

# **Opportunities to Advance Quantitative Imaging and Systematic Lung Cancer Screening Research With the Department of Veterans Affairs (VA)**



**Samuel M. Aguayo, MD**  
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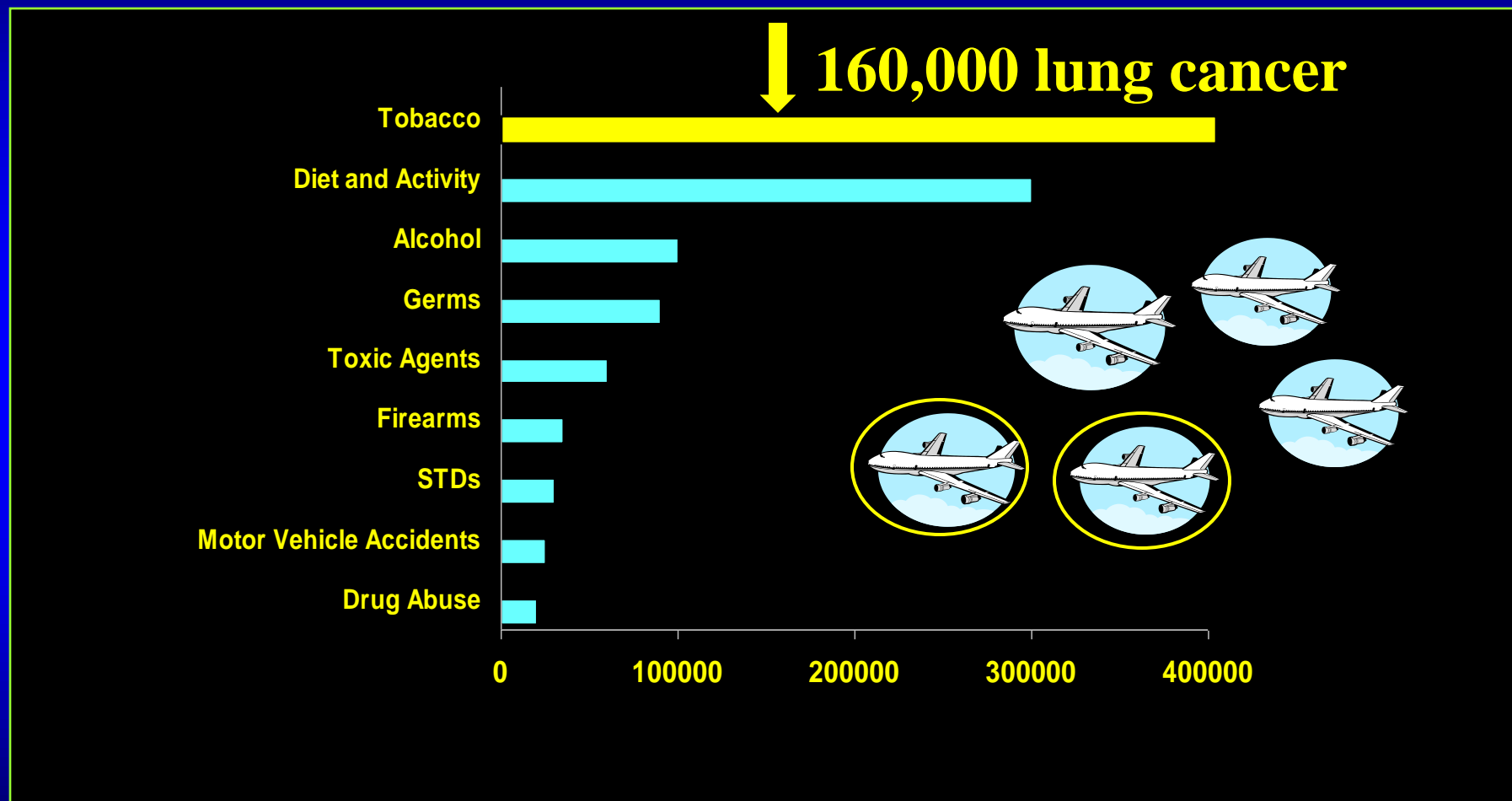
# **Objectives:**

- 1. Identify opportunities to improve lung cancer care for Veterans and to advance quantitative imaging research**
- 2. Describe the burden of lung cancer and other tobacco-related diseases among Veterans**
- 3. Describe the VA's clinical organization and strengths**
- 4. Recognize certain common perceptions that affect care of tobacco-related diseases and related research**

**\* No Conflicts Of Interests to disclose.**

# Tobacco is the Number One Killer!

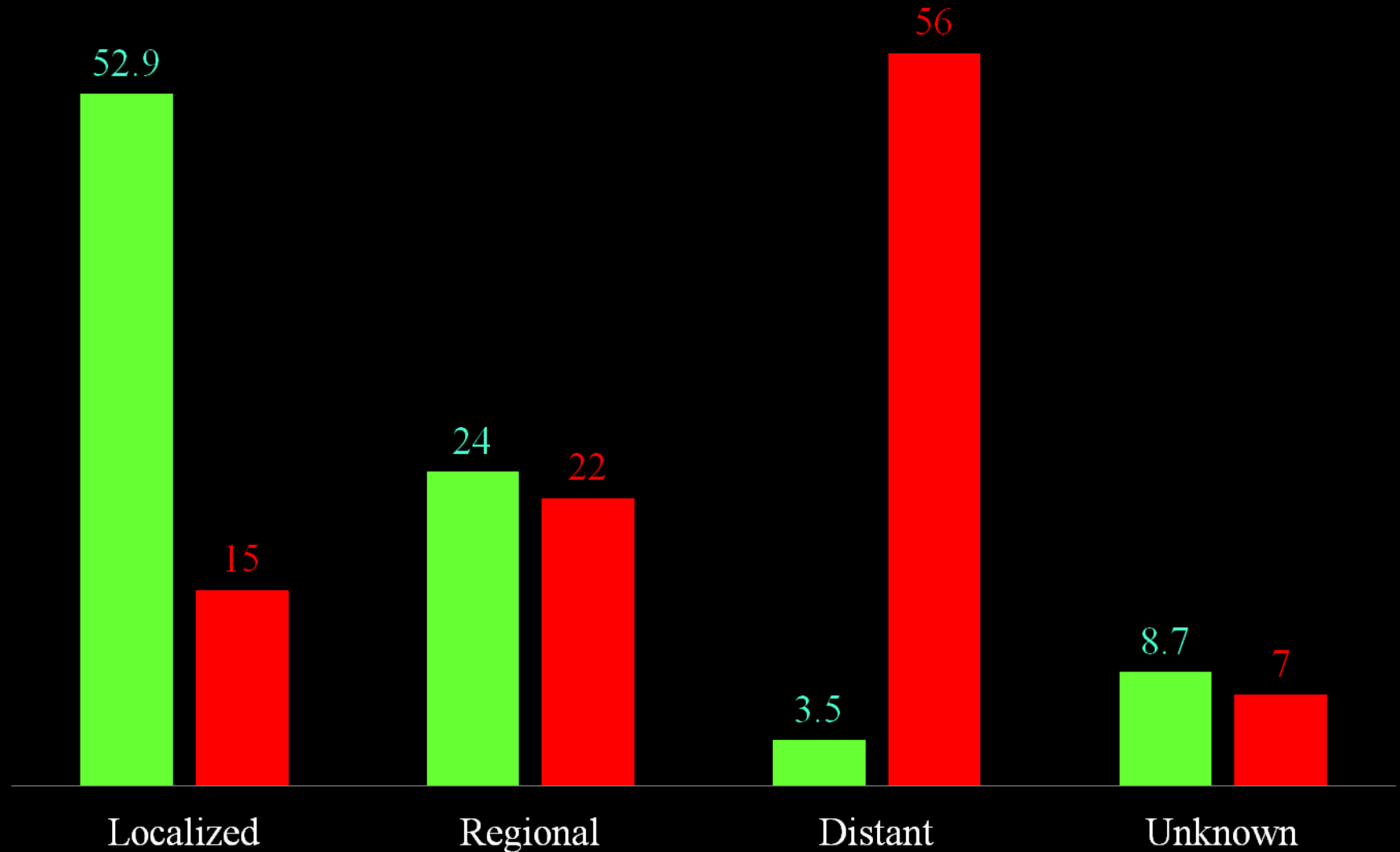
(Estimated Number of Deaths Per Year Actually Caused By Preventable Lifestyle)



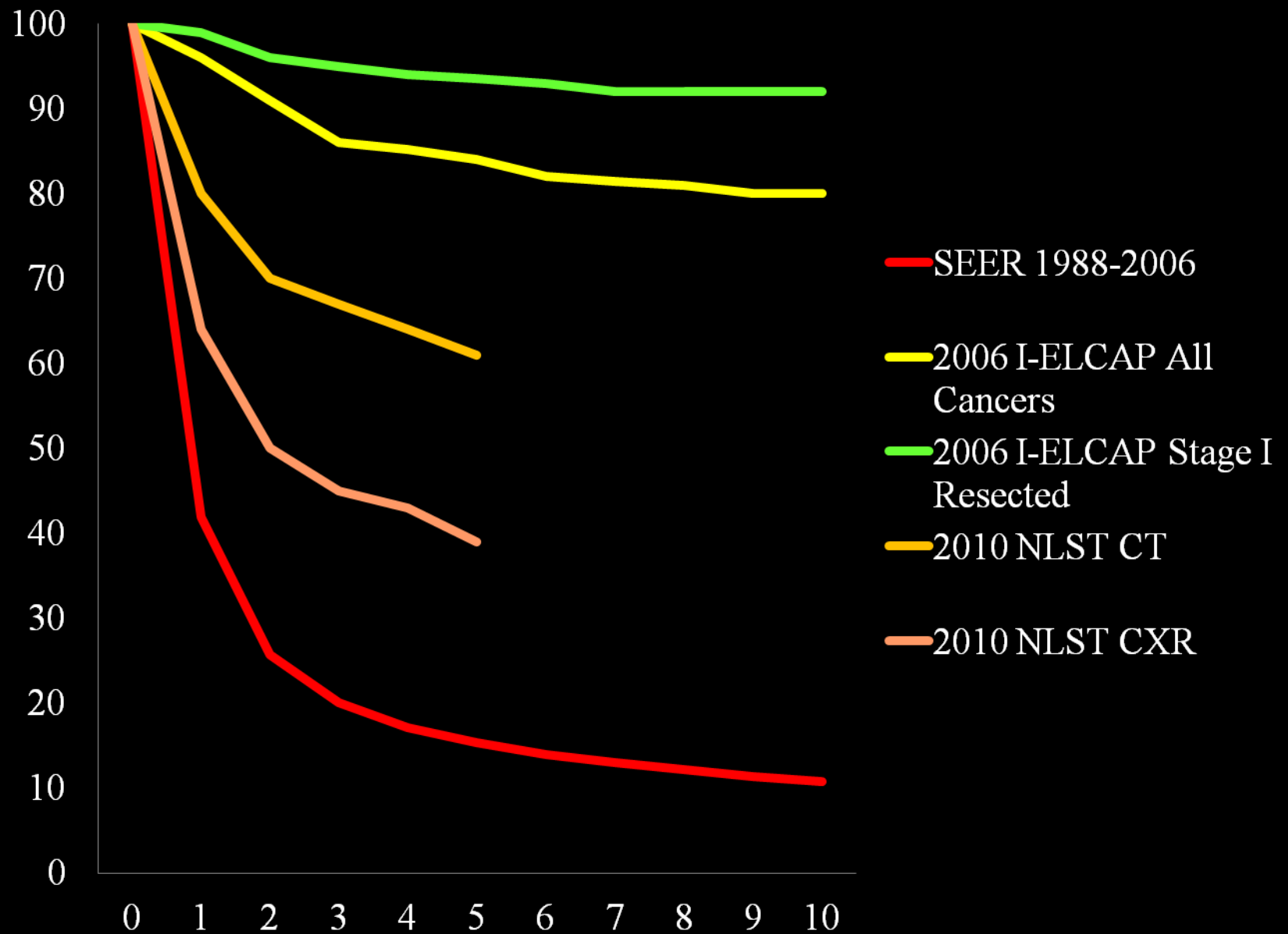
1990's Data from the Centers for Disease Control, Atlanta, GA

# Lung Cancer Staging and Relative Survival (SEER 1999-2006)

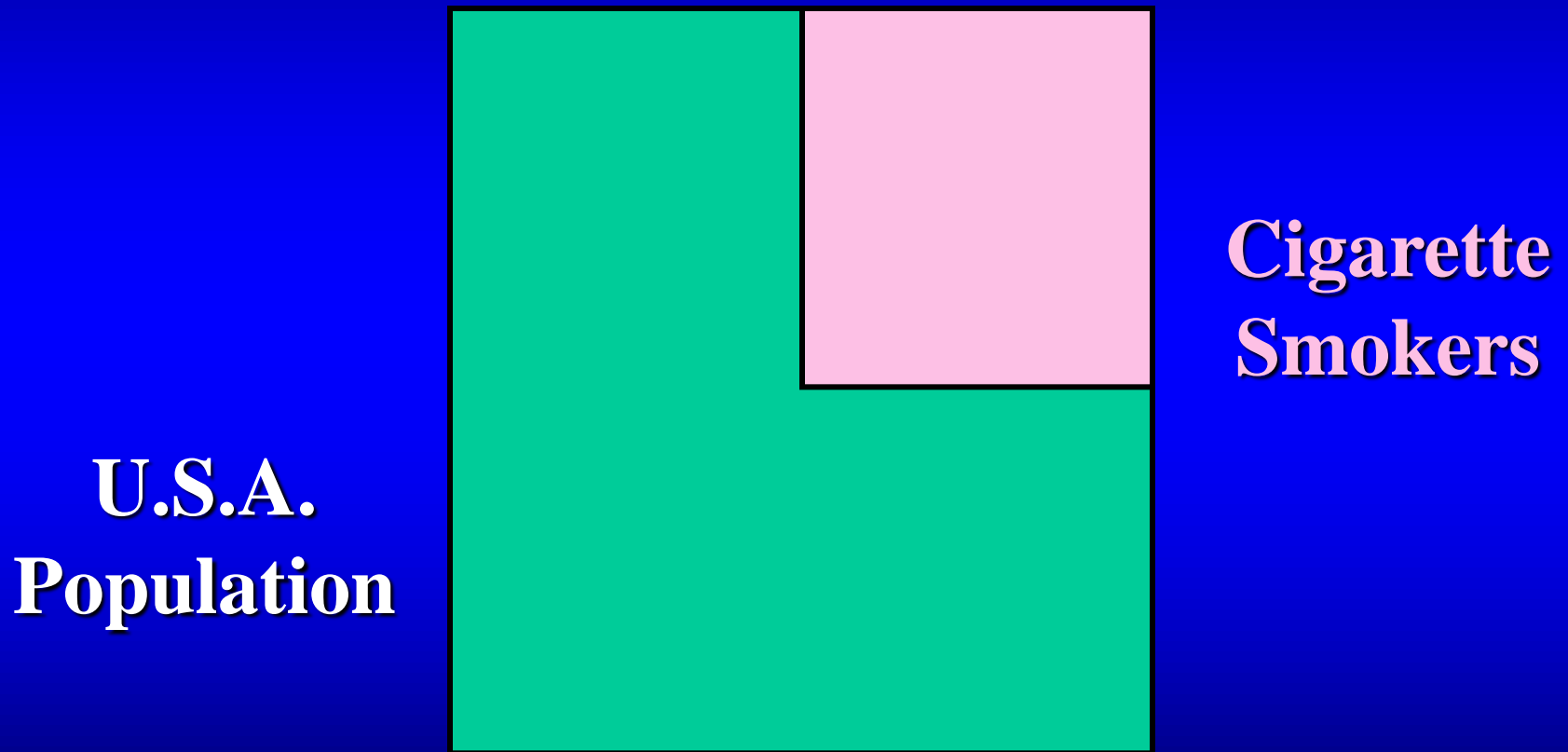
■ 5-yr Survival (%)    ■ Stage Distribution (%)



## Lung Cancer Relative Survival %



**Based on NLST Data Alone,  
About 7 Million “High-Risk” Smokers  
May Need Lung Cancer Screening!**



**Academia, Guidelines, Policy, Financing, Management, Practice, Stigma...**

**“Susceptible”**







**“Resistant”**

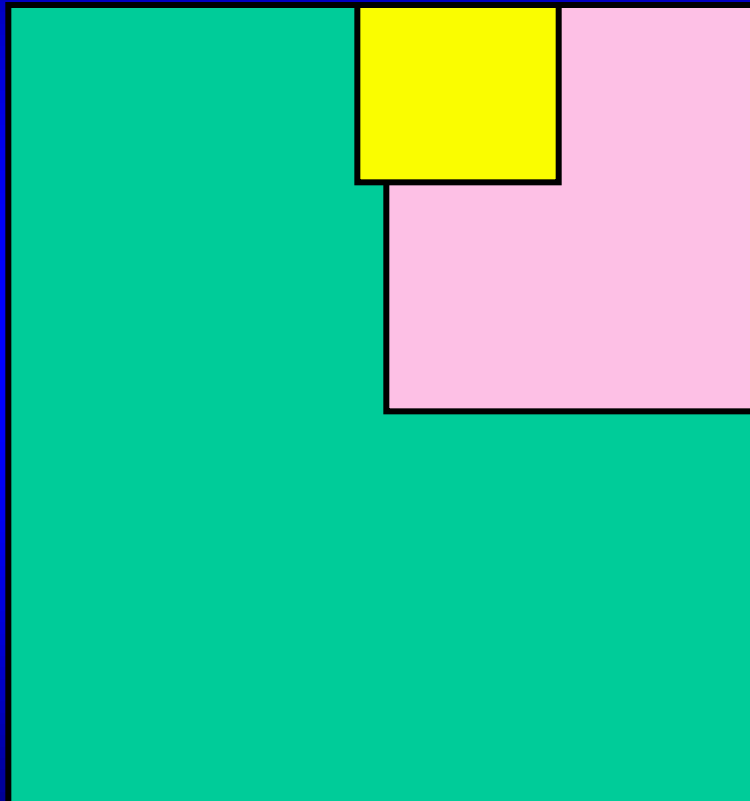




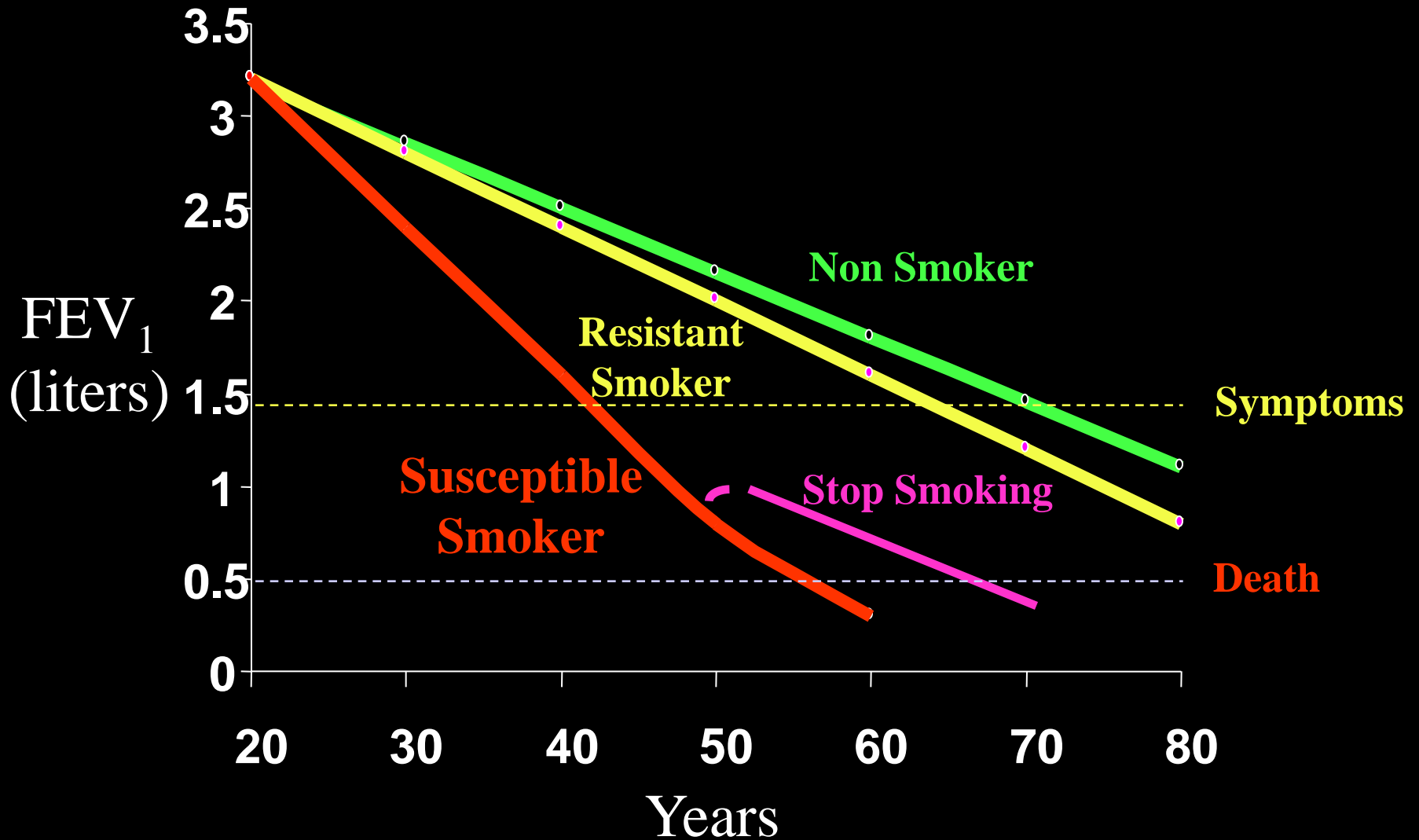
**COPD**

**Cigarette  
Smokers**

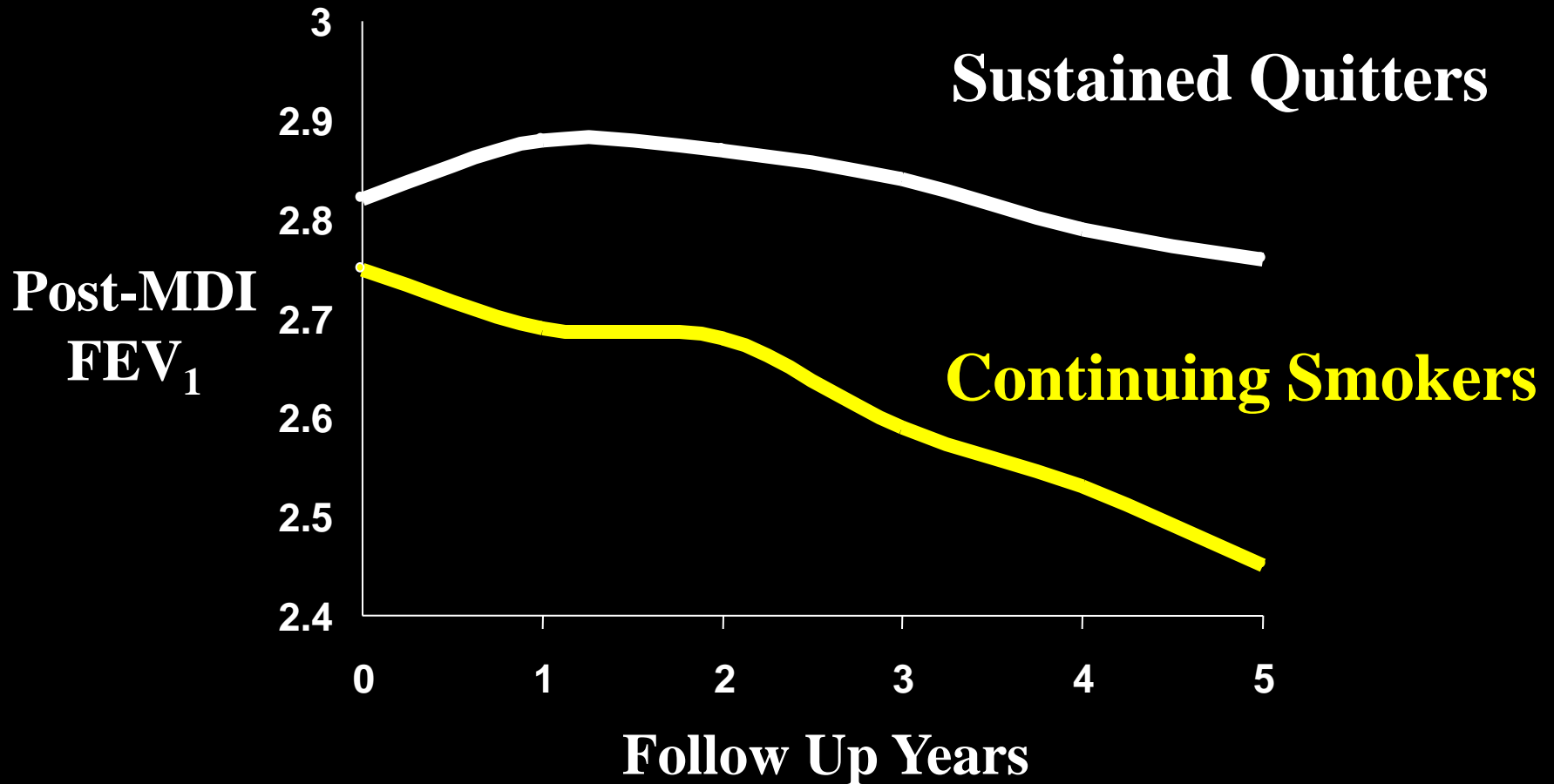
**U.S.A.  
Population**



# Pulmonary Function and Cigarette Smoking



# The Lung Health Study: Decline in FEV<sub>1</sub>



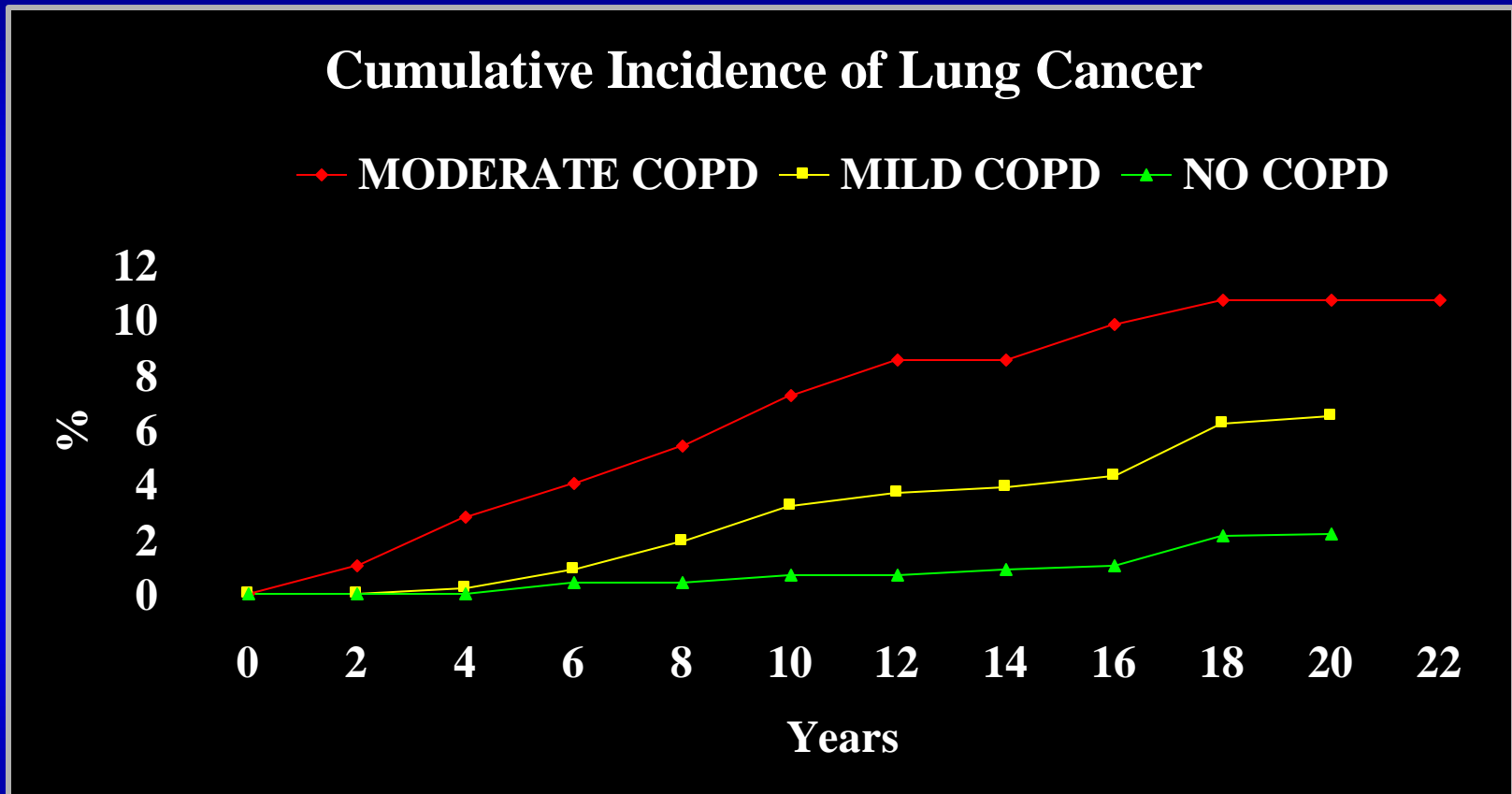
LHS: 5,887 patients; **mean age 48.5 yrs** (35-59); **“mild” COPD** with FEV<sub>1</sub> of 40 to 80% of predicted and mean FEV<sub>1</sub>/FVC ratio of 63.5%.

## The Lung Health Study: Deaths Within Five Years

CAUSE	SIA	SIP	UC	Total
Lung Cancer	18	20	19	57
Cardiovascular	18	7	12	37
Other	18	17	20	55
Total	54	44	51	149

LHS: 5,887 patients; mean age 48.5 yrs (35-59); “mild” COPD with  $FEV_1$  of 40 to 80% of predicted and mean  $FEV_1/FVC$  ratio of 63.5%.

# COPD = Increased Risk for Lung Cancer



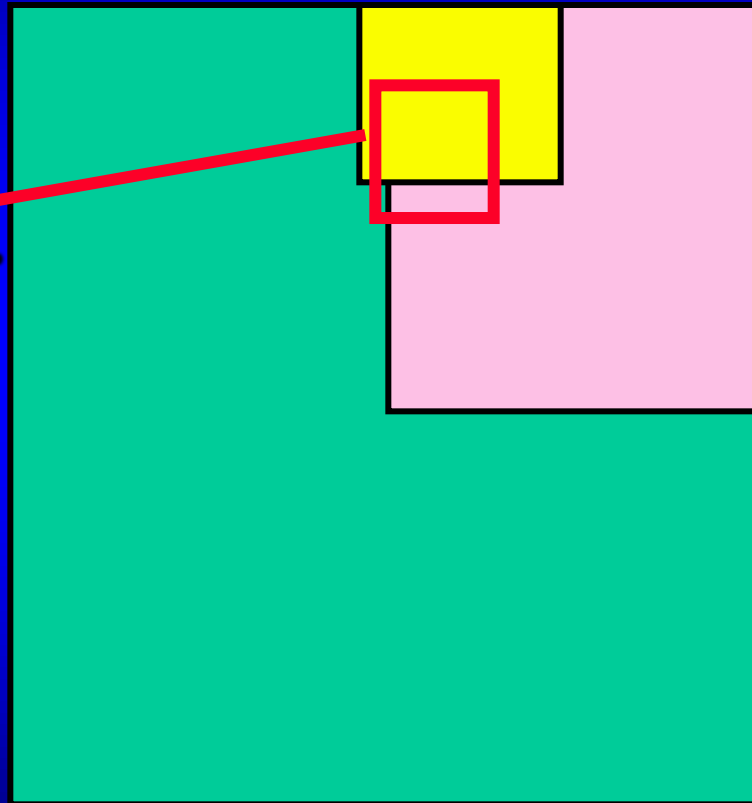
**Lung function and incident lung cancer: Data from the First NHANES Follow-up.**  
**David M. Mannino, Samuel M. Aguayo, Thomas L. Petty, and Stephen C. Redd.**

**COPD**

**Lung  
Cancer**

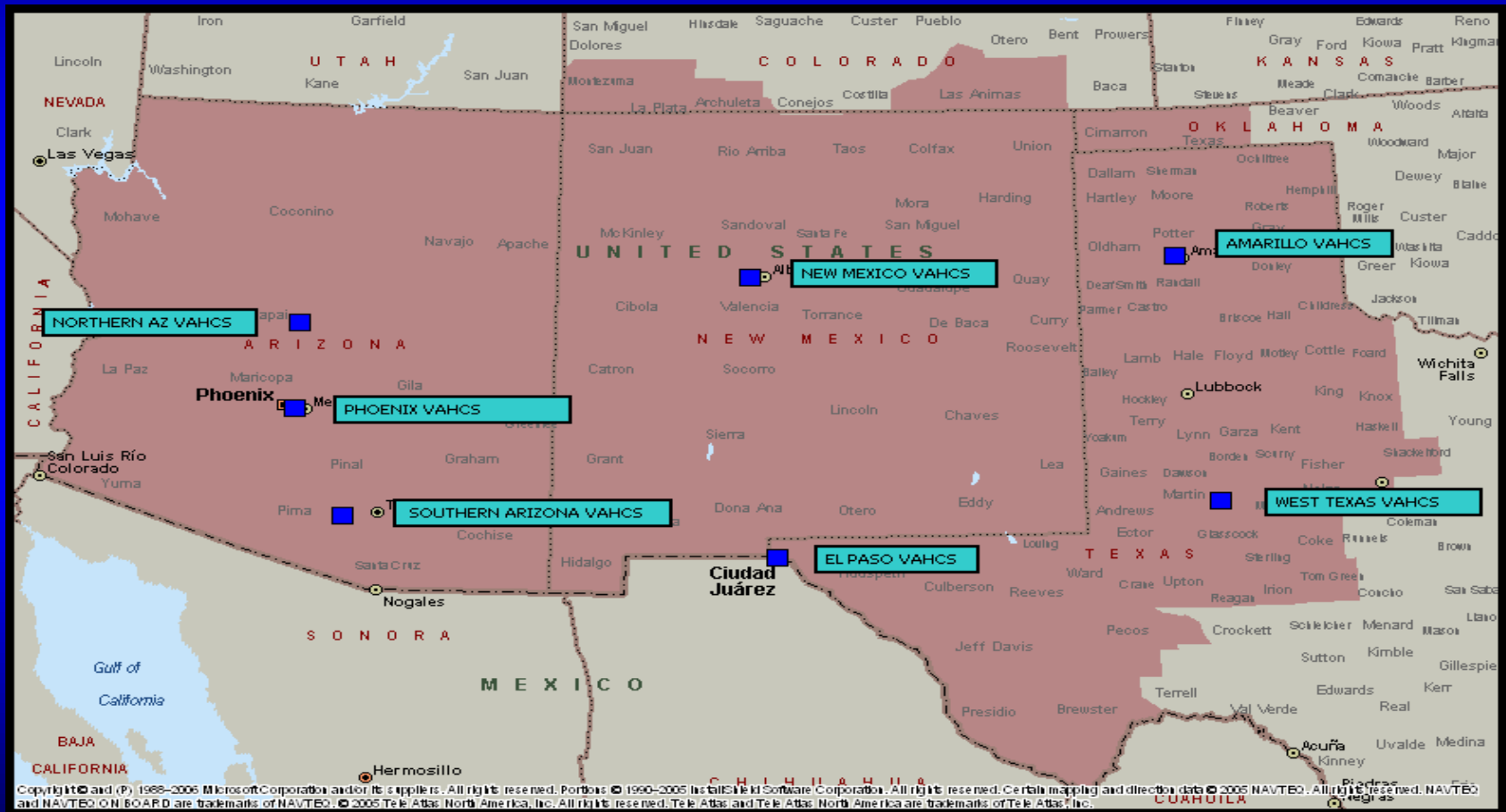
**Cigarette  
Smokers**

**U.S.A.  
Population**



**Patients, Health Care Organizations, Academia, Infrastructure, Funding, IRBs...**

# VA Southwest Health Care Network (VISN 18)





**Demographics of Veteran Patients Attended During Last Year,  
According to VA Facility Within VISN 18**

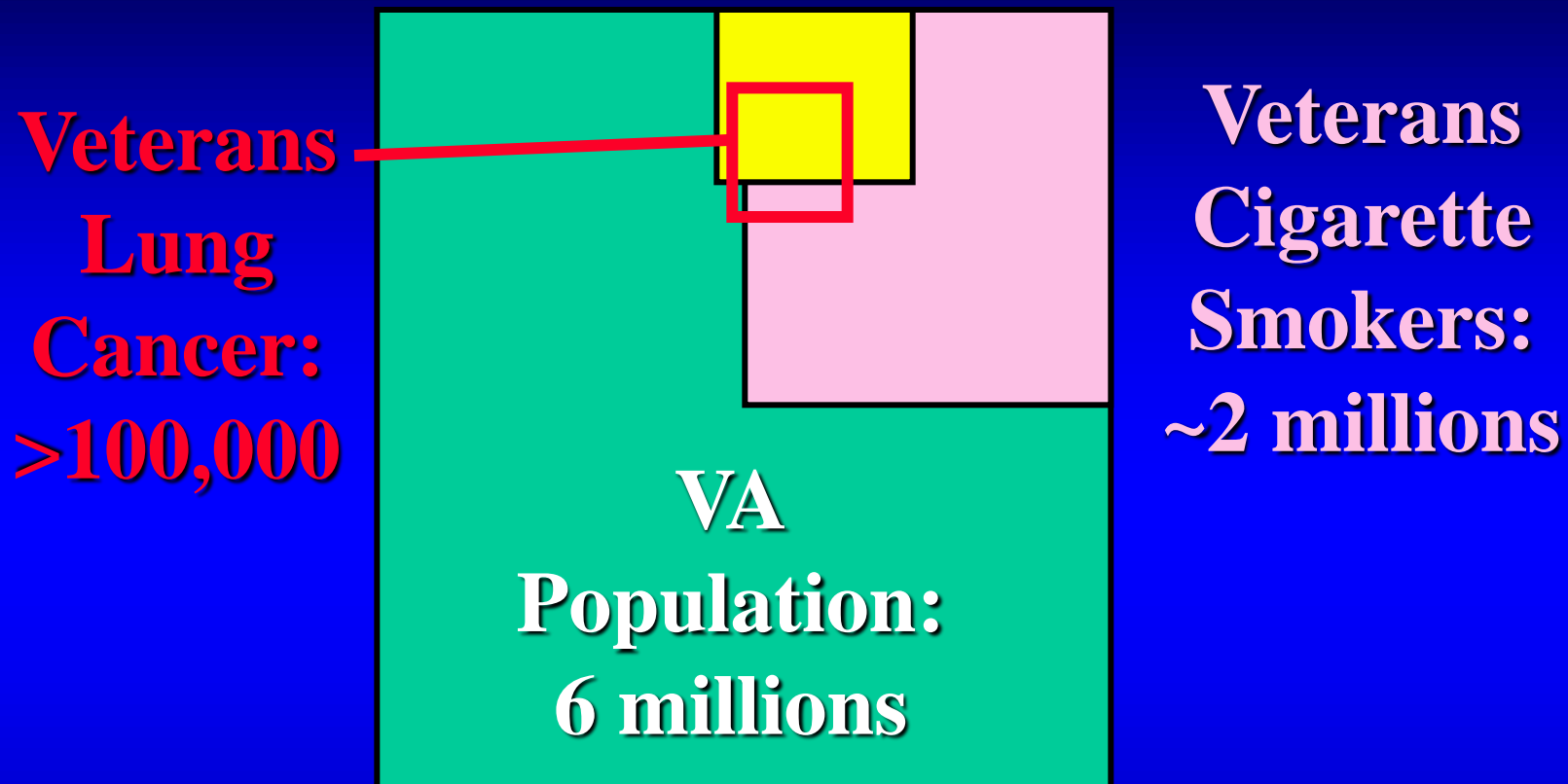
	Phoenix VAHCS	Tucson SAVAHCS	New Mexico VAHCS	El Paso VAHCS	Amarillo VAHCS	Prescott NAVAHCS	West Texas VAHCS
<b>Number of Persons</b>	<b>70,512</b>	47,131	46,441	24,603	23,495	23,401	16,093
<b>% of Total VISN 18</b>	<b>28.0</b>	18.7	18.4	9.8	9.3	9.3	6.4
<b>Sex Distribution</b>							
Women (%)	<b>4,893 (6.9)</b>	3,720 (7.9)	3,218 (6.9)	2,157 (8.8)	1,188 (5.1)	1,174 (5.0)	885 (5.5)
Men (%)	<b>65,619 (93.1)</b>	43,411 (92.1)	43,228 (93.1)	22,446 (91.2)	22,307 (94.9)	22,227 (95.0)	15,208 (94.5)
<b>Racial Distribution</b>							
Black, not Hispanic	<b>1,142</b>	994	446	455	442	17	2,179
Hispanic, Black	<b>115</b>	56	33	26	43	2	23
Hispanic, White	<b>802</b>	2601	5505	1664	601	99	809
Non Hispanic White	<b>10,609</b>	14,788	6,353	1,300	6,099	2,974	2,949
Unknown/Undeclared	<b>57,538</b>	28,399	33,197	21,113	16,292	20,211	9,917
<b>Age in years</b>							
Mean	<b>61.2</b>	62.5	62.0	58.4	63.9	65.6	63.4
Standard deviation	<b>16.0</b>	15.5	14.8	16.3	16.0	13.5	15.8
Median	<b>63.0</b>	64.0	63.0	61.0	64.0	65.0	64.0

# Phoenix VA Health Care System Service Area



- 4 Counties (Maricopa, Gila, La Paz, and Navajo)

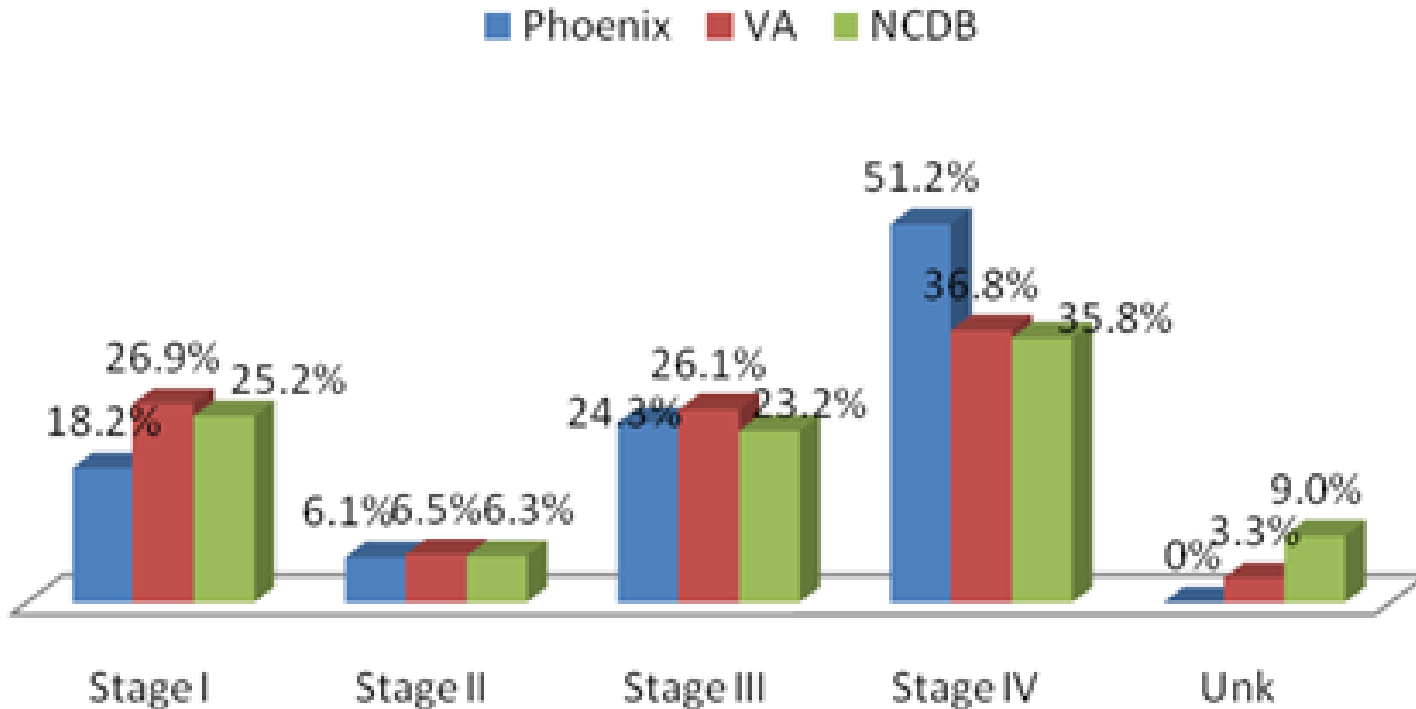
# Veterans with COPD: ~400,000



**One VA Electronic Medical Record!**  
**One VA Vista Imaging Repository!**  
**One VA Central IRB!**

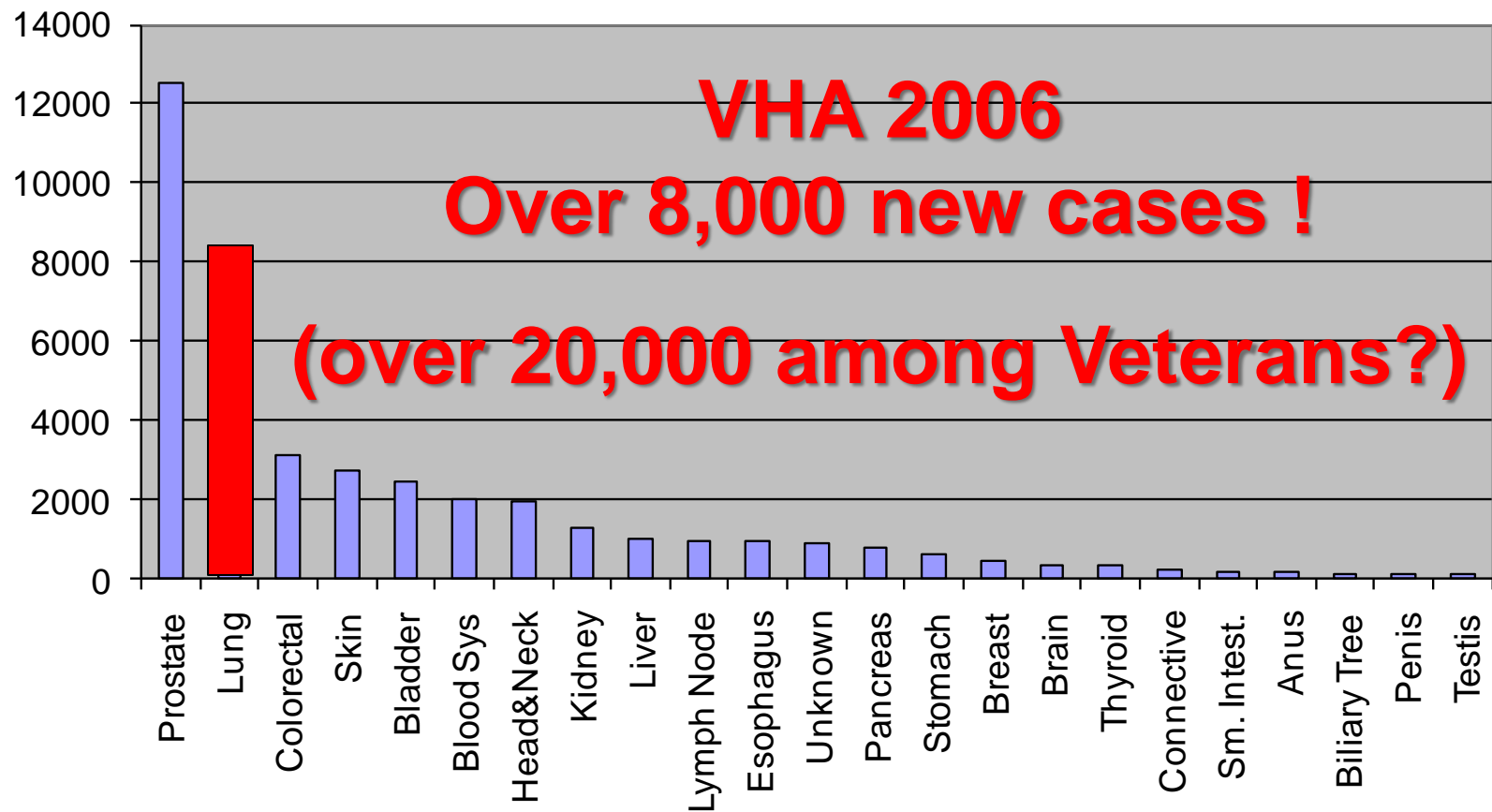
# Phoenix VAHCS NSCLC by Stage 2008

Non Small Cell Carcinoma of Lung 2008 diagnosis year  
by Stage Distribution

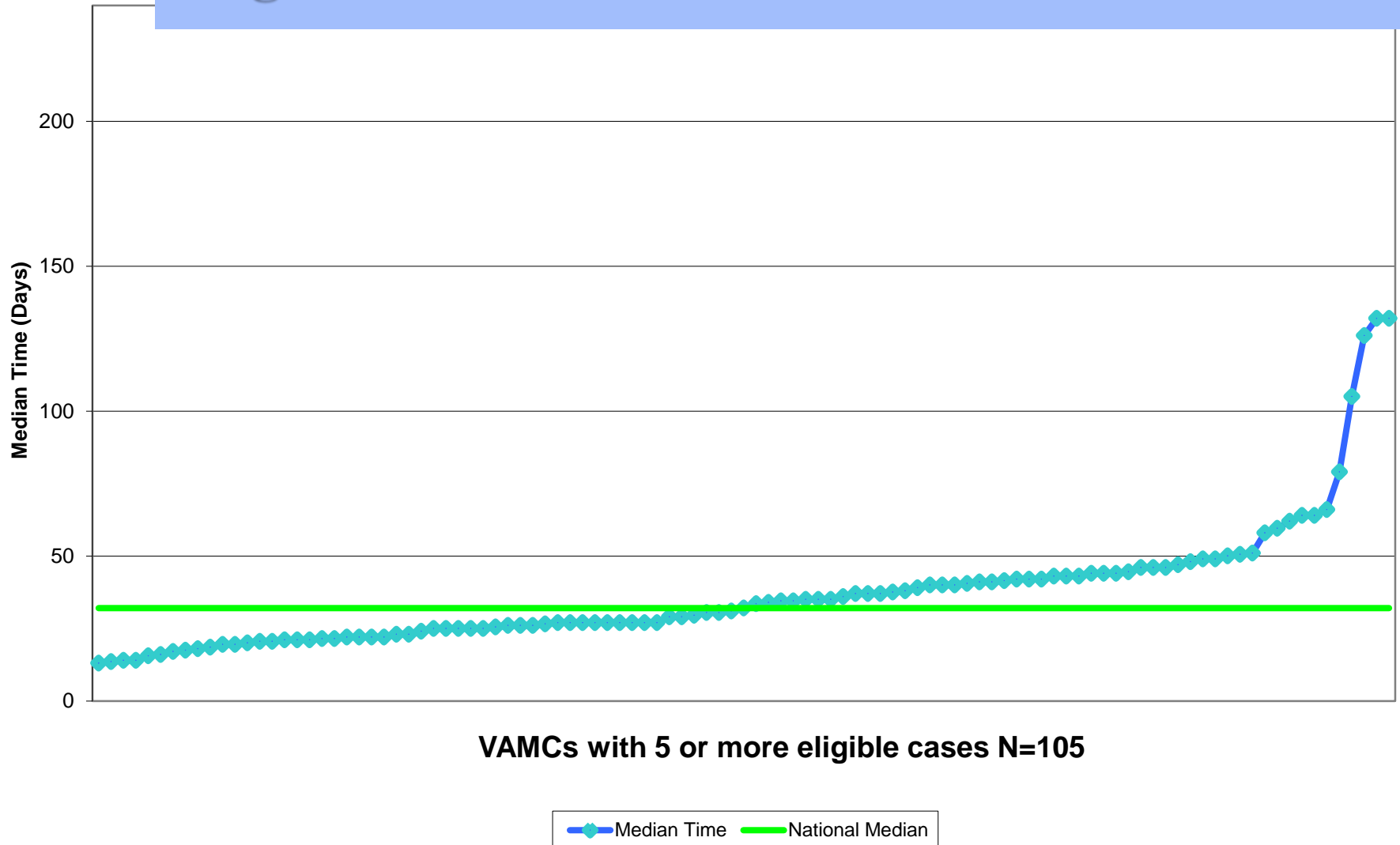




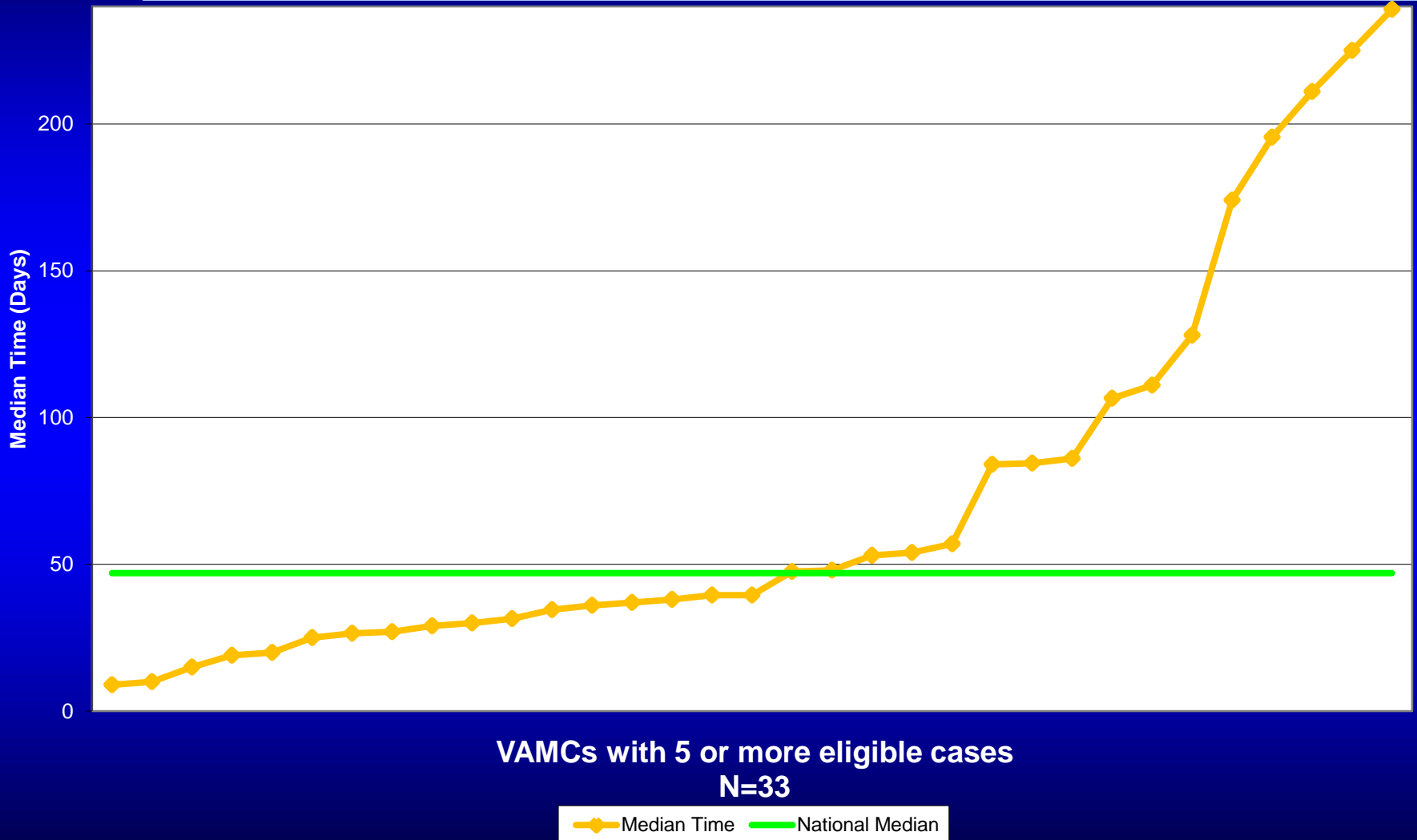
# VA OQP Special Study: Quality of VA Lung Cancer Care January 14, 2010



# T1 - Time from initial suspicion of lung cancer to diagnosis



# Time from initial suspicion of lung cancer to diagnosis: **solitary nodule or mass <10 mm**







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