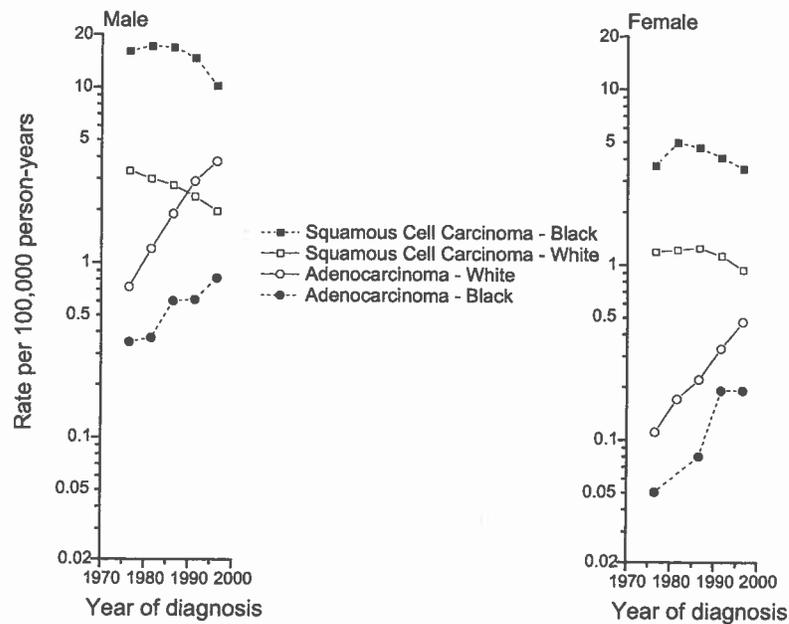


Trends in Cancer and Lifestyle

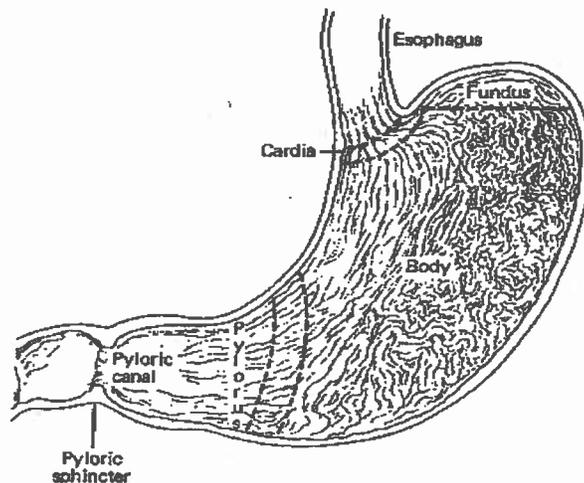
The Esophageal Adenocarcinoma Epidemic

SEER esophageal cancer incidence rates by race, gender, and cell type, 1974-78 to 1994-98



Summary of Esophageal Adenocarcinoma Trends

- _ Incidence rates have increased in all racial and gender groups
- _ Among white men, the increase has outpaced all other cancers
- _ Incidence rates are highest among white men, followed by black men, white women, and black women



Gastroesophageal Reflux Southern California Kaiser Study

<u>Reflux</u>	<u>OR</u>	<u>95% CI</u>
No	1.0	
Yes	2.1	(1.2-3.6)
 <u>Duration (Years)</u>		
1-5	1.2	(0.5-3.0)
>5	2.7	(1.5-4.9)

Chow WH, et al. *JAMA*, vol 274, pp 474-7.

Use of Medications Southern California Kaiser Study

<u>Medications</u>	<u>OR</u>	<u>95% CI</u>
No	1.0	
Anticholinergics only	0.8	(0.4-1.5)
H ₂ antagonists only	0.7	(0.3-1.6)
Both	0.5	(0.1-1.4)

Chow WH, et al. *JAMA*, vol 274, pp 474-7

Multi-Center Case-Control Study

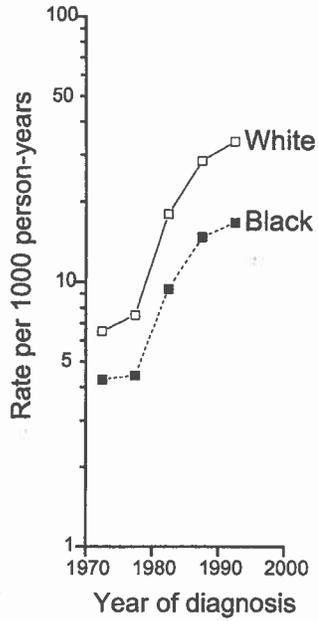
- Columbia University (15 counties in New Jersey)
- Yale University (State of Connecticut)
- Fred Hutchinson Cancer Research Center (3 counties in Washington State)

Gastroesophageal Reflux Multi-center Study

<u>Reflux symptoms (times/year)</u>	<u>OR</u>	<u>95% CI</u>
Never	1.0	
1-2	0.5	(0.2-1.0)
3-12	1.2	(0.6-2.2)
13-104	2.0	(1.2-3.2)
105-364	3.4	(1.9-6.1)
>364	5.5	(3.2-9.3)

Farrow DC, et al. *Cancer Causes Control*, vol 11, pp 231-8.

Reflux disease incidence rates among U.S. male veterans by race, 1970-74 to 1990-94



Brown LM, Devesa SS. *Surg Oncol Clin N Am*, vol 11, 235-56.

Progression of Esophageal Adenocarcinoma

Gastroesophageal Reflux Disease



Metaplasia/Barrett's Esophagus



Low Grade Dysplasia



High Grade Dysplasia



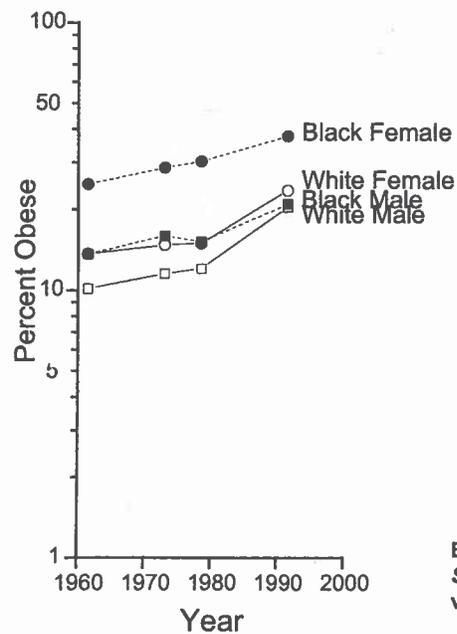
Adenocarcinoma

Usual Adult Body Mass Index

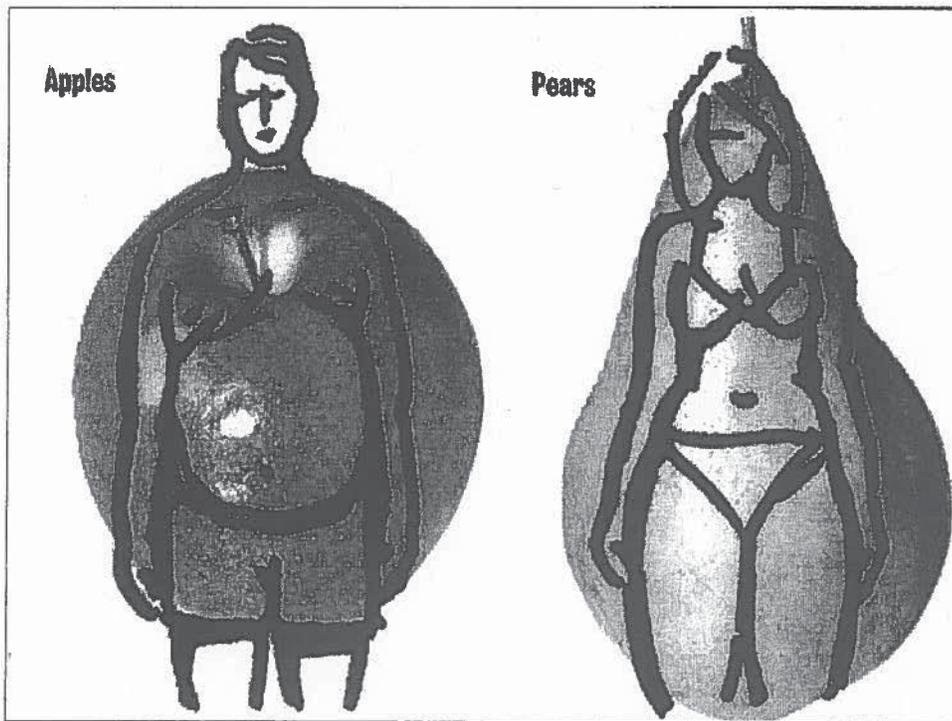
<u>BMI Quartiles</u>	<u>OR</u>	<u>95% CI</u>
I – Low	1.0	
II	1.3	(0.8-2.2)
III	2.0	(1.3-3.3)
IV – High	2.9	(1.8-4.7)

Chow WH, et al. *JNCI*, vol 90, pp 150-5.

U.S. Obese adults by race and gender, 1960-62 to 1988-94



Brown LM, Devesa SS.
Surg Oncol Clin N Am,
vol 11, 235-56.

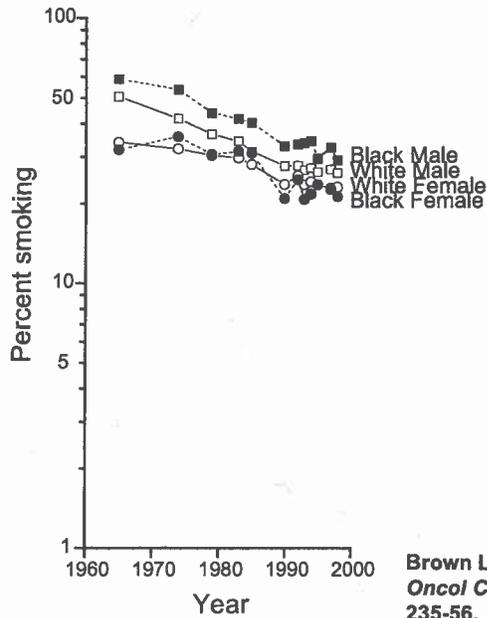


Cigarette Smoking

<u>Smoking Status</u>	<u>OR 95% CI</u>
Never smoker	1.0
Current smoker	2.2 (1.4-3.3)
Ex-smoker	2.0 (1.4-2.9)
<u>Years Stopped Smoking</u>	
<11	2.7 (1.6-4.4)
11-20	2.3 (1.4-3.8)
21-30	1.9 (1.1-3.2)
>30	1.2 (0.7-2.2)

Gammon MD, et al. *JNCI*, vol 89, pp 1277-84.

U.S. Adult current cigarette smokers by race and gender, 1965 to 1998

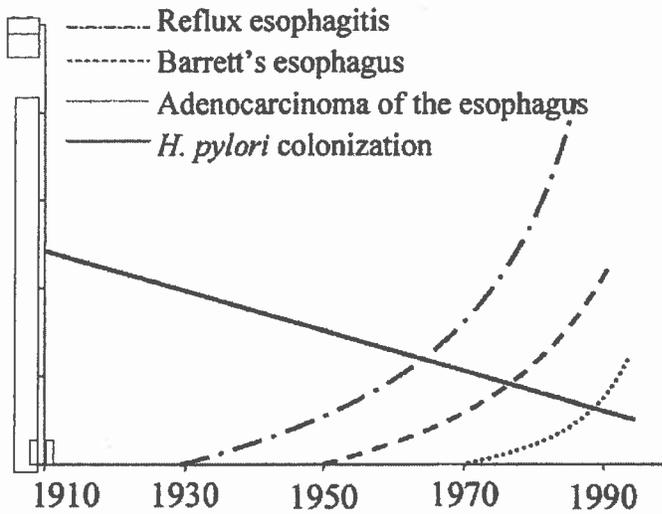


***Helicobacter pylori* and *cagA* Status**

<u>H. Pylori status</u>	OR	95% CI
Negative	1.0	
Positive	0.7	0.4-1.1
<u>cagA status</u>		
Negative	1.0	0.5-1.7
Positive	0.4	0.2-0.8

Chow WH, et al. *Cancer Research*, vol 58, pp 588-90.

Relative incidence of event



Blaser MJ. J Infect Dis, vol 179, pp 1523-30.

Summary

Risk Factor	Population Trend	Cancer Trend
Reflux disease	↑	↑
Obesity	↑	↑
<i>H. pylori</i>	↓	↑
Smoking	↑, ↓	↑, ↓

Other Hypothesized Risk Factors

<u>Risk Factor</u>	<u>Risk</u>
Dietary fat	↑
Fruits and vegetables	↓
Aspirin and other NSAIDs	↓
Alcohol drinking	--
Medications for reflux	--
Occupation	--

Further Research Initiatives

- _ NCI/NIDDK workshops to stimulate research on Barrett's esophagus**
- _ International workshop on data pooling and research directions**

Follow-up Studies

- Studies of genetic polymorphisms and tumor markers**
 - **Genes involved in inflammatory processes**
 - **DNA repair genes**
 - **Genes involved in metabolism of carcinogens in cigarette smoke and foods**
 - **Tissue arrays**
- Studies in other settings: Network of HMOs, cohort studies**