INNOVATIONS VI
In Cancer Prevention and Research Conference

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

Strategies and Opportunities Around Lung Cancer and Tobacco Cessation

Moderator & Speakers

Rutu Rathod, PhD, MPH, MBBS

Moderator

Postdoctoral Researcher
The University of Texas
Southwestern Medical Center

David Gerber, MD

Professor
Department of Internal Medicine
The University of Texas
Southwestern Medical Center

Jason McKnight, MD, MS, FAAFP

Director of Residency Recruitment
Family Medicine Residency Program
Texas A&M University
School of Medicine

UT Southwestern
Harold C. Simmons
Comprehensive Cancer Center

NCI
Designated
Comprehensive
Cancer Center

Lung cancer screening in an urban, integrated safety-net healthcare system

David E. Gerber, MD

2023 CPRIT Innovations Conference

October 2, 2023

Lung cancer screening is effective and efficient

Number needed to screen (NNS) to prevent one cancer-related death

Cancer	Screening Modality	NNS	USPSTF recommendation level	Reference
Breast	Mammography	780	B	[11]
Cervical	Papanicolaou Smear	1140	A	[12]
Colorectal	Fecal Occult Blood Test	1250	A	[13]
Colorectal	Sigmoidoscopy	850	A	[14]
Lung	Low-dose CT	320	B	[2]

CT, computed tomography; NNS, number needed to screen; USPSTF, United States Preventive Services Task Force

Gerber DE. Amer Fam Phys 2014;90:73B-74B

Eligibility for lung cancer screening recently changed

	2013 USPSTF Recommendation	2020 USPSTF Recommendation*
Age	**55 – 80 yrs**	**50 – 80 yrs**
Smoking History	**≥30 pack-years**	**≥20 pack-years**
Smoking Status	**Currently smoke or quit smoking within past 15 years**	**Currently smoke or quit smoking within past 15 years**

U.S. Preventive Services Task Force. *JAMA*. 2021;325(10):962-70

***CMS coverage expanded February 10, 2022**

The process can be straightforward for patients and clinicians

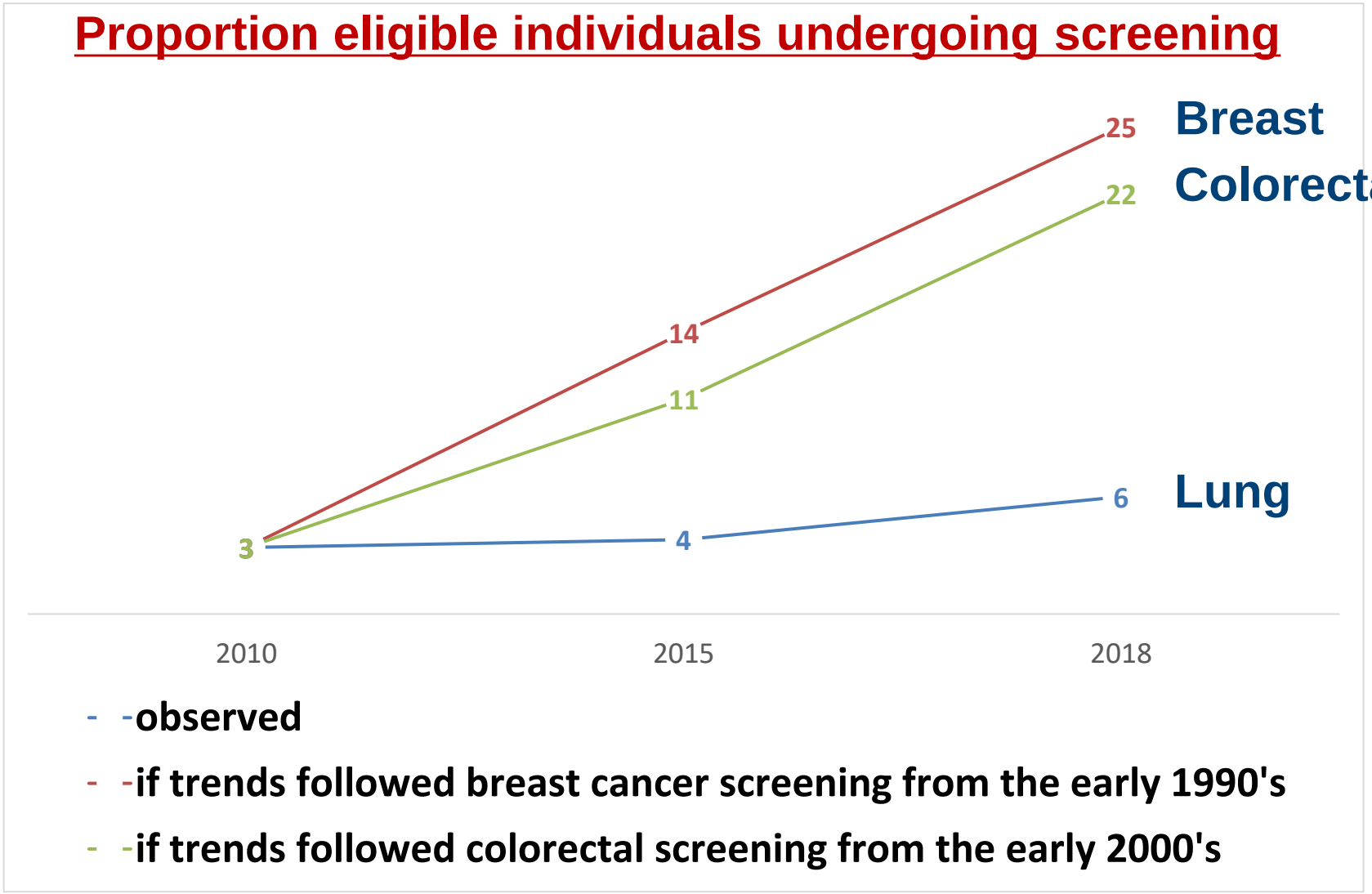
Annual low-dose chest CT (LDCT)

- *Fast* (single breath hold)
- *Low radiation dose* (1.5 vs 8 mSv for diagnostic chest CT)
- *No IV contrast*
  - No vascular access
  - No renal toxicity
  - No allergic reaction

Lung-RADS reporting

Category	Description	Management	
1	Negative	LDCT 12 m	90%
2	Benign		
3	Probably benign	LDCT 6 m	5%
4A	Suspicious	LDCT 3 m or PET-CT	3%
4B		PET-CT ± biopsy	2%
4X			

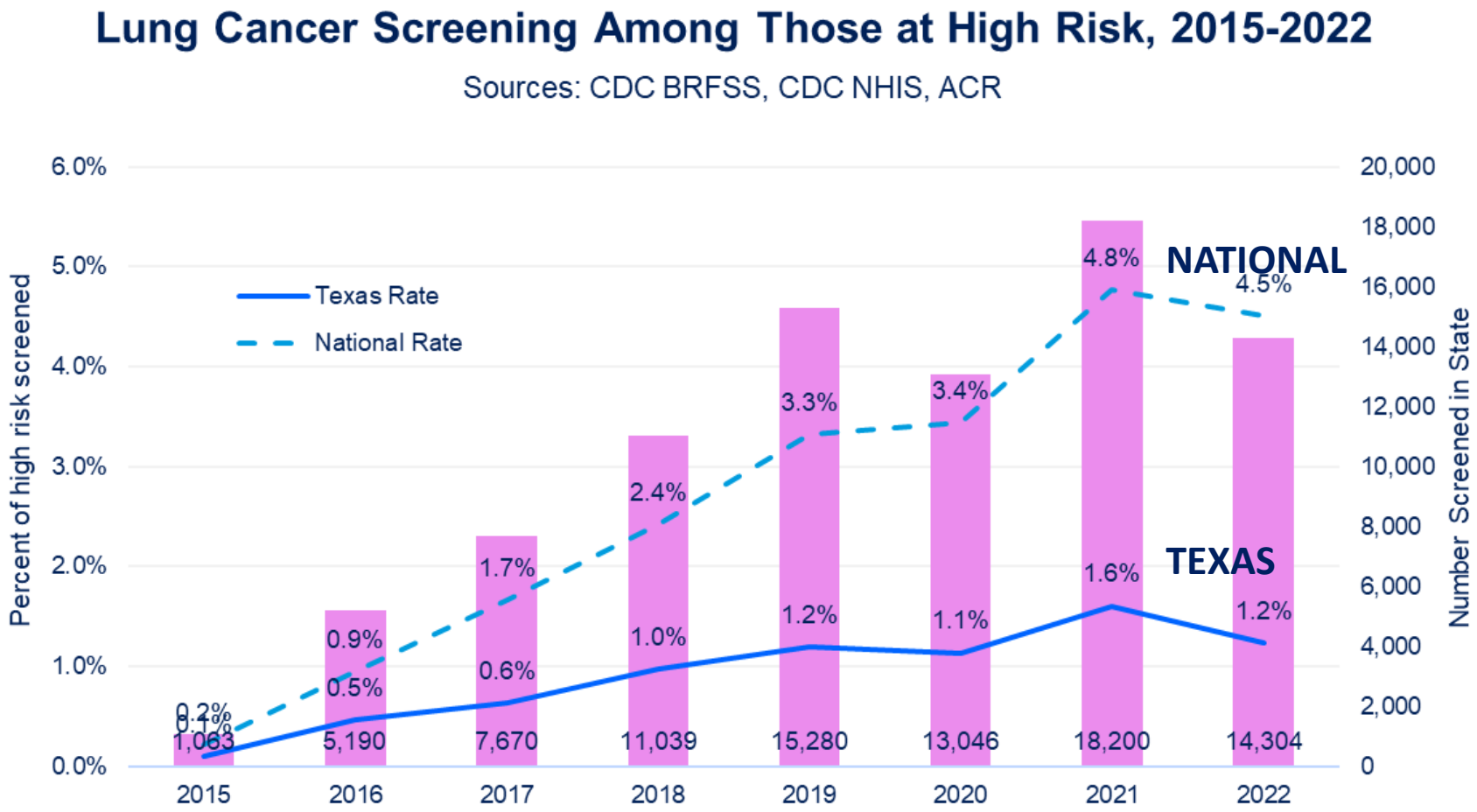
Despite these favorable features, LCS uptake is dismal



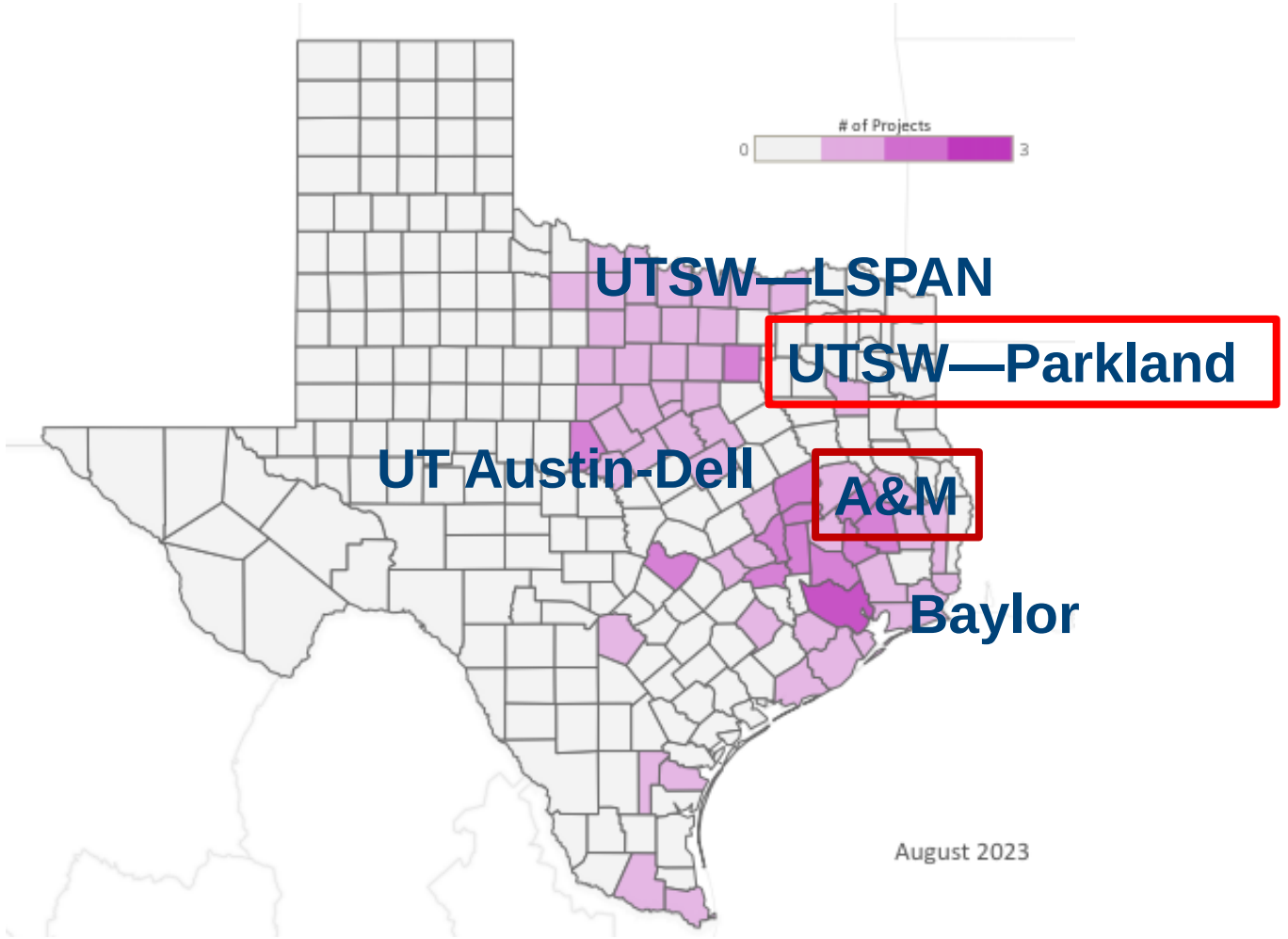
(both now >50%)

Courtesy of Gerard Silvestri, MD

And Texas lags behind most of the U.S.

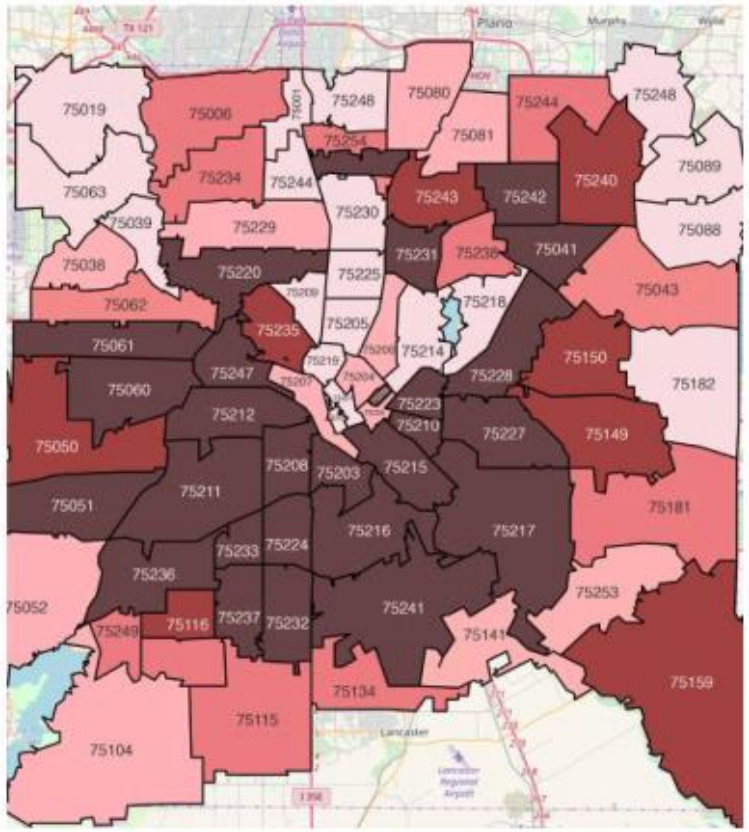


CPRIT currently supports 5 lung cancer screening programs



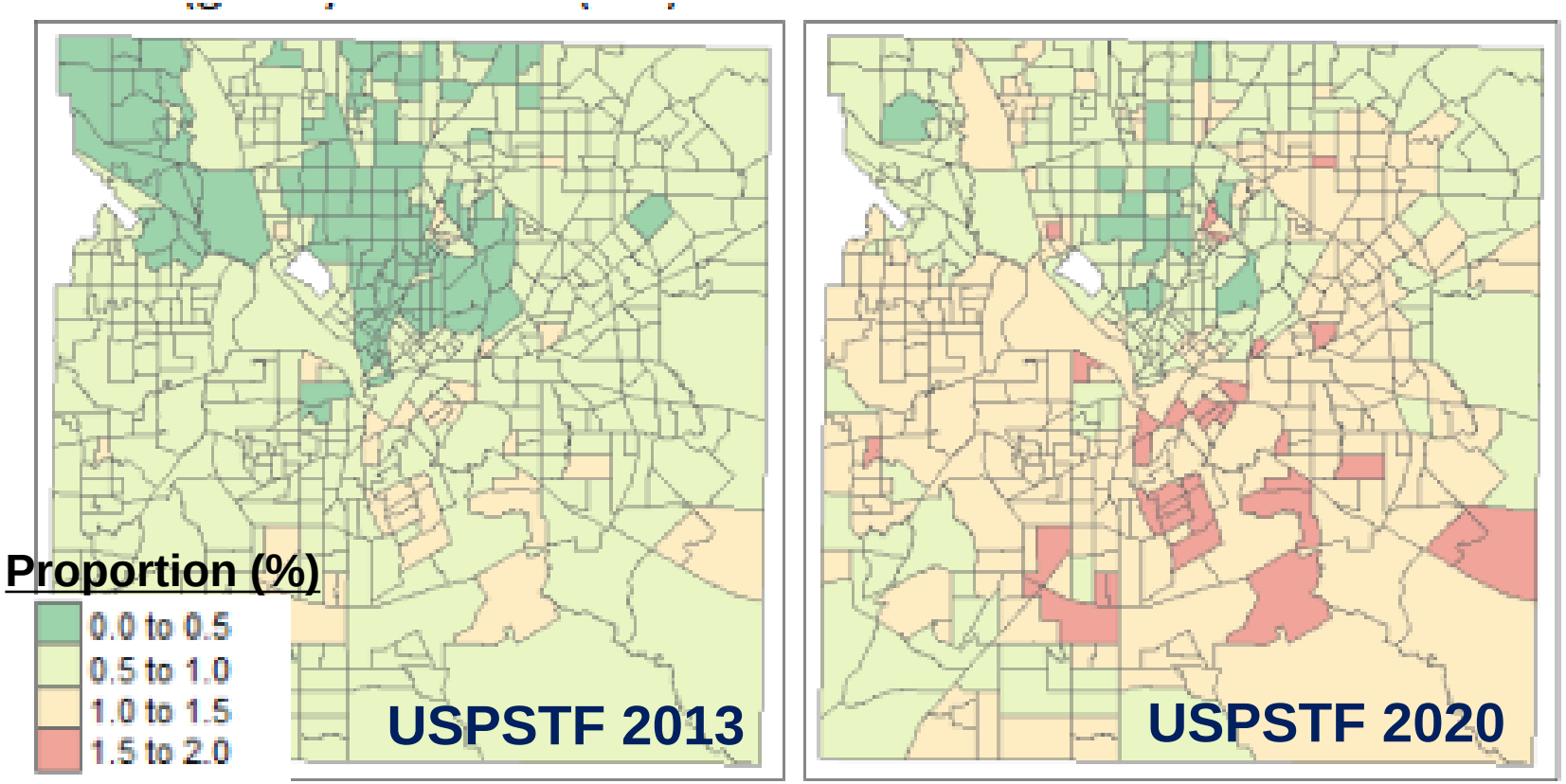
In Dallas County, LCS eligibility tracks with socioeconomic need

SocioNeeds Index



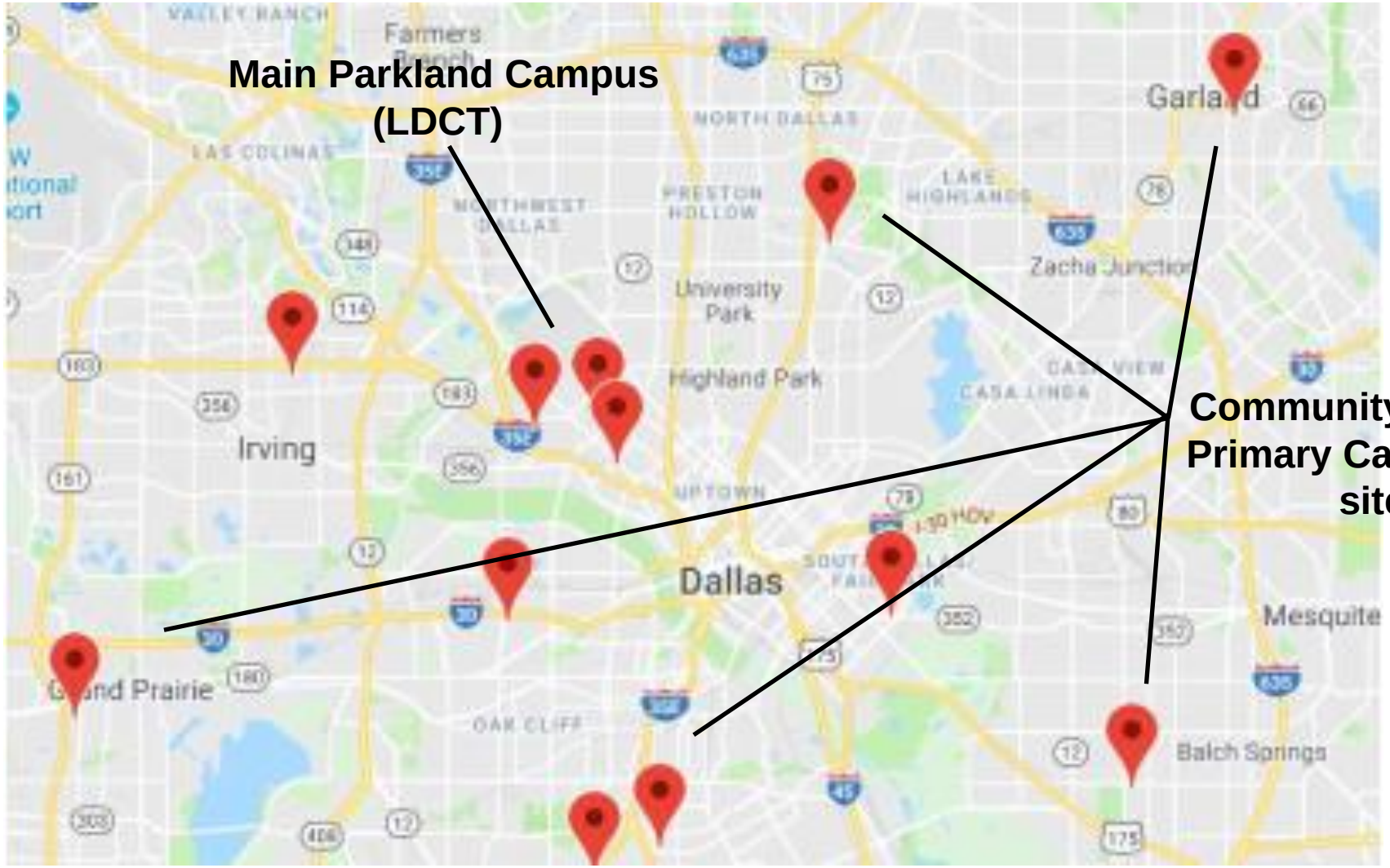
6 indicators (poverty, income, unemployment, occupation, education, language)

Eligibility for lung cancer screening



DFWHC Foundation, Healthy North Texas

Our program features a decentralized LCS process

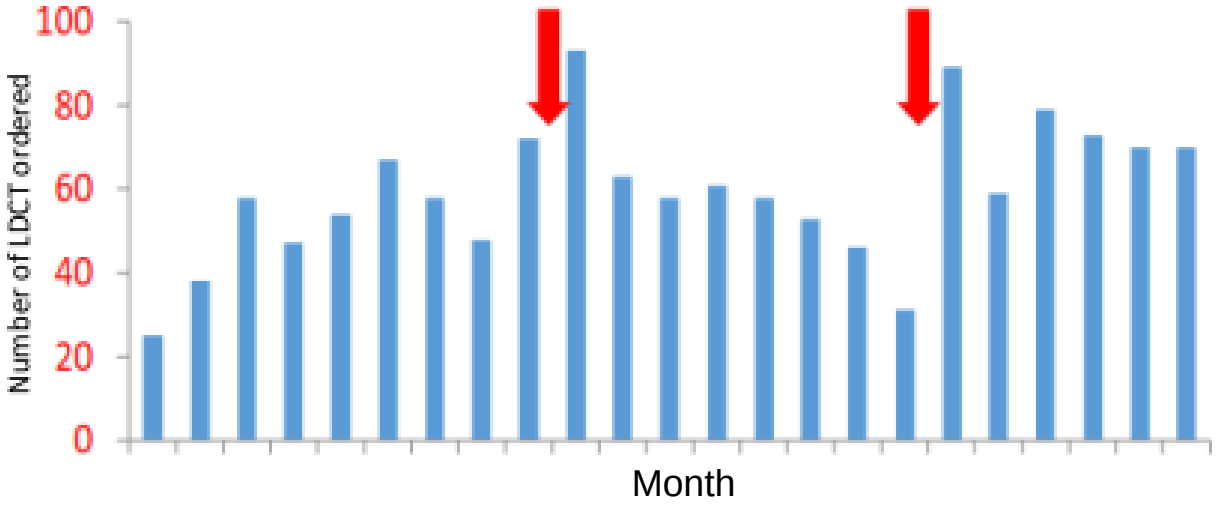


Patient residence to LDCT center (median)
10.7 miles
17 min (private vehicle)
67 min (public transit)

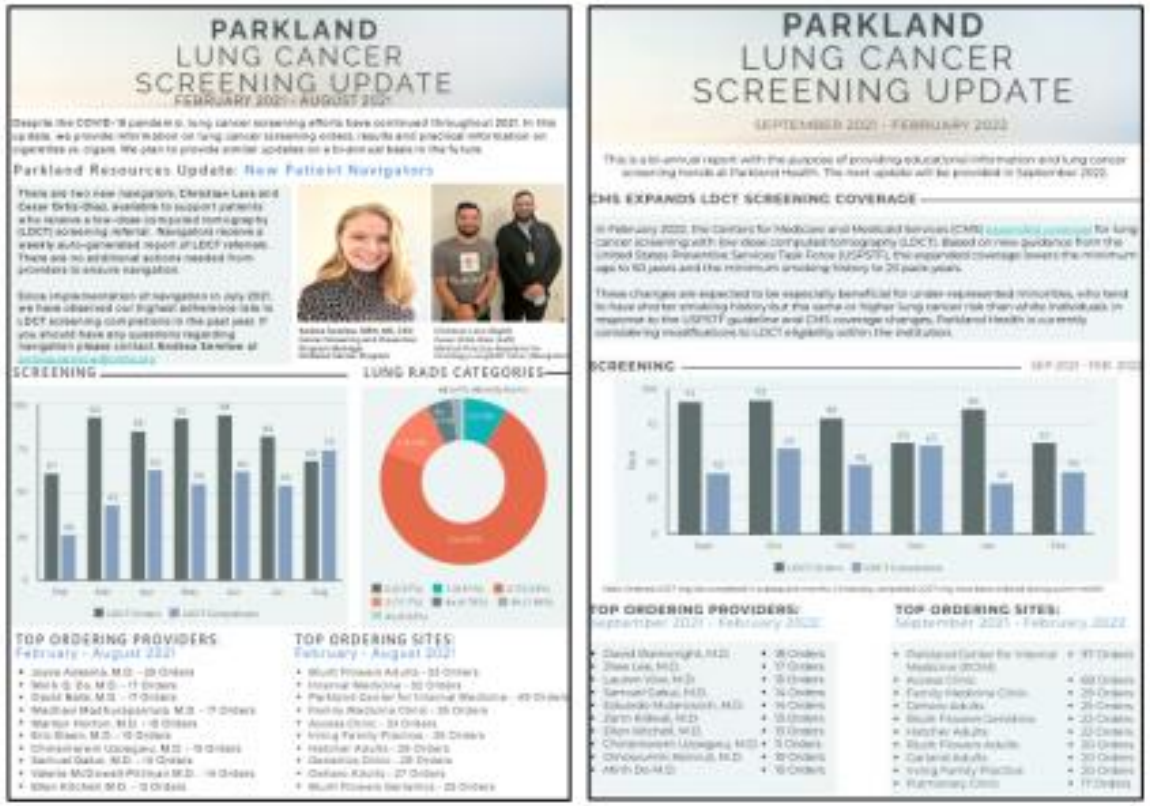
LDCT order placement triggers bilingual telephone-based navigation

Frequent communication with clinicians sustains uptake

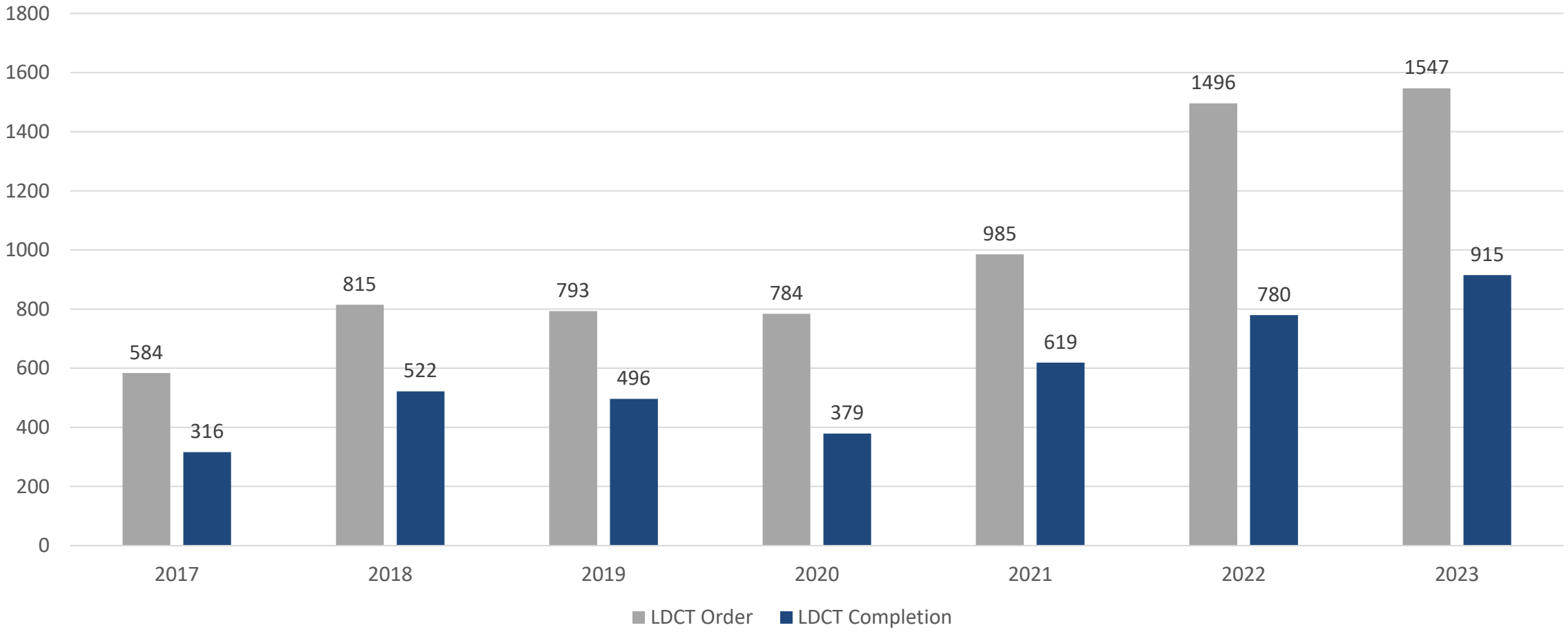
Oral presentations by DG at system-wide provider meetings



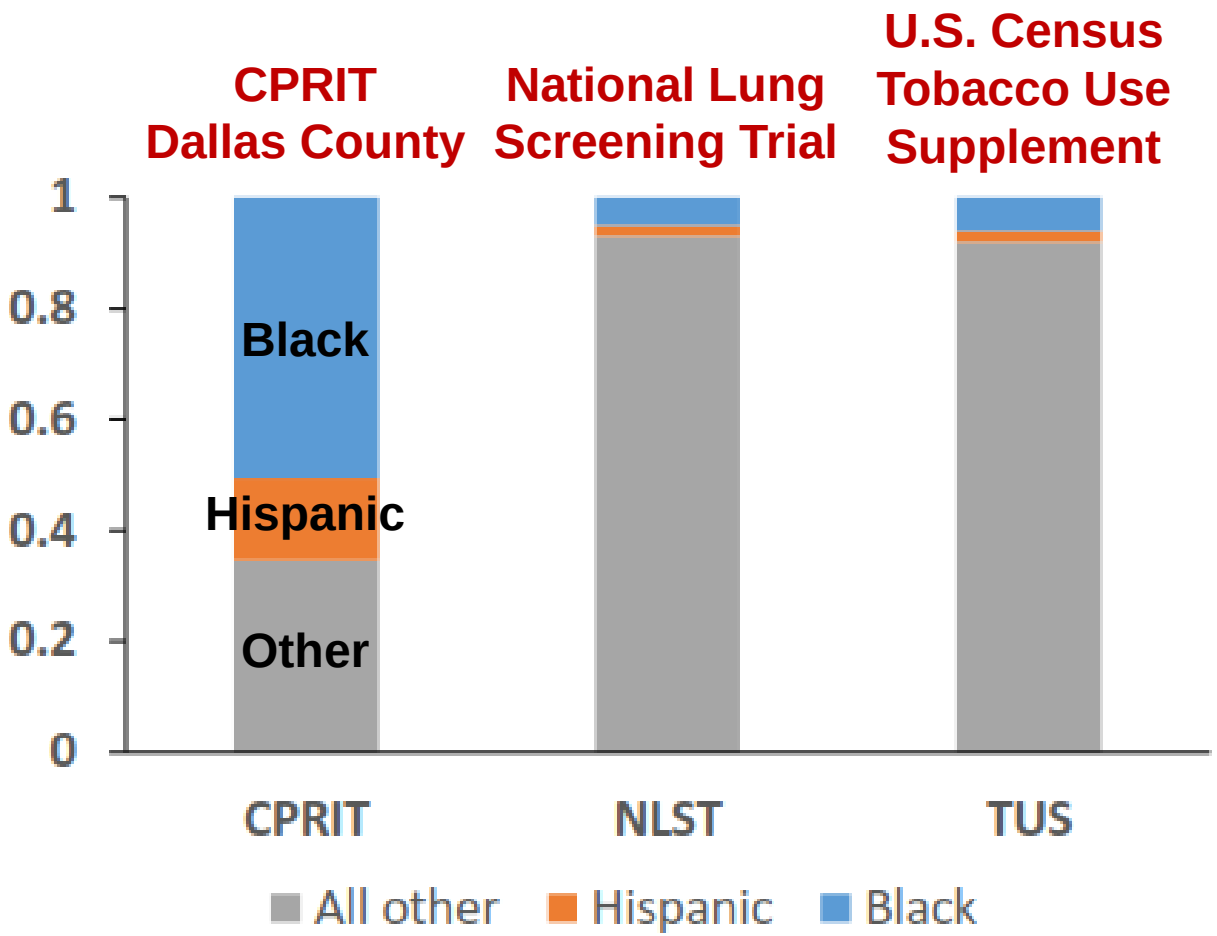
Top ordering providers and clinical sites recognized in twice yearly updates



In this growing program, LDCT completion rate is about 65%



We are screening a highly diverse population



The population also features active smoking and comorbidities

Smoking status

Tobacco use	N (%)
Current everyday smoker	566 (68)
Heavy tobacco smoker	7 (1)
Light tobacco smoker	2 (0)
Current some day smoker	61 (7)
Former smoker	194 (23)

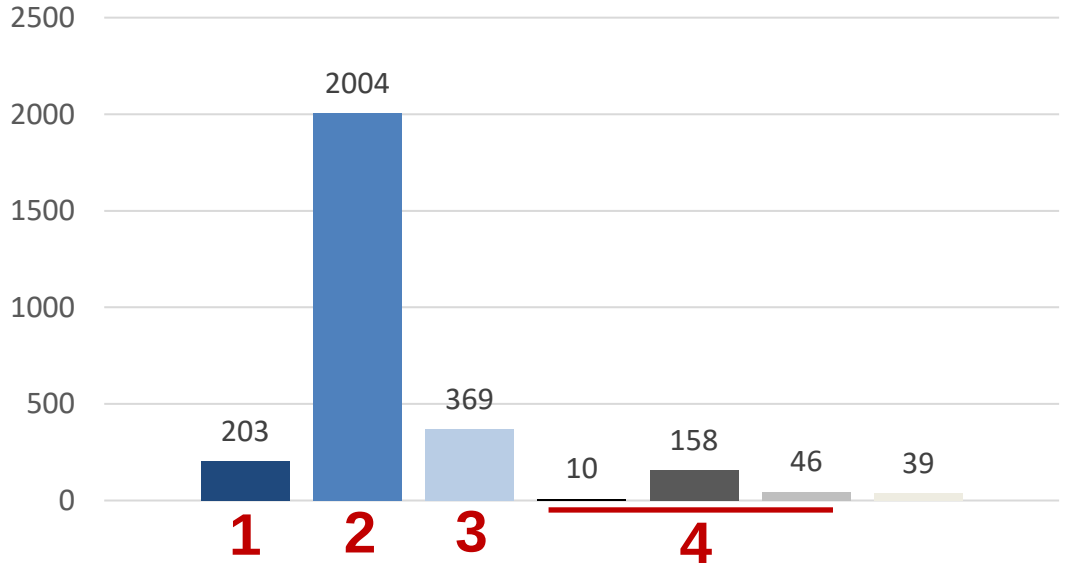
Time since last cigarette

Time interval	N (%)
<1 day	258 (64)
1-7 days	53 (13)
≥7 days and <1 month	7 (2)
≥1 month and <1 year	17 (4)
≥1 year	61 (15)

Charlson Comorbidity Index

CCI	N (%)
0-1 (mild)	328 (21)
2-4 (moderate)	1,119 (70)
≥5 (severe)	150 (9)

Yet Lung RADS findings comparable to national patterns



Observations and challenges

- LDCT-based lung cancer screening is feasible within an integrated safety-net healthcare system
- Real-world lung cancer screening populations may be more diverse and sicker than clinical trial cohorts
- Frequent communication with clinicians (including public recognition of participation) and ease of LDCT ordering *(not shown)* are key to program uptake in a decentralized, provider-focused program
- LDCT completion rates have been better than anticipated but can be improved substantially
- Despite greater smoking intensity and comorbidities, LDCT findings appear comparable to national data
- Continuation of annual LDCT after initiation (essential for lung cancer detection and mortality reduction) remains a challenge *(not shown)*

TEXAS C-STEP
Cancer Screening, Training, Education & Prevention

HEALTH

CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

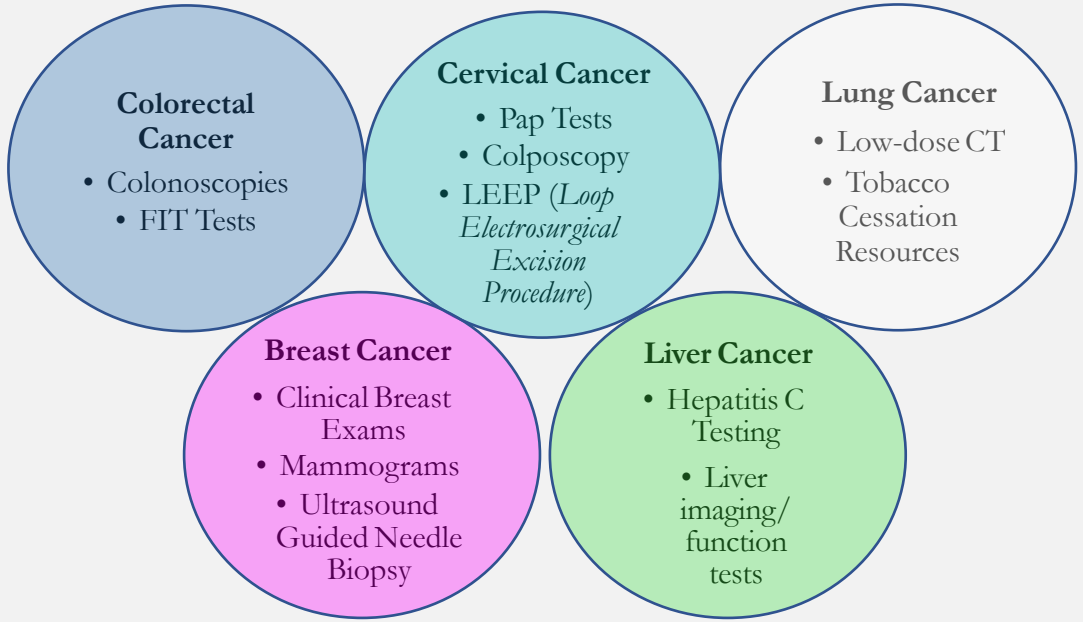
Cancer Prevention Innovation Strategies and Opportunities around Lung Cancer and Tobacco Cessation

Texas C-STEP Lung Cancer Screening Project

Jason R. McKnight, MD, MS, FAAFP
Team Leader- Texas C-STEP
Clinical Associate Professor
Medical Director-Human Clinical Research Facility
Texas A&M University School of Medicine

What is Texas C-STEP?

- The Texas **C**ancer **S**creening, **T**raining, **E**ducation and **P**revention Program (Texas C-STEP):
  - Provides critical *colorectal, breast, cervical, liver, and lung* cancer screenings and related diagnostics and prevention education to uninsured, underserved and low-income residents of Texas through an established family medicine residency and nursing training program.
  - Provides training for:
    - Family Medicine Residents (MD/DO)
    - Nursing students (BSN)
    - Family Nurse Practitioners (FNP)
    - Graduate Students in Public Health (MPH, PhD)
    - Community Health Workers (CHW)



Current Funding Credits

- Cancer Prevention & Research Institute of Texas
  - **Grant PP210027:**
    - **$999,947 over 3 years for Increasing Accessibility to Smoking Cessation and Lung Cancer Screening Services for low-income/Uninsured Texans (9/2021 – 8/2024)**
  - Grant PP200070:
    - $1.65M over 3 years for Continuation/Expansion of the Breast & Cervical Cancer Screening Program (9/2020 – 8/2024)
  - Grant PP220013:
    - $2,499,968 over 4 years for Leveraging Texas C-STEP's Robust Rural Partnerships for Successful Expansion of its Proven Colorectal Cancer Screening Program to Include HCV Screening (3/2022 – 2/2026)

Lung Cancer Screening is Dismal

U.S. NEWS

Few Get Lifesaving Lung Cancer Test

Doctors push for scan, but only 6% of people deemed eligible for it choose to have it done

By Brianna Abbott

There is a test that could diminish the toll of the nation's top cancer killer—if people would use it. Doctors are pushing harder to make that happen.

Lung cancer kills upward of 127,000 people in the U.S. each year. The toll has waned in recent years thanks to declining smoking rates and new treatments, but it remains the deadliest cancer for Americans by far.

A CT scan can catch the disease early to help save lives. The five-year survival rate when lung cancer is caught early is about 60%, compared with around 7% if it is caught after disease has spread, according to the American Lung Association. Medical groups recommend annual, low-dose scans starting at 50 for people who smoke heavily or recently quit. Insurers often cover the test.

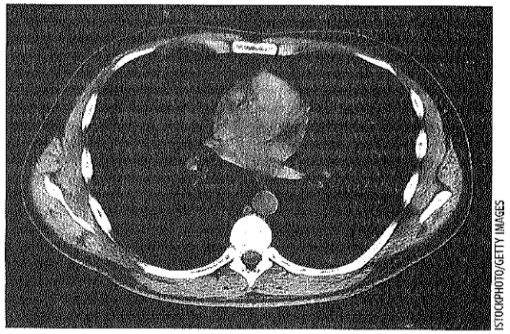
"It's low-hanging fruit for the country," said Dr. Patrick Hwu, president and chief executive officer of the Moffitt Cancer Center in Tampa, Fla. "It would save the most lives immediately."

Only 6% of eligible people are screened, according to a 2022 report from the American Lung Association, compared with more than 60% of people eligible for breast and colorectal cancer screenings.

Doctors have debated whether CT lung screening is worth the risk of false positives and the invasive procedures that result. Some eligible people have said they didn't know the test existed or would rather not know the results because a lung-cancer diagnosis was long considered a death sentence.

Now some doctors and advocates are pushing harder to expand lung-cancer screening and take advantage of newer treatments that have changed the disease's outlook. They are outfitting vans with CT equipment, imploring family doctors to recommend the scans and working to instill hope in patients who are often blamed for developing the disease.

"Most of them don't even know that if we catch these things early, they're curable," said Dr. Robert Winn, director of the Virginia Commonwealth University Massey Cancer Center.



ISTOCKPHOTO/GETTY IMAGES

An image from a CT scan showing a set of lungs. The test for lung-cancer screening uses a low dose of radiation.

In Kentucky, where more than 1 in 5 adults smoke, the screening rate has risen to some 13%, more than double the national average. Medical centers in the state have worked together to raise awareness and swap best practices, prompting Kentucky lawmakers last year to establish a statewide screening program.

Glenna Courtney, a 73-year-old retiree in Sanders, Ky., was screened in 2020 at her doctor's recommendation. Cancer terrified her. Her mother died three days after being diagnosed with lung cancer at age 75 in 2008.

Courtney's scan revealed a spot too small to biopsy. After it grew, surgeons removed it. Tests showed it had been cancerous. But it was gone, and she didn't need chemotherapy or radiation, just regular follow-up scans. "It was such a big sigh of relief," Courtney said.

She urges friends and family to ask their doctors if they should be scanned. Relatives have told her they didn't know about the test, she said. "We need to get the information out there about how much of a life-saver this test is," Courtney said.

St. Elizabeth Healthcare in northern Kentucky, where Courtney is a patient, was screening around 700 patients a month in 2022, up from seven in all of 2013, when a U.S. government-backed panel first recommended the test. More than two-thirds of lung cancers the scans identified at St. Elizabeth in 2022 were in the earliest stage.

Dr. Michael Gieske hadn't heard of the test before St. Elizabeth assigned him in 2016 to encourage more eligible people to get it. He started writing thank-you notes to doctors who got their patients scanned and helped implement software that identifies eligible patients based on their medical records. He climbed Mount Everest with a large white ribbon fashioned from wood, inspired by the pink ribbon for breast-cancer awareness, to spread the word.

"I've seen a lot of lung cancer, and I've found for the first time, there was really something that can make a difference," Gieske said.

Pam Perin, 65, smoked for decades beginning as a teenager. "There was a part of me that just did not want to know," she said.

A snap decision in 2017 to get the test after seeing a poster in her doctor's office led to the removal of a marble-size tumor. She quit smoking and tells everyone she knows about the scan, sometimes handing fliers about it to people she sees smoking.

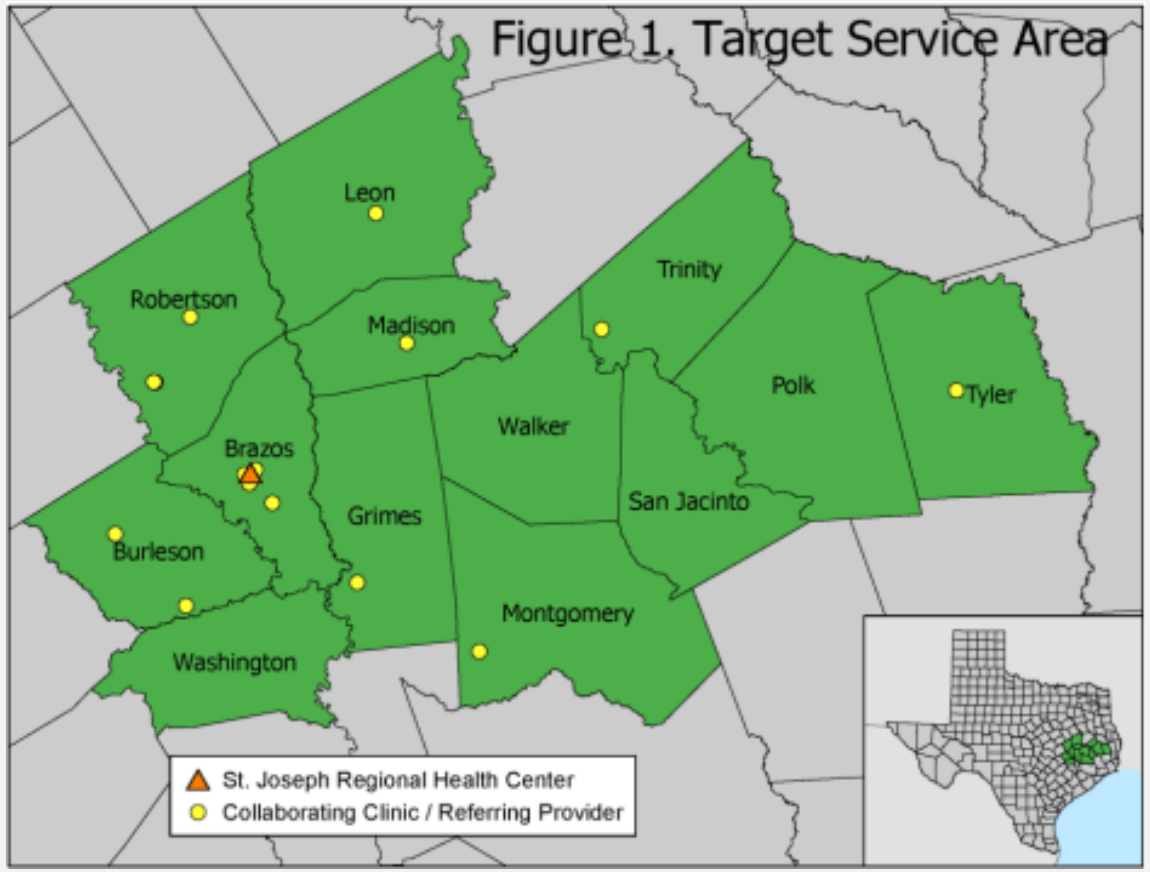
Though studies show an annual low-dose CT scan can prevent lung-cancer deaths, the scan was first recommended based on limited data and flags false positives that can lead to unnecessary, invasive biopsies and costly follow-up.

"I was definitely hesitant to implement it in my own practice," said Dr. Kenny Lin, a family physician in Lancaster, Pa. More data and better methods for reducing false alarms have made him more confident in the test, he said.

The American Academy of Family Physicians, which first recommended against the scan, endorsed it in 2021 on the strength of the new data. The academy called for more research on the risks of the scan and for work to address barriers to screening among communities of color.

U.S. WATCH

Service Area- Lung Grant



- 13-county region in Central and East Texas.
- 9 of these counties are considered rural, 10 whole- county MUA
- 11/13 counties have higher lung ca incidence than state average (50.6/100,000)
- Polk County incidence rate--highest in service area (99.1/100,000)

Interdisciplinary Collaboration

HEALTH

- **Provides:**
  - Medical review of participants and LDCT order/results
  - Nicotine replacement therapy
  - Staff Hub
  - Navigation for patients
  - Data collection and management

PUBLIC HEALTH
TEXAS A&M HEALTH SCIENCE CENTER

- **Provides:**
  - Support for clinical and community outreach
  - Prevention/education materials
  - Tobacco cessation services
  - Program evaluation

Goals of Lung Cancer Program

- **Increase access** to low-dose computed tomography (LDCT) screenings in rural/underserved patients
- **Increase the number of providers trained** to recommend cancer screening and knowledgeable about shared-decision making
- Increase community **enrollment in evidence-based tobacco cessation** programs
- **Provide free nicotine replacement** therapy to patients interested in quitting smoking
- **Utilize community health workers**, (CHWs), to provide culturally-sensitive education, referrals, and clinical services

Services Provided

1.) Lung Cancer Screening

Low-Dose CT

- Shared-decision making toolkit/checklist to complete before referral to educate both providers and patients
- Order placed once shared-decision making complete and eligibility confirmed
- If scan abnormal, further diagnostics ordered
- Results communicated to referring providers and patients throughout process

2.) Tobacco Cessation Counseling

- Texas A&M SPH working to establish cessation program targeted to MU and rural populations
- CHW's train in motivational interviewing and cessation counselling to employ at health fairs or other community events
- Free nicotine replacement therapy (patches) to disseminate to participants in program, if desired

3.) Healthcare System Navigation Support

- CHWs navigate the patients for LDCTs and tobacco cessation resources

4.) Community Engagement

- Provide education/resources within the coverage areas served

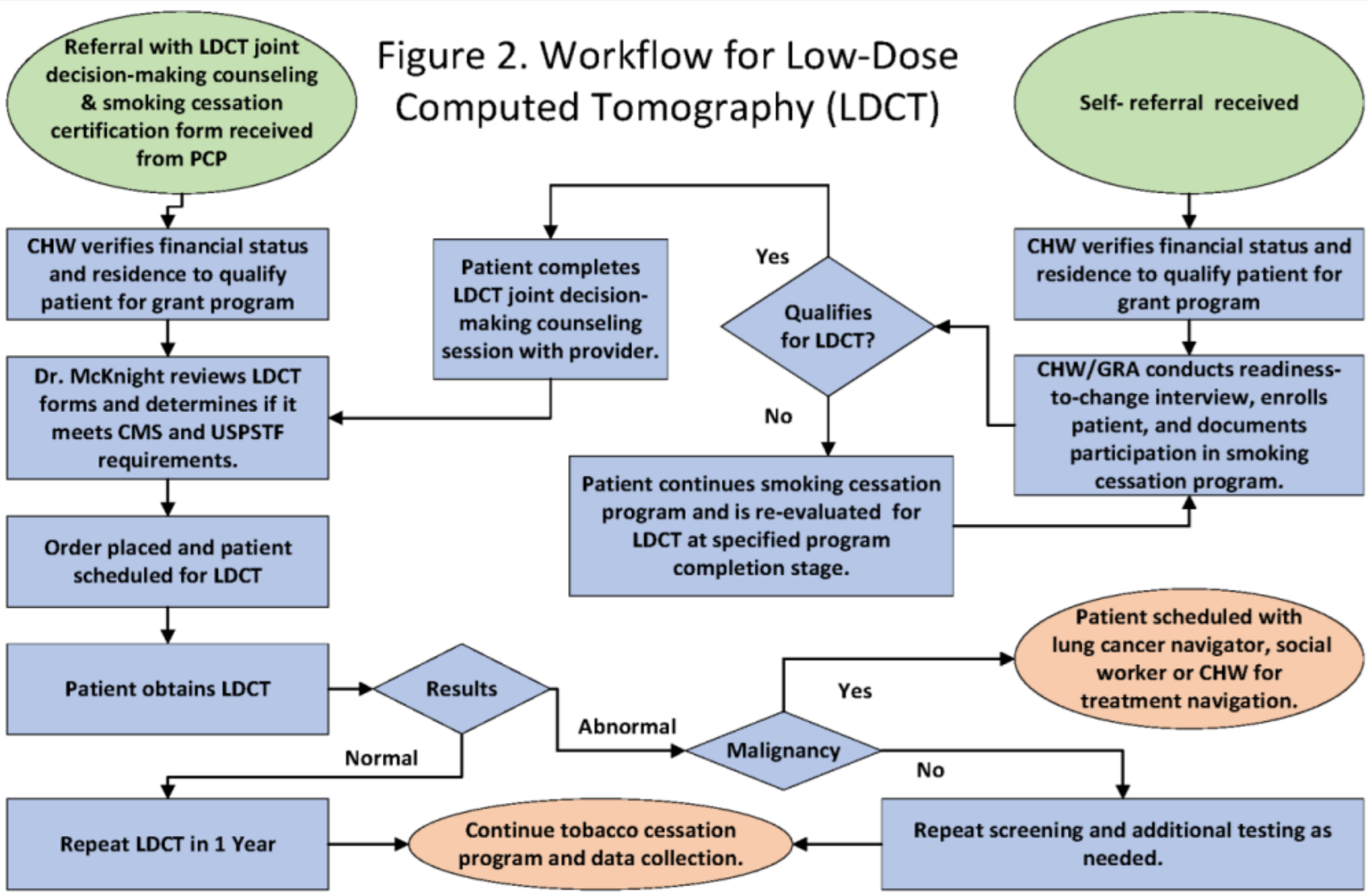


Figure 2. Workflow for Low-Dose Computed Tomography (LDCT)
Referral with LDCT joint decision-making counseling & smoking cessation certification form received from PCP
Self- referral received
CHW verifies financial status and residence to qualify patient for grant program
Patient completes LDCT joint decision-making counseling session with provider.
Yes
Qualifies for LDCT?
CHW verifies financial status and residence to qualify patient for grant program
Dr. McKnight reviews LDCT forms and determines if it meets CMS and USPSTF requirements.
No
CHW/GRA conducts readiness-to-change interview, enrolls patient, and documents participation in smoking cessation program.
Patient continues smoking cessation program and is re-evaluated for LDCT at specified program completion stage.
Order placed and patient scheduled for LDCT
Patient obtains LDCT
Results
Patient scheduled with lung cancer navigator, social worker or CHW for treatment navigation.
Yes
Abnormal
Malignancy
Normal
No
Repeat LDCT in 1 Year
Continue tobacco cessation program and data collection.
Repeat screening and additional testing as needed.

Unique Aspects of the Program

- **Open-system/de-centralized referrals:**
  - Over 200 healthcare providers in our referral network
  - Accept referrals from PCPs, community events, and self referrals
- **CHW integration for outreach and education:**
  - Studies show that CHW integration into cancer screening programs increase knowledge, screening rates, guideline adherence, referrals, and volume over services provided
  - CHWs provide culturally appropriate, bilingual education and navigation in the communities in which they reside
    - Assist with outreach, referrals, data collection by serving as a "bridge" between patient and healthcare system that patients can trust
- **When our grant was funded:**
  - Utilized the only "lung nodule program" AND LDCT scanner in 12/13 counties

Texas C-STEP program staff have a long history of CPRIT funding.

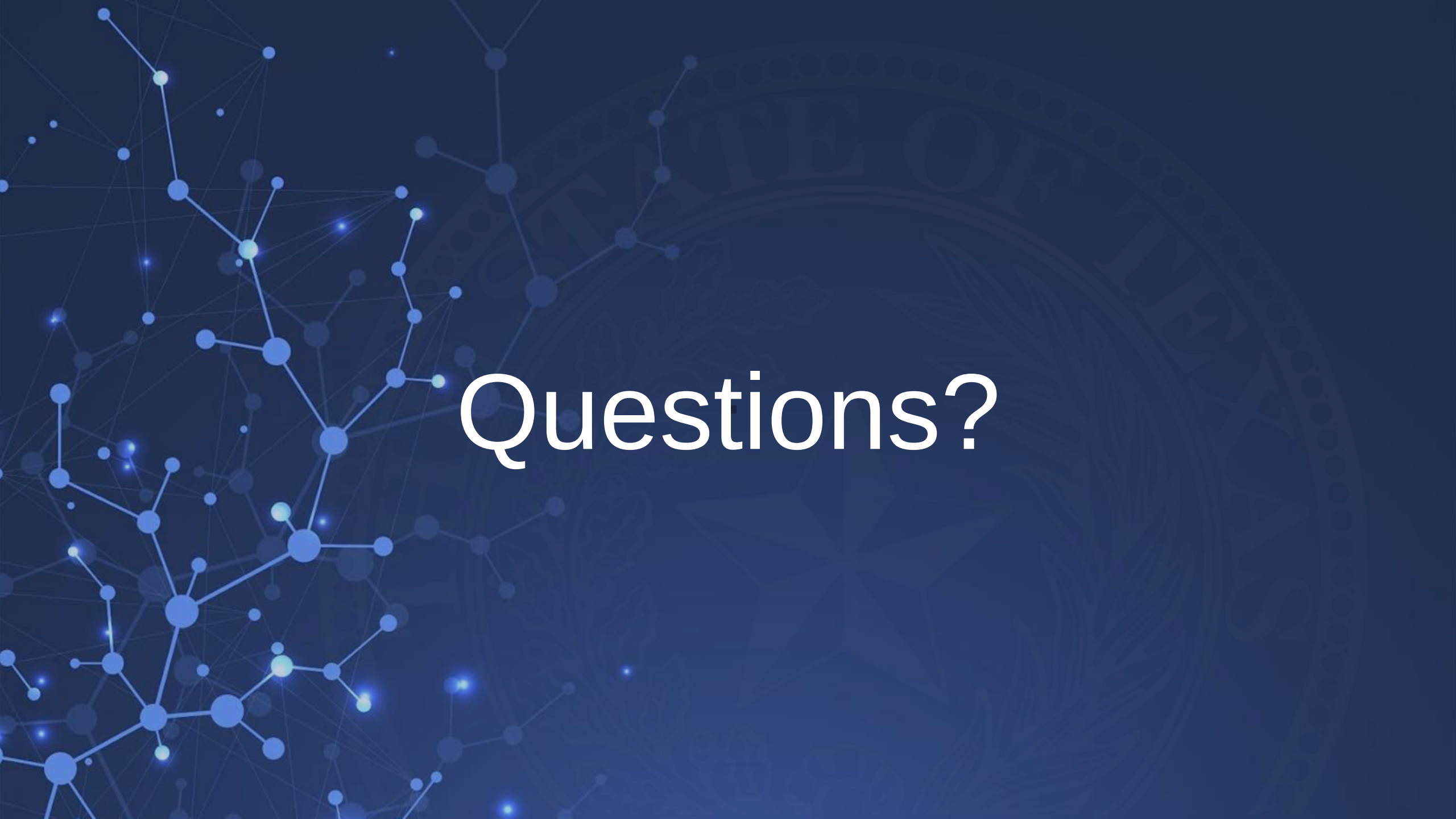
Challenges

Expected:

- Patient knowledge
- Transportation issues related to lack of accredited centers
- Concerns about adverse effects

Unexpected:

- Provider knowledge and interest
  - Providers less aware of “new” screenings
  - “why screen for something we can’t prevent/treat?”
- Loss of interest when screening coupled to risk-factor reduction strategies
- Confusion relating to cancer prevention versus earlier diagnosis
- Variability in LDCT radiology reads*


Questions?


THANK YOU

INNOVATIONS VI
In Cancer Prevention and Research Conference

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

Coming up after the break:

- **Company Showcase**
  Floral Hall B
- **Texas Cancer Plan Town Hall**
  Floral Hall A