

# Lung Cancer: Current Health Disparities in Risk Factors & Outcomes

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# Disclosures

- Funding from the Cigarette Restitution Fund

# Objectives

Understanding  
the  
Current  
Problem

Where are the  
health gaps in lung  
cancer.

Risk Factors

Addressing the risk  
factors for patients  
and community.

Action to Help  
Shrink the  
Health Gaps

Strategies to  
consider for your  
patients.

# Case Example

Understanding  
the  
Current  
Problem

**Ms. K is a 68 year old with “asthma”**

- Came often to physicians about being short of breath
- Hid her smoking habit
- I saw her in 2017, two years with her “short of breath symptoms”

# Epidemiology

Understanding  
the  
Current  
Problem

## Lung Cancer

- 156,000 people die from lung cancer every year



# Epidemiology

Understanding  
the  
Current  
Problem

## Lung Cancer

- 156,000 people die from lung cancer every year
  - Breast Cancer: 43,000

# Epidemiology

Understanding  
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## Lung Cancer

- 156,000 people die from lung cancer every year
  - Breast Cancer: 43,000
  - Colon Cancer: 51,000

# Epidemiology

Understanding  
the  
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Problem

## Lung Cancer - Gaps

- **Gender**
  - Historically, lung cancer affected more men than women
  - Men: 1 in 15 will develop lung cancer
  - Women: 1 in 17 will develop lung cancer



# Epidemiology

Understanding  
the  
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## Lung Cancer - Gaps

- **Gender**
  - Women have been identified to have better outcomes with certain types of lung cancer
  - Risk of death from lung cancer for men is 1.6 times higher versus females

# Epidemiology

Understanding  
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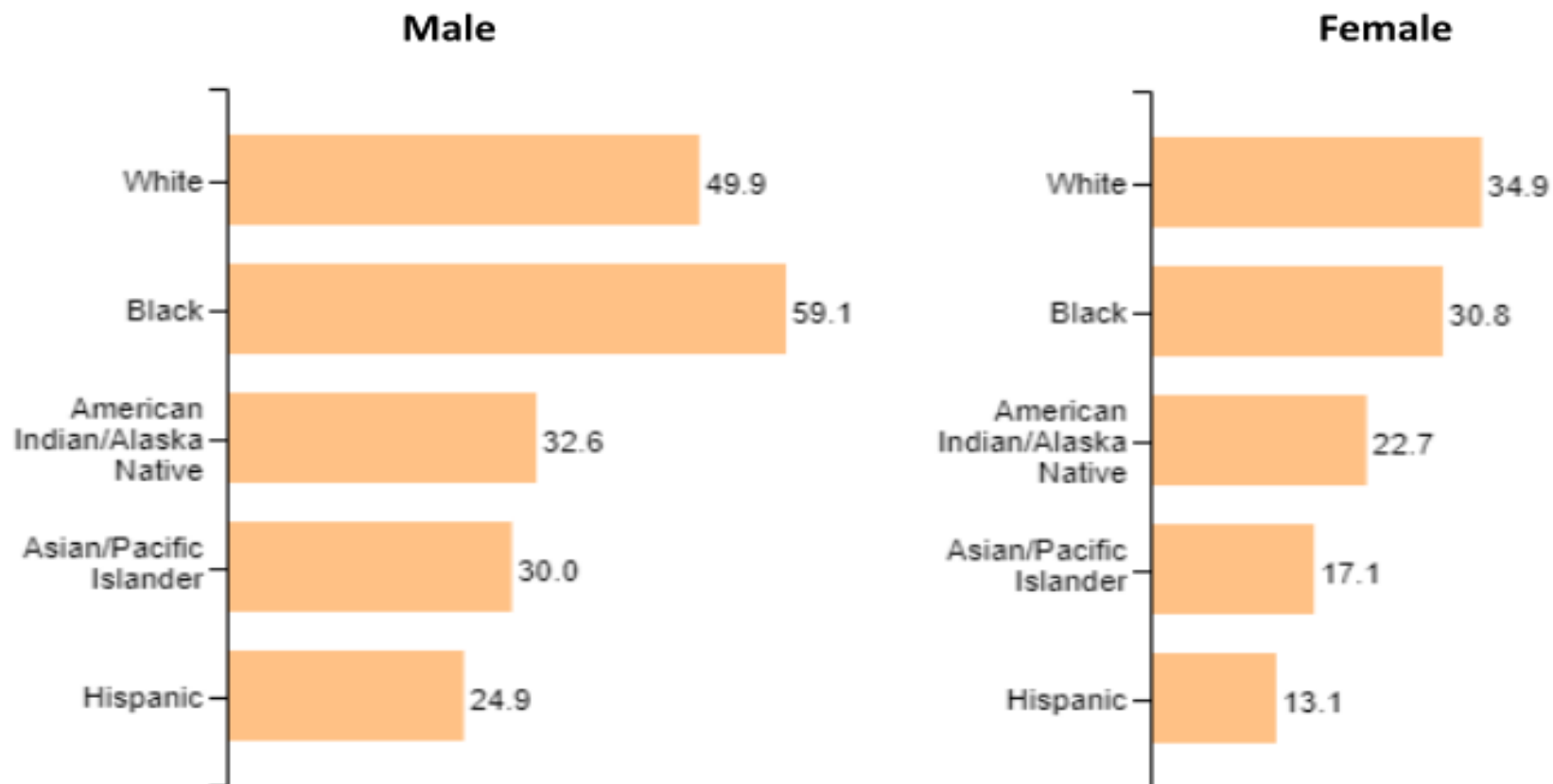
## Lung Cancer - Gaps

### - Race

- Incidence: 32% higher rate in African Americans (AA) versus Caucasians
  - And even higher in African American men
- Diagnosis of lung cancer happens 3 years earlier in AA versus Caucasians
  - But it is often advanced cancer with minimal survival

**Rate of Cancer Deaths by Sex and Race/Ethnicity**

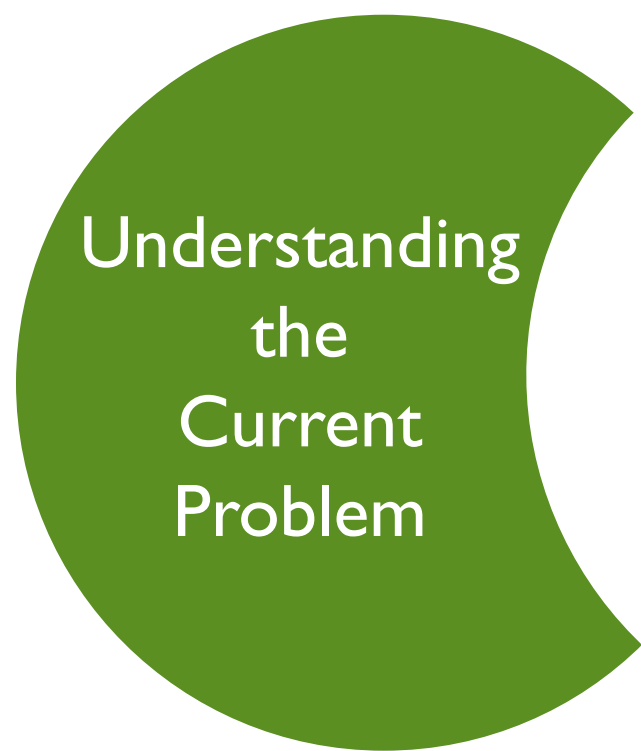
Lung and Bronchus, United States, 2015



Rate per 100,000 people



# Epidemiology



## Lung Cancer – Population Perspective

- 1800 people surveyed on thoughts towards lung cancer
  - 67%: Shame
  - 74%: Stigma
  - 75%: Hopelessness



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**Ms. K is a 68 year old with “asthma”**

- We learned that she continued to smoke cigarettes and hid the habit from her family
- Worked 2 jobs during the week to make ends meet
- In 2017, she was diagnosed with lung cancer

# Risk Factors

Patient-Level  
Non-  
modifiable

## Genes & Heritability

- There is an underlying association between genes and lung cancer
  - Especially true of adenocarcinomas of the lung
- AA with 1<sup>st</sup> degree relative who has lung cancer have 5 times as a risk of developing lung cancer versus Caucasians

# Risk Factors

Patient-Level  
Non-  
modifiable

## Genes & Heritability

- However, there is the influence of environment
  - African-born black men & women have a 65% lower frequency of lung cancer compared to US-born African Americans
- More studies needed to understand the impact of genes and lung cancer incidence



# Risk Factors

Patient-Level  
Modifiable

## Tobacco Use

- Overall prevalence of tobacco use has gone down
  - 19.3% US adults use any tobacco product
  - 14.0% US adults use cigarettes
- First evidence of linking tobacco to lung cancer: 1942
  - US Surgeon General Warning: 1964

# Risk Factors



Patient-Level  
Modifiable

## Tobacco Use

- Overall prevalence of tobacco use has gone down
- However, in certain populations, it is still high:
  - Minorities
  - Low socioeconomic status
  - Uninsured
  - Less years of formal education
  - Persons with mental health issues

# Risk Factors

Patient-Level  
Modifiable

## Other Risk Factors

- Alcohol use (>3 glasses/day) for Caucasians

# Risk Factors

Community-  
Level

## Environment

- Rural areas
- Socioeconomic status
- Pollution Exposure, Radon Exposure
  - Often worse in more disadvantaged communities

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# Case Example

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**Ms. K is a 68 year old with “asthma”**

- Had a mother and cousin die of lung cancer
- Home located to large highway with much car pollution
- Uninsured until 2016

# Call to Action

Shrink the  
Health Gaps

## Lung Cancer Screening

- USPSTF recommendation:
  - Low Dose CT scan for 55-80 years old persons
  - 30-pack year smoking history
  - Currently smoke or quit <15 years ago



# Call to Action

Shrink the  
Health Gaps

## Lung Cancer Screening

- CMS approved reimbursement for annual lung cancer screening

# Call to Action

Shrink the  
Health Gaps

## Lung Cancer Screening

- Expansion of screening may reduce lung cancer deaths
- However, it may also worsen certain disparities.

# Call to Action

Shrink the  
Health Gaps

## Lung Cancer Screening

- AA tend to have lung cancer develop at a younger age (before age of 55)
  - In the largest LCS trial in the VA, AA only made up 14.8% of the cohort
- Early-onset lung cancer is more advanced
- More research is needed to see if we should lower the age of screening for AA

# Call to Action



Shrink the  
Health Gaps

## Lung Cancer Screening

- Help with access to care
  - Talk to healthcare professionals about lung cancer
- Help with risk factors
  - Quitting smoking
- Assure that LCS occurs
  - Only 3.9% of eligible persons underwent screening in 2015

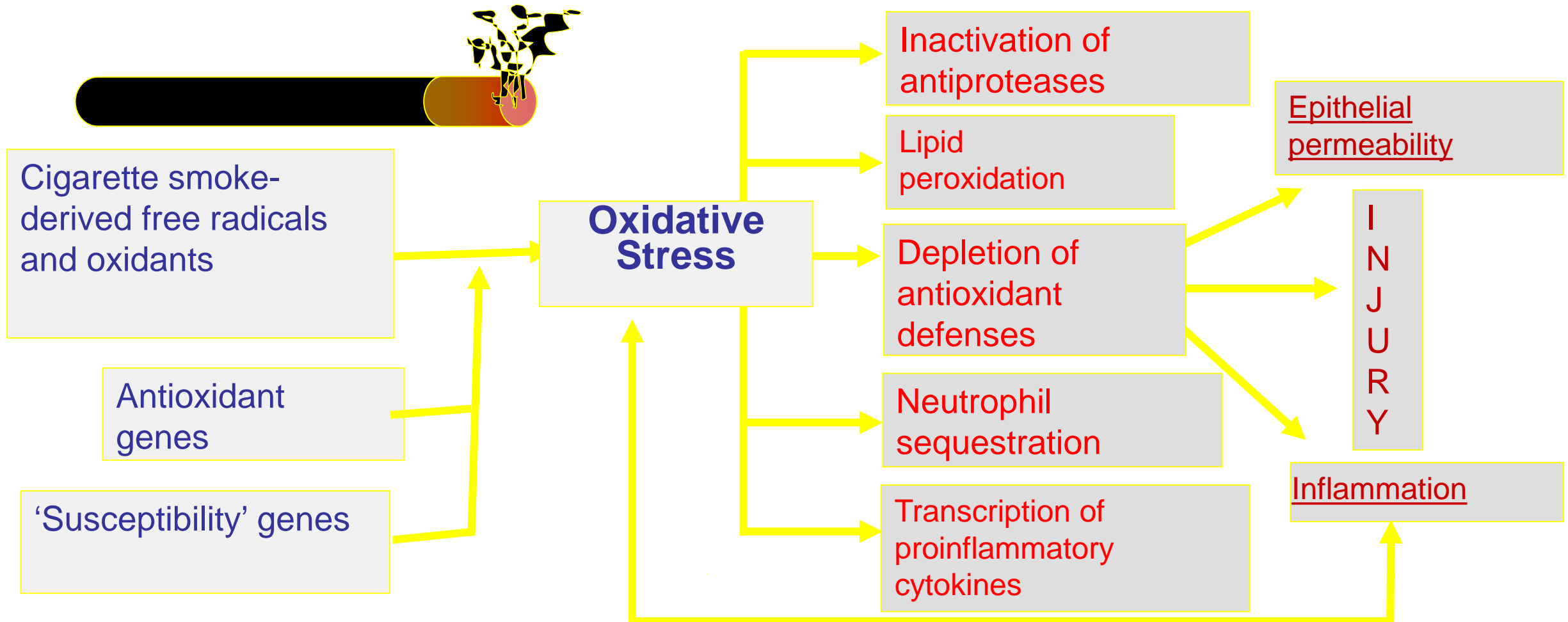
# Call to Action

Shrink the  
Health Gaps

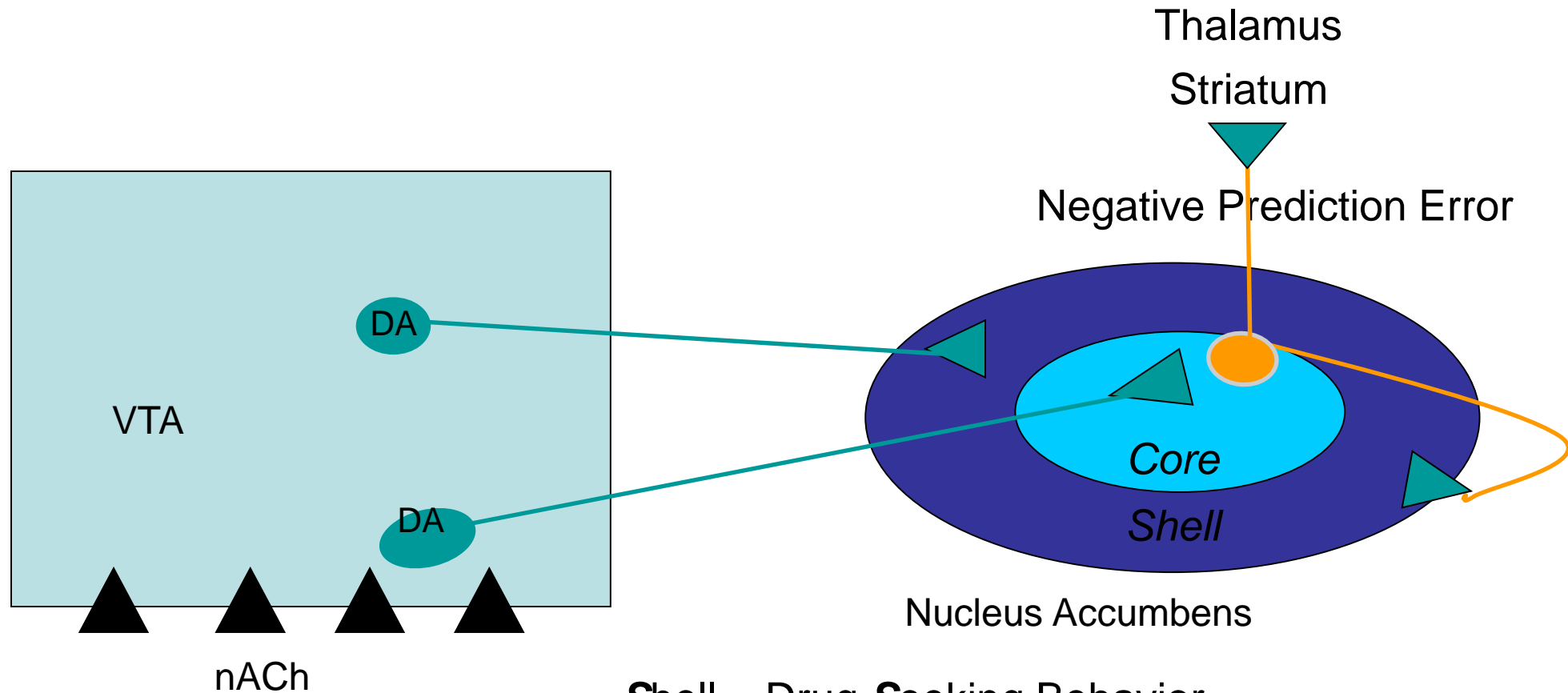
## Tobacco Cessation Programs

- Tobacco continues to be the number one cause of preventable deaths
- AA may consume less tobacco than Caucasians, but have harder time quitting smoking

# Mechanisms of Cigarette Smoke Induced Lung Damage



# “Gratification Factor”



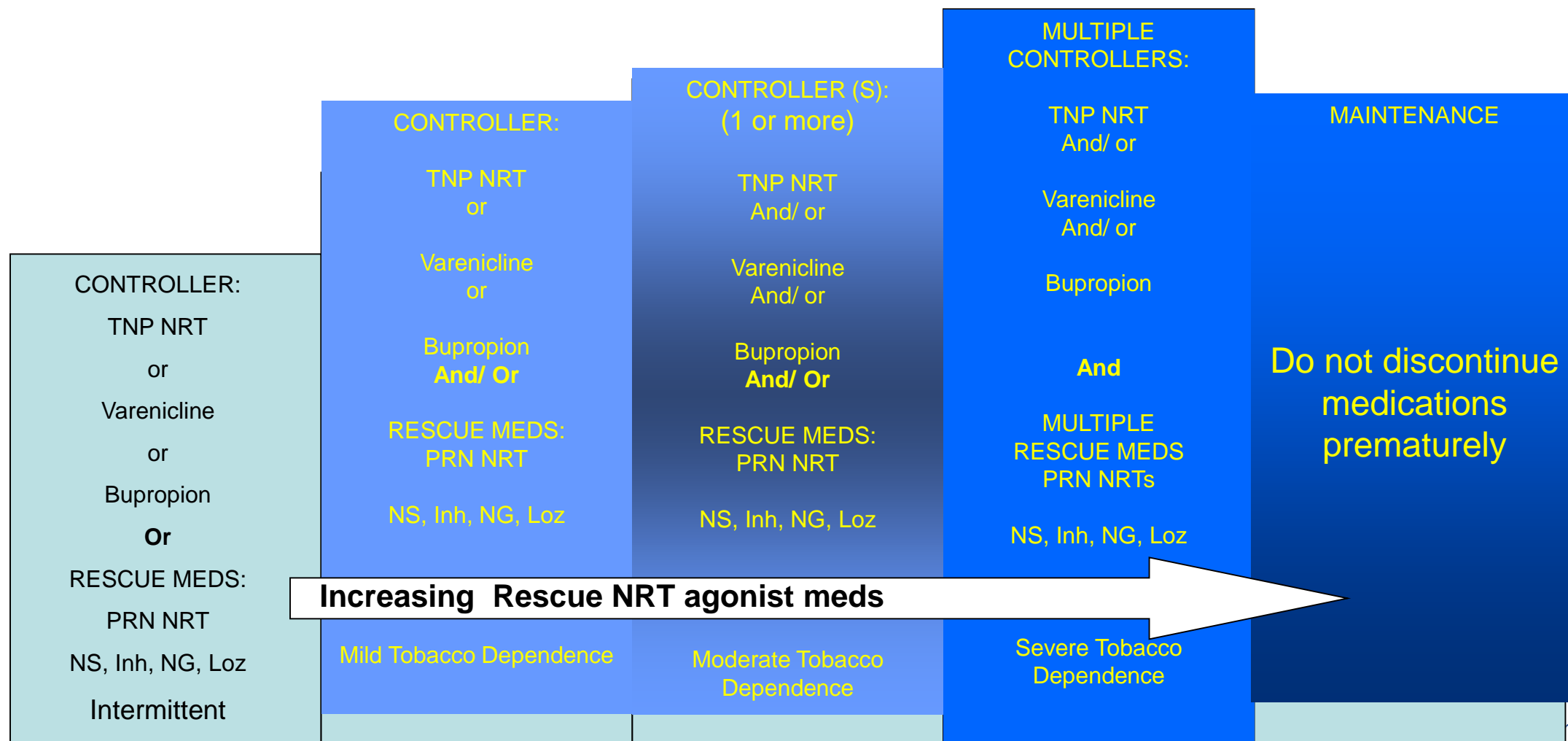
Shell = Drug Seeking Behavior

Core = Gratification of Compulsion

# Stepwise Combination Replacement Therapy with Controllers and Relievers

Controller: Controls intensity and frequency of negative prediction error signal

Rescue: Respond to the signal





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## Actions for Patients & Providers



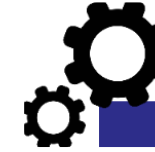
### EDUCATION

- Raise awareness around lung cancer and how to be screened.
- Fight the stigma around lung cancer.



### ENGAGEMENT

- Help communities understand how to identify risk factors around lung cancer incidence.



### IMPLEMENTATION

- Work with multiple personnel to allocate resources to assure screening occurs and risk factors are challenged.

# Case Example

Understanding  
the  
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Problem

**Ms. K is a 68 year old with “asthma”**

- Quit smoking in 2018
- Treated for stage IV lung cancer
- Passed away in January 2019

# Case Example

Understanding  
the  
Current  
Problem

## **Ms. K's Daughter is 50**

- Works to help people in the community quit smoking
- Helps people know when to be screened
- Runs support groups for people with lung cancer

# Lung Cancer: Current Health Disparities in Risk Factors & Outcomes

## QUESTIONS

Contact: [panagis@jhmi.edu](mailto:panagis@jhmi.edu)

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