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The opportunity to reduce lung cancer mortality and disparities hidden in plain sight

Sponsored by AstraZeneca in partnership with The Lung Ambition Alliance

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Key takeaways

- Health disparities and inequity place an even greater disease burden on certain populations with factors including race, gender, and socioeconomic status impacting both lung cancer incidence and death
- Incidental pulmonary nodule (IPN) findings and management offers another pathway to detect lung cancer. Leveraging both screening and IPN management organizations can detect more lung cancer at earlier stages, providing more opportunities to improve survival

The opportunity to reduce lung cancer mortality and disparities hidden in plain sight

By Lauren Woodrow and Erin Lane
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Lung cancer remains the deadliest cancer in the US. Health disparities and inequity place an even greater disease burden on certain populations with factors including race, gender, and socioeconomic status impacting both lung cancer incidence and death.

Living in a lower socioeconomic area increases a person's likelihood of having lung cancer. Lung cancer incidence is more than 30% higher in rural counties where at least 20% of the population lives below poverty compared to similar counties with less than 10% of the population below poverty according to a study published in 2018 (Table 1). Disparities also persist within race and gender. Black men are most likely to die of lung cancer, with a mortality rate nearly 20% higher than men from all other races in a study published in 2019 (Table 2).

Table 1: Lung cancer incidence by county-level poverty, 2009-2013
Rates are per 100,000 US adults, age adjusted to the 2000 US standard population

	0-9.99% below poverty	10-19.99% below poverty	**20%+ below poverty**
Rural	55.5	68.5	76.0
Urban	58.9	61.2	64.6

Source: Zahnd, W. E. (2018). Rural–Urban Differences in Cancer Incidence and Trends in the United States. *Cancer Epidemiology, Biomarkers & Prevention*, 1265-1274.

Table 2: Lung cancer deaths by race and gender, 2019
Rates are per 100,000 and age-adjusted to the 2000 US standard population

	Gender combined	Male	Female
All race	33.4	40.1	28.2
White	36.5	42.6	31.6
Black	35.7	48.7	26.8
Asian	19	23.9	15.3
Native	29.1	33.6	25.7
Hispanic	14.9	20.3	10.8

Source: Centers for Disease Control and Prevention. National Center for Health Statistics. WONDER Online Database, compiled from Multiple Cause of Death Files, 1999-2019. Available at: https://www.lung.org/research/trends-in-lung-disease/lung-cancer-trends-brief/data-tables/lung-cancer-deaths-and-rates-by-race-ethnicity

Lung cancer survival rate depends heavily on stage at diagnosis. Patients diagnosed at early stages, when the lung cancer is still localized, have a five-year survival rate of nearly 57%. However, that rate drops to 31% for regional stages, and just 7% for distant stages.

We can't over-rely on lung cancer screening

Lung cancer screening via low-dose CT (LDCT) offers a common pathway to early diagnosis. Unfortunately, lung cancer screening rates remain significantly lower compared to other cancer screenings. An estimated 14% of eligible patients received the recommended LDCT screening exam versus 66% for breast cancer screenings and 69% for colorectal cancer screenings.

Screening rates may increase as nearly double the number of Americans are eligible for LDCT lung cancer screening thanks to revised guidelines released by the United States Preventive Services Task Force (USPSTF) in March 2021. The most dramatic increases are among populations with the highest lung cancer mortality and/or those at the highest risk for lung cancer at younger ages, that is, female, Black, and Hispanic patients.

However, a plethora of challenges keep screening rates low, from individual concerns like radiation exposure to societal barriers like the stigma that accompanies smoking.

Based on Advisory Board's research, we believe the industry should absolutely continue pushing to increase screening rates. We understand that it will be extremely difficult to advance equity relying on screening alone. Fortunately, another approach exists that may bypass some of the common barriers to screening.

Enter incidental pulmonary nodule (IPN) findings

Incidental findings are abnormalities uncovered unintentionally and unrelated to the condition that prompted an exam. Pulmonary nodules are abnormal growths that form in a lung. They can be identified on imagining scans. Most pulmonary nodules are benign, but some indicate the presence of lung cancer.

As an example: a patient visits the emergency department (ED) after a fall where the ED provider orders a chest X-ray to check for fractured ribs. While reading the scan, the radiologist finds an IPN and informs the ordering provider, who in turn notifies the patient and helps coordinate follow-up care.

If managed correctly, incidental findings may allow more patients with lung cancer to be diagnosed at earlier stages, providing another opportunity to improve survival. For example, one organization found that of all patients with lung nodules, 80% of cases were detected incidentally versus 20% from routine lung cancer screenings. In other words, incidental findings resulted in the detection of four times as many patients with lung nodules than relying on screening alone. Of the total patients, about 15% were diagnosed with lung cancer with 94% of those cases being Stage I or II.

How can IPNs reduce disparities?

Effective finding and management of incidental pulmonary nodules can bypass some common barriers to lung cancer screening that contribute to health disparities.

Barrier	Screening	IPN management
 Access to primary care	Screening often follows a primary care visit, but lower-income Americans less often have primary care providers	Patients with IPNs may not need a primary care provider to recommend or order follow-up care, as an IPN may be found in other care sites, such as the emergency department
 Provider implicit bias	Providers may not recommend screening due to implicit bias; false assumptions have been made about black patients and their ability to adhere to, tolerate, or even warrant certain medical treatments	Physical characteristics of the nodule helps determine care guidelines for IPNs, which may remove some subjectivity in provider decision-making
 Patient eligibility	Screening is limited to patients deemed eligible by the USPSTF;[1] these guidelines are primarily based on the NLST,[2] which under-represented minorities	Incidental finding recommendations may bypass common screening restrictions, like documented smoking history

[1]USPSTF, United States Preventive Services Taskforce.
[2]NLST, National Lung Cancer Screening Trial.

This answer isn't perfect.

IPN programs may help ease some barriers to lung cancer detection, but there are further challenges that contribute to disparities that this option does not address:

- Complications that come through follow-up including making an appointment, having nearby providers in your community, and transportation to appointments
- Costs of care for patients without adequate insurance coverage or financial means
- Trust in the health care system overall and in individual providers

Finally, IPN management requires additional resources, clinician education, and staff to ensure patients don't slip through care gaps. Leaders may struggle to capture their executives' attention or secure enough funding for a robust IPN program right away. However, there are steps you can take to get started in the right direction.

Advisory Board guidance and next steps

Questions to discuss with your colleagues and partners

Engage multidisciplinary, cross-functional stakeholders within your organization and the broader community.

- What clinical champions do we need to build or grow an IPN program? Consider clinicians involved in lung cancer detection and treatment such as radiology, pulmonary, oncology, and primary care.
- What other roles or personas will we need to secure buy-in for investments? Consider health system financial leaders, frontline staff, and community clinicians.
- How can we build trust within our community? Consider working with trust-brokers to raise awareness around lung cancer detection, disparities, and screening options.
- How can we leverage the health equity infrastructure at our organization or within our community to improve our IPN program? Consider data collection and analysis, marketing strategies, and community education efforts.

Collect, analyze, and leverage data to uncover disparities, identify care gaps, and continuously improve practices.

- How are we collecting and using data related to IPNs, lung cancer diagnoses, lung cancer outcomes, and disparities? How can we make those collection methods more timely or reliable?
- What external databases, like registries, are we using? Are there others we should consider? How can we leverage external data to improve our program?
- How are we monitoring clinician compliance with established guidelines, such as those from the Fleischer Society or American College of Radiology? How can we better incorporate these guidelines into day-to-day practice?
- How often and regularly do we share data with clinicians? What types of decisions can they make from this data? How are disparities considered?

This resource details health care provider's experience creating lung cancer detection programs and does not represent the views or opinions of AstraZeneca. Individual experiences and recommendations may vary with patients.

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The Lung Ambition Alliance, a global coalition with partners across disciplines in over 50 countries, was formed to combat lung cancer through accelerating innovation and driving forward meaningful improvements for people with lung cancer. We do this by advocating for improved approaches in three areas: screening and early diagnosis, accelerated delivery of innovative medicine, and improved quality care.

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Project Directors

Erin Lane

LaneE@advisory.com

Lauren Woodrow

WoodrowL@advisory.com

655 New York Avenue NW, Washington DC 20001
202-266-5600 | **advisory.com**

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