

REVIEW ARTICLES

Disparities in Lung Cancer Screening among the Hispanic Community: An Update and Review of Literature

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ABSTRACT

Lung cancer remains the leading cause of cancer-related mortality in the United States. Although Hispanic and Latino (HL) populations exhibit lower smoking prevalence and lung cancer incidence, they are more frequently diagnosed at advanced stages and experience poorer outcomes. This systematic review synthesizes evidence on potential biases in lung cancer screening and care among HL populations. A total of 59 studies published between 1994 and 2025 were included, with study design, population characteristics, and key findings extracted and analyzed. Overall, 55.8% of studies reported disparities affecting HL populations, 30.8% found no significant differences, and 13.5% reported mixed results.

Across studies, HL patients demonstrated lower uptake of lung cancer screening and a higher likelihood of late-stage diagnosis, suggesting barriers in early risk identification, referral pathways, and timely diagnostic evaluation. While treatment-specific outcomes were generally comparable to those of non-Hispanic White patients when care was received, disparities persisted in care delivery. In particular, HL patients were less likely to receive multimodality treatment, experienced longer hospital stays, and had higher inpatient utilization, suggesting system-level barriers to integrated, guideline-concordant care.

Introduction

Lung cancer remains the leading cause of cancer-related mortality in the United States, accounting for approximately 20% of all cancer deaths.¹ Beyond mortality, lung cancer imposes a substantial economic burden, with more than \$21 billion annually in lost earnings due to premature mortality in the United States.² Historically, poor survival has been driven by late-stage diagnosis; however, recent trends suggest a meaningful shift toward early detection. Localized disease has increased by 3.6% annually, and distant-stage disease has decreased by 4.6% annually.¹ This shift has coincided with expanded implementation of low-dose computed tomography (LDCT) screening, which has been shown to reduce lung cancer mortality by approximately 24% among high-risk populations and to increase early-stage

detection.³ Despite clear evidence of benefit, LDCT screening uptake remains low, with only 18.1% of eligible U.S. adults undergoing screening in 2022.⁴

Adherence to ongoing screening further limits the potential impact of LDCT programs. In racially diverse cohorts, only 23.7% of patients return for annual screening at 1 year, with adherence dropping to as low as 2.8% by 2 years.⁵ Similar patterns are observed in safety-net settings, where approximately 8% of patients adhere to annual screening, and Hispanic patients demonstrate lower adherence compared with Black and White patients.⁶

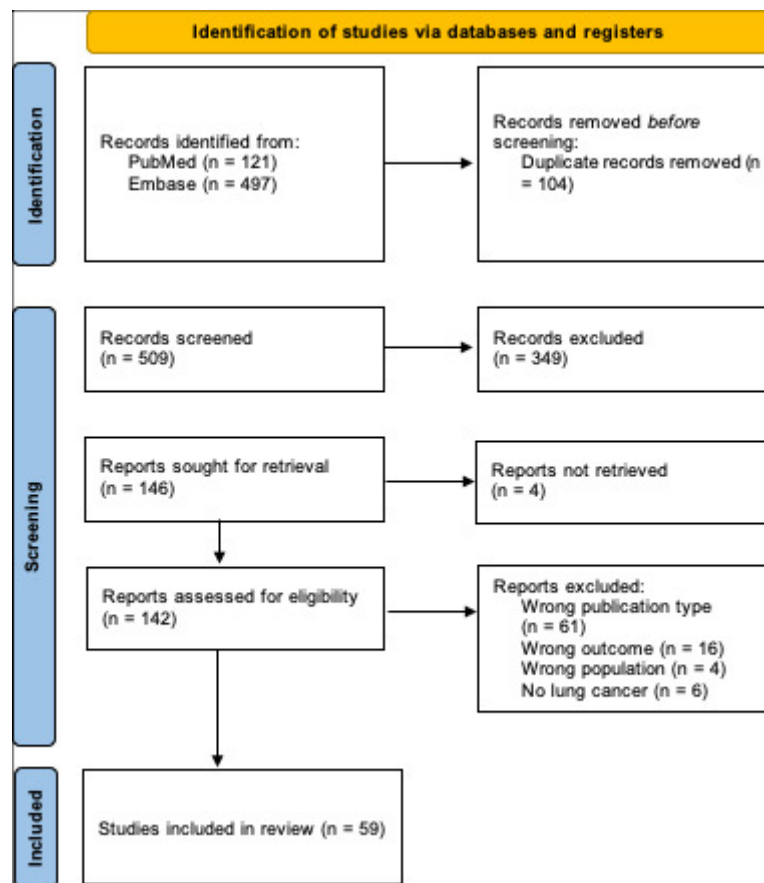
Although Hispanic and Latino populations have lower overall smoking prevalence and lung cancer incidence, they are more frequently diagnosed at later stages and experience worse outcomes.^{7,8} Hispanic individuals are also more likely to be diagnosed at younger ages despite having fewer pack-years yet receive lower rates of guideline-concordant treatment, including surgery, radiation therapy, and biomarker testing.⁸ These disparities reflect multilevel barriers, such as structural inequities, healthcare access, and system-level bias, which limit access to high-quality care and diminish survival advantages associated with specialized services, socioeconomic resources, and insurance coverage.⁹ Accordingly, this systematic review synthesizes existing evidence on bias in lung cancer screening and care among Hispanic populations to identify critical gaps and inform targeted, equity-focused interventions to improve outcomes.

Methods

The study was exempt from the oversight of the Institutional Review Board.

Search Strategy

A PubMed and EMBASE search was performed for English-language articles conducted with human studies. Search queries were developed to identify publications on disparity, bias, and barriers in lung cancer and screening among Hispanic/Latino (HL) populations in the United States (**Supplement 1**). The search was conducted on November 11, 2025. Identified articles were uploaded to Rayaan Software for continued review. Duplicates were detected and deleted. Three investigators (A.T, O.A., and C.B.) independently reviewed titles and abstracts to determine eligibility using the prespecified inclusion criteria. Disagreements were resolved by discussion and consensus, or when necessary by consultation of a fourth investigator (M.G.). Then, three investigators (A.T, M.G., and M.R.) independently reviewed full-text articles to determine eligibility using the same inclusion criteria. Discrepancy in opinions was discussed and resolved by the majority or consensus.



Inclusion and Exclusion Criteria

Original studies based in the United States and written in English with primary outcomes in disparities, bias, and barriers to lung cancer and lung cancer screenings in Hispanic/Latino populations were included. All studies that are non-USA were excluded. Publications that did not discuss disparities and were not original research, including reviews, editorials, letters to the editor, and guidelines, were excluded.

Data Extraction

Data on study design and relevant outcomes, population, sample size, study limitations, and time frame were extracted. Publication results comparing HL and non-HL populations were categorized as follows: *Yes* – the HL population experienced worse outcomes than the non-HL population; *No* – the HL population experienced outcomes that were better than or similar to those of the non-HL population; *Mixed* – the HL population showed better outcomes for at least one measure and worse outcomes for another.

Results

618 articles were identified, 109 duplicates. 509 articles went into title/abstract screening, and 146 articles went into full text screening. A total of 59 studies met inclusion criteria and were included in the final analysis ([Table](#)

1). Publication years ranged from 1994 to 2025; 48 studies (81.4%) were published in 2018 or later, and 40 studies (67.8%) were published in the last 5 years.

Retrospective cohort studies accounted for 44 of 59 studies (74.6%), while cross-sectional survey-based studies comprised 4 studies (6.8%), non-survey cross-sectional analyses accounted for 4 studies (6.8%), prospective cohort studies accounted for 3 studies (5.1%), and registry-based cross-sectional and qualitative studies each represented 2 studies (3.4%). Study sample sizes varied widely (Range: 32 to 3,600,000). The median sample size was 78,227.

The outcomes evaluated across studies were heterogeneous, including screening eligibility or uptake, stage at diagnosis, diagnostic timeliness, treatment patterns, or survival. Specifically, 14 studies (23.7%) primarily evaluated survival outcomes, 11 studies (18.6%) focused on stage at diagnosis or diagnostic delay, and 6 studies (10.2%) examined treatment-related or perioperative outcomes, while only 5 studies (8.5%) directly evaluated screening eligibility or utilization. The remaining studies evaluated broader or mixed lung cancer screening disparity outcomes.

Among the 52 studies (88.1%) in which disparities were explicitly assessed and coded, 29 studies (55.8%) reported evidence of disparities affecting Latino populations, 16 studies (30.8%) reported no statistically significant disparities, and 7 studies (13.5%) reported mixed findings depending on the outcome or subgroup analyzed. The proportion of studies reporting disparities was similar across time, with disparities identified in 18 of 32 studies (56.3%) published before 2020 and 11 of 20 studies (55.0%) published from 2020 onward. Among retrospective cohort studies with a coded disparity outcome ($n = 40$), 21 studies (52.5%) reported disparities, 14 studies (35.0%) reported no disparities, and 5 studies (12.5%) reported mixed findings. Chi-square test showed no difference in disparity reporting by study design ($p = 0.24$).

Discussion

Disparities affecting Hispanic and Latino populations persist across the lung cancer care continuum despite substantial advances in screening guidelines and diagnostic technologies. Across the studies included in this review, more than half identified disparities affecting Latino patients, most frequently during early phases of care such as risk assessment, screening access, eligibility determination, and diagnostics. At the same time, the existing evidence is complex and often difficult to untangle, as studies examine different populations, clinical contexts, and outcomes, leading to seemingly contradictory findings. Heterogeneity within Hispanic and Latino populations, including country of origin and geographic location,^{14,19,20,26,27,37} complicates both lung cancer risk assessment and the identification of inequities across the care continuum. Hispanic and Latino populations encompass diverse subgroups that differ meaningfully in smoking

Table 1.

Citation	Study Design	Population	Key Findings	Limitations	Study settings	Time frame	Sample size	Disparity
Akanbi et al., 2025 ¹⁰	Retrospective cohort	Adults in the United states, aged between 55 and 80 with metastatic lung cancer in Surveillance, Epidemiology, and End Results (SEER) database.	The incidence of metastatic lung cancer was lowest among Hispanic patients but, unlike other racial groups, Hispanics did not have improvement in incidence throughout the study period.	Observational	SEER Database	2004-2019	445,715	No
Alaniz-Cantú et al., 2024 ¹¹	Qualitative	Latino adults (60% were born in Puerto Rico). 50% were insured by Medicaid.	Participants identified barriers to LCS: 1) Fear of outcomes, 2) cost, 3) lung cancer screening not being recommended by their clinician, 4) lack of knowledge about the procedure, 5) self-blame, 6) transportation, and 7) lack of time.	Qualitative	Academic-based clinic	2022-2023	32	
Aredo et al., 2022 ¹²	Prospective cohort	Multiethnic Cohort	USPSTF criteria widened disparities in LCS eligibility for Latinos	Cohort-specific	SEER Database	Lung cancers diagnosed 1993-2017	5,900	Yes
Bassiri et al., 2023 ¹³	Retrospective cohort	Early-stage lung cancer surgery	Being Hispanic was not associated with delayed timing to surgery from diagnosis	Retrospective	Multicenter academic hospitals (NCDB)	2004-2018	201,784	No
Bilani et al., 2023 ¹⁴	Retrospective cohort	Hispanic NSCLC patients	Hispanic individuals living in the United States, region/country of origin were significantly associated with overall survival and stage at diagnosis, even after accounting for other known determinants of health.	Small subgroups	US cancer registry data	2004-2017	3,398	Mixed
Borrayo et al., 2020 ¹⁵	Qualitative	Hispanic lung/ HN cancer patients	Treatment challenges and support needs were reported in medical, financial, socio-cultural, and mental health areas.	Small qualitative	Community oncology clinics	2016-2018	42	
Chau et al., 2021 ¹⁶	Retrospective cohort	Patients diagnosed with	Hispanics US-born (10 m) overall survival was similar to White US-	State-specific	California Cancer	2000-2012	68,232	No

Citation	Study Design	Population	Key Findings	Limitations	Study settings	Time frame	Sample size	Disparity
		NSCLC in Surveillance, Epidemiology, and End Results (SEER) database.	born (11 m).		Registry			
Check et al., 2018 ¹⁷	Retrospective cohort	Early-stage NSCLC patients	Integrated health system reduced disparities in Hispanic population for receiving surgeries.	Selection bias	California Cancer Registry + Singke Urban Integrated healthcare system	2004–2011	5,786	
Choi et al., 2024 ¹⁸	Retrospective cohort	Lung cancer survivors	First LC incidence was lower among Hispanics, the 10-year SPLC incidence was higher among Hispanics.	Survivorship bias	SEER Database	1992–2018	156,494	Yes
Cranford et al., 2023 ¹⁹	Retrospective cohort	US lung cancer cases	Marked subgroup heterogeneity: Among Hispanics, Cuban males had the highest LC age-adjusted incidence rates (AAIR) but lower than Whites, and 2.7 times higher than Central Americans.	Descriptive	SEER Database	2000–2018	120,550	No
Crowell et al., 2007 ²⁰	Retrospective cohort	Early-stage NSCLC	No differences in survival between Hispanics and NHW, although rural Hispanics had a higher mortality hazard than urban Hispanics.	Small samples	Rural vs. Urban	1999–2003	1,450	No
Duong et al., 2017 ²¹	Cross-sectional survey	Academic center patients	Hispanics were more non-adherent. Knowledge gaps reduced adherence	Single center	Academic medical center	2015–2016	212	Yes
Enogieru et al., 2025 ²²	Retrospective cohort	Cancer inpatients	Higher 60-days readmissions among Hispanic with residence in a lower income ZIP code and Medicaid insurance	Administrative data	Nationwide Inpatient Sample	2016–2019	1,148,597	Yes
Farias et al., 2023 ²³	Retrospective cohort	SEER-CAHPS lung cancer patients	Hispanic patients reported lower ability to get needed care compared to White patients, which was associated with higher risk of mortality.	Survey linkage	SEER-CAHPS linked cohort	2007–2015	1,776	Yes
Gupta et	Retrospective	NSCLC patients	Lower area-level SES was	Area-level proxy	National	2004–2016	1,329,972	Yes

Citation	Study Design	Population	Key Findings	Limitations	Study settings	Time frame	Sample size	Disparity
al., 2022 ²⁴	cohort		associated with increased odds of advanced NSCLC diagnosis. 70% of Hispanic patients lived in the lowest education and income areas and were more likely to be diagnosed at an advanced stage. These disparities persisted even when patients were treated at academic/research programs.		Cancer Database (NCDB)			
Gutierrez et al., 2023 ²⁵	Cross-sectional	US-Mexico border	Hispanic lung cancer mortality rates were not different in border counties compared to non-border counties	Ecologic	US border vs non-border counties	1999–2018	3,246,391	
He et al., 2024 ²⁶	Retrospective cohort	Hispanic adults	In general, foreign-born Hispanics had higher cancer mortality rates than US-born, except Mexicans. Both Hispanic groups experienced decreasing rates of cancer deaths over the years.	Death certificate misclassification	US death certificates	2003–2017	228,197	Mixed
Heintzman et al., 2025 ²⁷	Cross-sectional registry	Latino community health center patients eligible for LCS	Foreign-born Latinos had lower LCS uptake	Limited generalizability; CHC population only	OCHIN network of community health centers	Jan 1, 2013 – Sep 30, 2022	126,969	Yes
Hong et al., 2024 ²⁸	Cross-sectional survey	Adults eligible for LCS	Minorities less likely to have shared-decision making for LCS	Self-report bias	National survey cohort (HINTS-linked)	2017–2020	6,886	Yes
Houston et al., 2018 ²⁹	Retrospective cohort	Adults diagnosed with lung and bronchus cancer in the United States	Hispanics consistently showed the lowest incidence rates across almost all histological types, approximately half the rate of NHBs and NHBs.	Confounding variables	SEER Database and CDC National Program of Cancer Registry (NPCR)	2004–2013	1,751,728	No
Javier et al., 2025 ³⁰	Retrospective cohort	Integrated health system	Hispanic participants had a 34% lower likelihood of faster completion LDCT under 2013 USPSTF guidelines	Single system	Single Urban Integrated healthcare system		N (2013 Guidelines) - 28046 N (2021 guidelines) - 60,676	Yes
Jemal et al., 2018 ³¹	Retrospective cohort	US population	Only Hispanics had higher incidence of lung cancer in young women	Incidence only	SEER Database	1995–2014	392,018	Yes

Citation	Study Design	Population	Key Findings	Limitations	Study settings	Time frame	Sample size	Disparity
Khan et al., 2025 ³²	Retrospective cohort	Aged 65 years and older with a diagnosis of gastrointestinal, lung, and breast cancer	Hispanic patients had the lowest odds of receiving NGS	Only Medicare patients	Medicare Standard Analytic File	2015–2020	1,466,105	Yes
Kim et al., 2022 ³³	Retrospective cohort	Hospitalized lung cancer patients	Hispanics have higher hospital charges and length of stay.	Administrative data	Nationwide Inpatient Sample	2010–2014	47,121	Yes
Kirtane et al., 2023 ³⁴	Cross-sectional	Cancer center patients	Hispanics were more likely to present to cancer center at an advanced stage compared to non-Hispanic patients	Single center	Single Urban comprehensive cancer center	Dec 2008 – Apr 2020	41,539	Yes
Klugman et al., 2020 ³⁵	Retrospective cohort	NSCLC patients	HLs experienced decreased risk of death relative to NHWs	Single region	Urban	2005–2015	2,308	No
LaPar et al., 2011 ³⁶	Retrospective cohort	Lung resections patients	Hispanics demonstrated decreased risk-adjusted complication rates.	Registry limits	Nationwide Inpatient Sample	2003–2007	35,000	No
Li et al., 2021 ³⁷	Retrospective cohort	Metastatic lung cancer patients	Improved survival for all racial groups	State-specific	California Cancer Registry	1990–2014	91,377	No
Liu et al., 2024 ³⁸	Retrospective cohort	Patient with non-small cell lung cancer	Hispanic patients had 12% higher odds of advanced-stage NSCLC diagnosis than NHWs, but this disparity disappeared or reversed depending on which region in Florida Hispanics live and their country heritage.	Data only in Florida and may not be generalizable.	Florida cancer registry	2005–2018	157,034	Mixed
Mehta et al., 2018 ³⁹	Retrospective cohort	NSCLC patients	Hispanic ethnicity was associated with an increased risk of mortality.	Residual confounding	SEER Database – Medicare cohort	2000–2013	37,993	Yes
Merrill et al., 2013 ⁴⁰	Cross-sectional	US cancer cases	Lower incidence and detection at later stages than Whites.	Descriptive	US cancer registry data	2000–2009		Yes
Morgan et al., 2020 ⁴¹	Retrospective cohort	NSCLC patients	Hispanics were less likely to receive PET with CT imaging than Whites. PET with CT was associated with improved survival.	Claims-based	SEER Database – Medicare cohort	2004–2013	46,893	Yes
Nardi et al.,	Retrospective	Nonelderly lung	When considering SES, race has	NCDB limits	Urban	2004–2015	101,405	No

Citation	Study Design	Population	Key Findings	Limitations	Study settings	Time frame	Sample size	Disparity
2019 ⁴²	cohort	cancer pts	no impact on treatment receipt					
Narra et al., 2025 ⁴³	Retrospective cohort	Lung cancer patients in safety-net system	Race and ethnicity were not associated with survival differences.	Single center	Single safety-net academic medical center		220	No
Neighbors et al., 2007 ⁴⁴	Retrospective cohort	Lung resection patients	Latinos had lower odds of obtaining lung resection at a high-volume hospital than non-Hispanic whites. Latinos had higher odds of dying in hospital.	Older data	Nationwide Inpatient Sample	1995–2002	64,782	Yes
Núñez et al., 2022 ⁴⁵	Prospective cohort	US Veterans	Hispanic veterans were less likely to decline LCS	Veteran population	30 Veterans Health Administration (VHA) facilities	2013–2021	43,257	No
Nykaza et al., 2025 ⁴⁶	Retrospective cohort	NSCLC patients	Hispanic patients had lower odds of receiving immunotherapy compared to non-Hispanic White patients. Hispanic patients had higher rates of immunotherapy after 2 months compared to non-Hispanic Whites.	Claims data	National claims cohort		302,744	Yes
Oh et al., 2024 ⁴⁷	Retrospective cohort	Patients at California Cancer Registry	Being Hispanic male in rural areas was a predictor for increased odds of later-stage diagnosis.	Focusing on only the most common cancer sites and reporting specific results for two racial and ethnic groups. Did not look at regional differences.	Rural vs. Urban	2015–2019	497,559	Yes
Olateju et al., 2025 ⁴⁸	Retrospective cohort	Adults with histological diagnosis of lung cancer, diagnosed between 2010 and 2019, with follow-up through December 31, 2021.	Hispanics had a higher proportion of uninsured patients and patients residing in low-income areas. Hispanics had an 11% higher mortality risk for NSCLC, but socioeconomic factors accounted for 60% of variance. Hispanics with localized NSCLC had lower mortality risks compared to Whites, but more often were diagnosed at advanced stages. The higher	Socioeconomic status was incompletely characterized. No stratification among Hispanic subpopulations. Underreporting of comorbidities.	Texas Cancer Registry	2010–2019	199,000	Mixed

Citation	Study Design	Population	Key Findings	Limitations	Study settings	Time frame	Sample size	Disparity
Pal Choudhury et al., 2025 ⁴⁹	Cross-sectional registry	Adults with 10 cancers	proportion of Hispanics received immunotherapy. Insurance type explained substantial racial disparities	Insurance measured at diagnosis	SEER Database	2014–2018	3 600 000	Mixed
Percac-Lima et al., 2019 ⁵⁰	Cross-sectional survey	Latino & non-Latino smokers	More Latinos believed that lung cancer could be prevented, and less worried about developing lung cancer. More Latinos than Whites were not aware of LCS, but when informed, more Latinos wanted to be screened. Latinos reported fewer barriers to lung screening.	Survey bias	Academic primary care clinics	2016–2017	366	Mixed
Perez et al., 2025 ⁵¹	Retrospective cohort	Lung cancer surgery patients	HL had similar wait times from diagnosis to surgery compared to non-Hispanic White	Retrospective	National Cancer Database (NCDB) (CoC-accredited programs nationwide)	2004–2018	219,723	No
Pinheiro et al., 2011 ⁵²	Retrospective cohort	Latino cancer patients	No evidence of a Hispanic advantage was found in cancer survival. In Florida, lower survival rates for male lung cancer among Cubans. In Texas, US-born Mexicans had significantly lower survival rates for male lung cancer.	Older SEER era	SEER Database	1992–2006	1,015,000+	Mixed
Potosky et al., 2004 ⁵³	Retrospective cohort	NSCLC patient diagnosed during 1996 from National Cancer Institute's Surveillance Epidemiology and End Results (SEER) Registries	46% Hispanic received recommended therapy with stage 1/2. In stage 3 patients, 33% of Hispanics had recommended therapy .	Unable to verify nonsurgical therapies in 10% of sampled patients. Included some patients receiving additional unproven therapies after recommended surgery, estimates	SEER Database	1996	898	

Citation	Study Design	Population	Key Findings	Limitations	Study settings	Time frame	Sample size	Disparity
				of proportion receiving recommended therapy might have biased slightly upward. Narrow definition of recommended therapy.				
Shrestha et al., 2025 ⁵⁴	Retrospective cohort	Early-stage NSCLC	Association between geographic access to radiation oncologists and radiotherapy use was observed in Hispanic patients.	Distance as proxy	National Cancer Database (NCDB)	2004–2018	219,723	
Silvestri et al., 2023 ⁵⁵	Prospective cohort	Screened adults	Being Hispanic was a predictor of poor LCS adherence.	Observational	US national LCS registries (real-world programs)	2015–2021	1,000,000	Yes
Soin et al., 2024 ⁵⁶	Cross-sectional	US population	The Age-Adjusted Mortality Rate (AAMR) was higher among non-Hispanic populations compared to Hispanic populations	Trend analysis	US national mortality trends	1999–2020	3,380,830	No
Soneji et al., 2017 ⁵⁷	Retrospective cohort	Early-stage lung cancer	Hispanics experienced better overall survival.	Residual confounding	SEER Database	2000–2011	38,000	No
Su et al., 2019 ⁵⁸	Retrospective cohort	Underserved patients	Residents in primary care shortage areas (PCSAs) were likely Hispanics and had advanced disease at diagnosis	Small sample	Safety-net academic medical center. Urban	2007–2014	482	Yes
Taylor et al., 2023 ⁵⁹	Retrospective cohort	Screen-negative adults	Hispanics were less likely to repeat LCS	Claims-based	National claims cohort	2016–2019	15,779	Yes
Uprety et al., 2024 ⁶⁰	Retrospective cohort	Metastatic NSCLC	There was no statistically significant racial differences in survival for those who received immune checkpoint inhibitors. But Hispanics were more likely to receive immune checkpoint inhibitors.	Claims linkage	National Cancer Database (NCDB)	2004–2018	88,221	No
Verplancke et al., 2023 ⁶¹	Retrospective cohort	NSCLC patients	Hispanic ethnicity was linked to advanced stage of diagnosis	NCDB limits	National Cancer Database (NCDB)	2012–2019	905,295	Yes

Citation	Study Design	Population	Key Findings	Limitations	Study settings	Time frame	Sample size	Disparity
Villar et al., 1994 ⁶²	Retrospective cohort	Hispanic cancer patients	Hispanics had more advanced-stage lung cancer; they were less likely to receive surgery than Whites.	Older era	National Cancer Database (NCDB)	1985–1990	90,000	Yes
Watkins et al., 2025 ⁶³	Retrospective cohort	Lung cancer surgery patients	Minority & publicly insured patients had worse outcomes. These payor types were most prevalent among Black and Hispanic patients.	Residual confounding	Society of Thoracic Surgeons Database		103,407	Yes
Weksler et al., 2015 ⁶⁴	Retrospective cohort	Patients who underwent surgical resection of NSCLC from 2002 to 2008 reported from STS General Thoracic database	Hispanics were less likely to be diagnosed with stage 1/2 non-small cell cancer at operation and were more likely to have advanced stage lung cancer at operation. Hispanic Whites and non-Hispanic Whites had similar survival. Hispanics had higher incidence of lung cancer among nonsmokers.	Lacks number of patients by race and ethnicity that refused surgery. Definition of Hispanic ethnicity is very broad.	Society of Thoracic Surgeons Database	2002–2008	19,173	Yes
Wisnivesky et al., 2005 ⁶⁵	Retrospective cohort	SEER database 2003, all cases of NSCLC reported during 1991–2001	Hispanic patients were younger and more likely to be diagnosed with stage 1B tumors. Hispanics had a worse lung cancer mortality and were less likely to undergo surgical resections. After controlling for surgical treatment received and stage at diagnosis, Hispanic ethnicity was not associated with increased risk of lung cancer death. Hispanics with potentially curable stage 1 lung cancer had worse all-cause mortality and lung cancer specific survival compared with Whites.	Inaccuracies in the reported cause of death, no comorbidity reported in SEER database	SEER Database	1991–2000	16,036	Yes
Wong et al., 2021 ⁶⁶	Retrospective cohort	Advanced NSCLC	HL had longer time between diagnosis and ROS1 test results, and patients with delayed results were almost 10 times more likely to receive treatment before test results.	Community practices	US community oncology practices	2011–2018	6,747	Yes
Young et al., 2025 ⁶⁷	Cross-sectional	Adults eligible for LCS	Hispanic American individuals had the least efficient number	Modeling assumptions	US national survey dataset	2015 NHIS (analysis)	6,915	Yes

Citation	Study Design	Population	Key Findings	Limitations	Study settings	Time frame	Sample size	Disparity
	survey		needed to screen and thus may experience the worst benefit-harm balance when equalizing program sensitivity between races and ethnicities		(NHIS)	performed later, but source data are 2015)		
Zahnd et al., 2018 ⁶⁸	Retrospective cohort	US cancer cases	No differences in cancer stage at diagnosis between rural and urban Hispanics	Area-level	Rural vs. Urban	2004–2013	3300000	

behaviors,⁶⁹ lung cancer incidence,^{19,70} and underlying tumor biology,^{71,72} yet are frequently analyzed as a single category. These differences intersect with upstream system-level challenges: multiple studies document incomplete capture of smoking history, nativity, language preference, and socioeconomic indicators among Hispanic and Latino patients, limiting accurate risk stratification and eligibility determination for lung cancer screening.^{73,74} However, most studies included in this review do not include more granular data describing this population. Treating Hispanic and Latino patients as a single, uniform group therefore obscures meaningful variation by subpopulation and context, contributes to inconsistent findings across studies, and limits the effectiveness of interventions. This review synthesizes existing evidence of lung cancer disparities among Hispanic and Latino populations to inform future research and intervention efforts.

Screening and Diagnostics

Latino populations consistently demonstrate lower participation in lung cancer screening, representing a critical barrier to early detection. Although expansion of screening eligibility criteria by the U.S. Preventive Services Task Force (USPSTF) was intended to broaden access, several studies suggest that guideline modifications may unintentionally exacerbate disparities when healthcare systems lack mechanisms to identify and engage newly eligible patients.^{5,7,75} Hispanic populations, both foreign-born and U.S.-born, had lower likelihood of lung cancer screening being ordered.²⁷ Incomplete documentation, such as a lack of pack-year history more common in foreign-born Latinos, can further exacerbate access.²⁷ However, some studies suggest that disparities are driven primarily by inequitable screening access rather than patient refusal.^{11,33} This is exemplified by studies among Hispanic and Latino veterans, who were less likely to decline lung cancer screening when access was facilitated, demonstrating that disparities in screening uptake can diminish when structural barriers are reduced.⁴⁵

Knowledge gaps further contribute to inequities in screening participation. Latino patients often report no awareness of lung cancer screening, yet express strong interest in undergoing screening once informed.⁵⁰ Lower health literacy have been associated with non-adherence and delayed follow-up.²¹ Patient-reported barriers can explain low screening uptake among Hispanic and Latino populations. Studies consistently identify fear of results, financial concerns, limited screening knowledge, lack of clinician recommendation, smoking-related stigma, transportation barriers, and competing life demands as key deterrents.^{76,77} These factors reflect the intersection of structural barriers, sociocultural influences, and health literacy that drive screening inequities. Notably, clinician recommendation remains one of the strongest predictors of screening participation, but minority

populations are less likely to receive shared decision-making,^{78,79} further increasing the disparity.²⁸ This highlights a critical opportunity to improve equitable screening engagement.

Additional studies reveal disparities in access to advanced diagnostic and molecular testing, which may limit treatment personalization and survival benefits.⁸⁰ At the same time, geographic context appears to impact but not fully explain disparities, as some studies report no significant differences in stage at diagnosis between rural and urban Hispanic populations.⁶⁸ These mixed findings further emphasize that disparities are shaped by a complex interaction of health system capacity, community context, and institutional resources.

Despite lower smoking prevalence and overall lung cancer incidence, Latino patients are more likely to present with advanced-stage disease than non-Hispanic White patients, especially those from Central America.^{38,81} Additionally, there is a difference in the population based on origin: patients of Puerto Rican origin were less likely to present with advanced disease compared to Cubans,¹⁴ and Mexicans and Central Americans had higher proportions of distant stage at diagnosis,¹⁹ especially Cuban males.¹⁹ This disparity is largely attributed to differences in insurance coverage, limited access to diagnostic evaluation and imaging, and delays following abnormal imaging.^{19,69} Because early-stage detection is the primary determinant of surgical candidacy and survival, these findings reinforce that disparities often originate during screening and diagnostic phases and subsequently propagate throughout the care continuum.^{6,7}

Treatment

Lung cancer disparities are primarily failures of healthcare systems to consistently identify, screen, diagnose, and treat high-risk populations in an equitable and timely manner. Earlier studies reported lower surgical resection rates and higher mortality among Hispanic patients,⁴⁴ whereas more recent analyses demonstrate higher odds of surgery among Hispanic and Latino patients compared to Whites.⁸² Among patients who ultimately undergo surgery, diagnosis-to-surgery intervals appear similar across ethnic groups, suggesting that surgical timing among recipients does not differ systematically.^{13,51} However, disparities in access to high-quality surgical care persist, as Latino patients are less likely to undergo resection at high-volume centers and have higher in-hospital mortality.⁴³

Postoperative outcomes further highlight heterogeneity, with analyses demonstrating comparable or improved adjusted outcomes among Hispanic patients despite lower socioeconomic status and higher stage of lung cancer at the time of diagnosis,³⁶ a phenomenon often described as the “Hispanic paradox.”⁸³ However, others have found no advantage among Hispanic

patients with cancer.⁵² Disparities in staging and diagnostic workup may contribute to downstream differences as Hispanic patients are less likely to receive PET/CT imaging, which is associated with improved survival.⁴⁰ Hispanic patients are also more likely to present with advanced-stage disease at cancer centers, suggesting delays in access or referral.³⁴ A parallel pattern is observed for systemic therapy and multimodality treatment. Hispanic and Latino patients had lower receipt of radiation therapy, immunotherapy, and any first-course lung cancer treatment,⁸² with less than half of Hispanic patients receiving guideline-concordant care.⁵³ Importantly, when recommended therapy is delivered, outcomes appear similar across racial and ethnic groups.^{46,60,84} These findings support the concept of conditional equity, in which outcome differences diminish once appropriate treatment is enacted.

Disparities persist in healthcare utilization. Hispanic and Latino patients experience longer hospital stays and higher inpatient charges compared with other groups,⁸⁵ highlighting inequities not captured by treatment receipt or survival alone. Although administrative data do not identify underlying mechanisms, these utilization differences coexist with conditional equity in clinical outcomes, suggesting that structural determinant, including insurance coverage, geographic access, facility resources, and health system organization, continue to influence the burden of care.^{46,78} Encouragingly, integrated health systems and coordinated multidisciplinary care models have demonstrated reduced treatment disparities, reinforcing the importance of coordinated, multi-level approaches to improving equity in lung cancer outcomes.^{17,82,86}

Mortality and Survival

Findings on mortality are mixed and appear highly dependent on population characteristics and adjustment for socioeconomic factors. Some studies demonstrate no significant survival differences by race or ethnicity,^{16,42} while others report improved overall survival and lower mortality among Hispanic patients.^{56,57} Moreover, geographic location and origin matter. Rural Hispanics had a higher mortality than urban Hispanics²⁰ and foreign-born Mexicans had lower mortality risk than U.S.-born counterparts.²⁶ Hispanic patients are more likely to be uninsured and reside in low-income areas, and although they demonstrate an 11% higher mortality risk for NSCLC, socioeconomic factors account for a substantial proportion of this disparity (approximately 60%).⁴⁷ Notably, Hispanic patients are more frequently diagnosed at advanced stages, which contributes to worse outcomes despite some evidence of lower mortality in localized disease. Importantly, when controlling for treatment receipt and stage at diagnosis, Hispanic ethnicity is not independently associated with increased mortality risk, reinforcing the role of access and care delivery rather than intrinsic differences.⁶⁵

Socioeconomic Factors

Socioeconomic and structural determinants play a central role in shaping disparities in healthcare. Lower area-level socioeconomic status is strongly associated with advanced-stage diagnosis, and a substantial proportion of Hispanic patients reside in low-income and low-education areas, where access to early detection and timely care is limited.²⁴ These disparities persist even within academic and research settings, suggesting that broader systemic factors extend beyond institutional quality. Geographic barriers further compound inequities, as Hispanic patients in rural or primary care shortage areas are more likely to present with advanced disease and face delays in diagnosis and treatment, and experience higher readmissions.^{22,58} Hispanic patients may have limited access to care, including difficulty obtaining needed services, which has been directly associated with increased mortality risk.²³ Insurance status also plays a critical role, with publicly insured and uninsured patients experiencing worse outcomes, and insurance type accounting for a substantial proportion of observed racial and ethnic disparities.^{48,63}

Importantly, when socioeconomic status is accounted for, racial and ethnic differences in treatment receipt are substantially attenuated, suggesting that structural inequities, rather than race itself, are the primary drivers of disparities in lung cancer care.⁴¹ Collectively, these findings underscore the need for multi-level interventions targeting access, insurance coverage, geographic distribution of care, and health system coordination to achieve equity in lung cancer outcomes.

Limitations

The literature is dominated by retrospective observational analyses with diverse outcome definitions, analytic approaches, and reporting of ethnicity-related variables. Few studies differentiate Latino populations by country of origin, nativity, or language preference, despite evidence demonstrating significant intra-ethnic variability in lung cancer risk and outcomes.^{79,86,87} Additionally, many studies evaluate downstream treatment or survival outcomes without accounting for earlier screening and diagnostic disparities, limiting the ability to fully characterize causal pathways across the care continuum.

Conclusion

Across studies, Latino patients have lower uptake of lung cancer screening and are more often diagnosed at later stages, reflecting barriers to early risk identification, referral, and diagnostic evaluation. Although outcomes of individual treatments are often comparable to non-Hispanic White patients when care is received, disparities persist in multimodality care coordination, with lower use of combined treatments, longer hospital stays, and higher

inpatient utilization. These patterns suggest that inequities stem less from treatment effectiveness and more from system-level barriers to integrated, guideline-concordant care.

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Appendix

Search Strategies

Pubmed – searched on 11/11/25

((“lung cancer” OR “lung neoplasms”[MeSH Terms] OR “lung cancer”[tiab] OR “lung carcinoma”[tiab] OR “pulmonary cancer”[tiab] OR “pulmonary neoplasm”[tiab]) AND (“early detection of cancer”[MeSH Terms] OR “mass screening”[MeSH Terms] OR “detection”[tiab] OR “screening”[tiab] OR “adherence”[tiab] OR “diagnosis”[tiab] OR “mortality”[tiab] OR “test”[tiab] OR “identification”[tiab] OR “assessment”[tiab] OR “prevention”[tiab] OR “low-dose computed tomography”[tiab] OR “ct scan”[tiab]) AND (“health status disparities”[MeSH Terms] OR “health equity”[MeSH Terms] OR “socioeconomic factors”[MeSH Terms] OR “social determinants of health”[MeSH Terms] OR “disparities”[tiab] OR “health inequities”[tiab] OR “equity”[tiab] OR “population at risk”[tiab] OR “bias”[tiab] OR “barriers”[tiab] OR “race”[tiab] OR “ethnicity”[tiab] OR “neighborhood”[tiab] OR “geography”[tiab] OR “gender”[tiab])) NOT (case reports[pt] OR case report*[ti]) not (meta analysis[pt] or meta analysis*[ti]) NOT (systematic review[pt] OR systematic review[tiab]) NOT (review[pt] OR review[tiab]) NOT (‘practice guideline[pt] OR practice guideline[tiab]) NOT (drug[tiab]) AND ((“united states”[ad]) OR (“usa”[ad]) OR (“us”[ad])) AND (english[la]) AND (“2020/01/01”[dp] : “3000”[dp])

Filters: in the last 5 years, English, Humans

Embase – searched on 11/11/25

(‘lung cancer’/exp OR ‘lung cancer’ OR ‘lung carcinoma’/exp OR ‘lung carcinoma’ OR ‘lung neoplasm’/exp OR ‘lung neoplasm’ OR ‘pulmonary cancer’/exp OR ‘pulmonary cancer’ OR ‘pulmonary neoplasm’/exp OR ‘pulmonary neoplasm’ OR ‘lung cancer’:ti,ab OR ‘lung carcinoma’:ti,ab OR ‘lung neoplasm’:ti,ab OR ‘pulmonary cancer’:ti,ab OR ‘pulmonary neoplasm’:ti,ab) AND (‘early detection of cancer’/exp OR ‘early detection of cancer’ OR ‘mass screening’/exp OR ‘mass screening’ OR ‘detection’:ti,ab OR ‘screening’:ti,ab OR ‘adherence’:ti,ab OR ‘diagnosis’:ti,ab OR ‘mortality’:ti,ab OR ‘test’:ti,ab OR ‘identification’:ti,ab OR ‘assessment’:ti,ab OR ‘prevention’:ti,ab OR ‘low dose computed tomography’:ti,ab OR ‘ct scan’:ti,ab) AND (‘health disparity’/exp OR ‘health disparity’ OR ‘health equity’/exp OR ‘health equity’ OR ‘socioeconomic factor’/exp OR ‘socioeconomic factor’ OR ‘social determinant of health’ OR ‘disparity’:ti,ab OR ‘health inequities’:ti,ab OR ‘equity’:ti,ab OR ‘population at risk’:ti,ab OR ‘bias’:ti,ab OR ‘barrier’:ti,ab OR ‘race’:ti,ab OR ‘ethnicity’:ti,ab OR ‘neighborhood’:ti,ab OR ‘geography’:ti,ab OR ‘gender’:ti,ab) AND (‘united states’:ti,ab OR usa:ti,ab OR us:ti,ab) NOT (‘case report’/exp

OR 'case report' OR 'case report':ti,ab) NOT ('meta analysis'/exp OR 'meta analysis' OR 'meta analysis':ti,ab) NOT ('systematic review'/exp OR 'systematic review' OR 'systematic review':ti,ab) NOT ('review'/exp OR 'review' OR 'review':ti,ab) NOT ('practice guideline'/exp OR 'practice guideline' OR 'practice guideline':ti,ab) AND ('article'/it OR 'article in press'/it) AND [english]/lim AND [2020-2025]/py