

# LUNG HEALTH SURVEILLANCE DASHBOARD

MONTHLY VIEW



Dashboard

Observations

Recommendations

All

All

## Lung Cancer Cases

AGE GROUP	Female	Male	Total
30-49	7	5	12
50-69	84	108	192
70+	34	32	66
Total	125	145	270

## Total Patients

AGE GROUP	Female	Male	Total
30-49	7	7	14
50-69	102	123	225
70+	37	32	69
Under 30	1		1
Total	147	162	309

No. of Patients

309

Avg. Patients Age

62.67

Avg. Lung Cancer Age

62.95

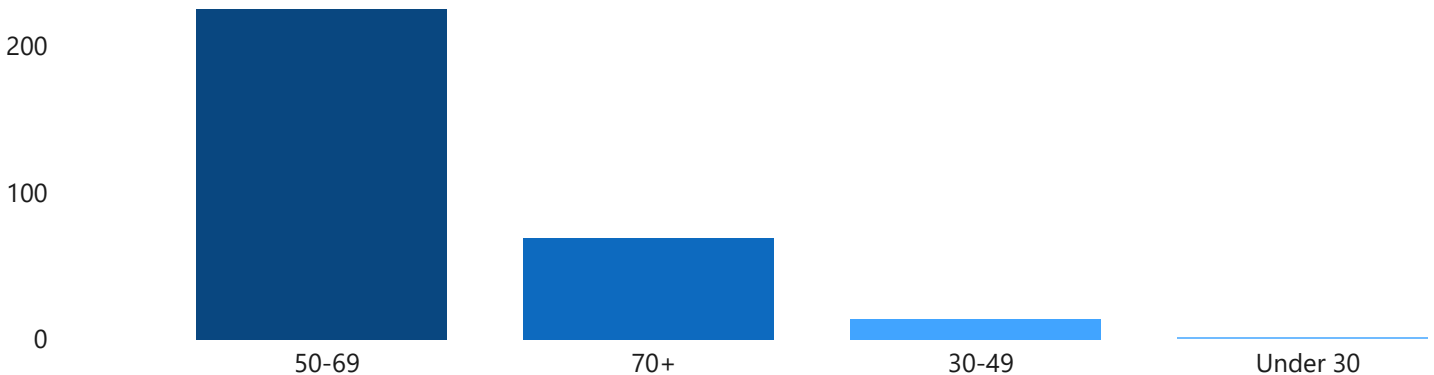
Lung Cancer Rate

87.38%

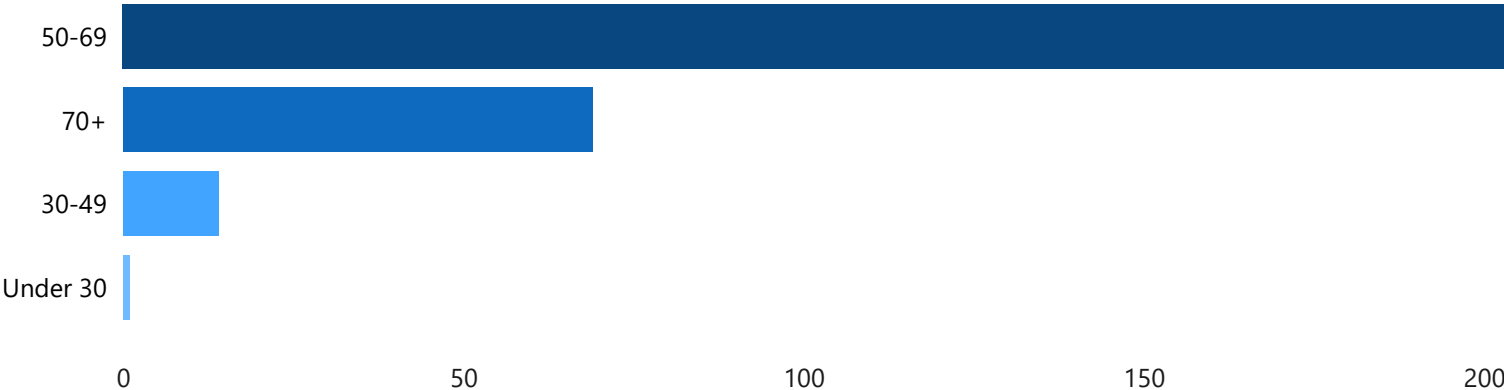
Total Lung Cancer Cases

270

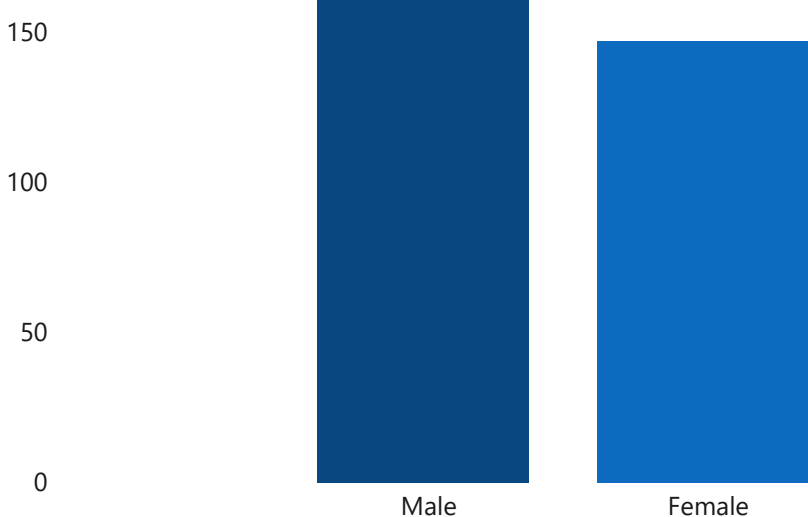
Lung Cancer Cases by Age Group



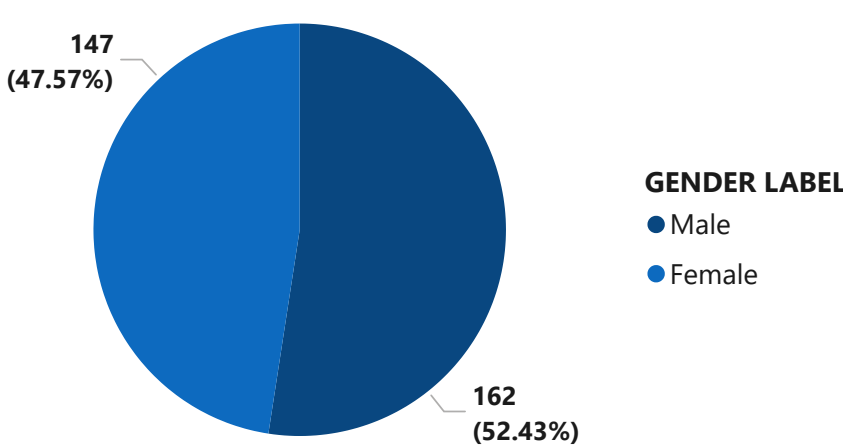
Total Patients by Age Group



Lung Cancer by Gender Label



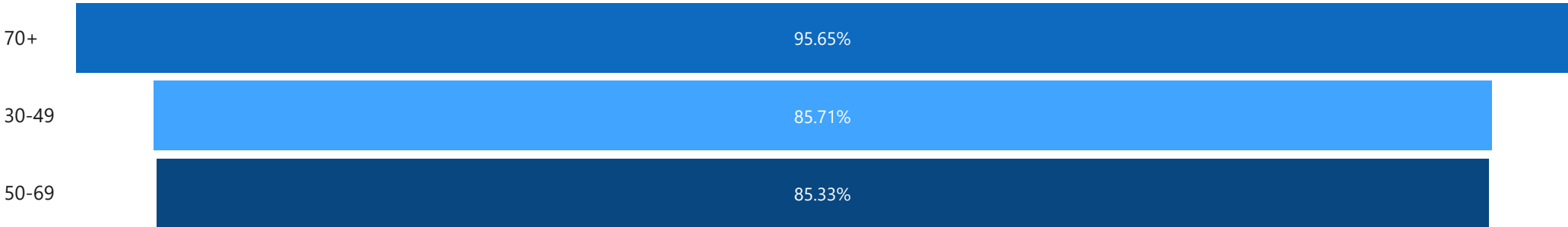
Total Patients by Gender Label



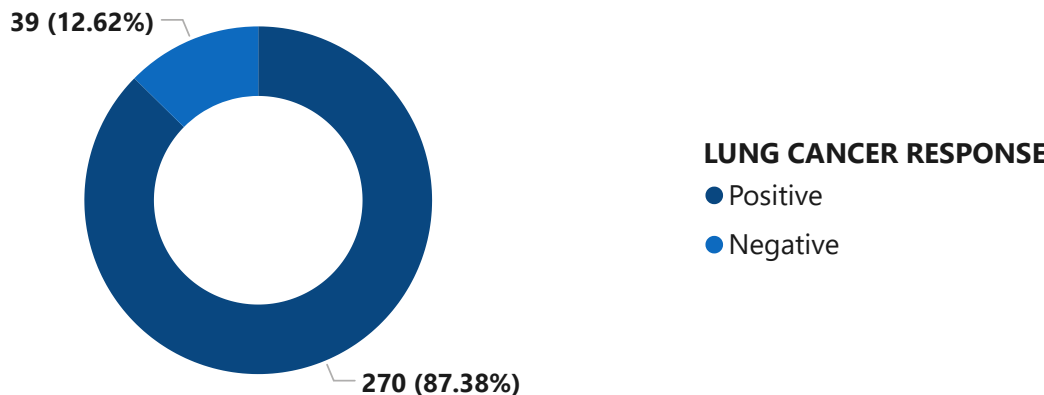
Gender Label by Age Group



Lung Cancer Rate (%) by Age Group



Lung Cancer by Response



✔ **Dependent Variable**

- **LUNG\_CANCER**

✔ **Independent Variables**

◆ Demographic

- **AGE**
- **GENDER**

◆ Behavioral

- **SMOKING**
- **ALCOHOL CONSUMING**
- **PEER PRESSURE**
- **YELLOW FINGERS**

◆ Medical History

- **CHRONIC DISEASE**
- **ALLERGY**
- **FATIGUE**

◆ Symptoms

- **COUGHING**
- **WHEEZING**

**Potential Analysis/Questions**

1. Lung Cancer Cases by Age Group
2. Gender-Based Lung Cancer Distribution
3. Most Common Symptoms in Lung Cancer Patients
4. Top Risk Behaviors Associated with Lung Cancer
5. Prevalence of Chronic Disease in Diagnosed Patients
6. Geographic Pattern of Diagnoses
7. Patients by Symptom Count
8. Co-occurrence of Risk Factors
9. Diagnosis Trends by Age and Behavior
10. High-Risk Patient Profiles

**Potential Insights**

**Target High-Risk Age Groups for Screening:**

Identify age groups with the highest lung cancer prevalence to prioritize targeted screening programs, early diagnostic outreach, and awareness initiatives in those segments.

**Replicate Prevention Success Across Demographics:**

Analyze behaviors and health patterns of individuals without lung cancer to replicate preventative strategies—such as health education or smoking cessation programs—across more vulnerable populations.

**Highlight Most Prevalent Symptoms Among Diagnosed Cases:**

Recognize which symptoms (e.g., coughing, wheezing, chest pain)

**Industry Type of Data**

Healthcare – Lung Cancer Diagnosis and Risk Assessment

**Story of Data**

This data reveals critical patterns in lung cancer diagnosis by mapping relationships between lifestyle behaviors, pre-existing conditions, and respiratory symptoms. It provides insight into which variables are most commonly present among diagnosed individuals, helping healthcare professionals understand risk profiles and improve early detection.

**Stakeholders of the project**

Clinical Researchers, Oncologists and Pulmonologists, Public Health Analysts  
, Hospital Administrators

**What does success mean to the industry**

## In-Analysis Observations

1. **Patients aged 50–69** dominate the dataset, accounting for **225 out of 309 total patients** (approximately 73%). This age group also has the **highest number of lung cancer cases (192)**, indicating a major risk concentration. The next most affected group is **70+**, with 69 patients and 56 confirmed cases.
2. The dataset shows a remarkably **high lung cancer rate of 87.38%** overall, with **age 70+ reaching 95.65%**, followed by 30–49 at 85.71%, and 50–69 at 85.33%. This suggests that nearly all age groups above 30 are at elevated risk.
3. **Female patients slightly outnumber males** (162 vs. 147), but the **number of lung cancer diagnoses is nearly even** — 145 females and 125 males. This indicates that **risk factors may be equally prevalent across gender**, despite minor demographic differences.
4. When viewed across **age and gender**, the **50–69 age bracket remains dominant for both males and females**, reinforcing the need for targeted health campaigns and screening in this segment.
5. **Lung cancer prevalence among patients aged under 30 is negligible**, with only one patient recorded and no confirmed case. This reinforces that **lung cancer is primarily age-associated**, becoming more relevant from age 50 onwards.
6. The **distribution of patients by gender is relatively balanced**, with **52.43% female and 47.57% male**. Despite this balance, the **diagnosis rate remains consistent**, indicating that external risk factors (like smoking, chronic disease, and symptoms) might play a larger role than gender.
7. Out of the 309 patients, only **39 were not diagnosed with lung cancer**, meaning that **nearly 9 out of every 10 patients had a positive diagnosis**. This may reflect a high-risk cohort (e.g., those already exhibiting symptoms or referred for screening), and not the general population.

## Insights & Recommendations

### 1. Prioritize Screening for Ages 50+

With 90% of lung cancer diagnoses occurring in patients aged 50 and above, targeted screening, early detection programs, and health education campaigns should be prioritized for individuals in the **50–69** and **70+** age groups. These segments show the highest risk concentration and represent the most critical group for clinical intervention.

### ◆ 2. Design Gender-Inclusive Awareness Campaigns

Lung cancer diagnosis rates are nearly equal across male and female patients, despite slight differences in population size. This highlights the need for **gender-inclusive health messaging** and equal access to preventive services, particularly for older adults.

### ◆ 3. Reallocate Resources Away from Low-Risk Groups

Patients under 30 show **negligible lung cancer risk**, suggesting that screening resources should be **reallocated from this age group** to support high-yield efforts in senior populations. Focused resource deployment can help improve early diagnosis and optimize clinical outcomes.

### ◆ 4. Investigate Non-Demographic Risk Drivers

The near-equal diagnosis rates across genders, despite demographic variation, suggest that **symptoms, lifestyle behaviors (e.g., smoking, alcohol use), and medical history (e.g., chronic disease)** are likely stronger contributors to risk. Future analysis should explore these variables to refine risk stratification models.

### ◆ 5. Build Risk Scoring Tools for Predictive Insight

### Analysis Observations

1. **Patients aged 50–69** form the largest group, with **225 out of 309 total patients**, and account for **192 of the 270 lung cancer cases**. This age group is clearly the **primary driver of diagnoses**.
2. The **70+ age group**, though smaller in size (69 patients), has the **highest lung cancer rate at 95.65%**, indicating that while fewer in number, these patients are **most vulnerable to diagnosis**.
3. Interestingly, the **30–49 age group**, though small (14 patients), also shows a high cancer rate of **85.71%**, suggesting a need to **not entirely exclude them from risk screening programs**, despite the lower volume.
4. Gender-wise, the dataset shows a **slightly higher number of female patients (52.43%)** compared to males (47.57%). However, **diagnosis rates are nearly equal**, reinforcing that gender alone is not a sufficient risk indicator.
5. **Female patients in the 50–69 age group** contribute significantly to the total lung cancer diagnoses, slightly surpassing male patients in this bracket. This may warrant **further behavioral or clinical pattern analysis** among this subsegment.
6. Despite only **1 patient under 30**, no lung cancer case was recorded in that age bracket, indicating **negligible risk in younger populations**.
7. Out of 309 total patients, **only 39 were not diagnosed with lung cancer**, leaving **270 positive cases**, which represents an **87.38% positivity rate**—a strong indicator that this data reflects a **high-risk or pre-screened population**.
8. While **gender and age** are strong indicators of risk in this dataset, additional insights might emerge when exploring **symptom presence, lifestyle factors (e.g., smoking), and comorbidities (e.g., chronic disease)**.
9. The **absence of data variety across regions or facilities** limits geographic comparison, but opens the opportunity to enrich the dataset with **location, diagnosis stage, or treatment outcomes** in future iterations.

## Mainboard

### Analysis Recommendations

1. We should focus targeted **screening and education efforts** on the 50–69 age group, as they represent both the largest population and the majority of lung cancer cases. **Preventive health programs and early diagnostic protocols** will have the greatest impact in this segment.
2. The 70+ age group, though smaller, shows the **highest lung cancer rate (95.65%)**, indicating a **critical need for intensive clinical monitoring** and potentially **tailored care pathways** to manage late-stage presentations.
3. The high diagnosis rate among the 30–49 group, despite a small population, suggests we should not entirely exclude them from screening. Consider **risk-based outreach (e.g., smoking history, symptom tracking)** to identify hidden vulnerabilities.
4. Female patients in the 50–69 age range are slightly more affected than males. It may be valuable to conduct **further analysis of lifestyle patterns or clinical history** in this group and **include gender-responsive messaging** in health campaigns.
5. Given the very low incidence in the under-30 group, resources should be **reallocated from low-yield age brackets** to high-risk groups. However, awareness efforts can still be maintained to promote long-term prevention habits.
6. The high overall lung cancer rate (87.38%) suggests this population was likely **pre-screened or referred**. To improve broader healthcare impact, consider **replicating this high-yield diagnostic process** in other clinics or regions with limited access to screening.
7. To enhance predictive accuracy, we should develop a **risk scoring model** that combines demographics, behavioral factors (e.g., smoking, alcohol), and symptoms to flag individuals at highest risk and prioritize them for follow-up.
8. If additional data (e.g., geographic location, diagnosis timeline, treatment start date) can be captured in future datasets, it would allow for **deeper regional insights** and **longitudinal outcome tracking**, improving both strategic planning and policy formulation.
9. Insights from this dashboard can be shared with **clinical teams, public health educators, and decision-makers** to support policy on age-based lung screening guidelines, health promotion strategies, and resource allocation.

## Mainboard