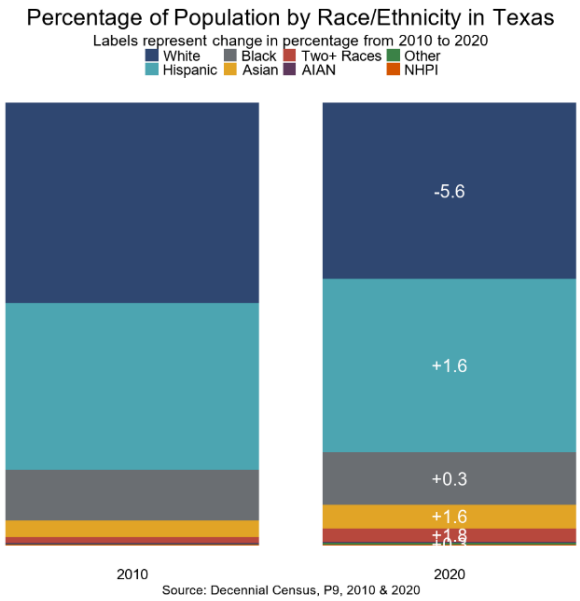
Figure 1.4 Urban and Rural Populations in Texas 2022



Race/Ethnicity

All racial/ethnic groups grew from 2010 to 2020 except for people identifying as white. From 2010 to 2020 there was an increase in residents who identified as Hispanic across all PHRs, conversely, there was a decrease in residents who identified as white. See Figure 1.5.

Figure 1.5 Change in Race/Ethnicity in Texas, 2010 to 2020



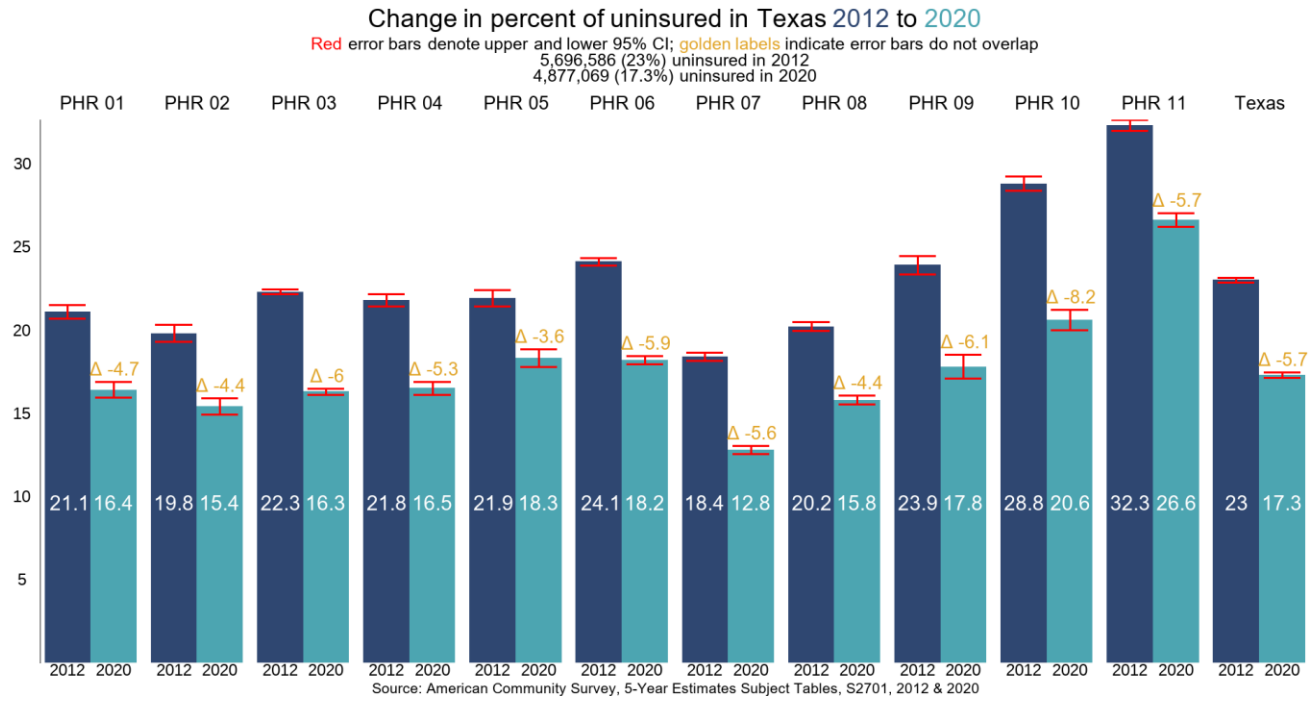
Median Household Income

In 2020 the median household income among Texas residents was $63,826; this is 28.5% higher in unadjusted dollars than in 2010 ($49,646). Median household income was not compared across PHRs due to the high variability across counties.

Health Insurance Status

In Texas overall, the percentage of residents without health insurance declined from 2012 (23.0%) to 2020 (17.3%)[4], meaning more Texans were covered by health insurance. This trend is also true for every individual PHR. Notably, PHR 10 (El Paso) had the largest decrease in the uninsured population, from 28.8% uninsured in 2012 to 20.6% uninsured in 2020. See Figure 1.6.

Figure 1.6 Change in Percent of Uninsured Texans, 2012 to 2020

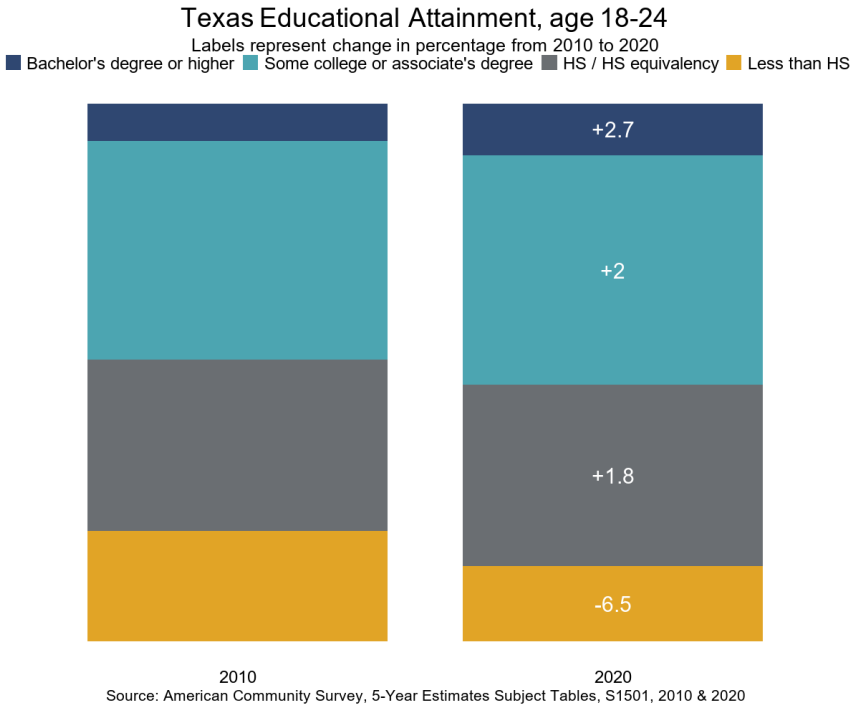


[4] Baseline year is 2012 in this instance because 5-year estimates were not available related to insurance status in 2010.

Educational Attainment

Texas experienced a net increase in educational attainment levels among those 18-24 during our analysis period. More Texans received a high school diploma or equivalent (+1.8%), attended college or earned an associate degree (+2.0%), and earned a bachelor's degree or higher (+2.7%) as compared to 2010. See Figure 1.7.

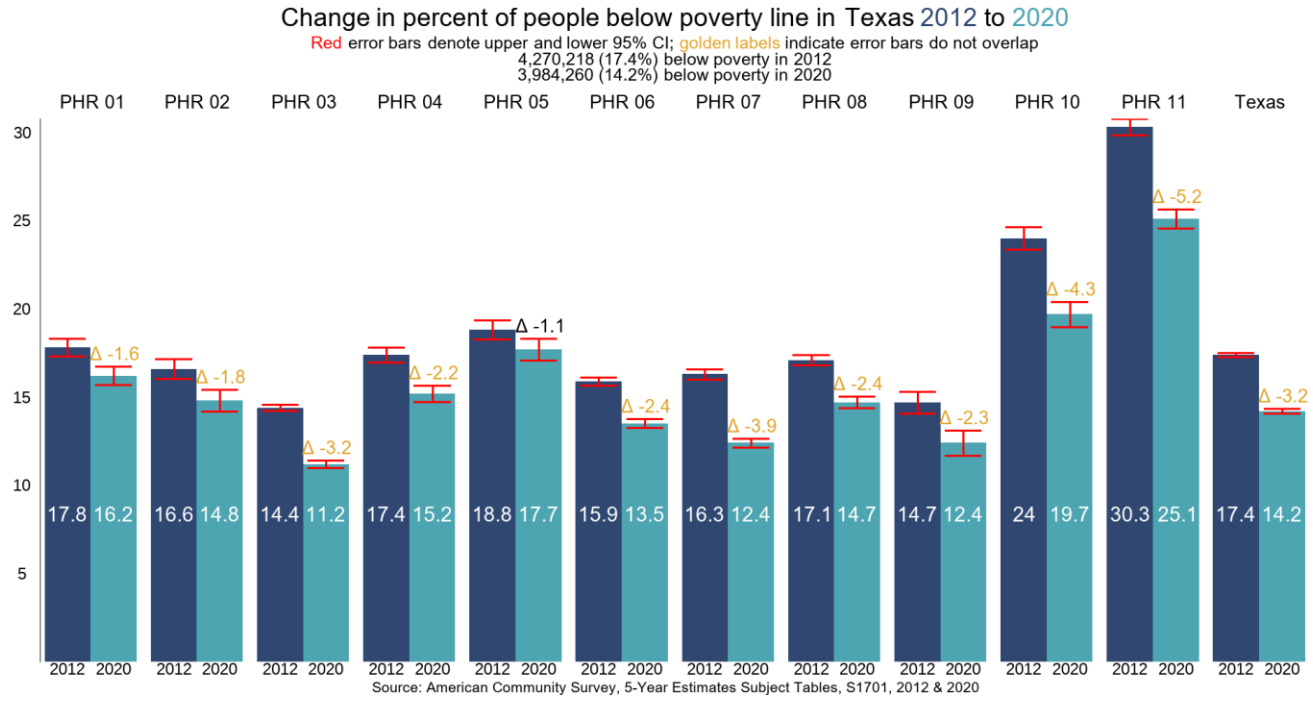
Figure 1.7 Change in Educational Attainment of Texans, 2010 to 2020



Poverty

From 2012 to 2020 the percentage of Texans living in poverty[23] decreased significantly from 17.4% to 14.2% statewide.[5] The percentage of people living in poverty decreased for all PHRs with PHR 11 (Harlingen) having the largest statistically significant decline. See Figure 1.8.

Figure 1.8 Change in Percent of Texans Living in Poverty, 2012 to 2020



Demographic Summary

Over our analysis period, the population of Texas grew, the percentage of Texans who identified as Hispanic or of a race/ethnicity other than white increased, median household increased, more Texans were covered by health insurance, more Texans achieved higher levels of educational attainment, and fewer Texans lived in poverty. These overall trends add context to the changes in cancer incidence and mortality during the analysis period for this project.

[5] Baseline year is 2012 in this instance because 5-year estimates were not available related to poverty status in 2010. The poverty thresholds are the original version of the federal poverty measure. They are determined annually by the US Census Bureau, as directed by the Office of Management and Budget's Statistical Policy Directive 14. They are updated annually to account for inflation using the Consumer Price Index.

SECTION 5. CANCER RISK FACTOR BEHAVIORS

As mentioned previously, several behaviors contribute to the risk of developing cancer such as obesity, physical inactivity, and tobacco use. As such, the US government sets goals for improvements in these behaviors and outcomes via Healthy People 2030.[24] The table below shows the Healthy People 2020 and 2030 goals related to physical inactivity, obesity, smoking, HPV vaccination, and screening for breast, cervical and colorectal cancer for adults. In 2020, Texas did not meet the obesity goal, the smoking goal or the goals for any cancer screening but did meet the goal for physical inactivity. Texas will need to make improvements in every indicator to meet the Healthy People 2030 goals. See Table 1.1.

Table 1.1 Texas Health Behaviors compared to Healthy People 2030 Goals

Health Behavior	Texas Rate Baseline*	Texas Rate 2020	Healthy People 2020 Goal	Healthy People 2030 Goal
Physical Inactivity	27.6%	25.6%	32.6%	21.8%
Obesity	31.9%	35.7%	30.5%	36.0%
Smoking	14.5%	13.2%	12.0%	6.1%
Breast cancer screening	76.7%	77.7%	81.1%	80.3%
Cervical cancer screening	77.7%	75.0%	93.0%	79.2%
Colorectal cancer screening	60.8%	66.8%	70.5%	68.3%
HPV Vaccination	32.9%	54.9%	Not available**	80.0%

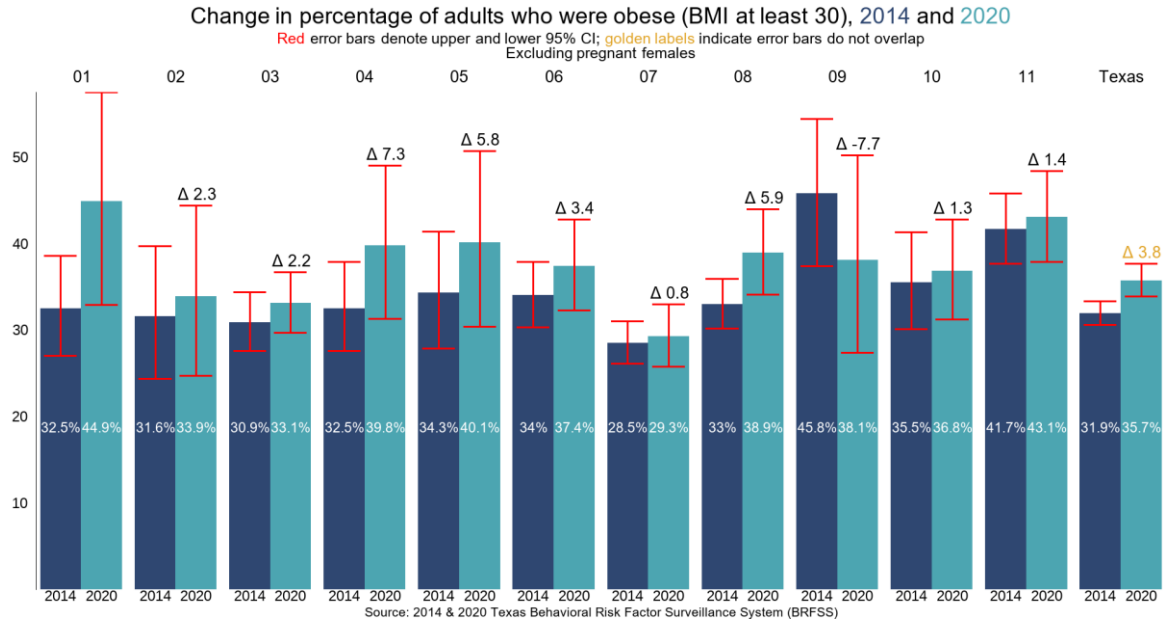
*Baseline years vary for the indicators; 2016 for HPV vaccination and 2014 for the other indicators.

**Healthy People 2020 did not define a combined male/female goal and used different age ranges than the current goal

Obesity

The percentage of people who are obese has increased significantly from 2014 to 2020 by 3.8% at the state level. The rates of obesity have increased in all PHRs, except PHR 9 (Midland), though statistical significance could not be determined. See Figure 1.9.

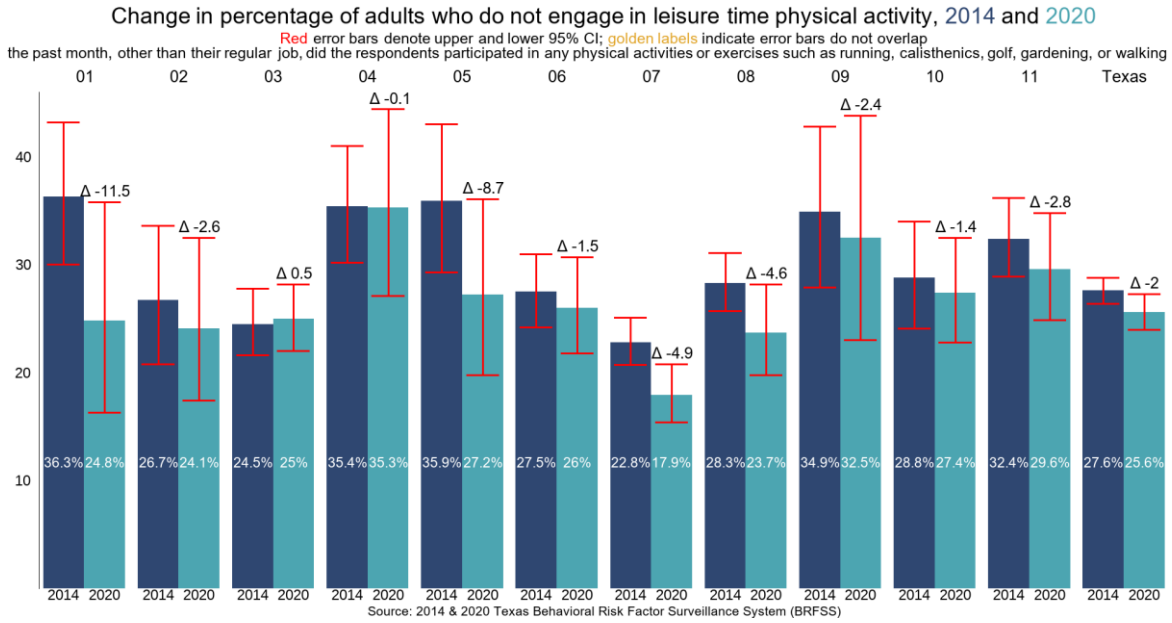
Figure 1.9 Change in Percentage of Adult Texans Who Are Obese, 2014 to 2020



Physical Inactivity

When looking across PHRs, the vast majority saw a decrease in the percentage who expressed being inactive in their leisure time from 2014 to 2020. PHR 3 is the only exception showing a slight increase in leisure time physical inactivity from 2014 to 2020, though statistical significance could not be determined at the state level or for any PHR. See Figure 1.10.

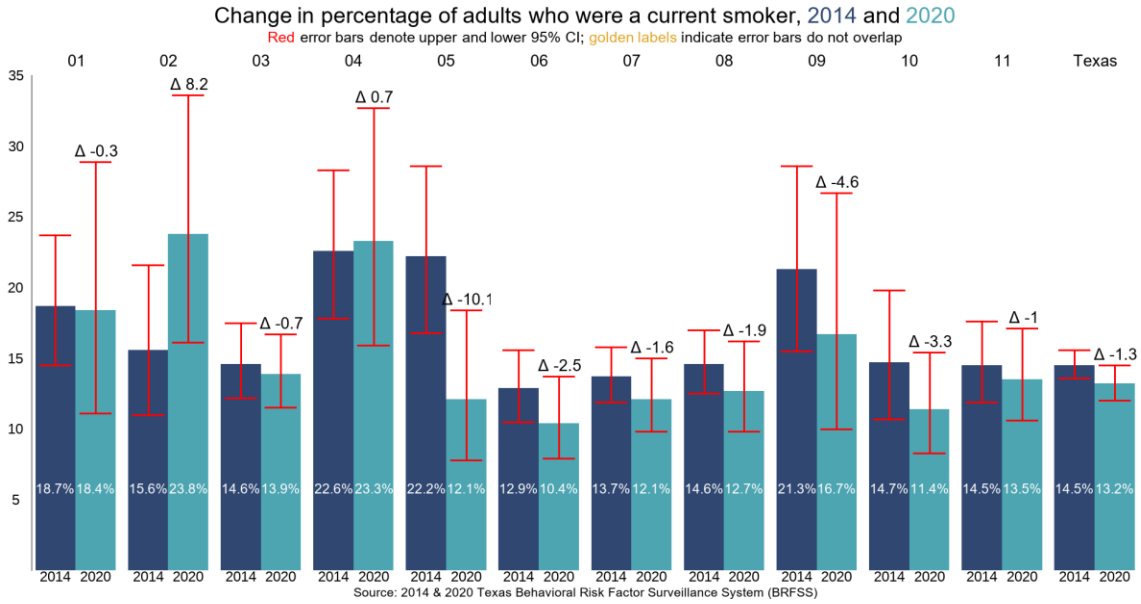
Figure 1.10 Change in Percentage of Adult Texans Who Do Not Engage in Leisure-time Physical Inactivity, 2014 to 2020



Smoking

The percentage of Texans who reported being a current smoker has decreased somewhat from 2014 to 2020. See Figure 1.11.

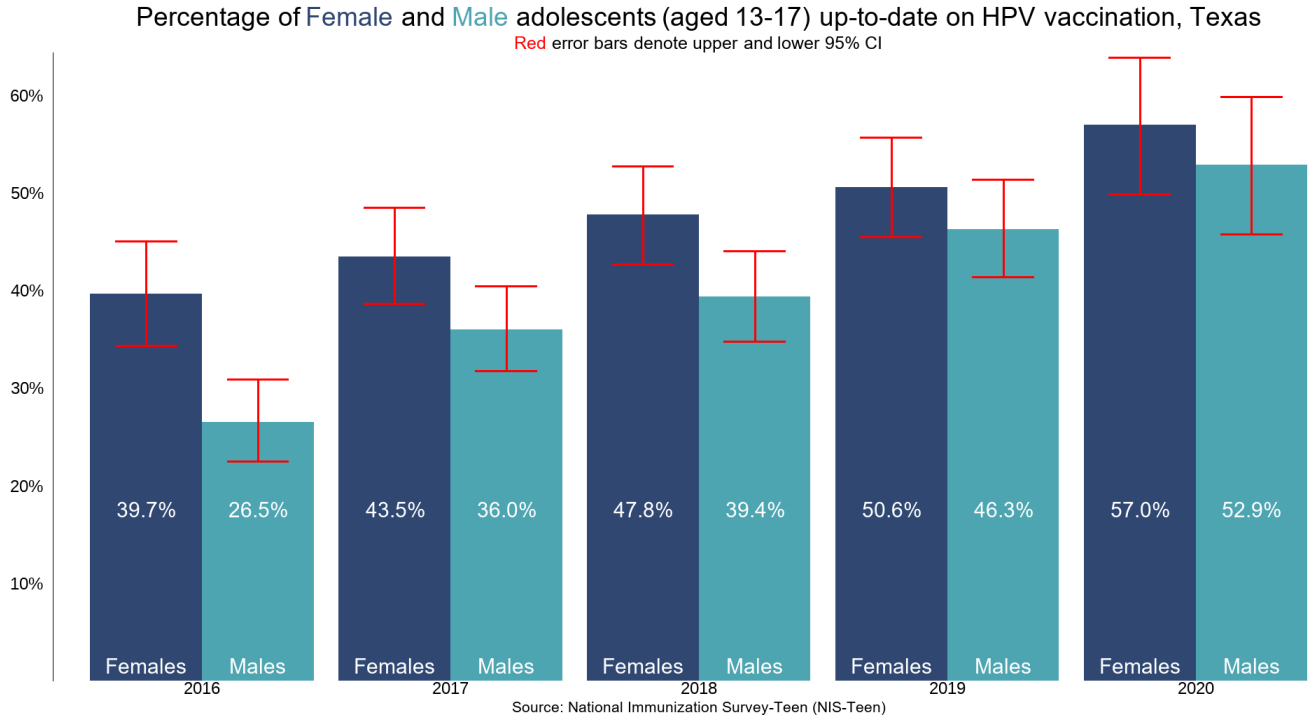
Figure 1.11 Change in Percentage of Adult Texans Who Currently Smoke, 2014 to 2020



HPV Vaccination

HPV vaccination is another behavior that can affect a person's lifetime risk of developing certain types of cancer, including cervical.[25] The rate of up-to-date vaccination for the state of Texas has risen each year for both males and females aged 13-17 years from 2016 to 2020 and is now above 50% for both groups, see Figure 1.12. However, this is still well below the Healthy People 2030 goal of 80% as noted in Table 1.1.

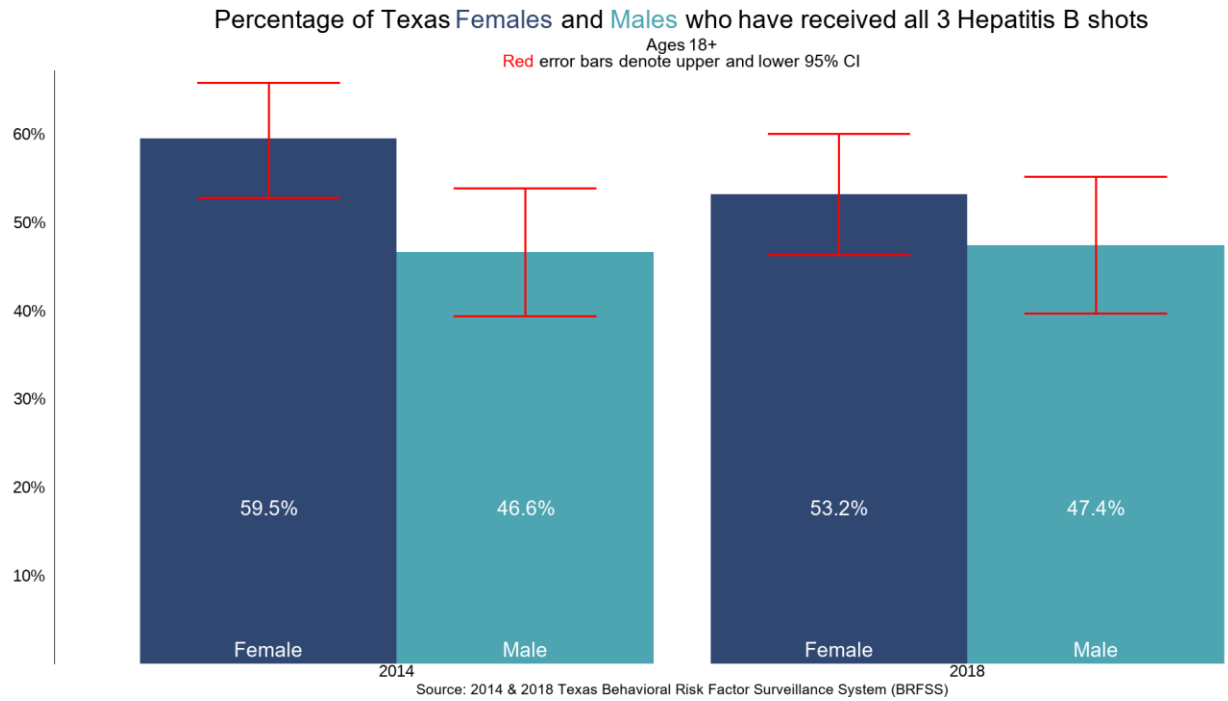
Figure 1.12 Percentage of Adolescent Texans Who Are Up to Date on HPV Vaccination, 2016 to 2020



Hepatitis B Vaccination

The hepatitis B vaccine is essential to prevent serious liver disease and to reduce the risk of certain cancers cancer,[26] notably liver cancer. This specific vaccine is recommended for newborns and children and certain adults who are at high risk of acquiring the infection. The rate of individuals ages 18-65 years and up who have received all 3 hepatitis shots remains around 50% for the years 2014-2018. Females have a higher percentage of acquiring all 3 shots in both 2014 and 2018 compared to males. See Figure 1.13.

Figure 1.13 Percentage of Adult Texans Who Have Hepatitis B Vaccination, 2014 to 2018



Behavioral Risk Factor Summary

Progress on behavioral risk factors related to cancer has been mixed in Texas during the analysis period. For instance, Texas continues to make progress on smoking and has made modest progress on physical inactivity. However, obesity has worsened, and Texas is not meeting goals for needed vaccinations or cancer screenings.

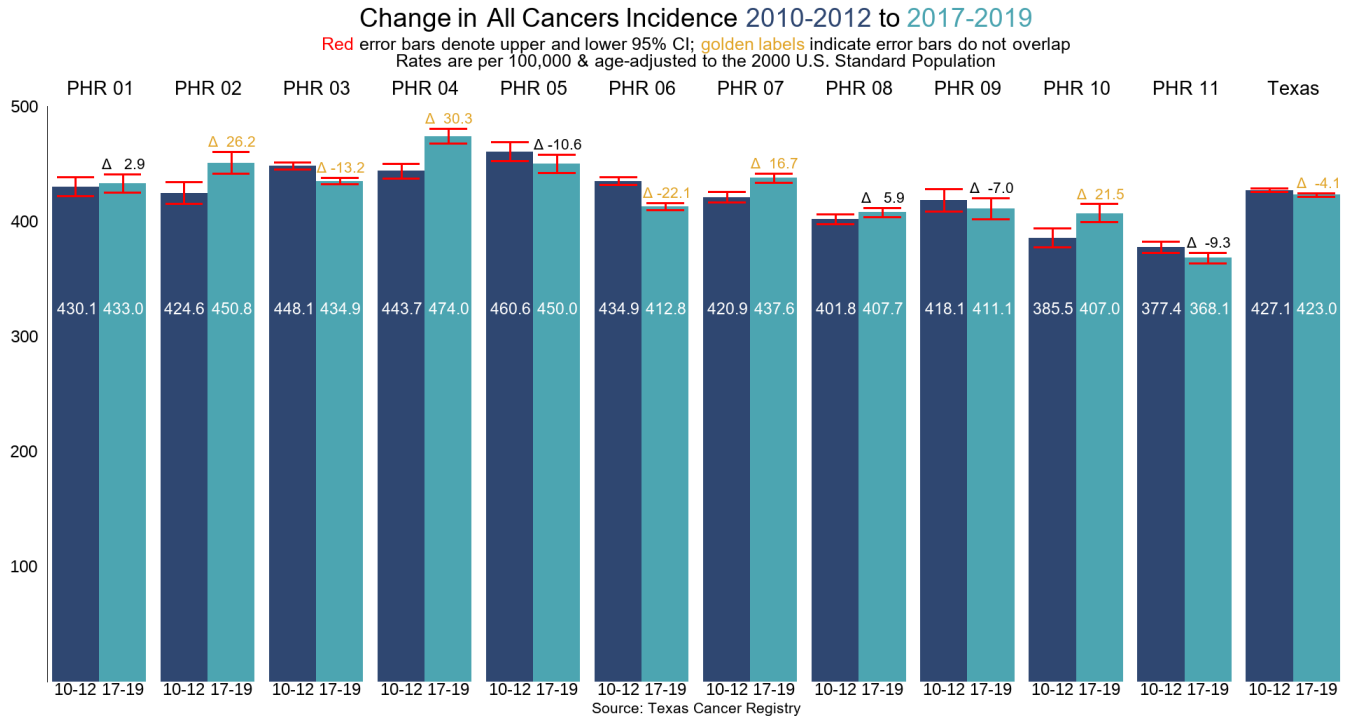
SECTION 6. CANCER IN TEXAS

Cancer is the second most common cause of death in Texas behind heart disease.[27] Over 140,000 new cancer cases are expected to be diagnosed in Texas in 2024 with 48,335 expected deaths,[28] and as of January 1, 2022, Texas was projected to have over 1 million cancer survivors.[29]

All Cancer Incidence

Overall cancer incidence in the state has significantly decreased from 427.1 per 100,000 in 2010-2012 to 423.0 per 100,000 in 2017-2019, as indicated by the non-overlapping confidence interval in Figure 1.14. Notably, the largest change in cancer incidence was in PHR 4 (Tyler), a significant increase from 2010-2012 to 2017-2019. Other significant increases occurred in PHRs 2 (Midland), 7 (Austin) and 10 (El Paso). Cancer incidence in PHR 3 (Dallas) and PHR 6 (Houston) significantly decreased during the analysis period. See Figure 1.14.

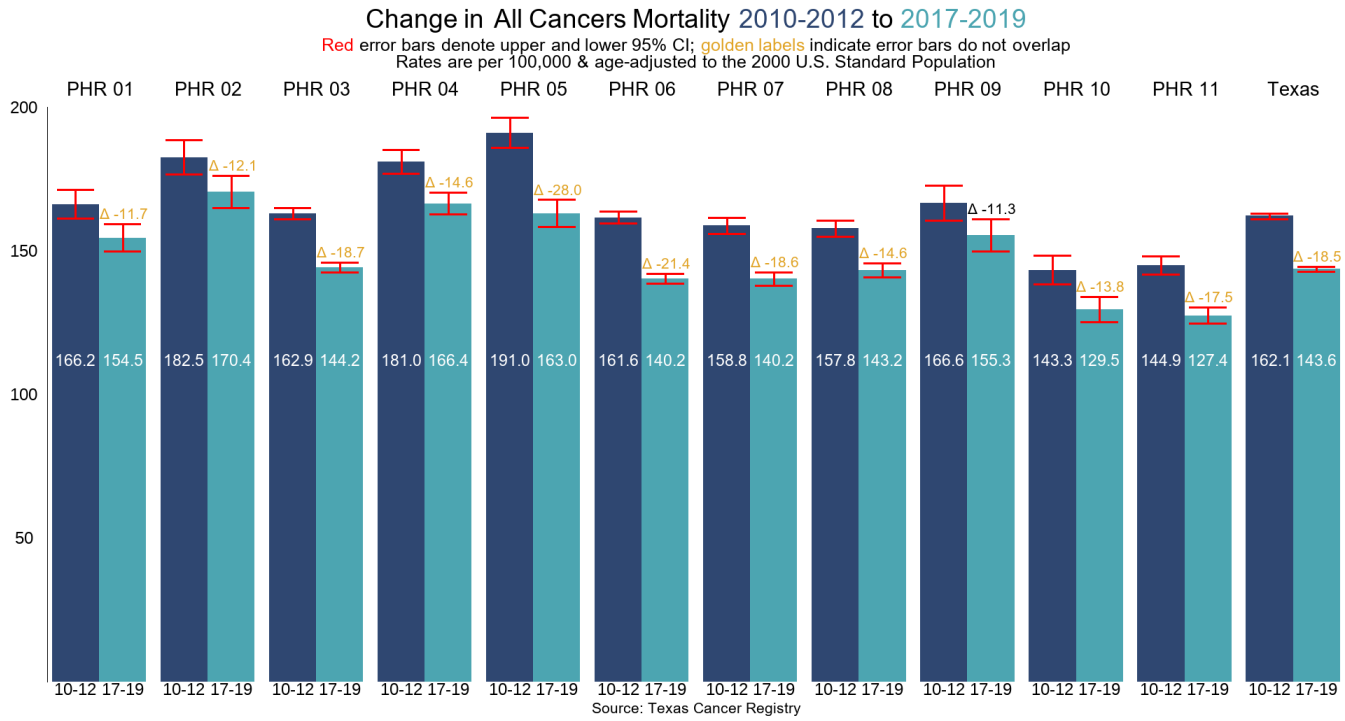
Figure 1.14 Change in All Cancer Incidence Rates in Texas, 2010-2012 to 2017-2019



All Cancer Mortality

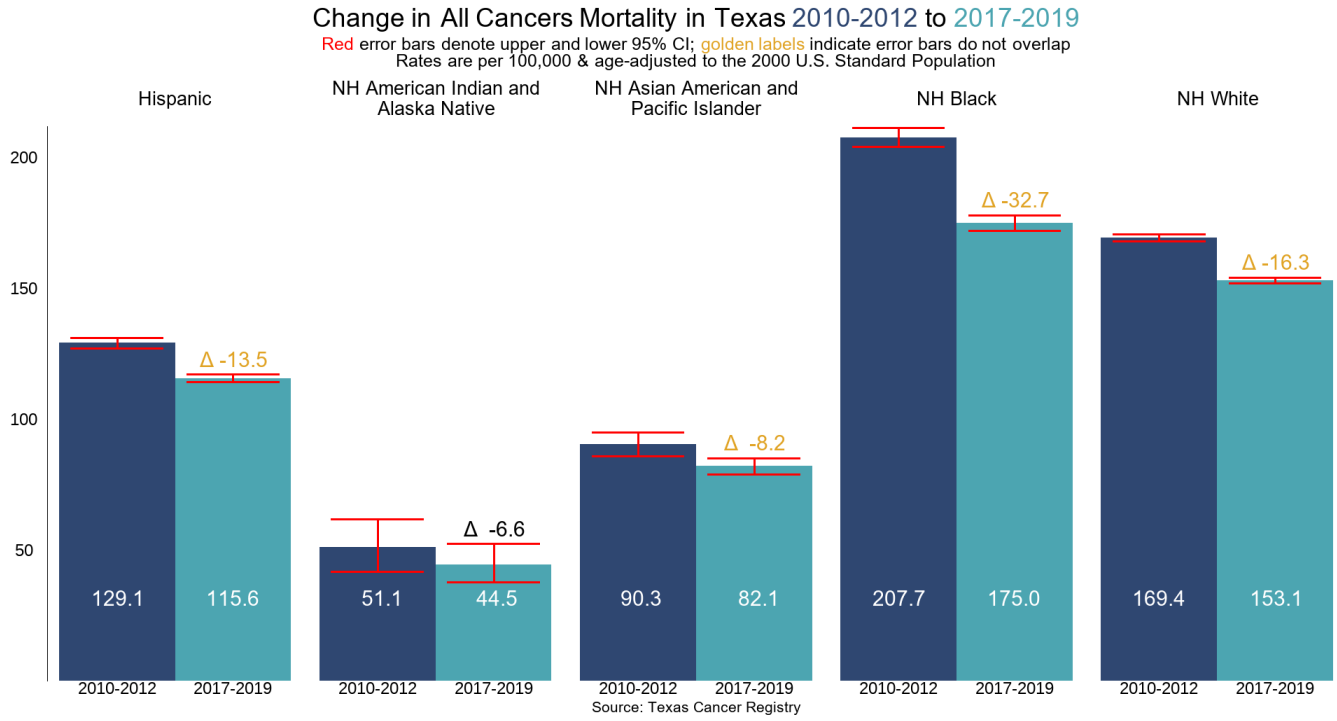
Overall cancer mortality decreased significantly in Texas from 162.1 per 100,000 in 2010-2012 to 143.6 in 2017-2019 as indicated by the non-overlapping confidence interval in Figure 1.15. Cancer mortality rates for all PHRs decreased significantly during this period, except for PHR 9 (Midland), where significance could not be determined. Notably, the largest rate change in mortality occurred in PHR 5 (Beaumont), with a decrease of 28.0 per 100,000. See Figure 1.15.

Figure 1.15 Change in All Cancer Mortality Rates in Texas, 2010-2012 to 2017-2019



When looking at cancer mortality by race/ethnicity, cancer mortality rates significantly decreased for Hispanic, Black, White, and Asian American/Pacific Islanders from 2010-2012 to 2017-2019. The largest decrease in cancer mortality among groups was in Non-Hispanic Black individuals, with a rate decrease of 32.7 per 100,000 from 2010-2012 to 2017-2019. See Figure 1.16.

Figure 1.16 Change in All Cancer Mortality Rates in Texas by Race/Ethnicity, 2010-2012 to 2017-2019

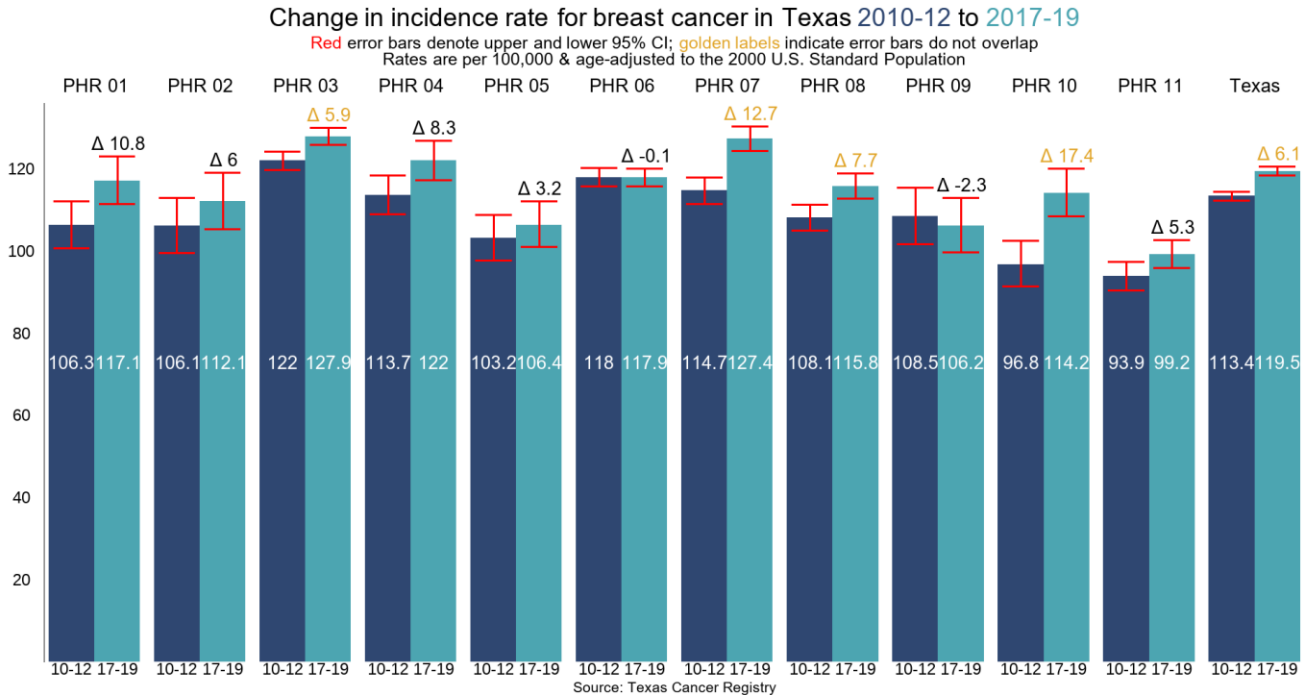


Breast Cancer in Texas

BREAST CANCER INCIDENCE

Although all cancer incidence in Texas decreased from 2010-2012 to 2017-2019, the incidence of breast cancer increased by 6.1 per 100,000 during the same time, a statistically significant increase. The increase in breast cancer incidence rate was statistically significant in PHRs 3 (Dallas), 7 (Austin), 8 (San Antonio) and 10 (El Paso). The greatest increase in breast cancer incidence rate was in PHR 10 (El Paso), an increase of 17.4 per 100,00 from 2010-2012 to 2017-2019. See Figure 1.17.

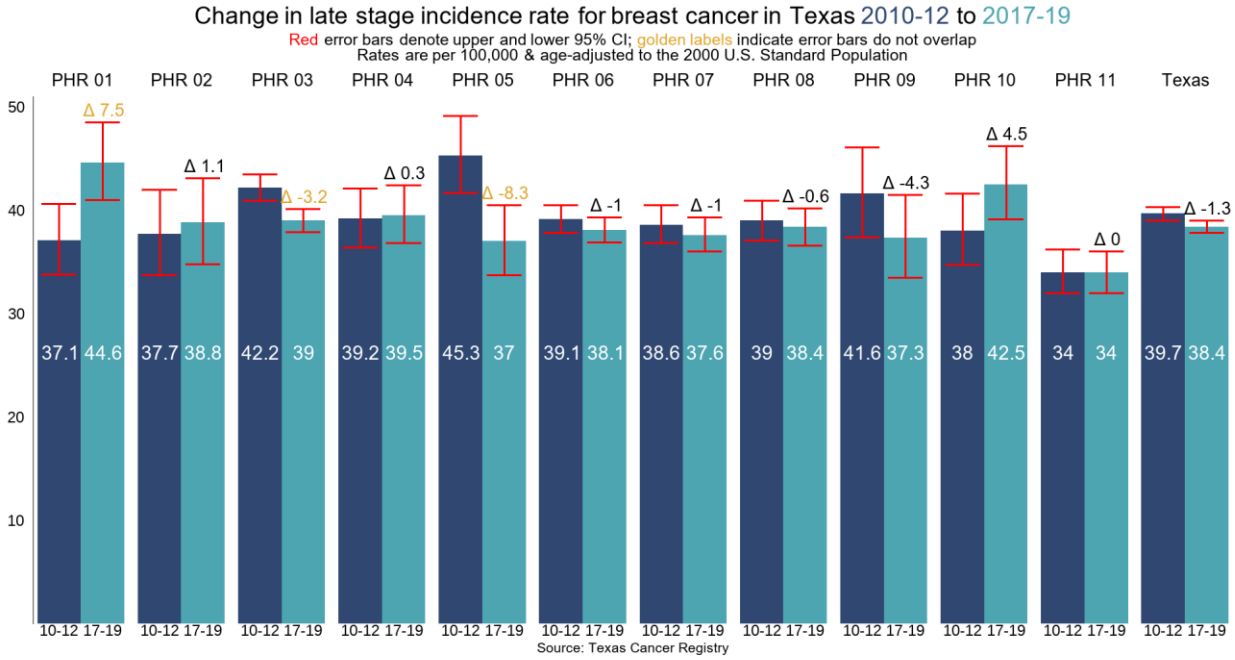
Figure 1.17 Change in Breast Cancer Incidence Rates in Texas, 2010-2012 to 2017-2019



BREAST CANCER LATE-STAGE INCIDENCE

Late-stage breast cancer incidence rate decreased slightly from 2010-2012 to 2017-2019 statewide, however, statistical significance could not be determined. The rate of late-stage breast cancer incidence in PHR 5 (Beaumont) and PHR 3 (Dallas) declined statistically significantly. However, these two PHRs (3 Dallas and 5 Beaumont) had an increase (PHR 3) or no significant change (PHR 5) in overall incidence. Late-stage breast cancer incidence in PHR 1 increased significantly from 2010-2012 to 2017-2019 by 7.5 per 100,000. See Figure 1.18.

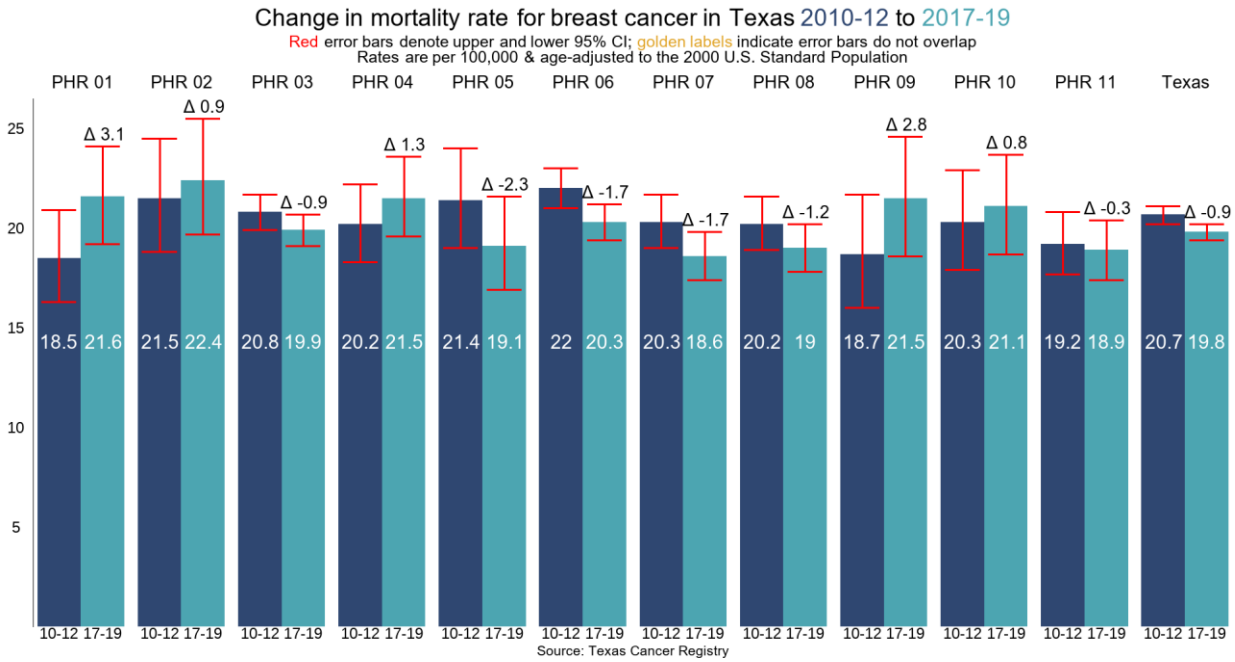
Figure 1.18 Change in Breast Cancer Late-Stage Incidence Rates in Texas, 2010-2012 to 2017-2019



BREAST CANCER MORTALITY

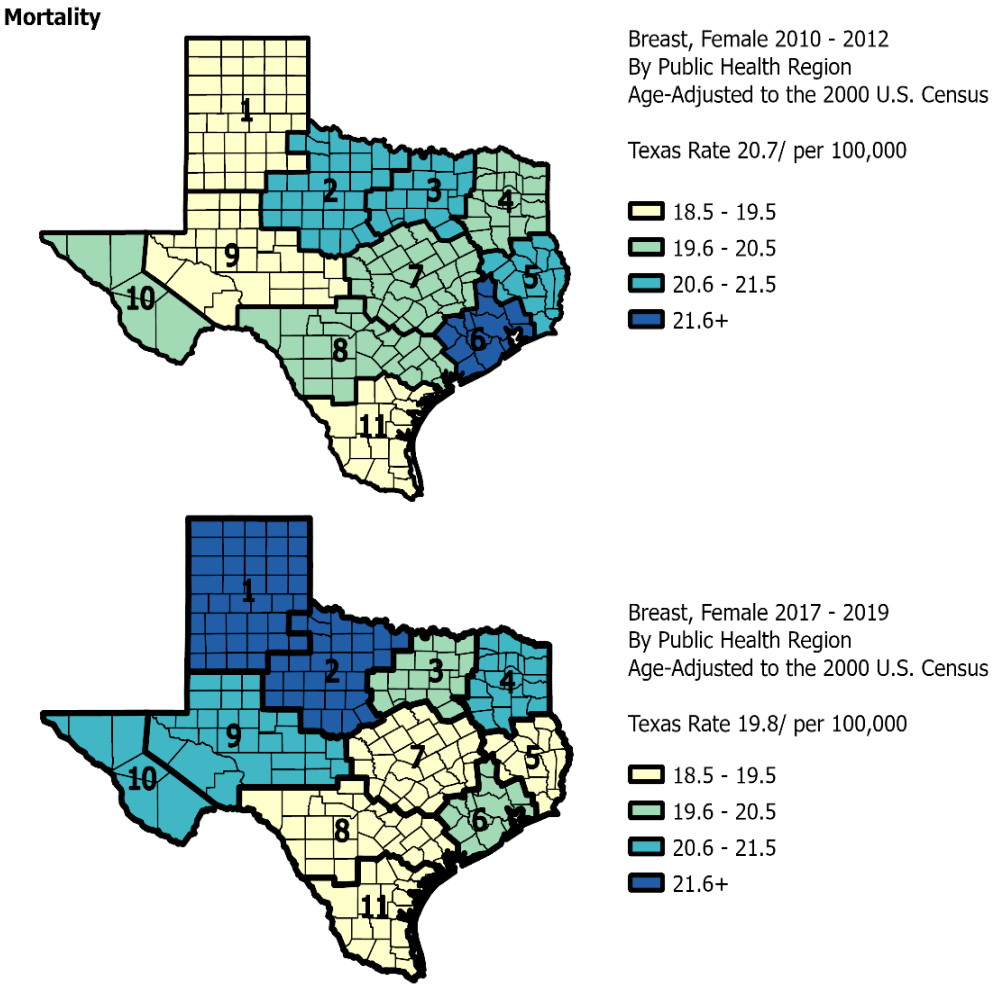
The breast cancer mortality rate for the state decreased from 2010-2012 and 2017-2019, though statistical significance could not be determined. Statistical significance could not be determined for any rate changes for any individual PHR. See Figure 1.19

Figure 1.19 Change in Breast Cancer Mortality Rates in Texas, 2010-2012 to 2017-2019



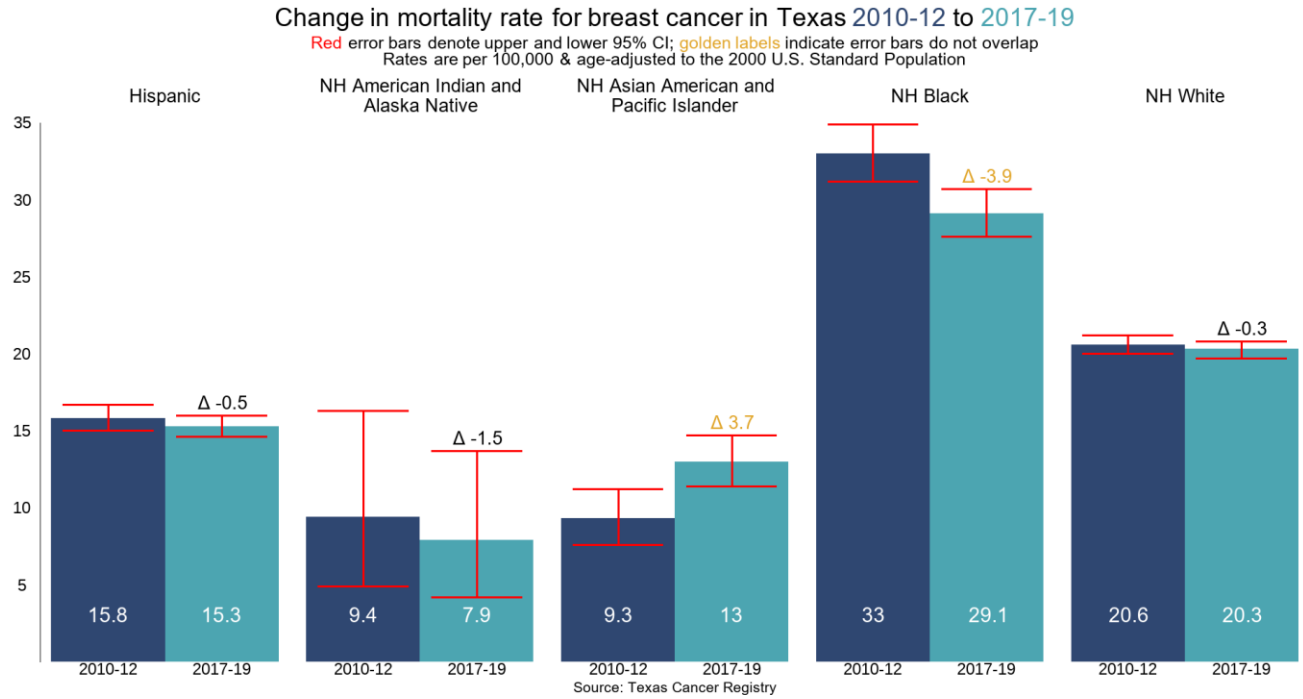
The maps in Figure 1.20 show where changes in breast cancer mortality from 2010-2012 to 2017-2019 have occurred.

Figure 1.20 Map of Changes in Breast Cancer Mortality Rates by PHR, 2010-2012 to 2017-2019



Breast cancer mortality rates for Non-Hispanic Asian American and Pacific Islanders increased significantly by 3.7 per 100,000, see Figure 1.21. The largest decrease occurred in Texans identifying as Black, down 3.9 per 100,000 though the mortality rate in 2017-2019 was still higher than that of any other racial or ethnic group.

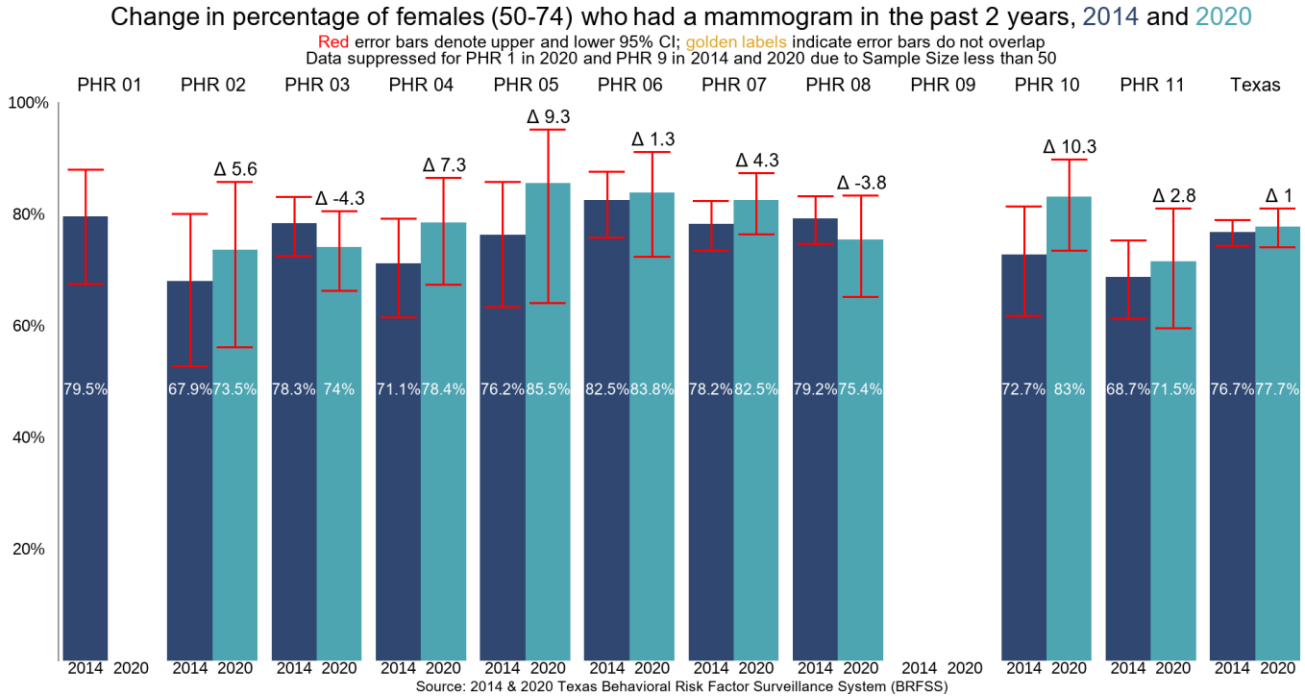
Figure 1.21 Change in Breast Cancer Mortality Rates in Texas by Race/Ethnicity, 2010-2012 to 2017-2019



BREAST CANCER SCREENING

To assess breast cancer screening, we analyzed the percentage of females aged 50-74 who reported having a mammogram in the past two years as measured by BRFSS. From 2014 to 2020,[6] breast cancer screening for Texans remained similar at 76.7% and 77.7%, respectively. Statistical significance could not be determined for the state or for any individual PHRs. Estimates for PHR 1 (Lubbock) and PHR 9 (Midland) are not included as the sample size was too small. See Figure 1.22.

Figure 1.22 Change in Percentage of Texas Females Who Have Had Breast Cancer Screening, 2014 to 2020



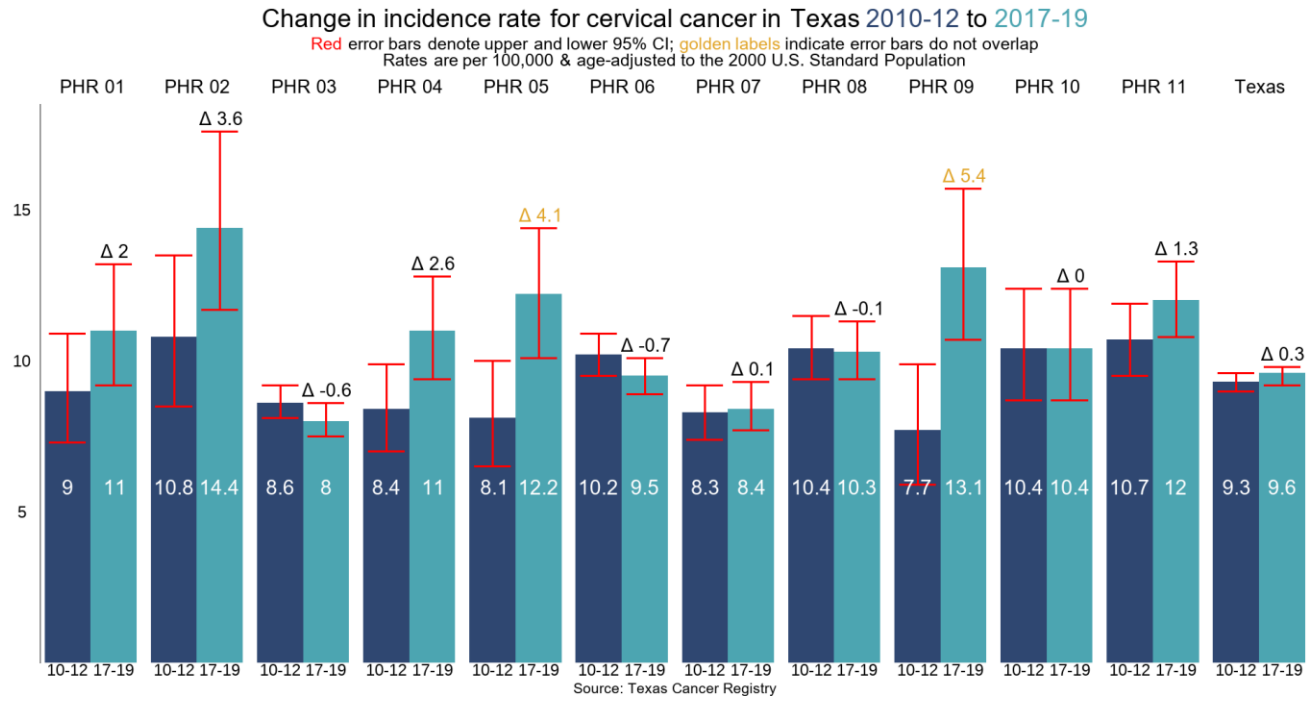
[6] BRFSS collects data on screening rates every other year, and due to changes in methodology, 2014 was selected as the most appropriate baseline year for screening data for this analysis.

Cervical Cancer in Texas

CERVICAL CANCER INCIDENCE

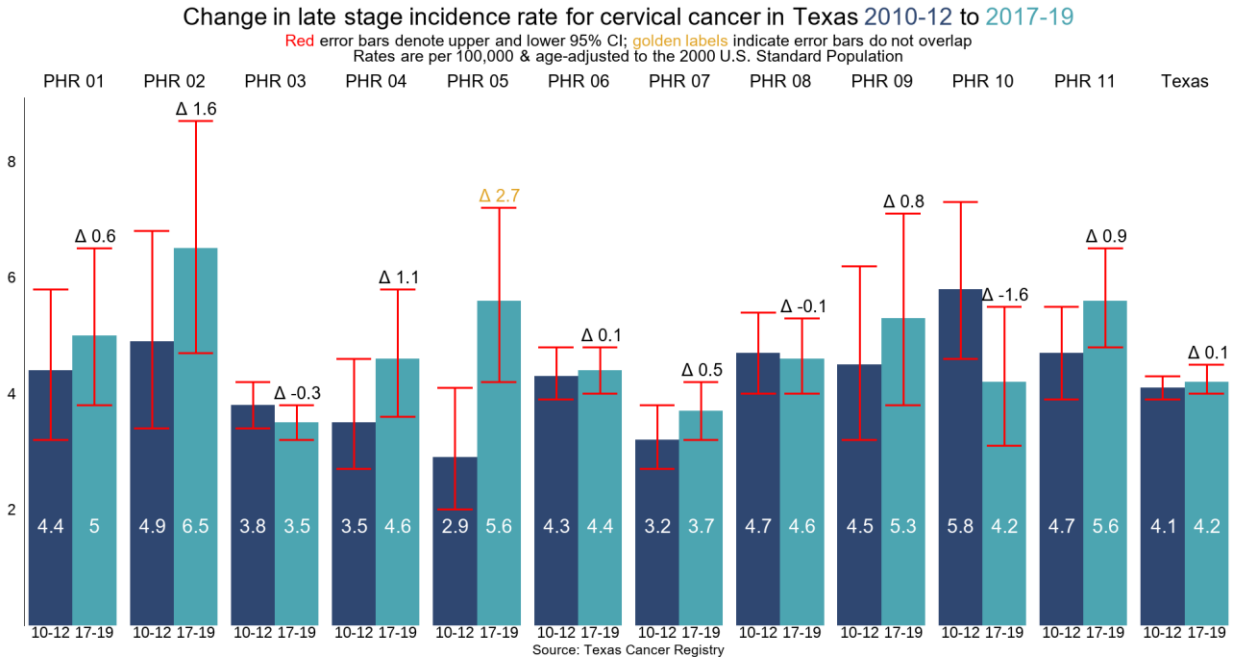
The overall incidence of cervical cancer in Texas increased slightly during the analysis period, though statistical significance could not be determined for the state or most PHRs. PHR 5 (Beaumont) and PHR 9 (Midland) both had a statistically significant increase in cervical cancer incidence. See Figure 1.23.

Figure 1.23 Change in Cervical Cancer Incidence Rates in Texas, 2010-2012 to 2017-2019



Late-stage cervical cancer incidence increased slightly for Texas from 2010-2012 to 2017-2019, and similar to incidence, statistical significance was not determined for the state or most PHRs. Late-stage incidence significantly increased in PHR 5 (Beaumont) during the period. See Figure 1.24.

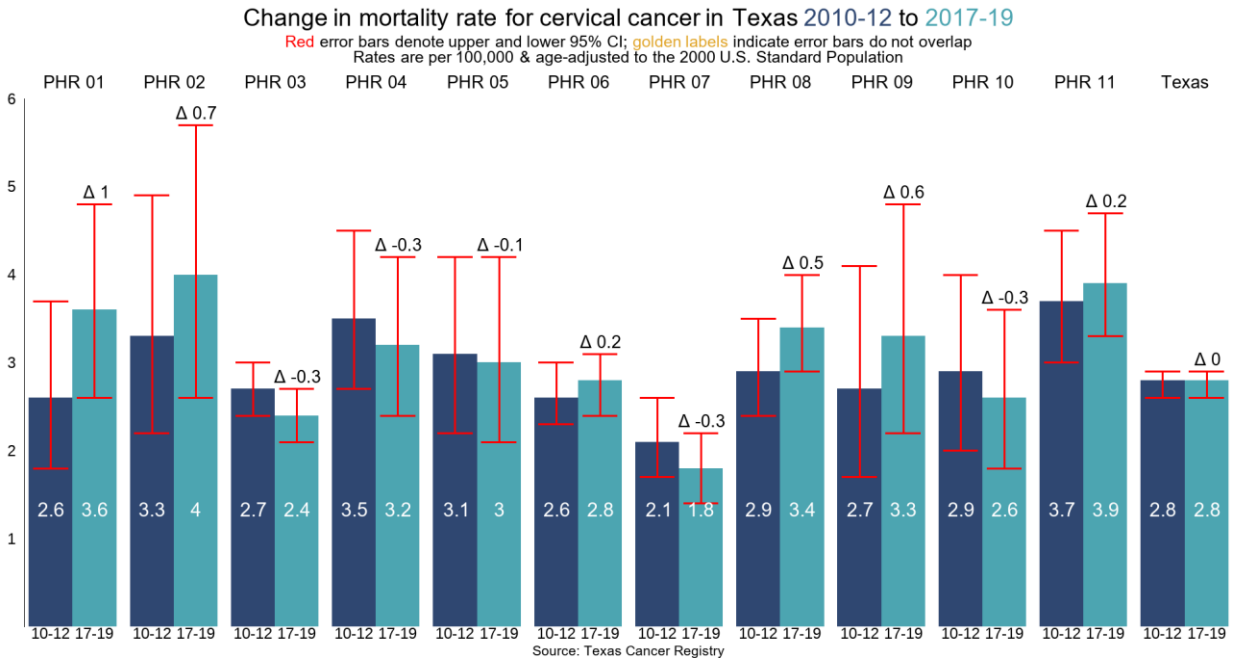
Figure 1.24 Change in Cervical Cancer Late-Stage Incidence Rates in Texas, 2010-2012 to 2017-2019



CERVICAL CANCER MORTALITY

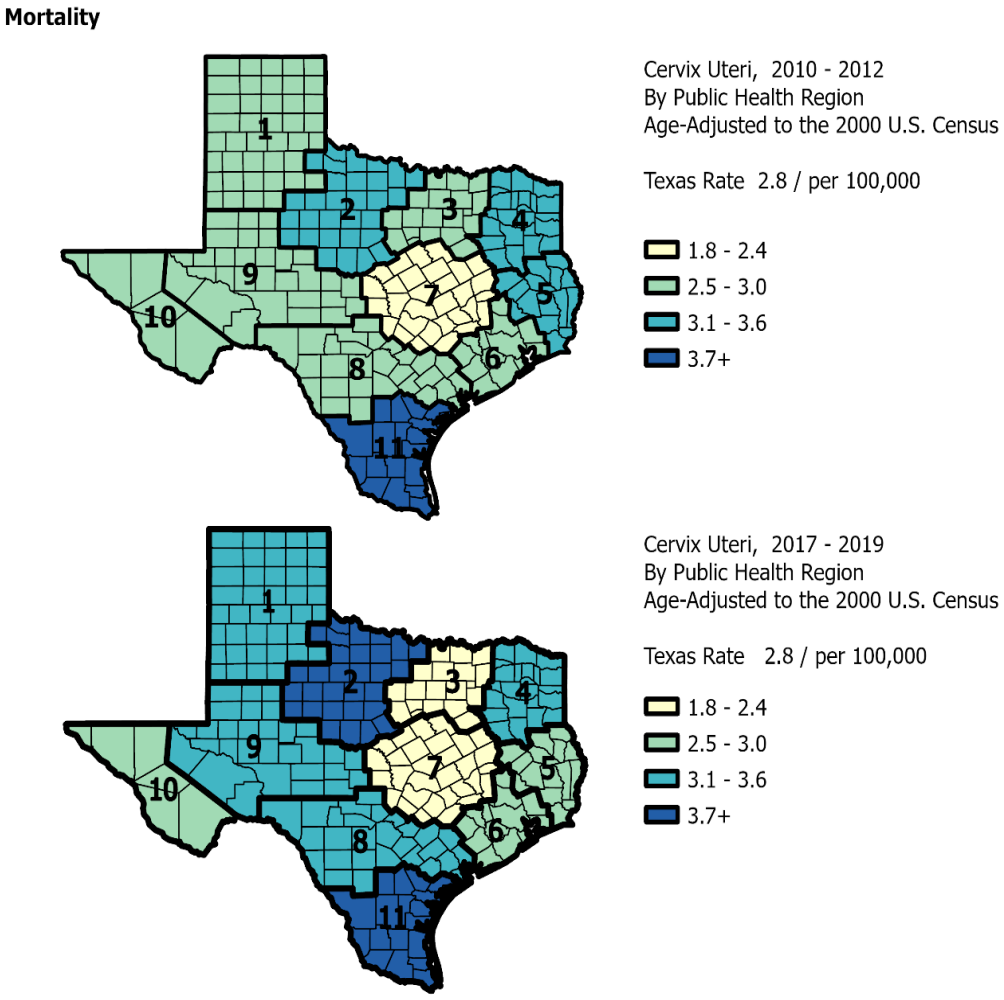
Cervical cancer mortality from 2010-2012 to 2017-2019 did not change at the state level. There were slight changes to mortality rates at the PHR level, however statistical significance could not be determined for any PHRs. See Figure 1.25.

Figure 1.25 Change in Cervical Cancer Mortality Rates in Texas, 2010-2012 to 2017-2019



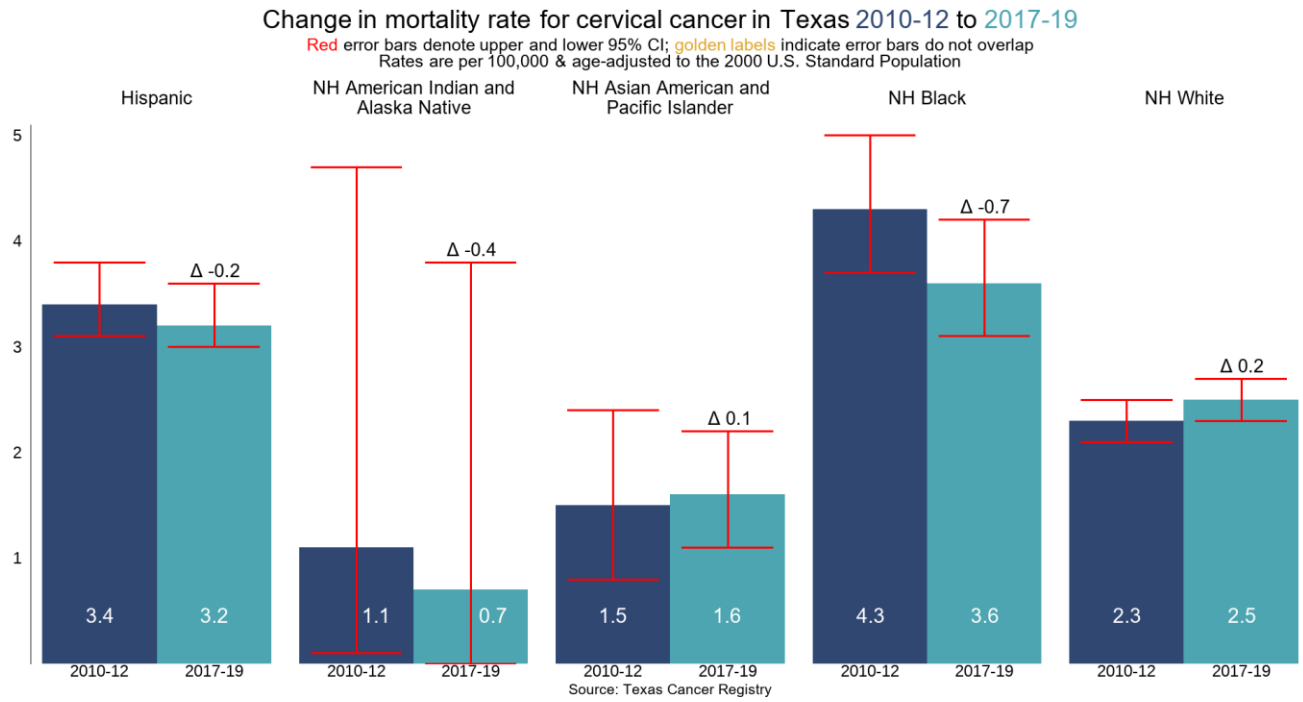
The maps in Figure 1.26 show the change in cervical cancer mortality from 2010-2012 to 2017-2019 across the state of Texas, by PHR.

Figure 1.26 Map of Changes in Cervical Cancer Mortality Rates by PHR, 2010-2012 to 2017-2019



When examining by race and ethnicity, cervical cancer mortality rates changed very little during the analysis period. See Figure 1.27.

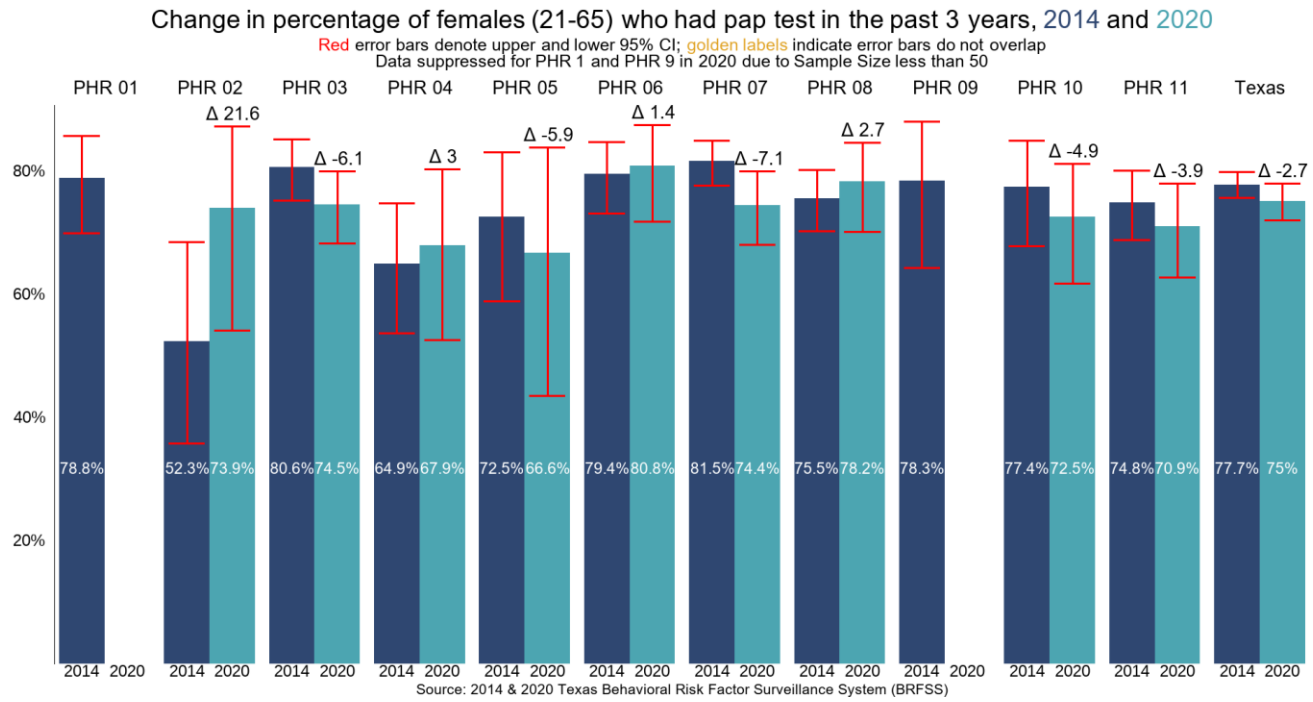
Figure 1.27 Change in Cervical Cancer Mortality Rates in Texas by Race/Ethnicity, 2010-2012 to 2017-2019



CERVICAL CANCER SCREENING

The cervical cancer screening rate, as measured by females aged 21 to 65 who had a pap test in the past 3 years, decreased by 2.7% from 2014 to 2020 in Texas. Statistical significance could not be determined for the state or for any PHR. Most changes at the PHR level were slight. Endline estimates for PHR 1 (Lubbock) and PHR 9 (Midland) are not included as the sample size was too small. See Figure 1.28.

Figure 1.28 Change in Percentage of Texas Females Who Have Had Cervical Cancer Screening, 2014 to 2020

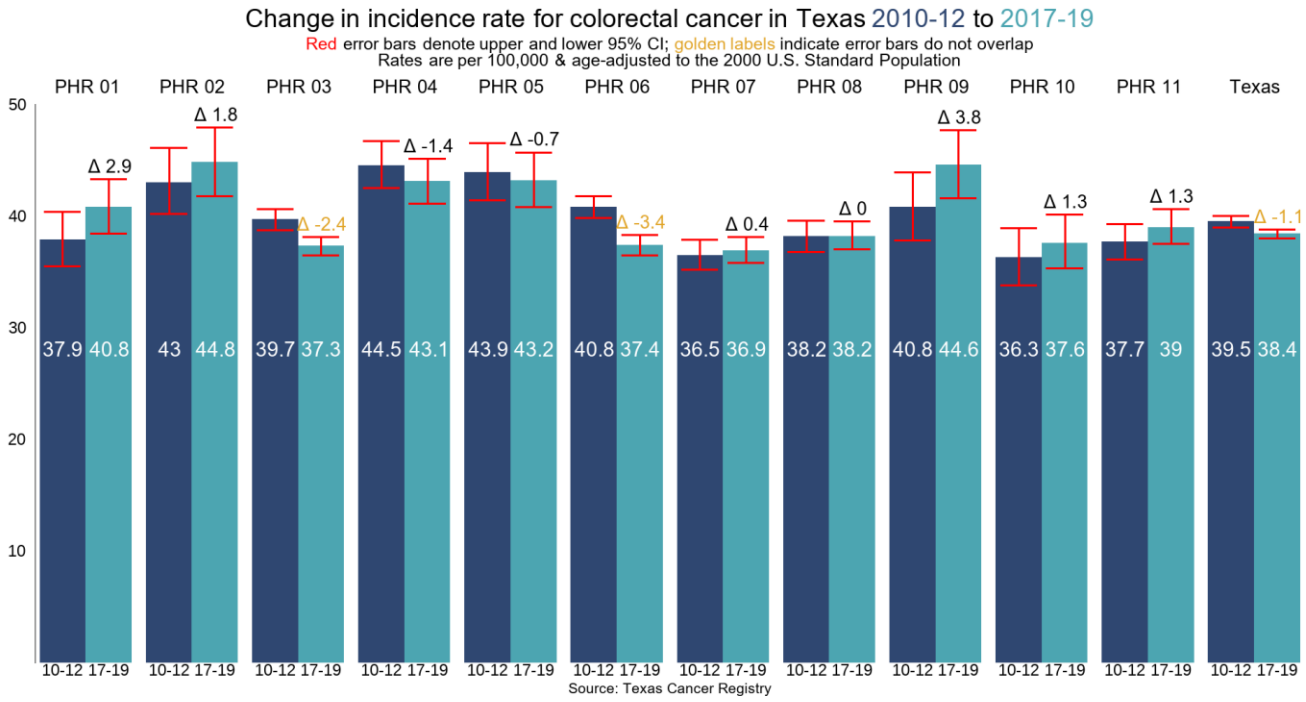


Colorectal Cancer in Texas

COLORECTAL CANCER INCIDENCE

The rate of colorectal cancer incidence in Texas decreased statistically significantly by 1.1 per 100,000 from 2010-2012 to 2017-2019. Colorectal cancer incidence rates also decreased statistically significantly for PHR 3 (Dallas) and PHR 6 (Houston) during the period. See Figure 1.29.

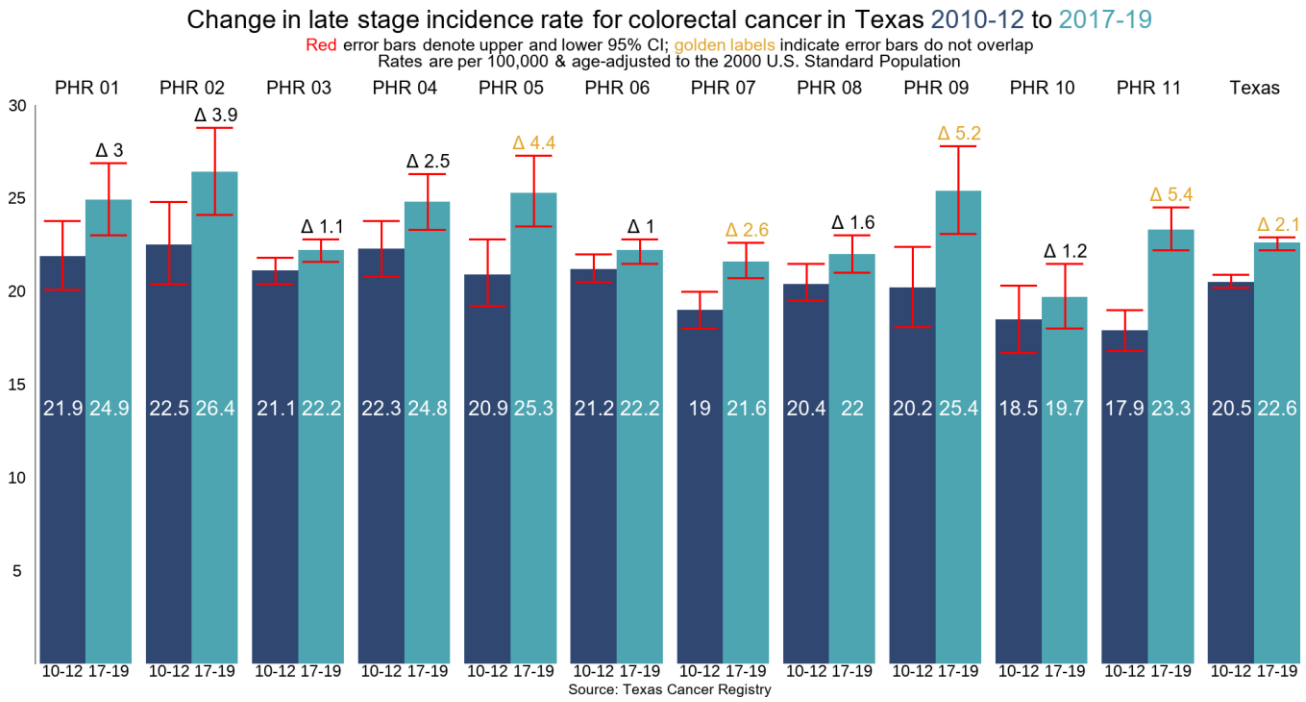
Figure 1.29 Change in Colorectal Cancer Incidence Rates in Texas, 2010-2012 to 2017-2019



COLORECTAL CANCER LATE-STAGE INCIDENCE

Late-stage colorectal cancer incidence increased statistically significantly in the state of Texas from 2010-2012 to 2017-2019 as well as in PHRs 5 (Beaumont), 7 (Austin), 9 (Midland) and 11 (Harlingen). Statistical significance could not be determined for the other PHRs, though late-stage incidence increased in all. See Figure 1.30.

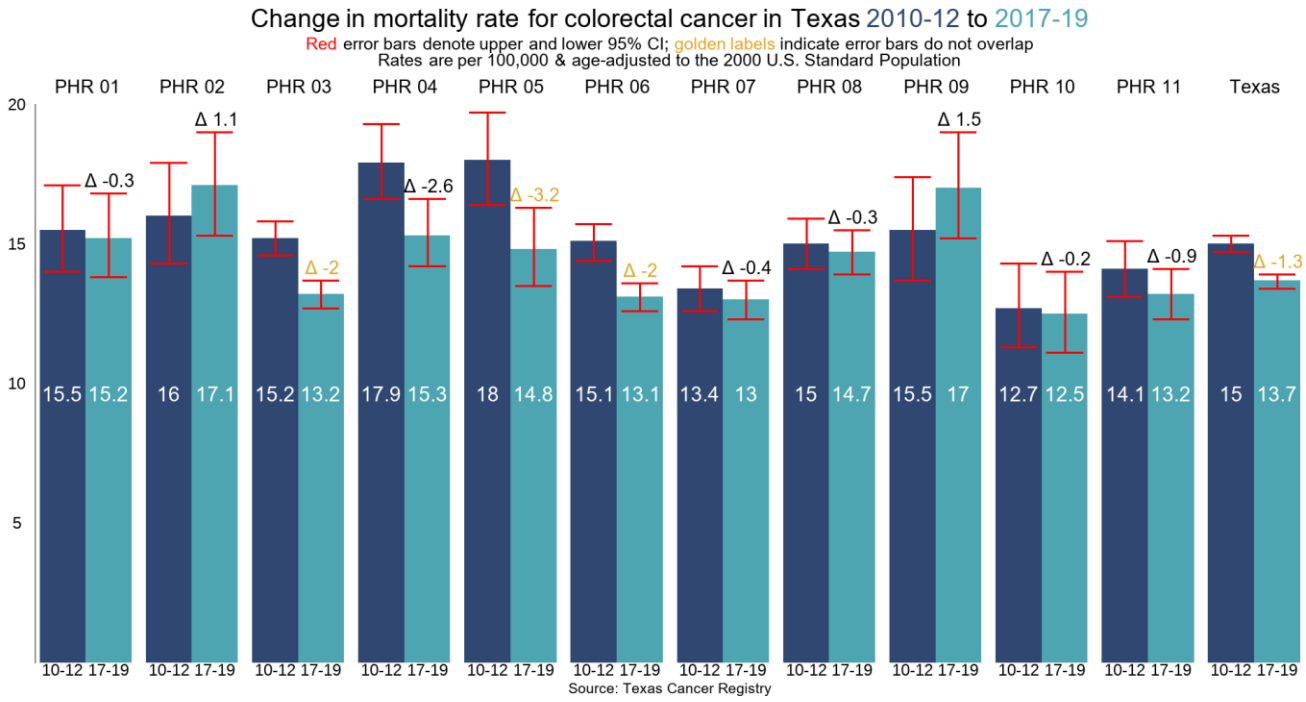
Figure 1.30 Change in Colorectal Cancer Late-Stage Incidence Rates in Texas, 2010-2012 to 2017-2019



COLORECTAL CANCER MORTALITY

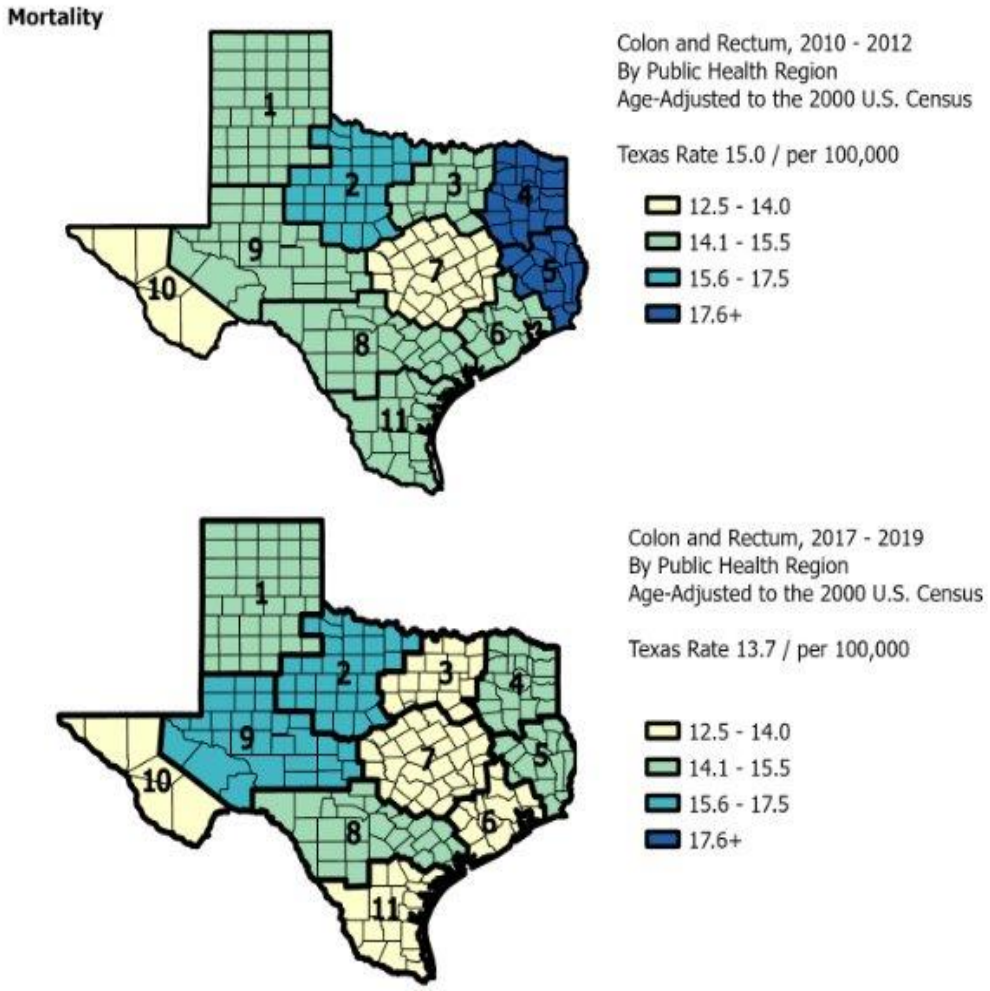
Colorectal cancer mortality decreased statistically significantly in Texas from 2010-2012 to 2017-2019 by 1.3 per 100,000. Mortality rates also decreased statistically significantly in PHRs 3 (Dallas), 5 (Beaumont) and 6 (Houston). See Figure 1.31.

Figure 1.31 Change in Colorectal Cancer Mortality Rates in Texas, 2010-2012 to 2017-2019



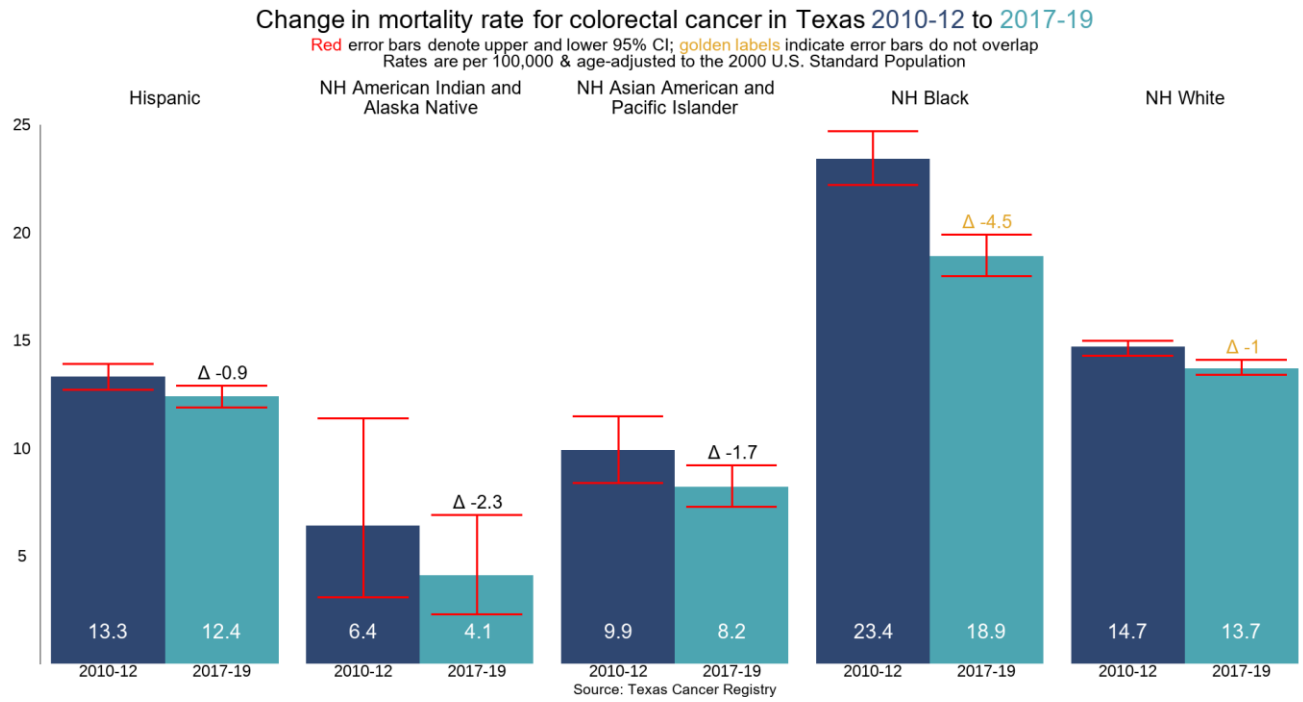
The changes in colorectal cancer mortality can also be seen geographically in Figure 1.32.

Figure 1.32 Map of Changes in Colorectal Cancer Mortality Rates by PHR, 2010-2012 to 2017-2019



Colorectal cancer mortality decreased for all racial and ethnic groups in Texas, though only statistically significantly for those who identified as Black or white. See Figure 1.33.

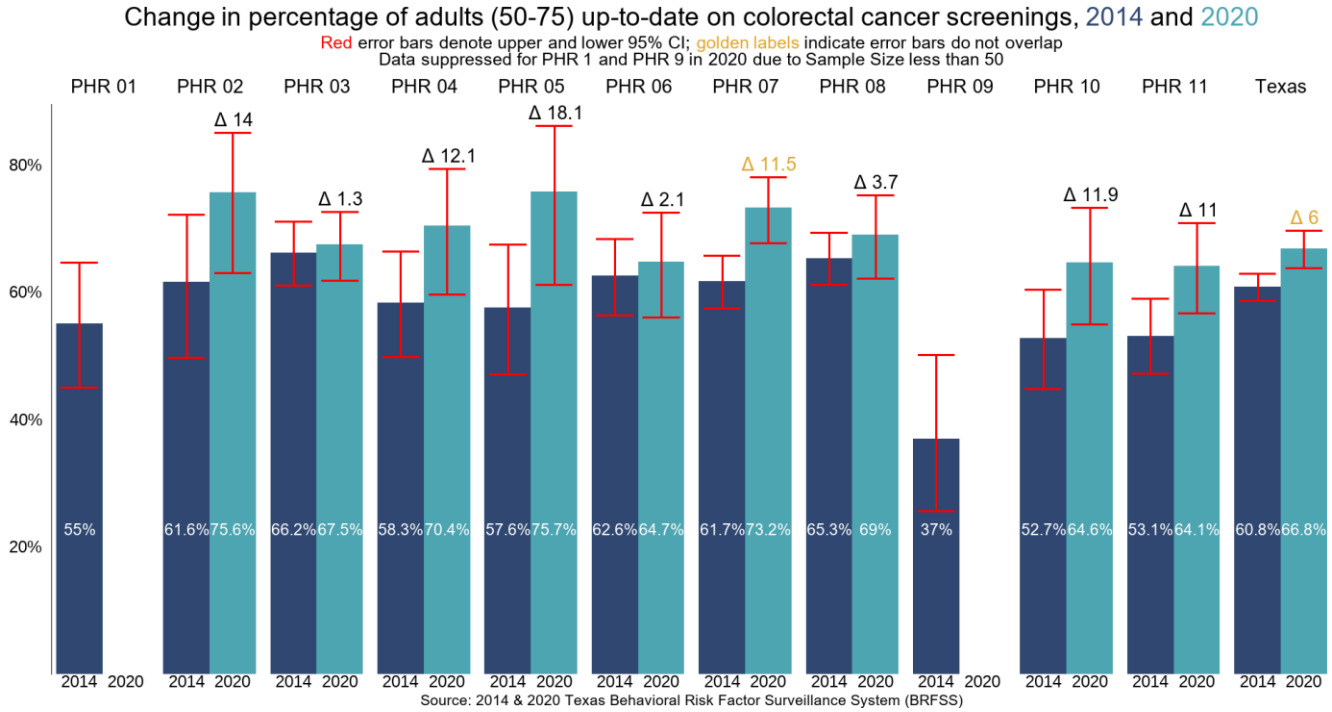
Figure 1.33 Change in Colorectal Cancer Mortality Rates in Texas by Race/Ethnicity, 2010-2012 to 2017-2019



COLORECTAL CANCER SCREENING

Colorectal cancer screening, as measured by the percentage of adults aged 50 to 75 who reported being up to date on their colorectal cancer screenings, increased from 60.8% in 2014 to 66.8% in 2020 for Texas, a statistically significant increase. All PHRs reported an increase in screening, but PHR 7 (Austin) is the only PHR for which statistical significance could be determined. Endline estimates for PHR 1 (Lubbock) and PHR 9 (Midland) are not included as the sample size was too small. See Figure 1.34.

Figure 1.34 Change in Percentage of Texans Who Have Had Colorectal Cancer Screening, 2014 to 2020

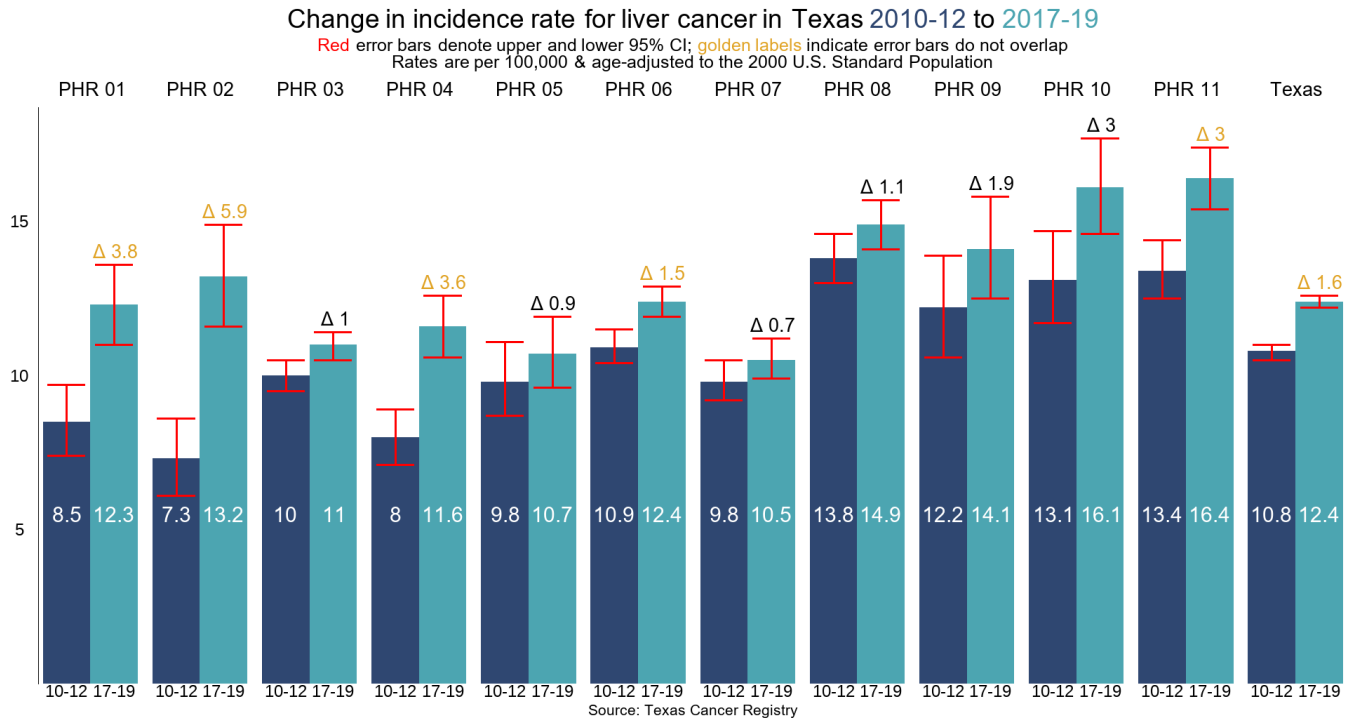


Liver Cancer in Texas

LIVER CANCER INCIDENCE

Liver cancer incidence increased significantly for Texas by 1.6 per 100,000 from 2010-2012 to 2017-2019. Liver cancer incidence also increased significantly in PHRs 1 (Lubbock), 2 (Midland), 4 (Tyler), 6 (Houston), and 11 (Harlingen) See Figure 1.35.

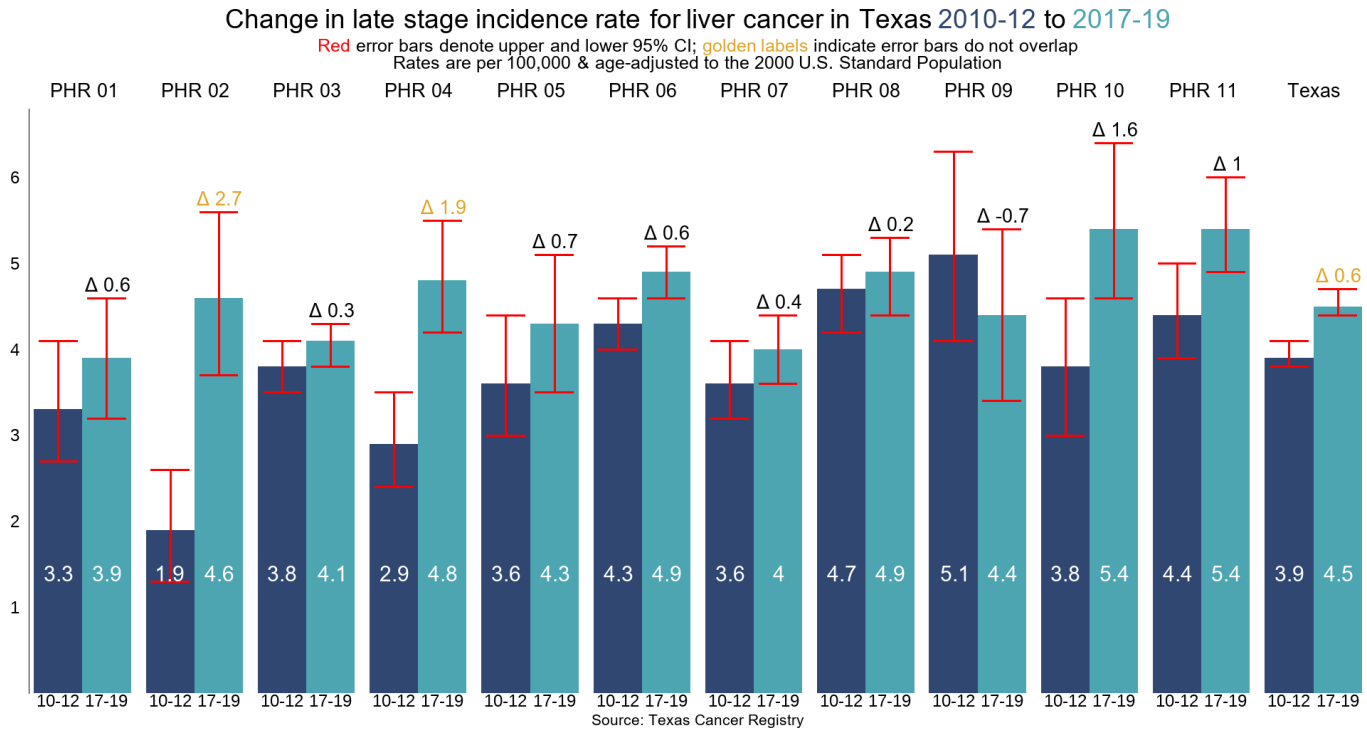
Figure 1.35 Change in Liver Cancer Incidence Rates in Texas, 2010-2012 to 2017-2019



LIVER CANCER LATE-STAGE INCIDENCE

Late-stage liver cancer incidence also increased significantly for Texas by 0.6 per 100,000 from 2010-2012 to 2017-2019. Late-stage incidence increased significantly in PHR 2 (Midland) and PHR 4 (Tyler). See Figure 1.36.

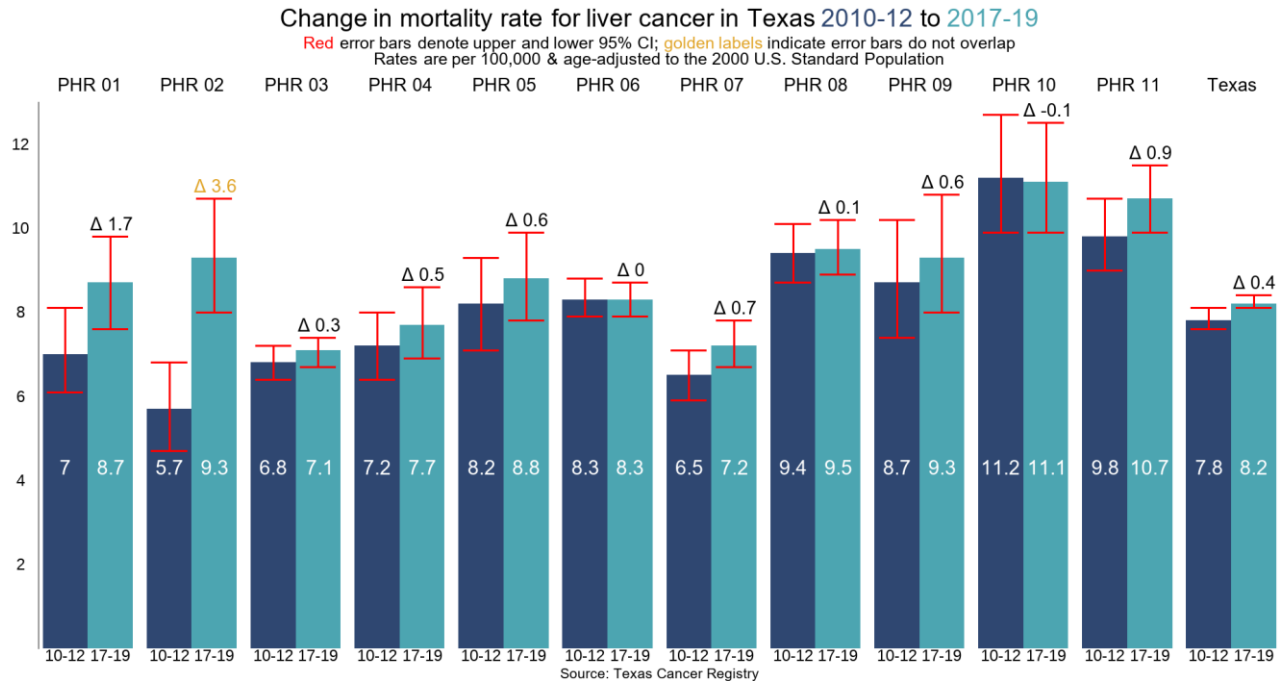
Figure 1.36 Change in Liver Cancer Late-Stage Incidence Rates in Texas, 2010-2012 to 2017-2019



LIVER CANCER MORTALITY

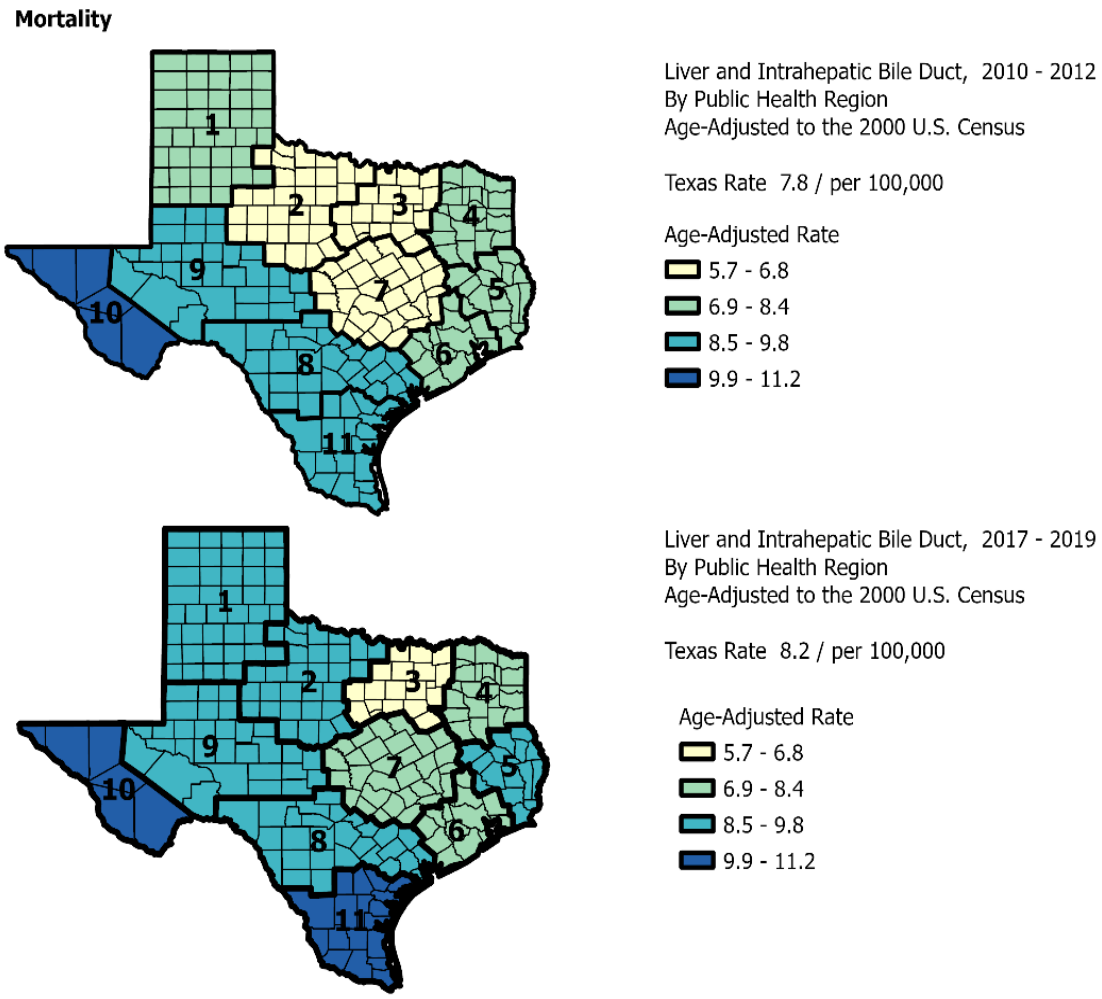
At the state level, and for most PHRs, liver cancer mortality rates increased modestly from 2010-2012 to 2017-2019. The increase in liver cancer mortality in PHR 2 (Midland) was statistically significant and the largest increase across all PHRs. See Figure 1.37.

Figure 1.37 Change in Liver Cancer Mortality Rates in Texas, 2010-2012 to 2017-2019



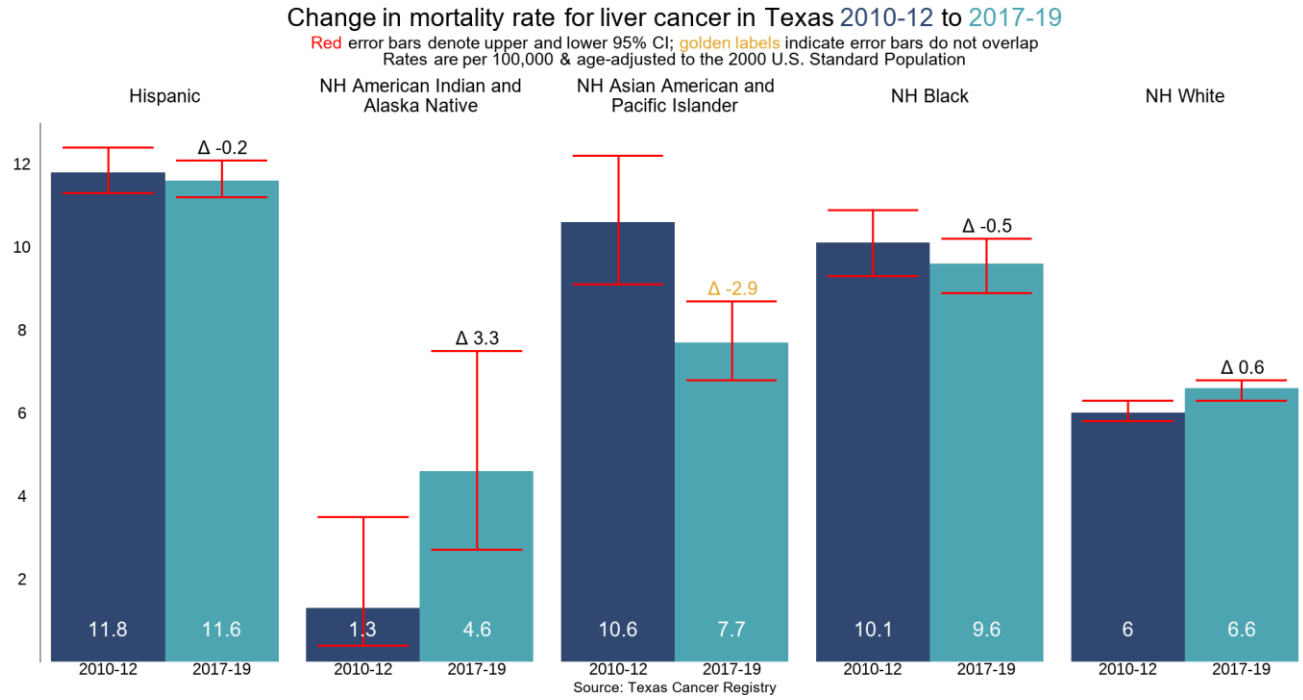
The changes in liver cancer mortality can also be seen geographically in Figure 1.38 below.

Figure 1.38 Map of Changes in Liver Cancer Mortality Rates by PHR, 2010-2012 to 2017-2019



Most changes to liver cancer mortality rates by race or ethnicity were modest during the period. The mortality rate for those who identified as Asian American and Pacific Islander decreased by 2.9 per 100,000, which is statistically significant. Though statistical significance could not be determined, the liver cancer mortality rate for American Indian and Alaska Natives increased during the period. See Figure 1.39.

Figure 1.39 Change in Liver Cancer Mortality Rates in Texas by Race/Ethnicity, 2010-2012 to 2017-2019

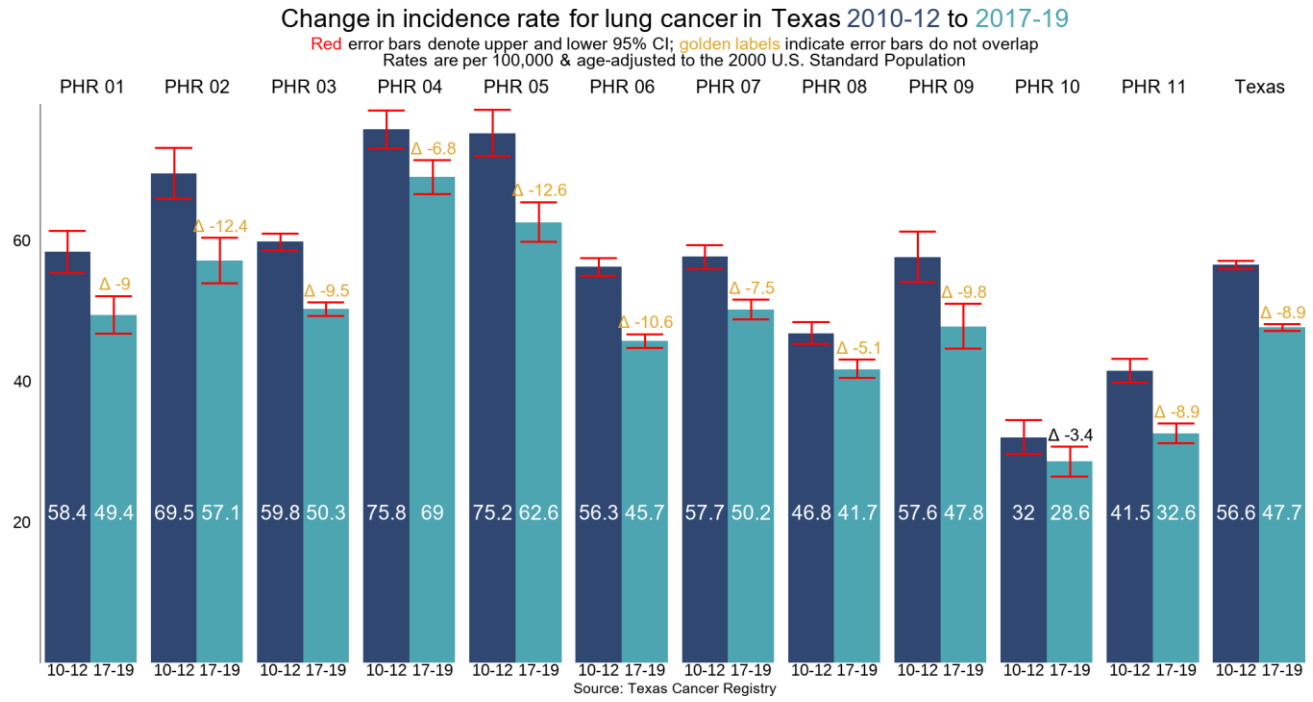


Lung Cancer in Texas

LUNG CANCER INCIDENCE

Lung cancer incidence rate decreased for Texas from 2010-2012 to 2017-2019 by 8.9 per 100,000, which was statistically significant. The incidence rate decreased for all PHRs and did so statistically significantly for all PHRs except PHR 10 (El Paso) where statistical significance could not be determined. See Figure 1.40.

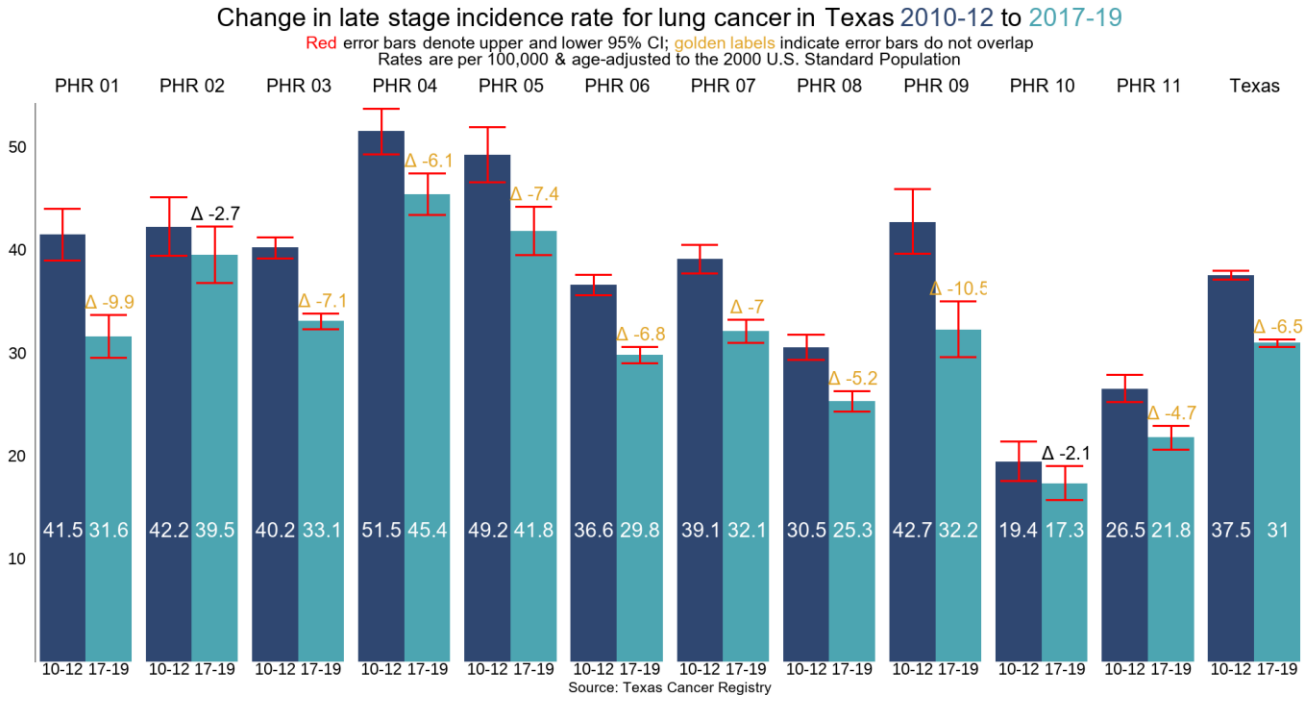
Figure 1.40 Change in Lung Cancer Incidence Rates in Texas, 2010-2012 to 2017-2019



LUNG CANCER LATE-STAGE INCIDENCE

Like incidence, late-stage lung cancer incidence decreased in Texas by 6.5 per 100,000 from 2010-2012 to 2017-2019. Late-stage lung cancer incidence decreased in all PHRs and did so statistically significantly for all expect PHR 2 (Midland) and PHR 10 (El Paso) where statistical significance could not be determined. See Figure 1.41.

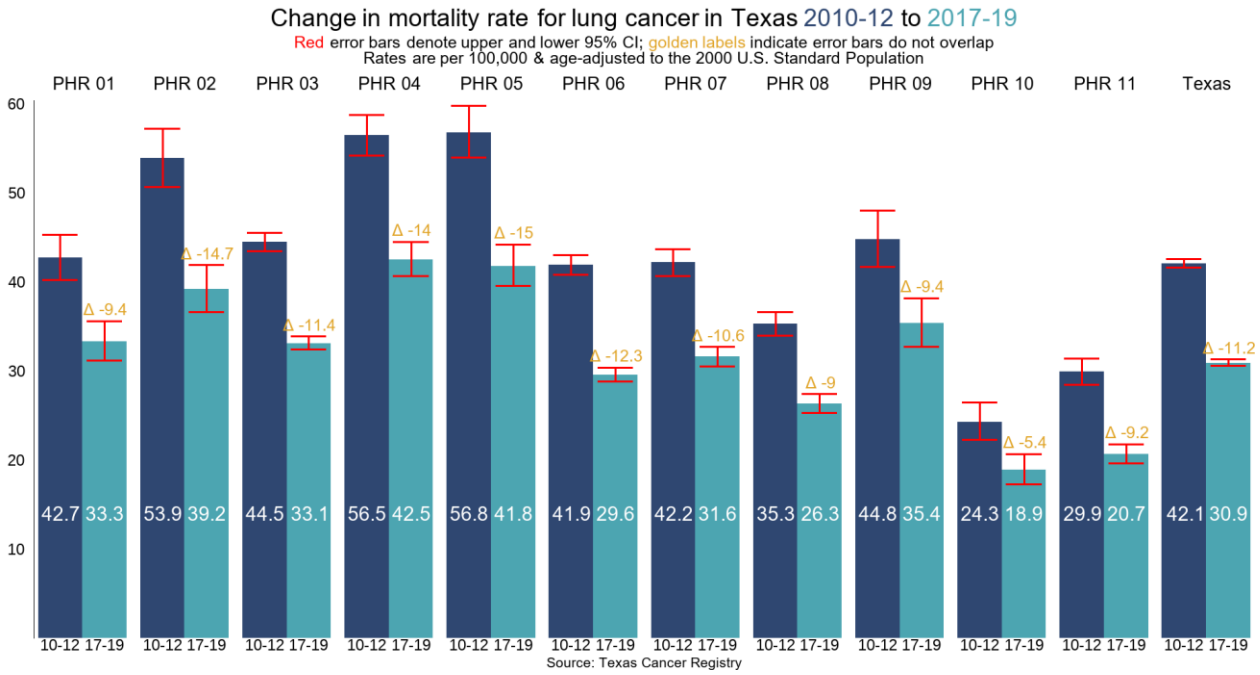
Figure 1.41 Change in Lung Cancer Late-Stage Incidence Rates in Texas, 2010-2012 to 2017-2019



LUNG CANCER MORTALITY

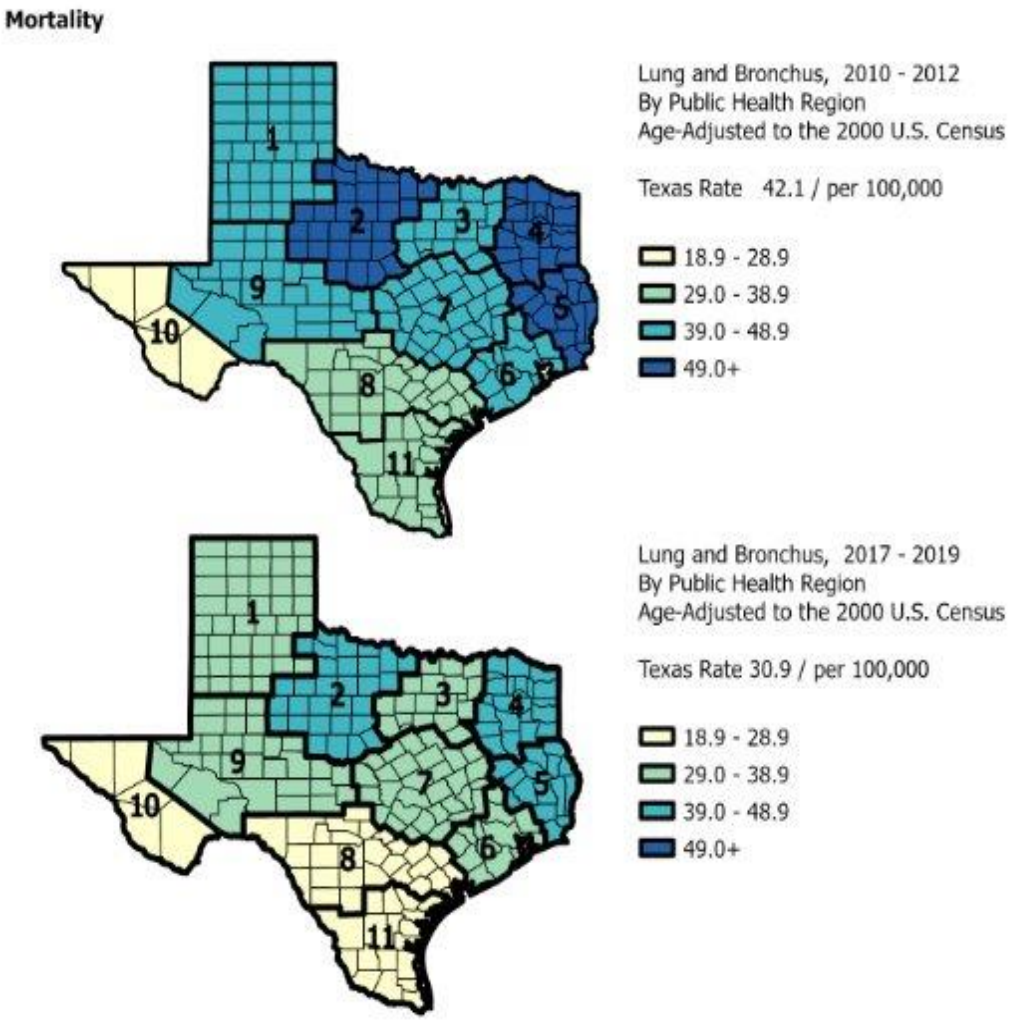
Lung cancer mortality has decreased for Texas by 11.2 per 100,000 from 2010-2012 to 2017-2019, which is statistically significant. Mortality rates decreased statistically significantly for all PHRs with the largest declines in PHR 4 (Tyler) and PHR 5 (Beaumont). See Figure 1.42.

Figure 1.42 Change in Lung Cancer Mortality Rates in Texas, 2010-2012 to 2017-2019



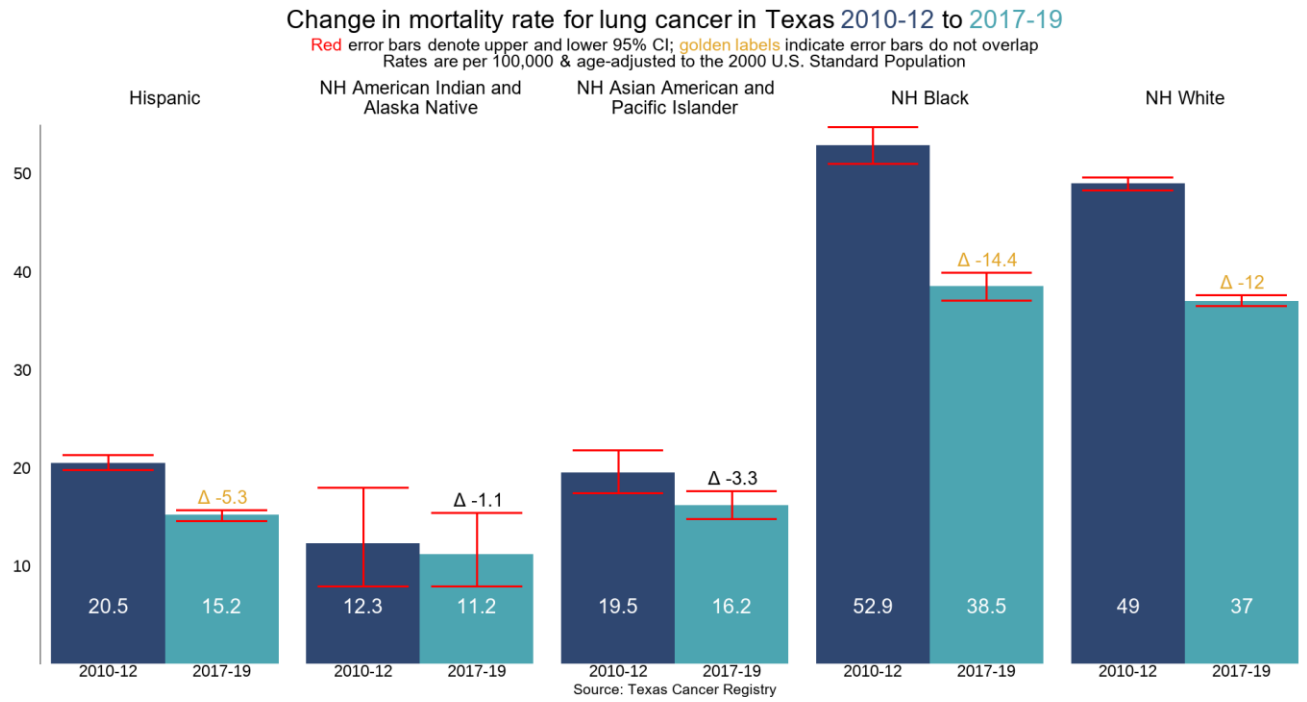
The changes in lung cancer mortality can also be seen geographically in Figure 1.43.

Figure 1.43 Map of Changes in Lung Cancer Mortality Rates by PHR, 2010-2012 to 2017-2019



Lung cancer mortality rate decreased statistically significantly for those who identified as Black, Hispanic, and white from 2010-2012 to 2017-2019. See Figure 1.44.

Figure 1.44 Change in Lung Cancer Mortality Rates in Texas by Race/Ethnicity, 2010-2012 to 2017-2019



LUNG CANCER SCREENING

According to the American Lung Association, only 1.2% of individuals who were at high risk for lung cancer were screened in the state of Texas as of 2021.[30,7] Data regarding the change in lung cancer screening rates over time or by PHR are not available.

[7] Lung cancer screening rates are only available at the state level.

SECTION 7. LIMITATIONS

There are several limitations to the present analysis. First, much of the data on risk factor behaviors are derived from BRFSS which relies upon participants to self-report their behavior. This may be prone to recall bias and/or social desirability bias, though research has indicated that estimates from BRFSS are comparable to other national surveys.[31] Second, reported rates of cancer incidence, late-stage incidence and mortality in this analysis are publicly available rates provided by TCR, and because raw data were not analyzed, in many cases whether differences in rates were statistically significant could not be determined. Third, the data presented in this analysis came from a variety of state and federal agencies, thus for some indicators data were not available for the entire period of analysis or at the PHR level in all cases.

SECTION 8. SUMMARY AND IMPLICATIONS

In addition to trends over time, it is important to consider the current state of these indicators and how these compare to national averages. Data presented below show how Texas compares to the US averages on key demographic, behavioral risk factor and cancer incidence and mortality data. The data presented in the tables below are derived from the ACS and the National Cancer Institute's State Cancer Profiles.[32]

As compared to the U.S., Texas has a higher percentage of the population who identify as Hispanic, has a higher percentage of uninsured individuals, lower median household income and higher percentage of people living in poverty. See Table 1.2.

Table 1.2. Demographic Characteristics Texas and U.S.

	Texas	US
Total Population	**29.1 million**	**331.5 million**
Race/Ethnicity	**White = 40.1%** **Hispanic = 39.9%**	**White = 58.9%** **Hispanic = 18.7%**
Population Over Age 65	**12.5%**	**16.0%**
% Uninsured	**16.6%**	**8.0%**
% Living in Poverty	**14.0%**	**12.6%**
Median Household Income	**$67,321**	**$69,021**

The Texas population has lower rates of breast, cervical and colorectal cancer screening, and higher levels of obesity and physical inactivity than the U.S. population. Fewer Texas minors are up to date on their HPV vaccination compared to the U.S. However, a lower percentage of Texans indicate being current smokers than in the U.S. overall. See Table 1.3.

Table 1.3. Behavioral Risk Factors Texas and U.S.*

	Texas Rate	US Rate
Breast cancer screening	**73.8%**	**76.3%**
Cervical cancer screening	**75.0%**	**77.7%**
Colorectal cancer screening	**61.4%**	**66.9%**
Obesity	**36.6%**	**34.2%**
Physical Inactivity	**25.5%**	**23.4%**
Current Smoker	**11.8%**	**14.0%**
HPV Up to Date	**51.5%**	**61.7%**

**Green – lower rates than US; red – higher rates than US; black – comparable rates to US*

Incidence rates for all cancer types, breast, and lung are lower than U.S. rates, and while slightly higher than the U.S., Texas's colorectal cancer incidence rate is comparable. Texas incidence rates for cervical and liver are higher than the national averages. See Table 1.4.

Table 1.4. Cancer Incidence Rates Texas and U.S.*

	Texas Rate	US Rate
All Cancer Sites Incidence	**412.2**	**442.3**
Breast Cancer Incidence	**116.3**	**127.0**
Cervical Cancer Incidence	**9.4**	**7.5**
Colorectal Cancer Incidence	**37.1**	**36.5**
Liver Cancer Incidence	**12.1**	**8.6**
Lung Cancer Incidence	**46.5**	**54.0**

**Green – lower rates than US; red – higher rates than US; black – comparable rates to US*

Mortality rates for all cancer types and lung are lower than U.S. rates, with breast cancer mortality being comparable to the U.S. Texas mortality rates for cervical, colorectal, and liver cancer are higher than the national averages. See Table 1.5.

Table 1.5. Cancer Mortality Rates Texas and U.S.*

	Texas Rate	US Rate
All Cancer Sites Mortality	**144.5**	**149.4**
Breast Cancer Morality	**19.7**	**19.6**
Cervical Cancer Mortality	**2.8**	**2.2**
Colorectal Cancer Mortality	**13.7**	**13.1**
Liver Cancer Mortality	**8.2**	**6.6**
Lung Cancer Mortality	**31.3**	**35.0**

**Green – lower rates than US; red – higher rates than US; black – comparable rates to US*

Broad trends in cancer incidence and mortality at the state level from 2010-2012 and 2017-2019 by cancer type are outlined below.

All cancers

Progress has been made over the period of this assessment (2010 to 2020). Incidence and mortality rates for all cancer sites combined have decreased in Texas statistically significantly during the analysis period and are lower in Texas than the U.S.

Breast cancer

Breast cancer incidence has increased overall across Texas during the period of this assessment. Breast cancer incidence has also been increasing over time across the US, in part at least due to increases in excess body weight.[33] Late-stage incidence and mortality have decreased at the state level. Similarly, breast cancer mortality has been decreasing in the US overall due to factors such as earlier detection, breast cancer awareness and improved treatments.[34] In Texas, there has been a small increase in breast cancer screening over time but rates of screening in Texas are lower than the US overall.

Cervical cancer

In Texas, cervical cancer incidence and late-stage incidence have increased modestly, and mortality has remained stable. Compared to the U.S., Texas has higher cervical cancer incidence and mortality. In the US, declines in cervical cancer mortality have been associated with screening and early detection. Additionally, HPV vaccination protects against the types of HPV that cause the large majority of cervical cancers.[35] In Texas, there has been a decline in

cervical cancer screening but an increase in HPV vaccination. Texas has lower cervical cancer screening and HPV vaccination rates when compared to the US overall.

Colorectal cancer

In Texas, colorectal cancer incidence and mortality have declined slightly, while late-stage incidence has increased. Compared to the U.S., Texas has slightly higher colorectal cancer incidence and mortality. More than half of colorectal cancers in the US are associated with modifiable risk factors for cancer (e.g., excess body weight, physical inactivity, long-term smoking).[36] In Texas, colorectal cancer screening rates have increased; however, Texas has lower rates of colorectal cancer screening than the U.S.

Liver cancer

Liver cancer incidence, late-stage incidence and mortality have all increased in Texas, and incidence and mortality rates are higher in Texas than the U.S. The majority of liver cancers in the US are associated with modifiable risk factors for cancer (e.g., excess body weight, hepatitis B virus infection, heavy alcohol consumption).[37] The rate of individuals ages 18-65 years and up who have received all 3 hepatitis shots remains around 50% for the years 2014-2018 in Texas.

Lung cancer

In Texas, lung cancer incidence, late-stage incidence and mortality have all declined. Incidence and mortality rates are lower in Texas than the U.S. even through screening for high-risk people is very low compared to national rates. The rate of current smokers in Texas is lower than in the U.S. overall and has declined in the previous decade.

Implications for the Future

Overall, there are positive trends in Texas in relationship to cancer incidence and mortality at the state level. Breast cancer, colorectal cancer and lung cancer mortality have all decreased during the period of this assessment. These trends in cancer incidence, mortality and behavioral risk factors in Texas have implications for the future of cancer prevention throughout the state. More than half of all cancers, at the population level, are associated with modifiable risk factors for cancer such as excess body weight, tobacco use, and excessive sun exposure. Additionally, vaccinations such as HPV vaccination and HBV vaccination as well as cancer screening could have a significant impact on reducing cancer cases in Texas.

CANCER SCREENING

There are five types of cancer for which screening has been proven to reduce cancer mortality – breast, cervical, colorectal, prostate; and for high-risk individuals due to past tobacco use, lung. Based on BRFSS data, Texas has seen an increase in colorectal cancer screening, however, breast cancer screening remains stable and cervical cancer screening has decreased. Texas also has lower rates of breast, cervical and colorectal cancer screening as compared to the US. Further, breast cancer incidence is on the rise in Texas. Additional support in the future to increase cancer screening and maintain screening occurrence to be consistent with clinical recommendations at the population level would have a positive impact on the health of Texans as early diagnosis increases the likelihood of survival and improves treatment options for screenable cancers. This support includes connecting screened individuals who have a clinical finding to diagnostic, treatment, and follow-up services on a consistent basis.

VACCINATION

Texas has made progress on HPV vaccination rates for males and females, but there are still large portions of the population that have not been vaccinated and Texas remains below the US average for HPV vaccination. Improving vaccination rates will have a significant positive impact on the health of Texans by preventing more future cervical cancer cases as well as other cancers caused by HPV (i.e., oral/pharyngeal and anal/genital cancers). Liver cancer incidence and mortality rates have increased in the past few decades both nationally and in Texas. Incidence and mortality rates for Texas are higher than the national average. Increasing HBV vaccination would have a positive impact on reducing liver cancer incidence.

OBESITY AND PHYSICAL INACTIVITY

Obesity is associated with at least 12 types of cancer[38] including many of the most common cancers in Texas. Obesity is on the rise in the state of Texas including almost every PHR in the state. Obesity and physical inactivity rates in Texas are worse than the US overall. Opportunities to deploy evidence-based interventions that increase healthy eating and physical activity starting in childhood and leading into adulthood may help to reduce the long-term cancer burden in the state.

When comprehensive statewide approaches for cancer prevention are applied, they can be expected to have a positive impact on cancer risk reduction at the population level. For example, due to a multicomponent comprehensive approach to tobacco control in the state of

Texas, significant progress against lung cancer and other tobacco-related cancers has been made. While there is more work to be done, tobacco use is on the decline and lung cancer incidence has been declining. Overall, continuing or scaling up efforts to deploy evidence-based strategies could significantly reduce the cancer burden in Texas.

Additionally, primary prevention through vaccination or healthy lifestyle strategies (i.e., controlling weight, remaining physically active, HPV vaccination, etc.) can be taken by individuals and promoted at the population level through public education, the implementation of policies that promote clean public environments and healthy workplaces, and by reinforcing actions proven to be healthful. Currently these strategies are too rarely or inconsistently practiced, but they could be transformative for our population, not only in reducing cancer risks, but promoting health and wellness more broadly.

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