

## HINTS DATA USERS CONFERENCE 2007

# Using HINTS data to address health disparities in screening

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# Knowledge gaps in cancer

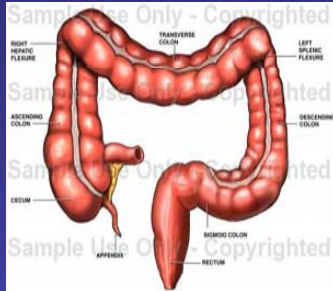
- Burgeoning findings regarding preventable causes of cancer and early detection methods can significantly reduce morbidity and mortality from cancer in the coming years.
- Individuals' potential to benefit from this rapidly developing knowledge requires unencumbered access to multiple communication channels, including mass media and face-to-face with health providers.
- “Cancer knowledge gaps” in disadvantaged groups may lead to reduced uptake of cancer prevention and control behaviors in some segments of the population.
- Identifying and addressing these gaps represents an important public health and policy priority aimed at reducing US disparities in cancer diagnosis and mortality.

Tichenor et al., 1970; Viswanath et al., 1993; Viswanath & Finnegan, 1996

# Using HINTS to extend cancer communication reach

- I. Identifying cancer knowledge gaps
  - Colon cancer screening (HINTS 2003)
  - Physical activity as a protective factor against colon cancer (HINTS 2005)
  
- II. Exploring factors involved in the perpetuation of cancer knowledge gaps
  - Perceived risk for colon cancer (HINTS 2003)
  - Beliefs about colon and skin cancer preventability/fatalism (HINTS 2005)
  - Cancer information seeking in survivors (HINTS 2005)

**Knowledge gaps:  
Colon cancer screening**



## Colorectal cancer screening is efficacious but underutilized

- Colorectal cancer is the third most common cancer among both men and women in the United States, and it accounts for 10% of all cancer deaths (ACS, 2007).
- Screening strategies for colorectal cancer may prevent up to 90% of colorectal cancer mortality, and reduce colorectal cancer incidence (Rex et al., 2000; Smith et al., 2001).
- Only half (40% to 50%) of the general population is adherent with recommended screening guidelines for colorectal cancer (CDCP, 2003; Seef et al., 2004; Swan et al., 2003).

## Colorectal cancer screening guidelines for the general population\*

- For individuals age 50 and older, one of the following:
  - Annual home fecal occult blood testing (FOBT) or fecal immunochemical test (FIT) every year
  - Flexible sigmoidoscopy every five years
  - Double-contrast barium enema every five years
  - Colonoscopy every ten years

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\*United States Preventive Services Task Force (USPSTF). *Screening for colorectal cancer: Recommendation and Rationale*. Ann Intern Med, 2002.

## Sample

- Full HINTS 2003 sample,  $N = 6369$
- Participation included if:
  - Aged 45 and older
  - Did not report a colon cancer history
  - Not missing data on age, colon cancer history, or screening knowledge variables
- Final study  $N = 3131$

## Design and Analytic approach

- Cross-sectional complex sample survey design
- Data weighted
- Jackknife technique for variance estimation
- Analysis conducted using SUDAAN
  - Univariate Chi-square tests
  - Multivariate logistic regression

## HINTS 2003 (n=3131)

### Frequencies for colon cancer screening knowledge

	Sample %
Know any colon cancer test	57.3
<i>Fecal Occult Blood Test (FOBT)</i>	
Heard of FOBT	73.7
Know start age for FOBT (50 years) <sup>a</sup>	26.1
Know frequency of FOBT (every year) <sup>a</sup>	39.5
Have FOBT screening knowledge <sup>b</sup>	15.5
<i>Sigmoidoscopy/Colonoscopy</i>	
Heard of sigmoidoscopy/colonoscopy	84.3
Know start age for sigmoidoscopy/colonoscopy (50 years) <sup>a</sup>	39.0
Know frequency of sigmoidoscopy/colonoscopy (every 5-10 years) <sup>a</sup>	12.8
Have sigmoidoscopy/colonoscopy screening knowledge <sup>b</sup>	7.4
<i>Summary Colon Cancer Screening Knowledge Variable</i>	
Have FOBT or sigmoidoscopy/colonoscopy screening knowledge <sup>c</sup>	21.0

<sup>a</sup>Among those who had heard of the test; <sup>b</sup>Those who had heard of the test, as well as start age and frequency; <sup>c</sup>Variable used in subsequent analyses.



## Conclusions

- This is the first study to document combined knowledge of three elements of screening that are critical for adherence with screening guidelines.
- Low rate of knowledge in the general population (21%).
- Consistent with other recent work examining screening knowledge (e.g., Dolan et al., JCO, 2004).
- Documented knowledge gaps among:
  - Lower education attainment
  - Racial/ethnic subgroups (AA and those designated “other”)
  - Younger (age 45-49) or older ( $\geq 70$ ) age groups
  - Those who have not visited a healthcare provider in the past year
  - Less likely to have ever completed FOBT
  - Never looked for cancer information

Ford, Coups, & Hay, Knowledge of colon cancer screening in a national probability sample in the United States *J Health Comm*, 2006.

**Knowledge gaps:  
Physical activity as a protective  
factor against colon cancer**

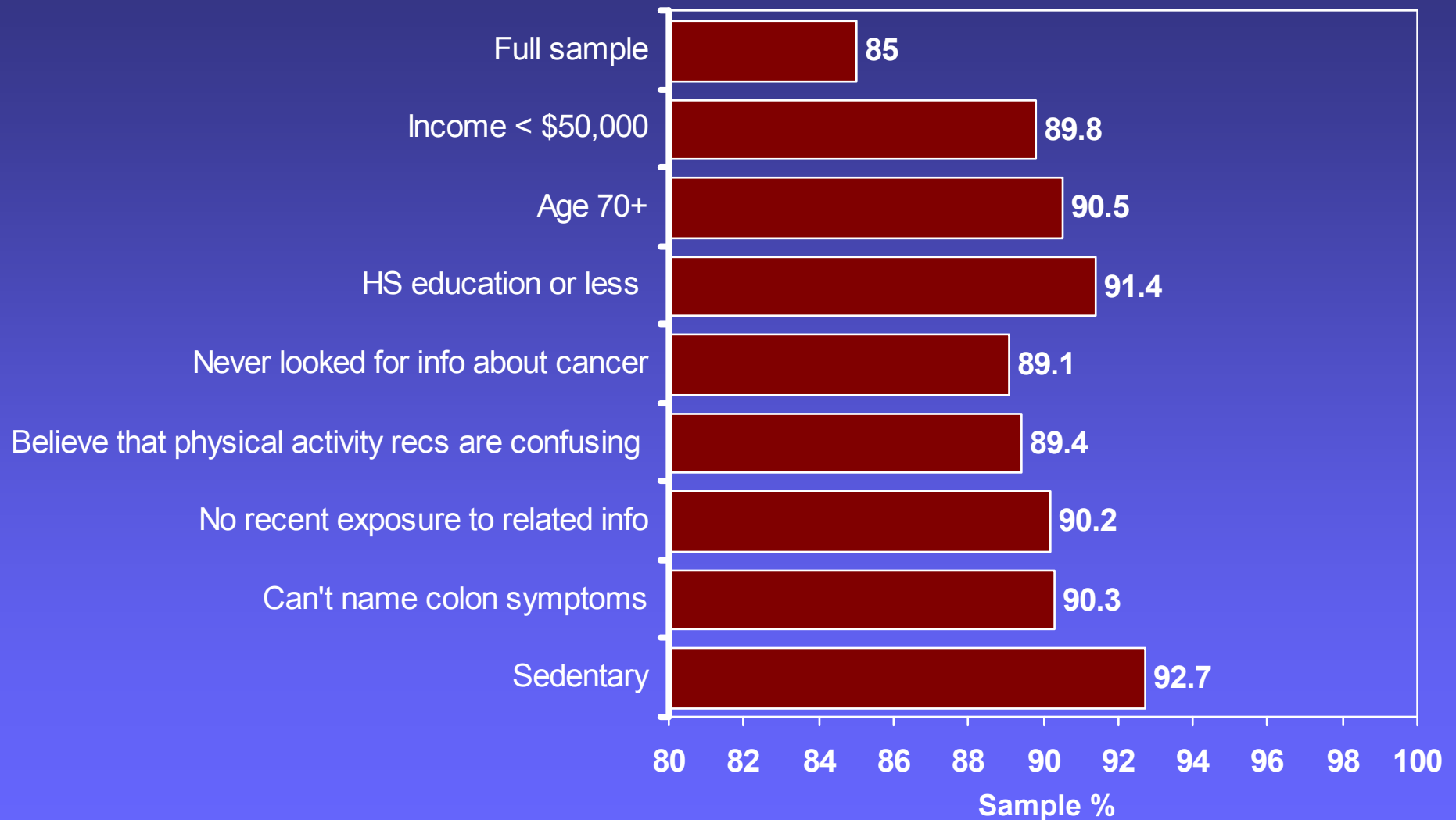
# Evidence-based behavioral risk factors for colorectal cancer

- High fat, low fiber diet
- Heavy alcohol use
- Excessive body weight/low physical activity
- Cigarette smoking

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Bingham, *Proc Nutr Soc*, 1999; Giovannucci, *CEBP*, 2001; Martinez et al., *JNCI*, 1995; Sesink et al., *Carcinogenesis*, 2001 .

## Lack of Awareness of the Role of Physical Activity in Colon Cancer Prevention\*



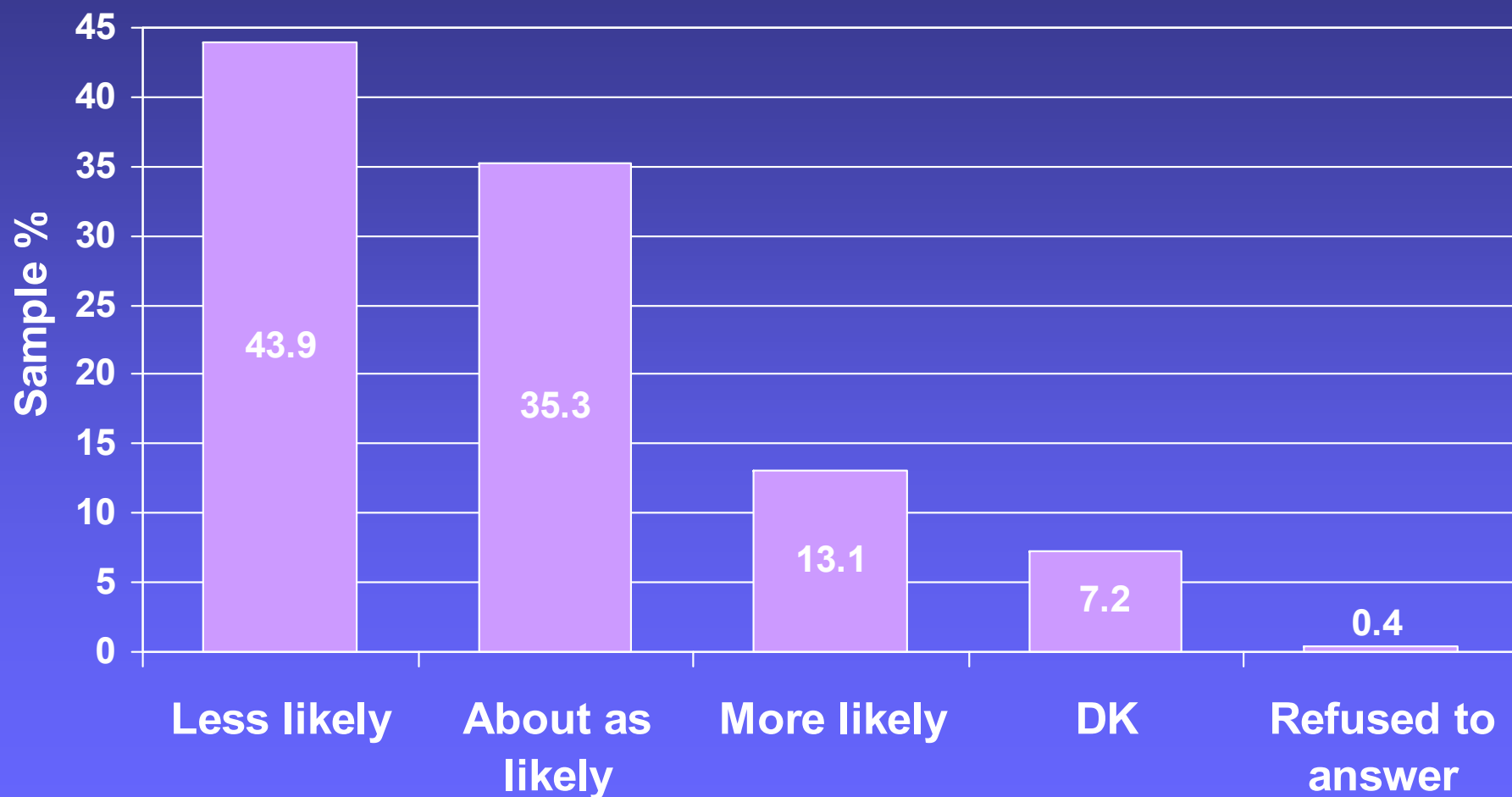
\*HINTS 2005 participants (n=1932) who answered a question about factors that reduce the chances of getting colon cancer (Coups, Hay, & Ford, manuscript in preparation, 2007).

**Perpetuation of knowledge gaps:  
Low perceived risk of colon cancer?**

# Perceptions of risk for colorectal cancer

- A theoretically and empirically important construct in motivating the adoption of health actions, including colorectal cancer screening.
- Increased perception of colorectal cancer risk is *prospectively* related to increased colorectal cancer screening intentions (McCrae et al., 1984; Watts et al., 2003).
- Perception of risk for colon cancer may dictate salience of information re: risk and prevention of this cancer (e.g., Petty & Cacioppo, 1986)

## Compared to the average man/woman your age, would you say that you are... to get colon cancer?\*



\*n=2699 individuals in HINTS 2003; aged 45 and older with valid data on this variable.

## Significant multivariate covariates of perceived risk for colon cancer

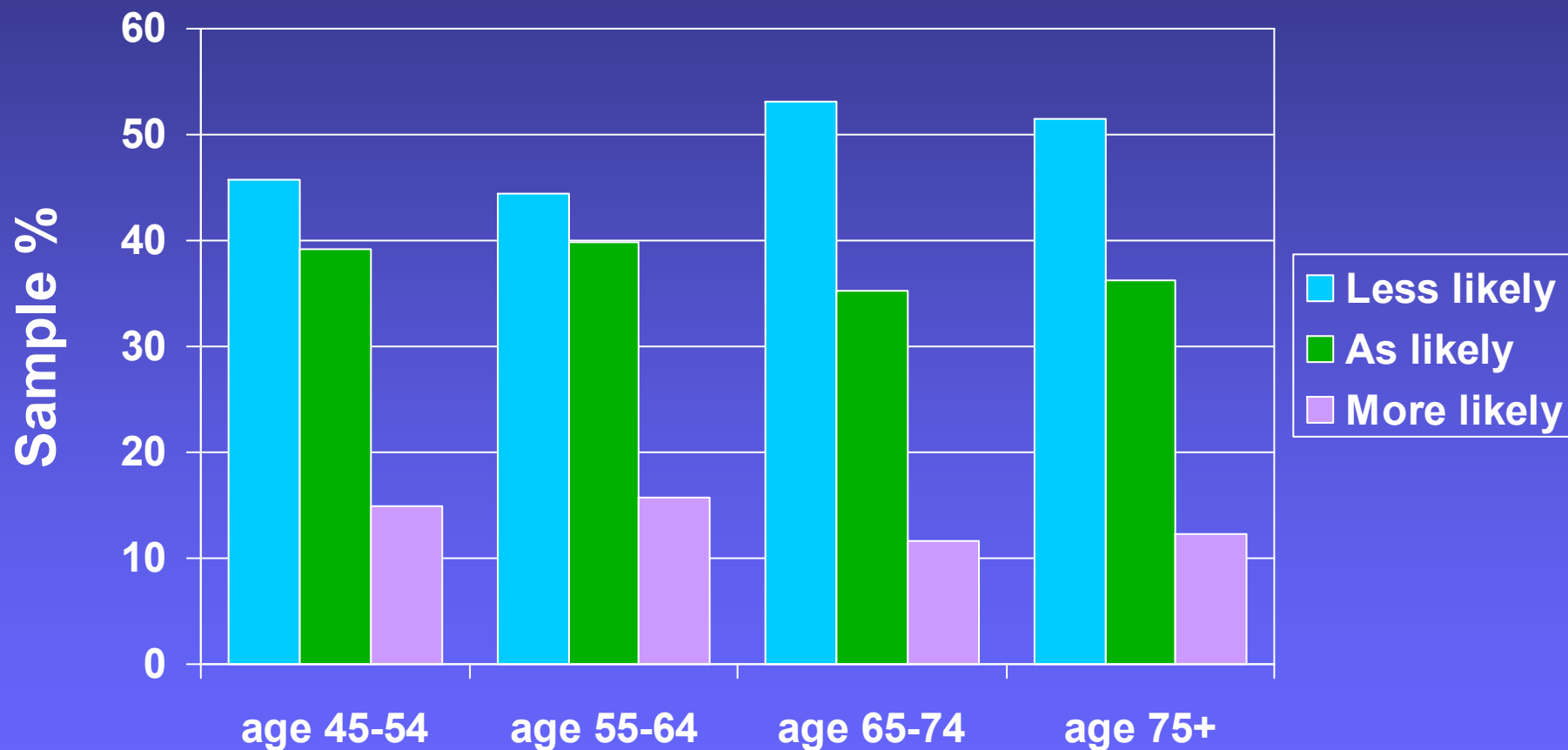
	OR (95% CI)		OR (95% CI)
<b>Age**</b>		<b>General anxiety***</b>	
45-54	1.00	None of the time	1.00
55-64	1.03 (0.83-1.29)	A little of the time	1.19 (0.97- 1.44)
65-74	0.69 (0.55-0.88)	Sometimes	1.42 (1.12- 1.81)
≥ 75	0.72 (0.52-1.01)	Most of the time	2.17 (1.40- 3.36)
		All the time	1.44 (0.68- 3.05)
<b>Family cancer history**</b>		<b>Colon cancer worry***</b>	
Negative	1.00	Rarely/never	1.00
Positive	1.41 (1.17-1.69)	Sometimes	2.67 (2.10- 3.40)
		Often	4.30 (2.25- 8.22)
		All the time	19.71 (5.26-73.84)
<b>Overall health status ***</b>			
Poor	1.00		
Fair	0.77 (0.43-1.41)		
Good	0.52 (0.28-0.94)		
Very good	0.45 (0.24-0.83)		
Excellent	0.28 (0.16-0.50)		

Note: Other covariates in the analysis included: race/ethnicity, physical activity, personal cancer history.

\*\* $p < .01$ ; \*\*\* $p < .001$ .



## Differences in perceived risk by age\*



\*HINTS 2003, n=2699 ages > 45 years (Hay, Coups, & Ford, J Health Comm, 2006).

**Perpetuation of knowledge gaps:  
Might fatalistic beliefs limit knowledge uptake?**

# Preventability/fatalism about colon cancer

Percentage agreement

	Total Sample	≥ age 70	> HS ed	Non-white
Not much you can do to prevent it *	22%	37%	31%	32%
So many recommendations about preventing it hard to know which to follow *	53%	67%	60%	57%
Nearly everything causes it*	12%	16%	17%	19%

\* All  $ps < .05$ .; findings for these variables related to skin cancer follow similar patterns.

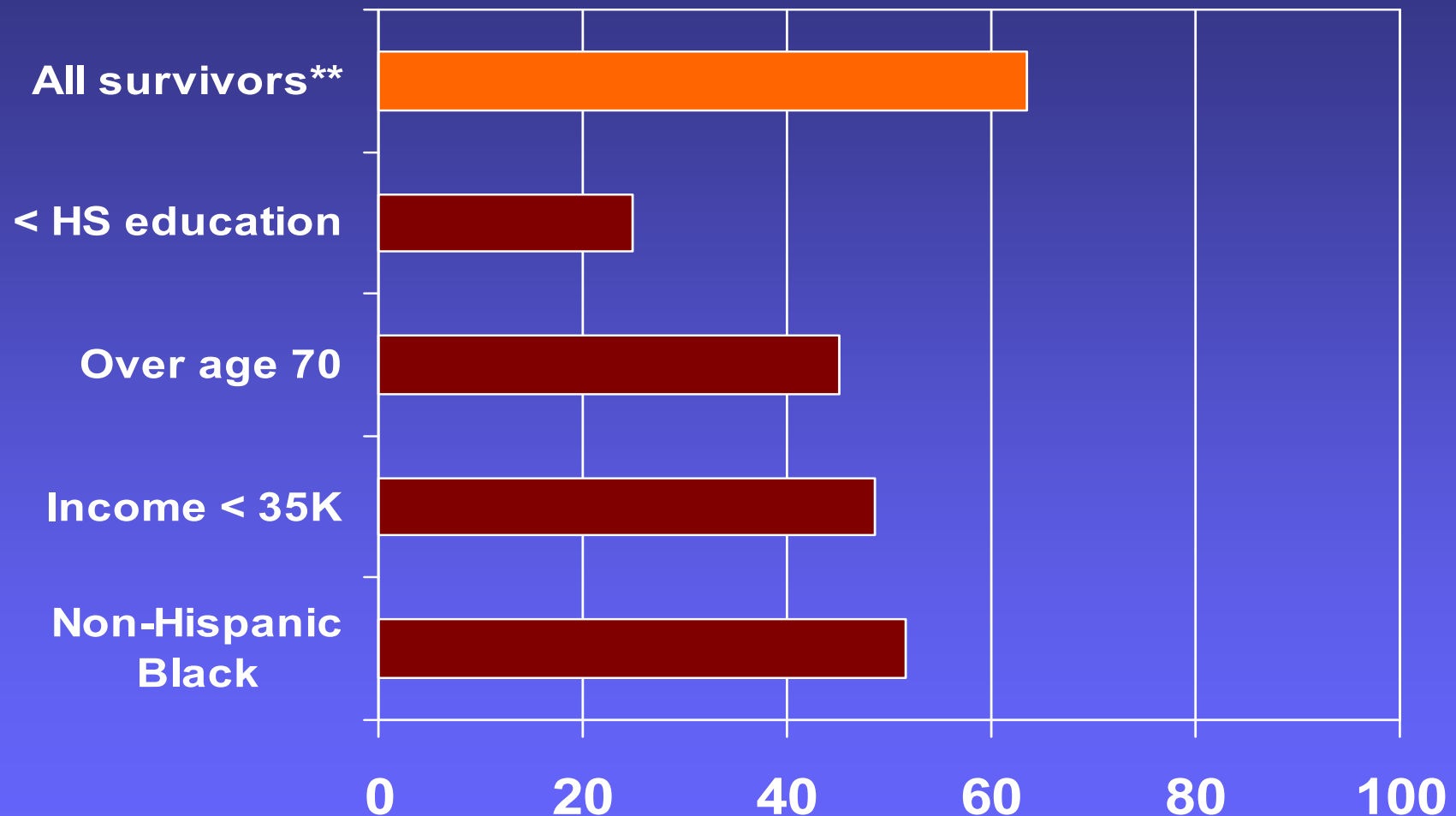
**Perpetuation of knowledge gaps:  
Reduced information seeking in cancer  
survivors?**

## Health information seeking of cancer survivors\*

- Aims to examine patterns and sources of information seeking in a nationally representative sample of cancer survivors.
- $N=711$  individuals who were diagnosed with cancer (excluded non melanoma skin cancer).
- Demographics: 43% under age 60 (average age 62); 57% female, 16% <HS education, 18% non-Caucasian, 63% diagnosed > 5 years ago; most common diagnoses were breast (21%), prostate (15.4%) and cervical (10.9%).

\*HINTS 2005, Ford J, Coups E, & Hay J, Manuscript in preparation (2007).

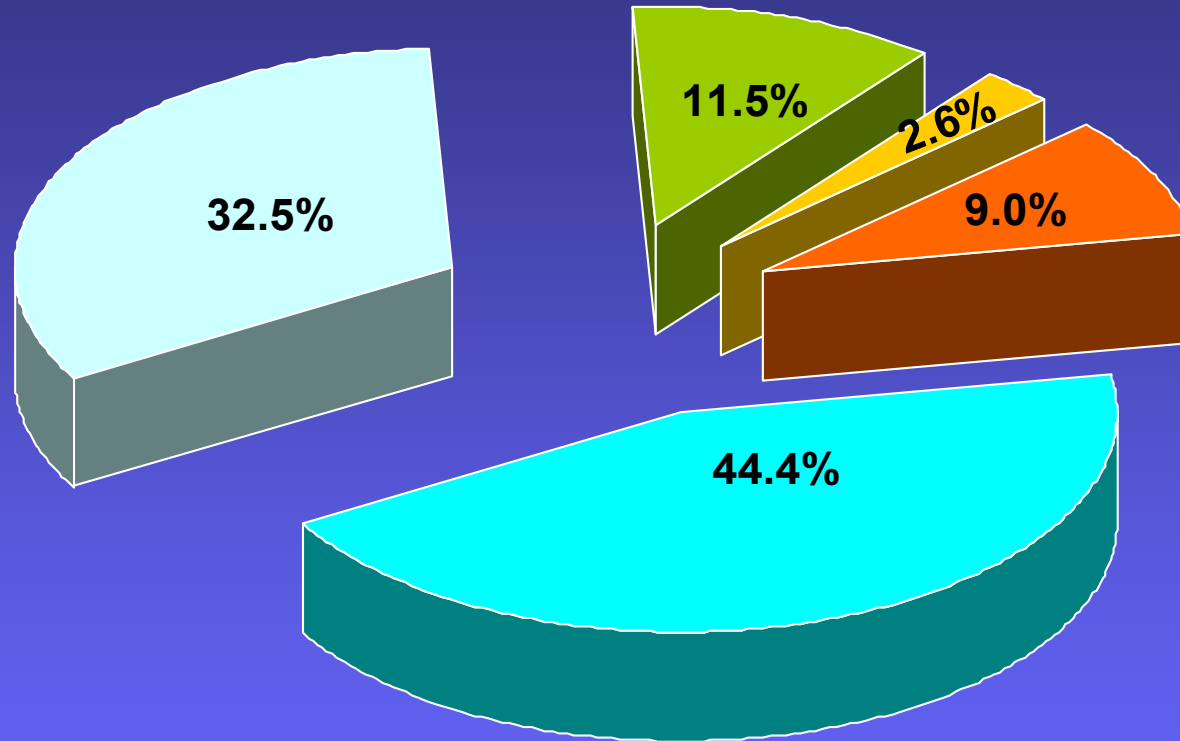
# Significant demographic covariates of knowledge seeking\* in cancer survivors



\* Ever looked for information about cancer from any source?

\*\* Those survivors who did not look for information were unlikely to have had someone else search for information on their behalf.

# The most recent time you wanted information on cancer, where did you go first?



■ Health care provider ■ Internet  
■ Books & Library ■ Cancer Organization  
■ Other

# Conclusions

- Knowledge gaps among the elderly should be examined carefully.
- Low education/income are correlated, and are consistently related to knowledge gaps.
- Education attainment, income, and racial/ethnic group differences generally explain unique variability in knowledge gaps, and related variables.
- Despite cancer knowledge gaps, levels of knowledge are not adequate *across the general population*.
- Intervention targets: Knowledge, motivation, fatalistic beliefs, or all three?
  - Are there beliefs/misconceptions that limit accurate knowledge uptake even in the presence of exposure? What are theoretical premises that may inform us here?
- Next steps for our group:
  - Coups et al., paper on knowledge of physical activity recommendations to reduce colon cancer (HINTS 2005)
  - Ford et al., paper on information seeking in survivors (HINTS 2005)
  - Hay et al., paper on beliefs about skin cancer reduction strategies (HINTS 2005)





**Thank you!**

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## Logistic regression examining multivariate covariates of colon cancer screening knowledge summary variable (n=2895)

	OR (95% CI)		OR (95% CI)
<b>Age</b>		<b>Number of HCP Visits in last year</b>	
50-59	2.24 (1.59-3.15)	1	2.17 (1.13-4.16)
60-69	1.70 (1.11-2.62)	2-4	2.01 (1.03-3.90)
≥70	1.11 (0.71-1.72)	≥5	1.49 (0.73-3.03)
<b>Education</b>		<b>Overall Health Status</b>	
HS Graduate	2.06 (1.18-3.59)	Good	1.03 (0.74-1.43)
Some College	2.06 (1.18-3.59)	Very Good/Excellent	1.16 (0.86-1.57)
College Graduate	2.65 (1.48-4.73)	<b>Ever done FOBT</b>	
<b>Race/Ethnicity</b>		No	0.68 (0.50-0.92)
Non-Hispanic Black	0.46 (0.25-0.86)	<b>Ever had Sigmoidoscopy</b>	
Non-Hispanic Other	0.51 (0.29-0.91)	No	0.81 (0.58-1.12)
Hispanic	0.86 (0.46-1.62)	<b>Ever had Colonoscopy</b>	
<b>Interview Language</b>		No	0.95 (0.73-1.23)
Spanish	0.41 (0.10-1.73)	<b>Cigarette Smoking</b>	
<b>Married/Partnered</b>		Former	1.34 (0.91-1.99)
No	0.72 (0.56-9.93)	Never	1.22 (0.81-1.85)
<b>Health Care Coverage</b>		<b>Physical Activity</b>	
No	0.56 (0.26-1.20)	≥Once/Week	0.90 (0.69-1.16)
<b>Regular HCP</b>		<b>Ever Looked for Cancer Information</b>	
No	0.83 (0.56-1.22)	No	0.76 (0.60-0.95)
		<b>First Source for Cancer Information</b>	
		Internet	0.96 (0.74-1.25)
		Other Source	1.10 (0.79-1.54)
		Don't Know	0.79 (0.11-5.63)