

Cigarette Smoking and Health-Related Quality of Life in Medicare Beneficiaries

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Existing Literature

- ❖ Smokers have lower self-reported physical and mental health than non-smokers¹⁻²
- ❖ Recent quitters tend to have the worse self-reported health.¹
- ❖ Long-term quitters (12+ months) have similar MCS to non-smokers¹
- ❖ Effect size ranges from small (0.2 SD) to moderate (0.5)

1. Arday et al. ([Am J Prev Med](#), 2003); 2. Health Services Advisory Group (2005, October 26)

Research Goals

To compare HRQOL between Medicare beneficiaries by smoking status:

- **never smoked**
- **ex-smokers**
- **current smokers**

To estimate whether the associations differ for those who have versus do not have cancer

Medicare Health Outcomes Survey

Center for Medicare and Medicaid Services (CMS) Medicare Health Outcomes Survey (MHOS)

<http://www.hosonline.org>

Annual survey of 1000 randomly selected Medicare beneficiaries in each managed care plan under contract to CMS

Cohort I (1998, 2000)

Cohort II (1999, 2001)

Cohort III (2000, 2002)

Cohort IV (2001, 2003)

SEER

NCI's Surveillance, Epidemiology, and End Results (SEER) Program

18 population-based cancer registry sites covering 26% of U.S. population

Patient demographics

Clinical data

- Primary tumor site, tumor morphology and stage at diagnosis, first course of treatment, and follow-up for vital status**

Dataset

Pooled cross-sectional sample from 1998-2003 (65% + response rate)

Random sample of health plan members continuously enrolled in Medicare for 6 months or longer

65 years of age or older (n = 123,567 overall)

- n = 14,417 (first and only cancer in SEER)**

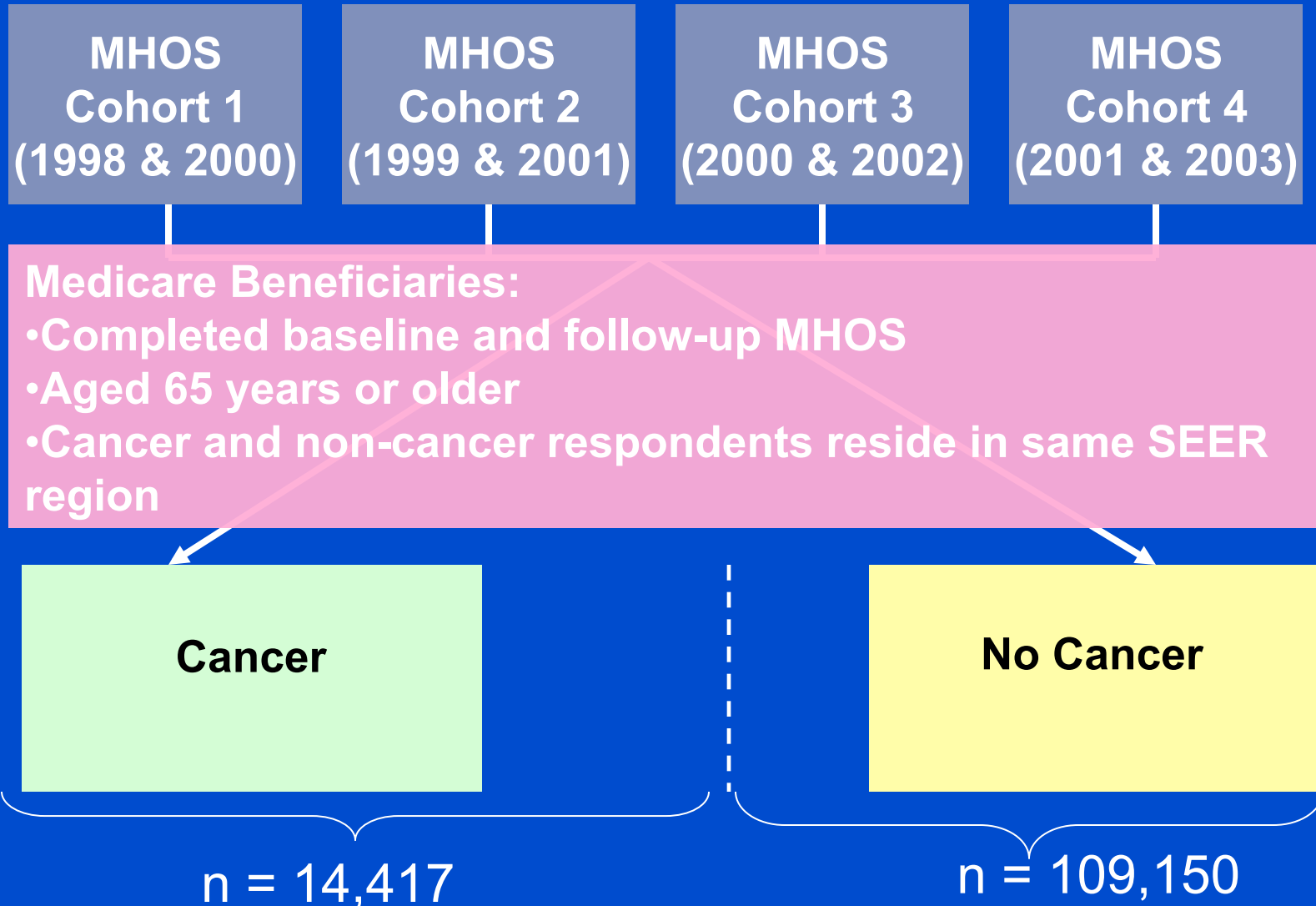
 - Prostate (n = 4,055), Breast (n = 3,118),**

 - Colorectal (n = 1,924), Lung (n = 596)**

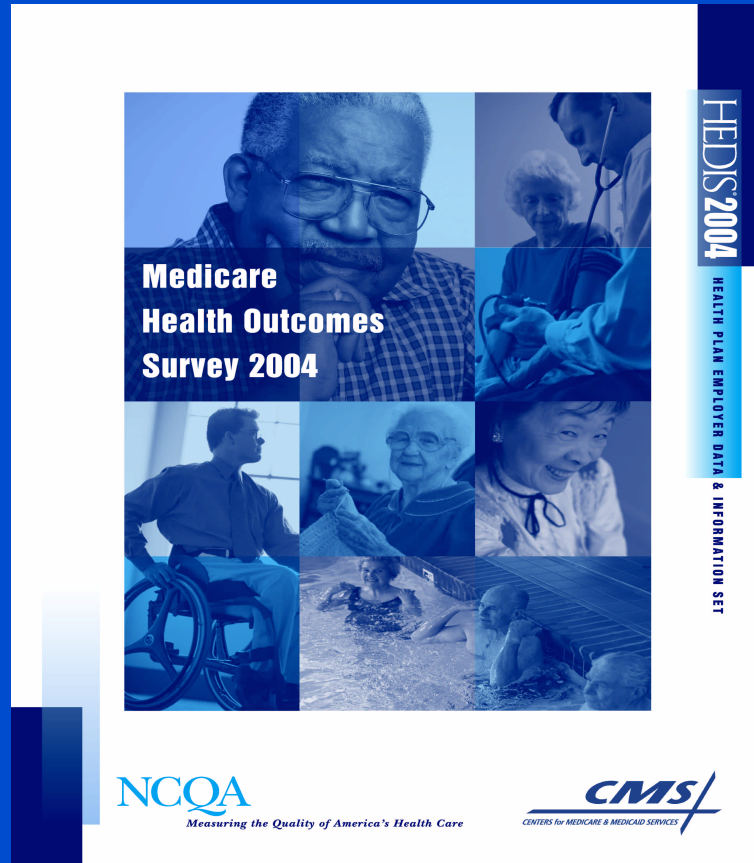
 - Kidney, endometrial, melanoma, bladder, non-Hodgkins lymphoma**

- n = 109,150 (no cancer)**

Sample



HOS Instrument



SF-36

Smoking

Demographics

Chronic Medical Conditions

SF-36 PCS and MCS

$$\begin{aligned} \text{PCS} = & (\text{PF_Z} * .42402) + (\text{RP_Z} * .35119) + (\text{BP_Z} \\ & * .31754) + (\text{GH_Z} * .24954) + (\text{EF_Z} * . \\ & 02877) + (\text{SF_Z} * -.00753) + (\text{RE_Z} * -. \\ & 19206) + (\text{EW_Z} * -.22069) \end{aligned}$$

$$\begin{aligned} \text{MCS} = & (\text{PF_Z} * -.22999) + (\text{RP_Z} * -.12329) + \\ & (\text{BP_Z} * -.09731) + (\text{GH_Z} * -.01571) + \\ & (\text{EF_Z} * .23534) + (\text{SF_Z} * .26876) + \\ & (\text{RE_Z} * .43407) + (\text{EW_Z} * .48581) \end{aligned}$$

Smoking items

- Have you ever smoked at least 100 cigarettes in your entire life?

Yes; No, Don't Know

- Do you now smoke every day, some days, or not at all?

Every day; Some days; Not at all; Don't know

- How long has it been since you quit smoking?

Less than 12 months; 12 months or more; Don't know

Demographic Variables

Age (continuous)

Gender (male; female)

Education (8th grade or less; some high school; high school graduate; some college; 4 year college grad; > 4 year college)

Income (<10k, 10-19,999, 20-29,999, 30-39,999, 40-49,999, 50-79,999, 80k and above)

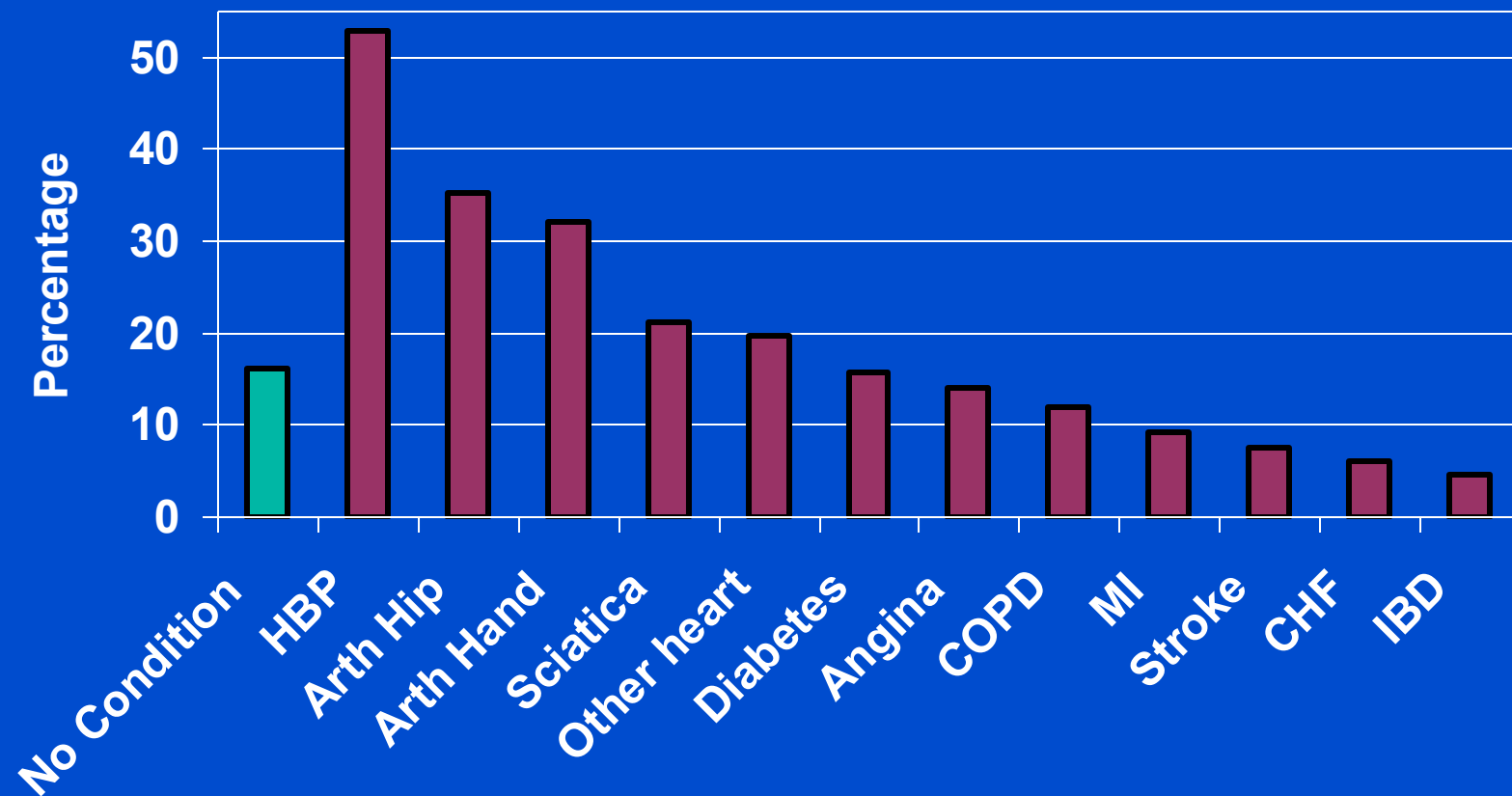
Race/ethnicity (Hispanic, white, black, asian, AI, other)

Marital status (married, widowed, not married)

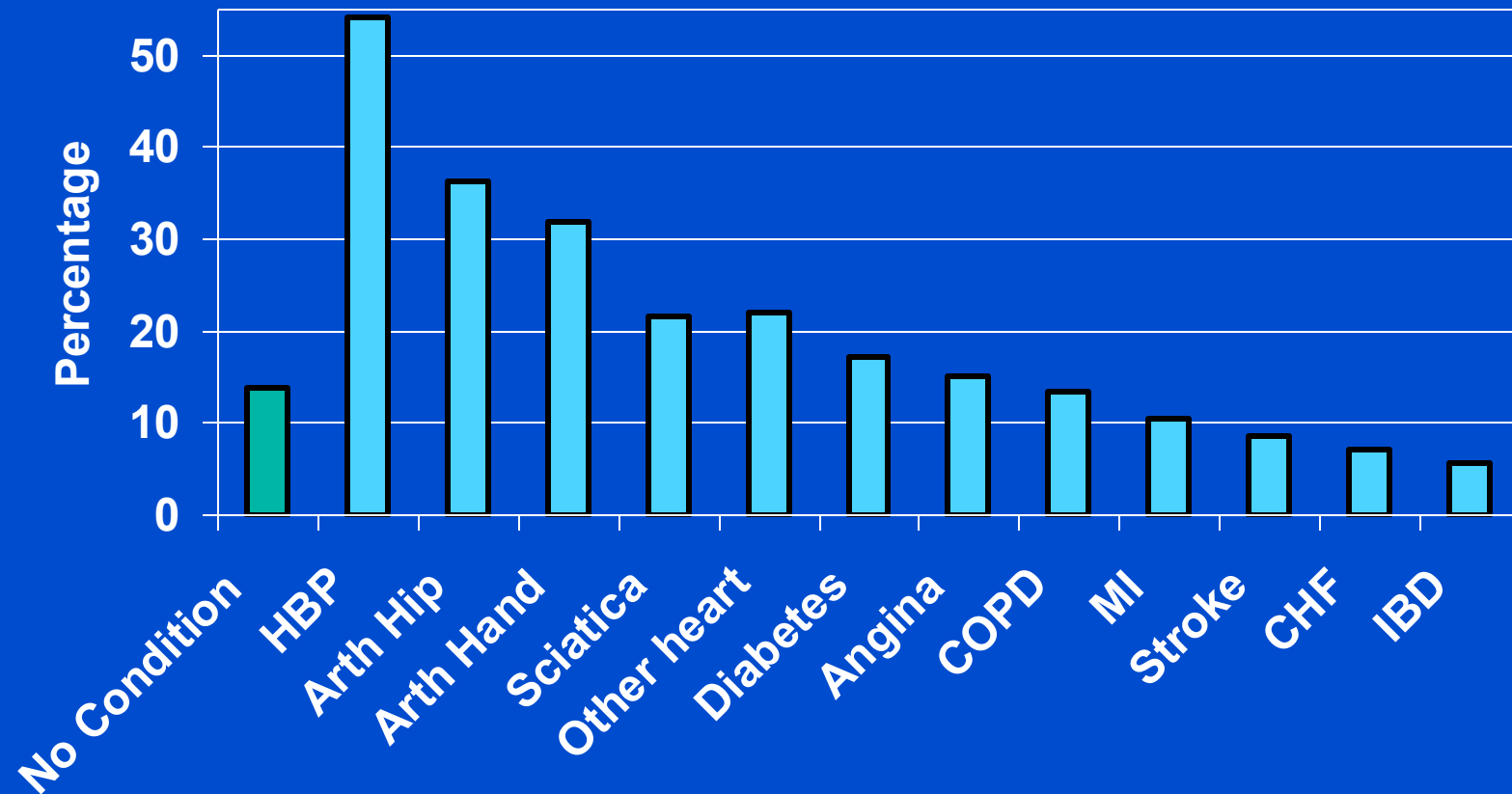
Chronic Medical Conditions

1. Hypertension / high blood pressure
2. Arthritis of the hip or knee
3. Arthritis of the hand or wrist
4. Sciatica
5. Other heart conditions
6. Diabetes
7. Angina / coronary artery disease
8. Emphysema / asthma / COPD
9. Myocardial infarction / heart attack
10. Stroke
11. Congestive heart failure
12. Crohn's Disease / ulcerative colitis / inflammatory bowel disease

Prevalence of medical conditions among those without cancer



Prevalence of comorbid medical conditions among those with cancer



Smoking

- Items

- Have you ever smoked at least 100 cigarettes in your entire life?
- Do you now smoke every day, some days, or not at all?
- How long has it been since you quit smoking?

- Smoking Categories

- Never Smoked (45%)
- Ex Smoker
 - Recent (37%)
 - Don't Know (6%)
 - Distant (1%)
- Current Smoker (11%)

Characteristics of Smoker Groups (Column %)

	Male	Hispanic	Married	COPD
Non-smoker	30%	9%	57%	7%
Long quitter	58%	6%	66%	15%
Unsure quitter	51%	10%	62%	13%
Recent quitter	48%	7%	56%	30%
Current smoker	47%	7%	51%	19%

Comparison of Cancer and Non-Cancer Groups

	No cancer	Cancer
Age	74	75
Male	43%	52%
Hispanic	8%	5%
Black	5%	5%
High school educ. or less	33%	32%
Married	59%	61%
Number of comorbidities	2.3	2.4
PCS	43	40
MCS	52	51

SF-36 by Smoker Status

	PCS		MCS	
Cancer?	No	Yes	No	Yes
Non-smoker	44 ^a	41 ^a	52 ^b	50 ^a
Long quitter	42 ^b	40 ^b	52 ^a	51 ^a
Unsure quitter	43 ^a	41 ^{a,b}	51 ^c	50 ^{a,b}
Recent quitter	40 ^d	37 ^{b,c}	49 ^d	46 ^c
Current smoker	42 ^c	40 ^c	50 ^d	48 ^{b,c}

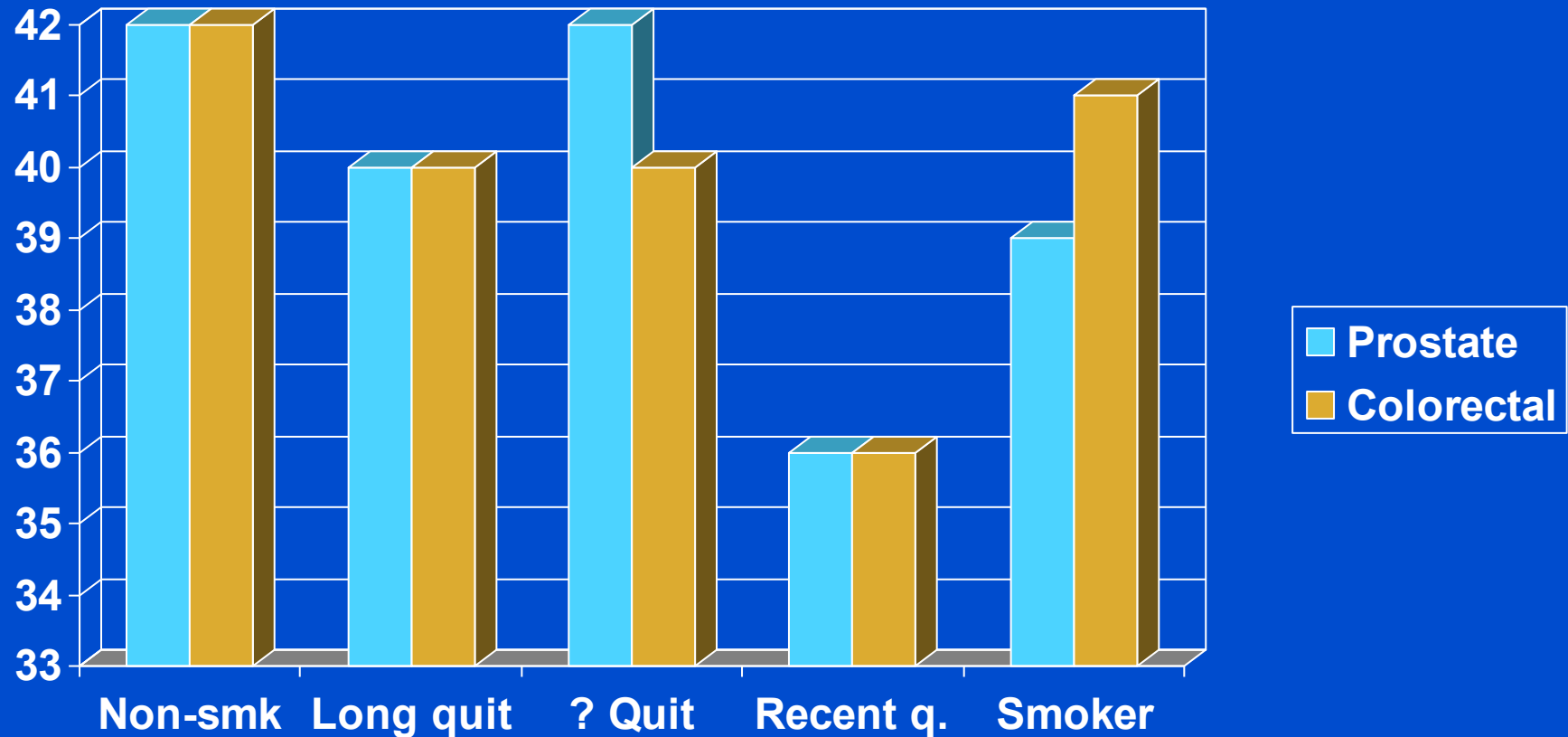
*Adjusted for age, gender, education, income, race/ethnicity, marital status, mode of administration, and proxy response.

SF-36 by Smoker Status

	PCS		MCS	
Cancer?	No	Yes	No	Yes
Non-smoker	43 ^a	41 ^a	52 ^b	50 ^a
Long quitter	42 ^b	41 ^b	53 ^a	51 ^a
Unsure quitter	43 ^a	41 ^{a,b}	51 ^c	50 ^{a,b}
Recent quitter	41 ^d	38 ^{b,c}	50 ^d	47 ^c
Current smoker	42 ^c	40 ^c	50 ^d	48 ^{b,c}

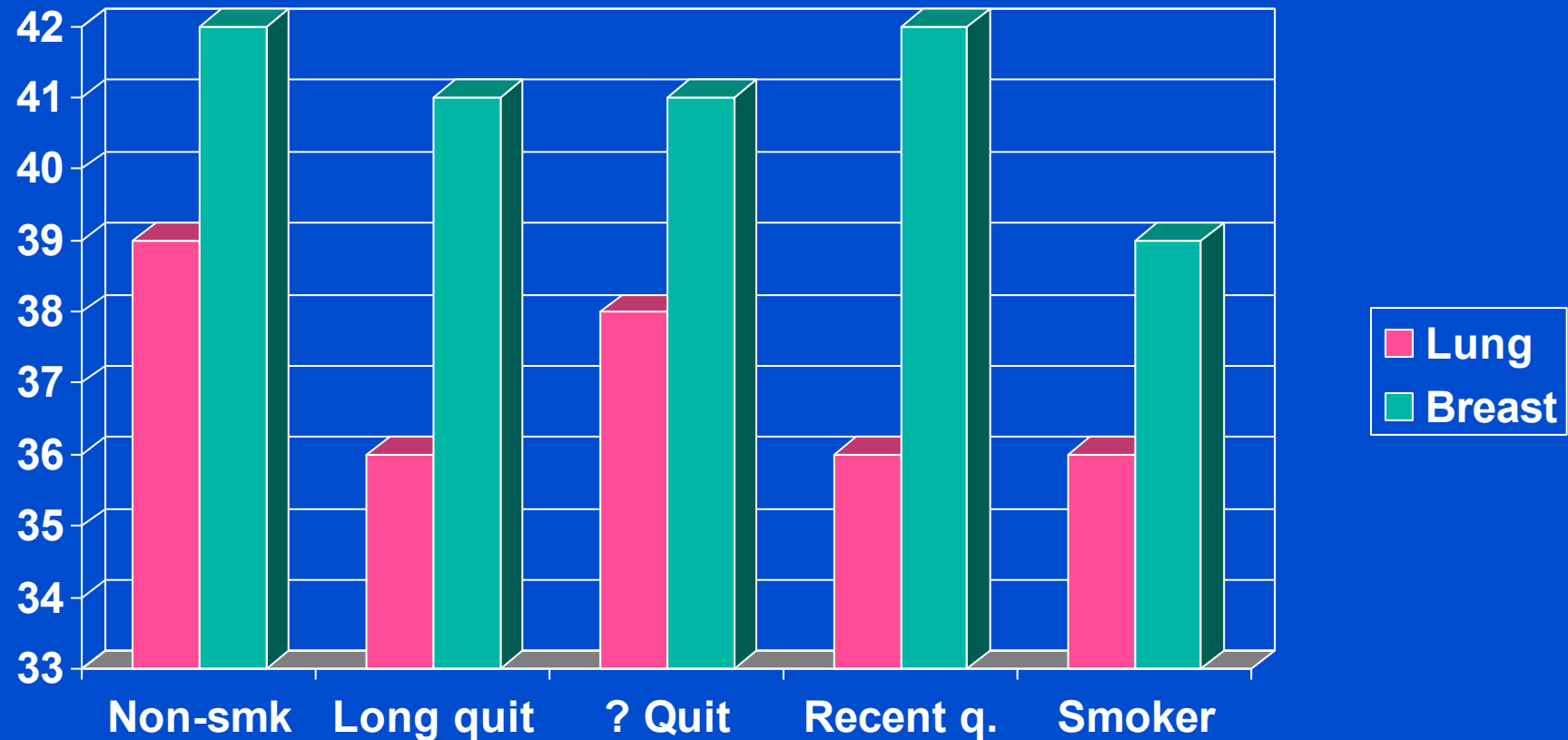
*Adjusted for age, gender, education, income, race/ethnicity, marital status, mode of administration, proxy response, and comorbidities.

PCS by Smoker Status for Specific Cancers



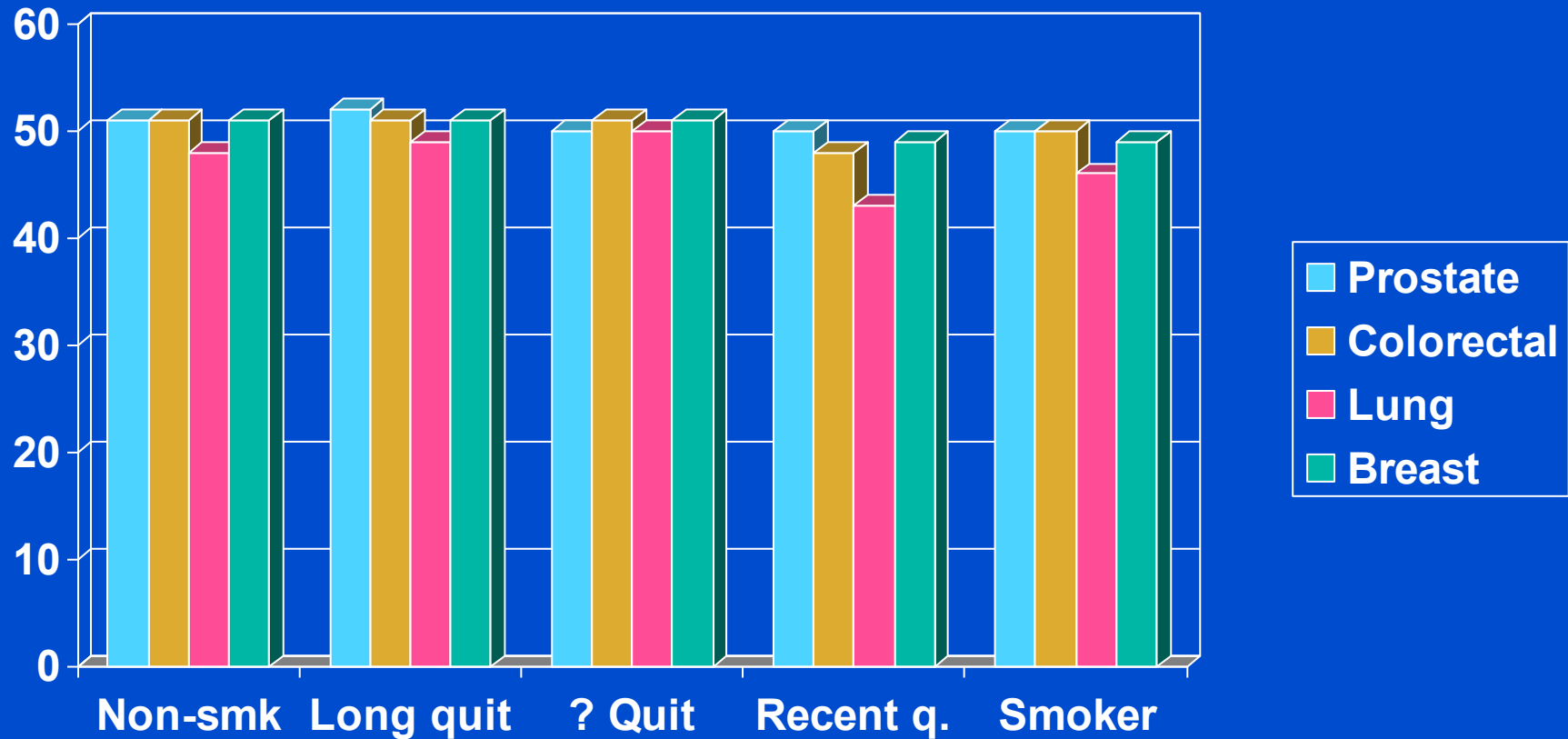
Adjusted for age, gender, education, income, race/ethnicity, marital status, mode of administration, proxy response, and comorbidities.

PCS by Smoker Status for Specific Cancers



Adjusted for age, gender, education, income, race/ethnicity, marital status, mode of administration, proxy response, and comorbidities.

MCS by Smoker Status for Specific Cancers



Conclusions

Smoking has unique negative associations with physical and mental health

Those who recently quit smoking have noteworthy impairments in physical and mental health overall, but the impact differs by type of cancer (recent quitters do relatively well if they have lung and breast cancer)

Questions?



ВОЗЛОЖАЮТ НА НЕЕ

Future Analyses

To examine whether the association of smoker status with HRQOL varies by age, gender, and race

Evaluate 8 SF-36 scales and correlated summary scores

Smoking counseling

Olufade, A. O., Shaw, J. W., Foster, S. A., Leischow, S. J., Hays, R. D., & Coons, S. J. (1999). Development of the smoking cessation quality of life (SCQoL) questionnaire. Clinical Therapeutics, 21, 2113-2130.

Shaw, J. W., Coons, S. J., Foster, S. A., Leischow, S. J., & Hays, R. D. (2001). Responsiveness of the Smoking Cessation Quality of Life (SCQoL) questionnaire. Clinical Therapeutics, 23, 957-969.