

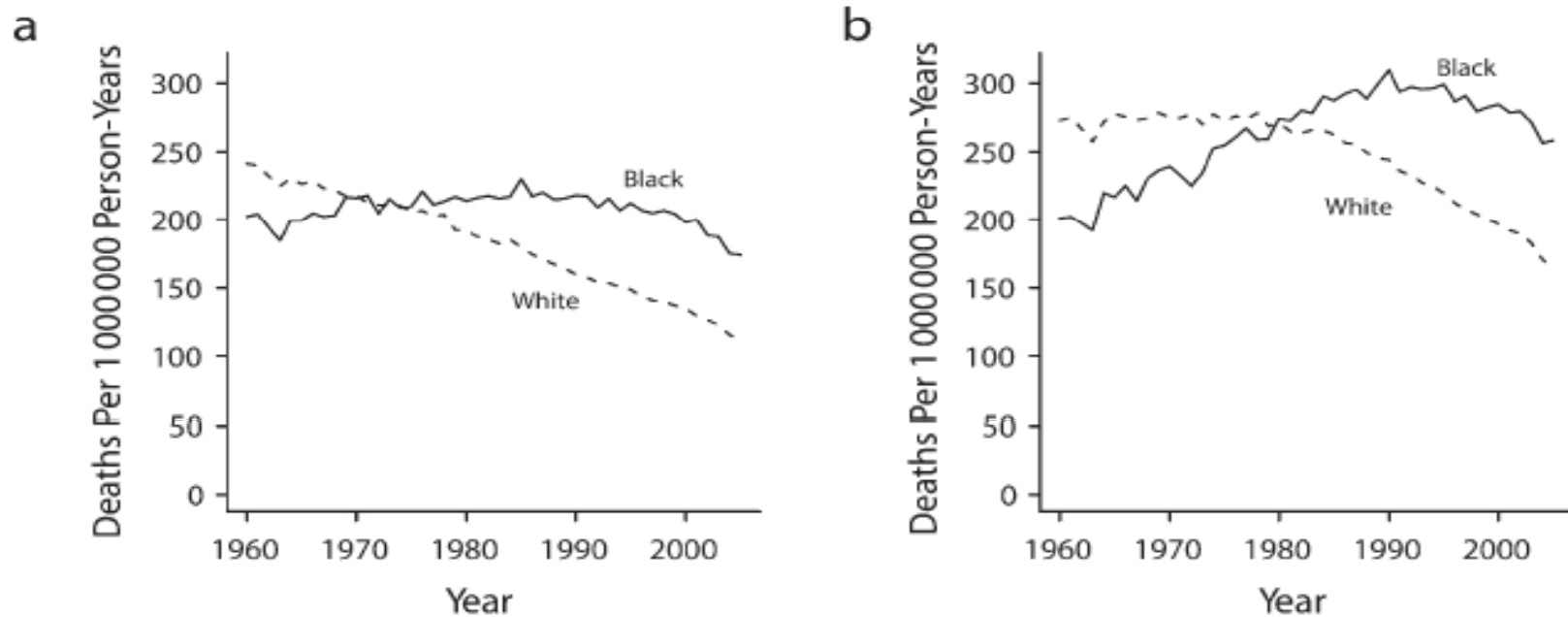
# Colon Cancer Patterns of Care in Chicago

Progress, preliminary results and  
future directions

Presented by Garth Rauscher, PhD

IHRP Brown Bag Lecture  
January 23, 2013

# U.S. CRC Mortality (1960 - 2005)



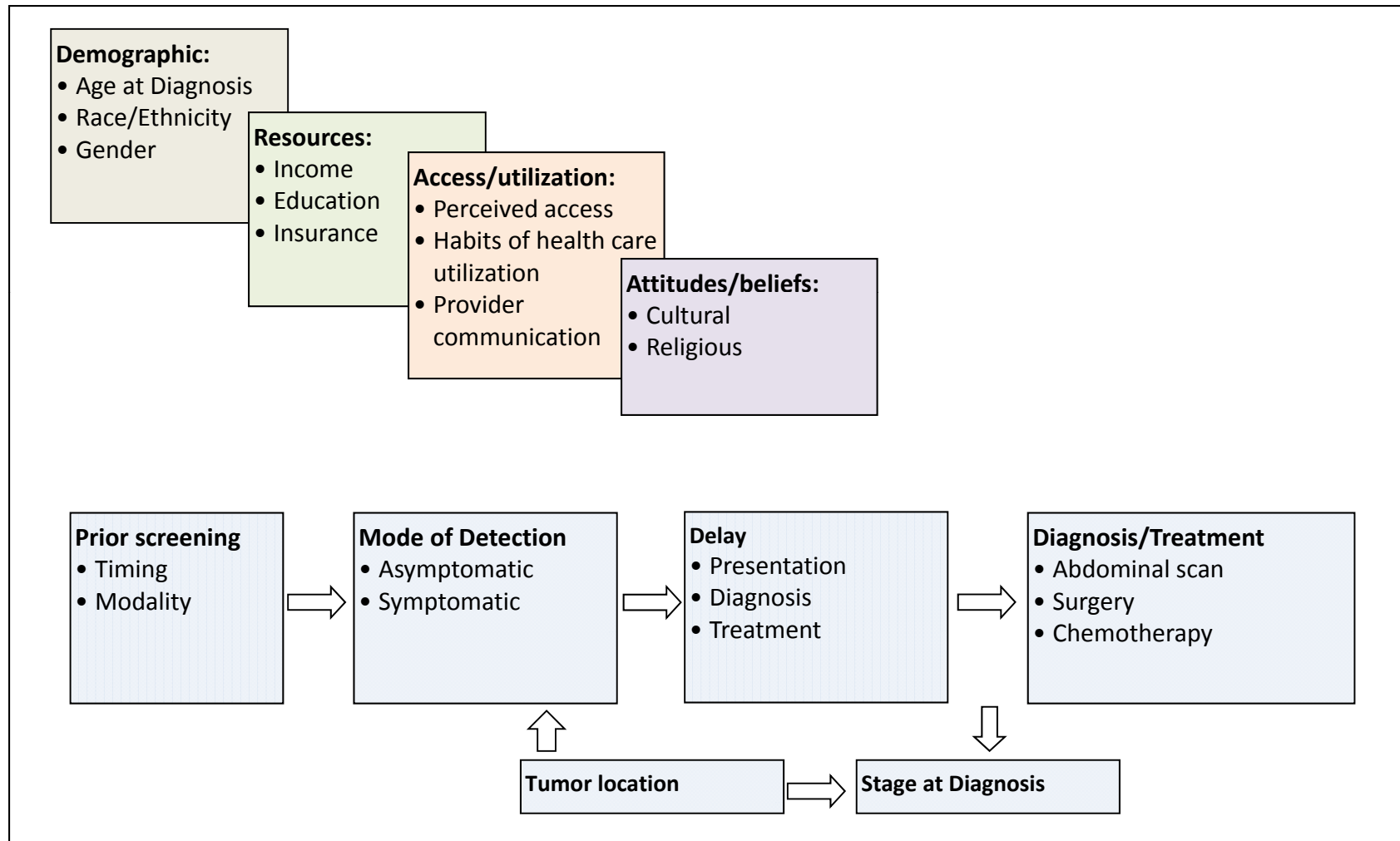
**FIGURE 1—Overall standardized colorectal cancer death rate for (a) women and (b) men: US Mortality Data Files and US intercensal estimates, 1960–2005.**

# Colon Cancer Patterns of Care in Chicago

- **Goals**

1. Examine how prior **screening** and **mode of detection** contributes to racial disparities in stage at diagnosis.
2. Identify factors related to **delays** in diagnosis and treatment in AA and NHW colon cancer patients.
3. Identify factors related to whether AA and NHW colon cancer patients receive the **standard of diagnosis and treatment** for colon cancer.

# Conceptual Model



# Colon Cancer Patterns of Care in Chicago

## **Study Implementation**

# Colon Cancer Patterns of Care in Chicago

- Project 2 of The Center of Excellence in Eliminating Disparities (CEED) (Calhoun/Ferrans) 1 P60MD003424-01 NCMHD 5 years
- Planned interviews and medical record abstractions (N= 500) of newly-diagnosed cases of colon cancer in AA and NHW men and women
- Patient ascertainment at non-UIC sites:
  - Advocate Christ Hospital (Renee Jacobs, MD)
  - Advocate Illinois Masonic (Deepti Singh MD)
  - Rush Medical Center (Marc Brand , MD)
  - Northwestern Memorial Hospital (Amy Halverson , MD)
  - University of Chicago (Blase Polite , MD)
  - John H Stroger Hospital (Tom Lad , MD)
  - Ingalls Health System (Mark Kozloff , MD)
  - Advocate Trinity Hospital (Sanobar Khan, MD)

# Colon Cancer Patterns of Care in Chicago

- **Eligibility Requirements**

1. First primary invasive colon cancer
2. Non-Hispanic White or African-American, and English speaking.
3. Aged 30 and 79 at diagnosis
4. Residents of Cook, Dupage, Lake or Will counties in Illinois, or residents of Lake County, Indiana at the time of diagnosis.
5. Earliest eligible date of diagnosed varies by site depending on when the site came on board.

## Case Finding

In order to capture a large variation of the patient population that receives treatment at each facility, it is important to identify patients who were colonoscopy-detected, or had definitive surgery, or had first-course chemotherapy at your institution, ***or any combination thereof***, regardless of where else they might have received care.



## **PARTICIPATING HOSPITALS INCLUDE:**

- Advocate Health Care System
- John H. Stroger, Jr. Hospital of Cook County
- Northwestern Memorial Hospital
- Rush University Medical Center
- University of Chicago
- University of Illinois Hospital and Health Sciences System

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**UNIVERSITY OF ILLINOIS AT CHICAGO  
SCHOOL OF PUBLIC HEALTH**

## **CHICAGO COLON CANCER PATTERNS OF CARE STUDY**

**Information Brochure**  
**For Patients**



## DEAR PATIENTS:

You may be someone, or know someone, who has colon cancer and is interested in learning more about a colon cancer research study.

Researchers at several hospitals, along with Dr. Garth Rauscher at the University of Illinois at Chicago, are looking to:

- Discover why some patients are diagnosed with colon cancer later than others
- Learn better ways to assist patients to be diagnosed earlier
- Share research findings about colon cancer with doctors, nurses, other health care providers and concerned citizens

Your hospital is working with the research team to reach a total of 650 patients from several institutions over the next 2 years. Patients are being selected and invited to participate based on many factors including: when they were diagnosed, their age, and county in which they live.

## WHAT DO WE ALREADY KNOW?

- Detecting cancer early saves lives
- African American men and women are diagnosed with colon cancer later than others
- Hearing from patients about their experiences with colon cancer screening, diagnosis, and treatment is needed

## WHO CAN JOIN THIS STUDY?

Each year, several thousand men and women are diagnosed with colon cancer in Illinois, and each of them has a unique story to tell. Patients with colon cancer are eligible for the study if they are:

- Recently diagnosed colon cancer patients
- White or African American men and women
- Aged 30 – 79
- Living in one of the following counties: Cook, DuPage, Lake, or Will County, Ill.; or Lake County, Ind.

## WHAT WILL HAPPEN NEXT?

Eligible colon cancer patients will receive a letter inviting them to participate in this research. **Interested and eligible patients** will be asked to complete an in-person interview that will take about 2 hours of time.

They will also be asked to give permission to the researchers to review their medical records, *but only those parts that are specific to their colon cancer screening, diagnosis and treatment.*

Patients are given \$100 for their time and contributions to the study.

## **KEEPING YOU INFORMED!**

## **WISHING YOU WELL**

This study has been approved by the Institutional Review Boards (IRB) of the University of Illinois at Chicago and the participating hospitals.

# Survey Research Laboratory

- Site identifies potentially eligible patient and enters data into REDCap
- SRL downloads cases, verifies eligibility, performs duplicate check against all cases from all sites. There are 3 different tables in REDCap (Stroger, Ingalls, and all others); each has its own unique download procedure. Moreover, constant, ongoing changes to REDCap database throughout study require tweaks of SRL programs
- Sample loading of new, eligible cases is done 4x/week into SRL's CATI system for case management; this allows for shorter appointment windows from screener to field.
- Introductory letters, personalized on hospital letterhead, co-signed by site PI and Dr. Rauscher, along with study brochure are mailed so that recruitment packet is received no earlier than 45 days from surgery date (or date of diagnosis in cases where no surgery needed).
- To date, there have been 26 mailings; each mailing requires verification that site IRB up to date

# Survey Research Laboratory

- **Process involved for each patient**
  - If patients do not respond to mailing after two weeks, SRL begins telephone follow-up; up to 15 contact attempts are made, as warranted.
  - Interviews are scheduled at patients' preferred location (SRL, hospital, or home), and if the interview is at hospital, individual coordination with site liaison is required for each appointment.
  - Confirmation letter mailed/e-mailed to respondent with details of interview appointment
  - During the interview appointment the interviewer
    - Consents patient to interview and medical record abstraction (required)
    - Conducts the interview
    - Completes multiple medical release forms and obtains patient signature
  - Data are exported from the laptop to central database and subject to quality control review. 10% of completes are validated; audio recorded portion of path to diagnosis are reviewed to ensure data recorded correctly in questionnaire; feedback provided to interviewer as needed

# Computer Assisted Personal Interview

1. Habits of Health Utilization
2. Perceived Access to care
3. Knowledge of screening procedures and guidelines
4. Katz comorbidity scale
5. Prior history of colon problems or disease
6. Mode of detection
7. Diagnostic follow-up events
8. Diagnostic colonoscopy
9. Liver/Abdominal scan
10. Surgeries
11. Chemotherapy
12. Patient Provider Communication
13. Regular provider / trust
14. Last routine physical
15. Last stool test
16. Last colonoscopy
17. Last sigmoidoscopy
18. Last barium enema
19. Family history of colon cancer
20. Health insurance
21. Opinions about colon cancer
22. Felt loneliness
23. Perceived stress
24. Psychological consequences
25. Depression
26. Social support during diagnosis
27. Several religiosity scales
28. Demographics

# Colon Cancer Patterns of Care in Chicago

## Timeline for completed interviews across the sites

	2011			2012												Total
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
UIC	2					2	2		2			2				10
Advocate Masonic		1	1		2		3			2			1	2		12
Northwestern	2	4	1		5	6			3			5	3		1	30
University of Chicago	2	1	2	4	3	2	1		2	1	1	1		1	2	23
Rush Medical Center	2	4	4	5	6	4	1		3		2	1		8	1	41
Advocate Christ				13	1	1		3	1	8	1	2				30
Stroger Hospital							7	3	2	5	3	4	3		1	28
Advocate Trinity																
Ingalls Health System															2	2
	8	10	8	22	17	15	14	6	13	16	7	15	7	11	7	176



# Colon Cancer Patterns of Care in Chicago

## **Preliminary results**

Preliminary results are based on the first 166 patient interviews and a subset of medical record abstractions

# Colon Cancer Patterns of Care in Chicago

## Mode of detection

**Main finding of interest:** men are considerably more likely than women to report (asymptomatic) screen-detection of their colon cancer than women, and we don't know why.



# Mode of detection

Now, I would like you to read the four statements on Card B. Then, please tell me which statement best represents how you became aware, for the very first time, of the problem that was later diagnosed as colon cancer. Please give me the number of the statement that best describes your situation.

<1> I was having problems or symptoms with my colon or bowel, so I went to the doctor. They did some tests and told me I had colon cancer.

<2> I was having other problems, not with my colon or bowel, so I went to the doctor. They did some tests and told me I had colon cancer.

<3> I was not having any problems with my colon or bowel. I got a test or procedure as a routine check, and my doctor told me there was a problem.

<4> I was having a follow-up colonoscopy, because a prior colonoscopy had found polyps or growths, and my doctor told me there was a problem.

# Mode of detection

Mode of Detection	N	%
Problems with my colon	62	43
Other problems not with my colon	41	28
Asymptomatic screen	31	22
Asymptomatic follow-up colonoscopy	10	7

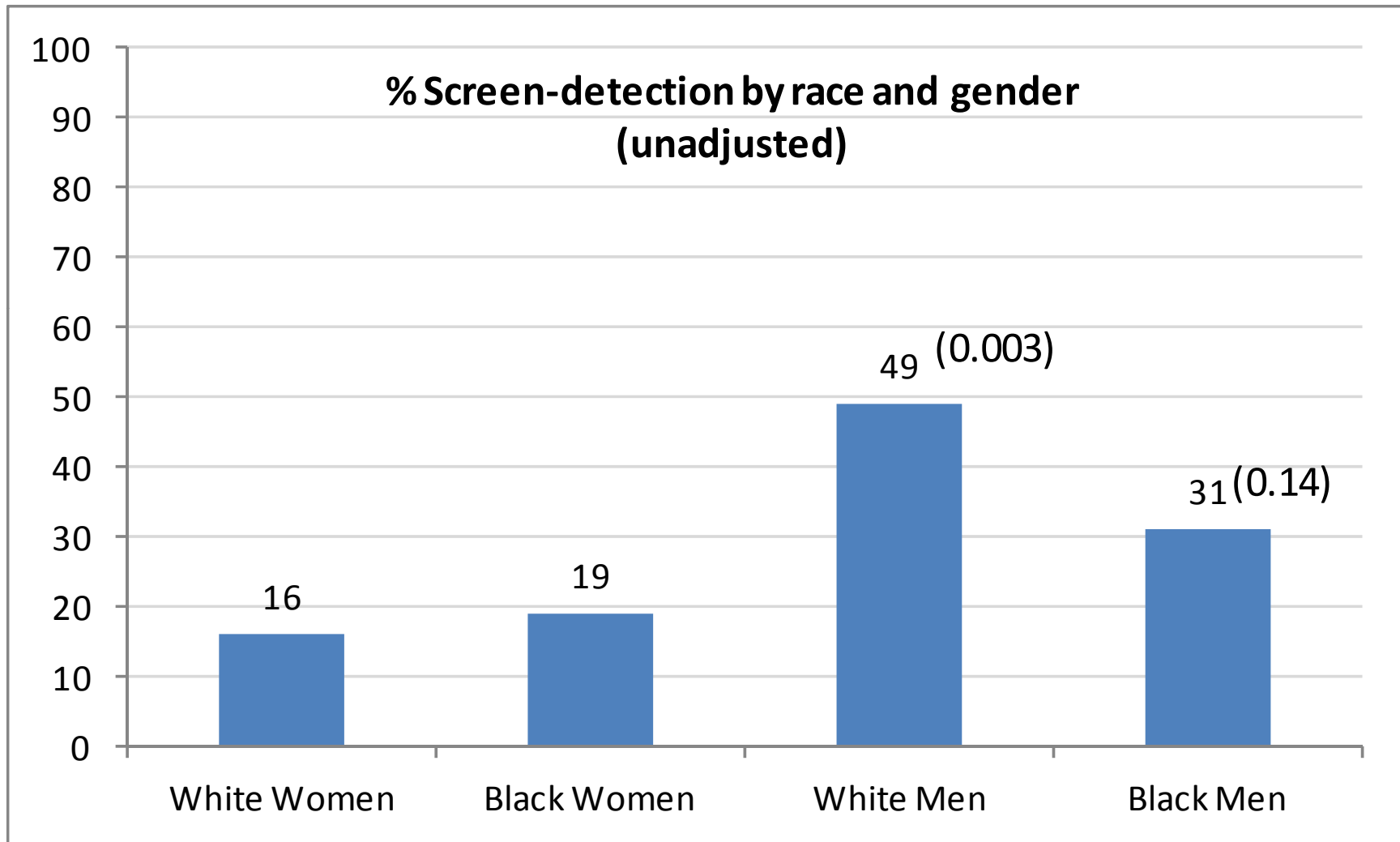
# Asymptomatic (Screen) Detection

## Demographics and screen-detected colon cancer

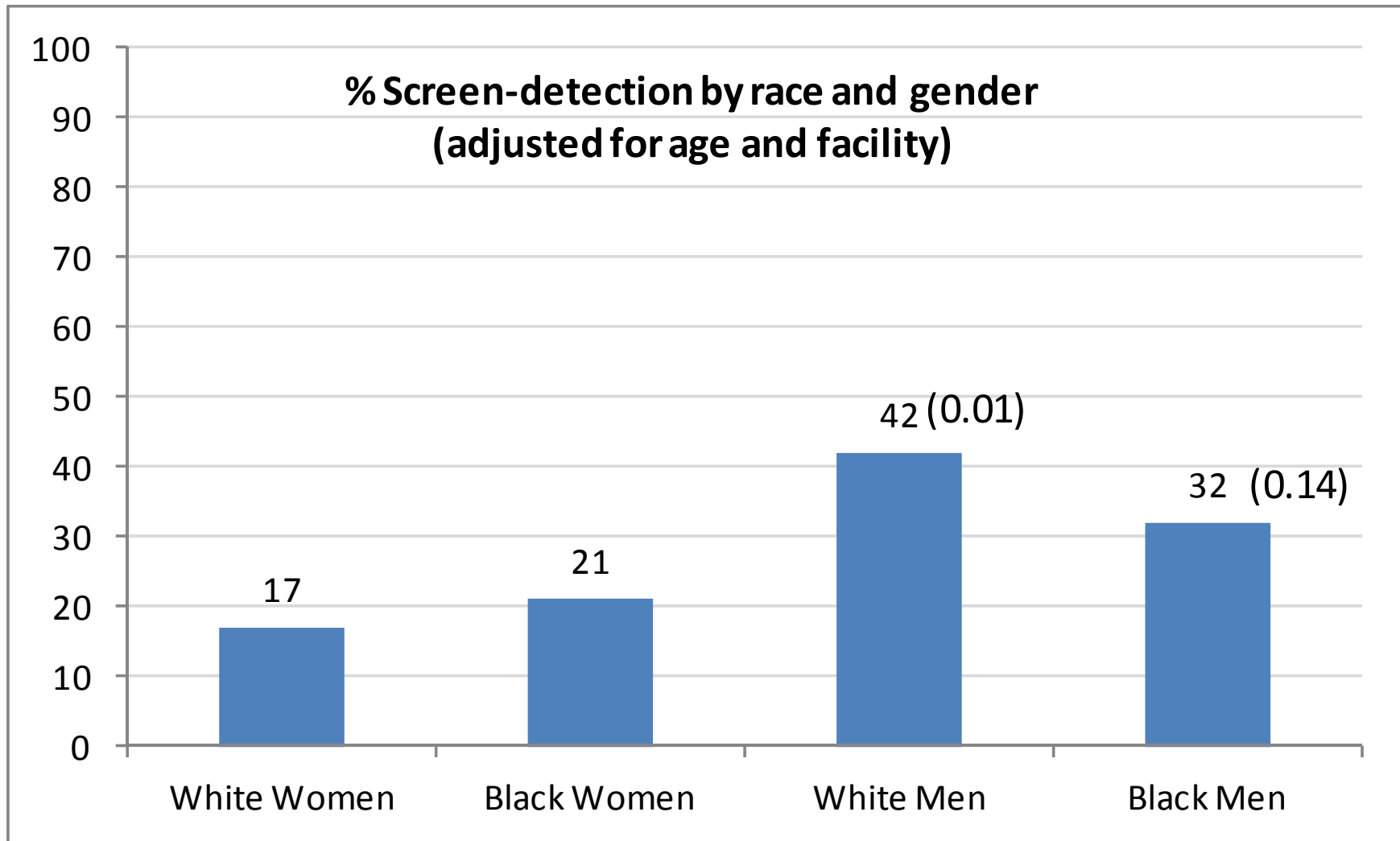
	N	%	P-Value
Age at interview			0.008
18 to 49	23	0	
50 to 65	78	33	
66 and above	43	35	
Race			
nH White	71	31	
nH Black	73	26	
Gender			0.004
Female	73	18	
Male	71	39	
Education			0.03
< High school	20	15	
High school	35	20	
>High school	89	35	
Annual Household Income			0.02
<25,000	44	18	
25,000-<50,000	35	20	
>50,000	49	39	
Private health insurance			0.002
No	47	13	
Yes	96	36	

P-values>0.2 are suppressed

# Screen-detection by race and gender



# Screen-detection by race and gender



# Excess risk of symptomatic detection in women

## Possible explanations?

- Differential accuracy of self-reports
  - Men more likely to report symptomatic as screen-detected, than women?
- Colon cancer perceived as a male disease
- Gender differences in the effectiveness of screening that predispose women to cancer missed at screening
  - More aggressive tumor biology in women?
  - More proximally located tumors in women?
  - Poorer quality of prep in women leading to more missed cancer?
- Gender differences in perception of symptoms and attribution
  - Do women sometimes misattribute colon cancer symptoms as being related to gynecologic/hormonal/reproductive issues?

# Colon Cancer Patterns of Care in Chicago

## Stage at Diagnosis

# Early Stage at Diagnosis

<b>Stage 1 vs. 234</b>		
	<b>N</b>	<b>%</b>
<b>Age at interview</b> *		
18 to 49	18	<b>6</b>
50 to 65	55	<b>16</b>
66 and above	38	<b>26</b>
<b>Race</b> +		
nH White	63	<b>22</b>
nH Black	48	<b>13</b>
<b>Gender</b>		
Female	61	<b>18</b>
Male	50	<b>18</b>
<b>Education</b>		
< High school	11	<b>0</b>
High school	27	<b>26</b>
>High school	73	<b>18</b>
<b>Annual Household Income</b>		
<25,000	27	<b>11</b>
25,000-<50,000	26	<b>15</b>
>50,000	54	<b>24</b>
<b>Private insurance (diagnosis)</b> *		
No	29	<b>7</b>
Yes	82	<b>22</b>
<b>Mode of detection</b> ***		
Symptoms	77	<b>10</b>
Screening	30	<b>40</b>



# Colon Cancer Patterns of Care in Chicago

## Stage at Diagnosis

**Main finding of interest:** A large percentage of patients are diagnosed with late stage colon cancer despite reporting screen-detection of their cancer.

# Why are so many patients with screen-detected colon cancer still diagnosed with late stage disease?

## Predictors of late stage colon cancer among patients reporting screen-detection.

	N	%	
Age at interview			0.18
50-64	17	29	
65+	13	54	
Race			0.22
nH White	19	32	
nH Black	11	55	
Gender			
Female	11	36	
Male	19	42	
Education			
<=HS	7	43	
>HS	23	39	
Income			0.02
<50,000	8	75	
>50,000	21	29	
Prior colonoscopy			
No	16	44	
Yes	14	36	
Colon problem <6 month of diagnosis			
No	20	35	
Yes	10	50	

P-values >0.3 are suppressed

# Colon Cancer Patterns of Care in Chicago

## **Delayed medical presentation, diagnosis, and treatment**

**Main finding of interest:** There is a racial disparity in prolonged clinical delay.

# Prolonged Clinical Delay

**Table. Predictors of prolonged clinical delay**

	<b>&gt;90 days</b>	
	<b>N</b>	<b>%</b>
<b>Age at interview</b>		
18 to 49	23	<b>13</b>
50 to 65	72	<b>18</b>
66 and above	42	<b>19</b>
<b>Race</b> *		
nH White	69	<b>12</b>
nH Black	68	<b>24</b>
<b>Gender</b>		
Female	70	<b>16</b>
Male	67	<b>19</b>
<b>Education</b>		
< High school	17	<b>18</b>
High school	34	<b>15</b>
>High school	86	<b>19</b>
<b>Annual Household Income</b>		
<25,000	42	<b>17</b>
25,000-<50,000	33	<b>18</b>
>50,000	55	<b>18</b>
<b>Private insurance (diagnosis)</b>		
No	50	<b>18</b>
Yes	87	<b>17</b>

+p<0.20, \*p<0.10, \*\*p<0.01, \*\*\*p<0.001

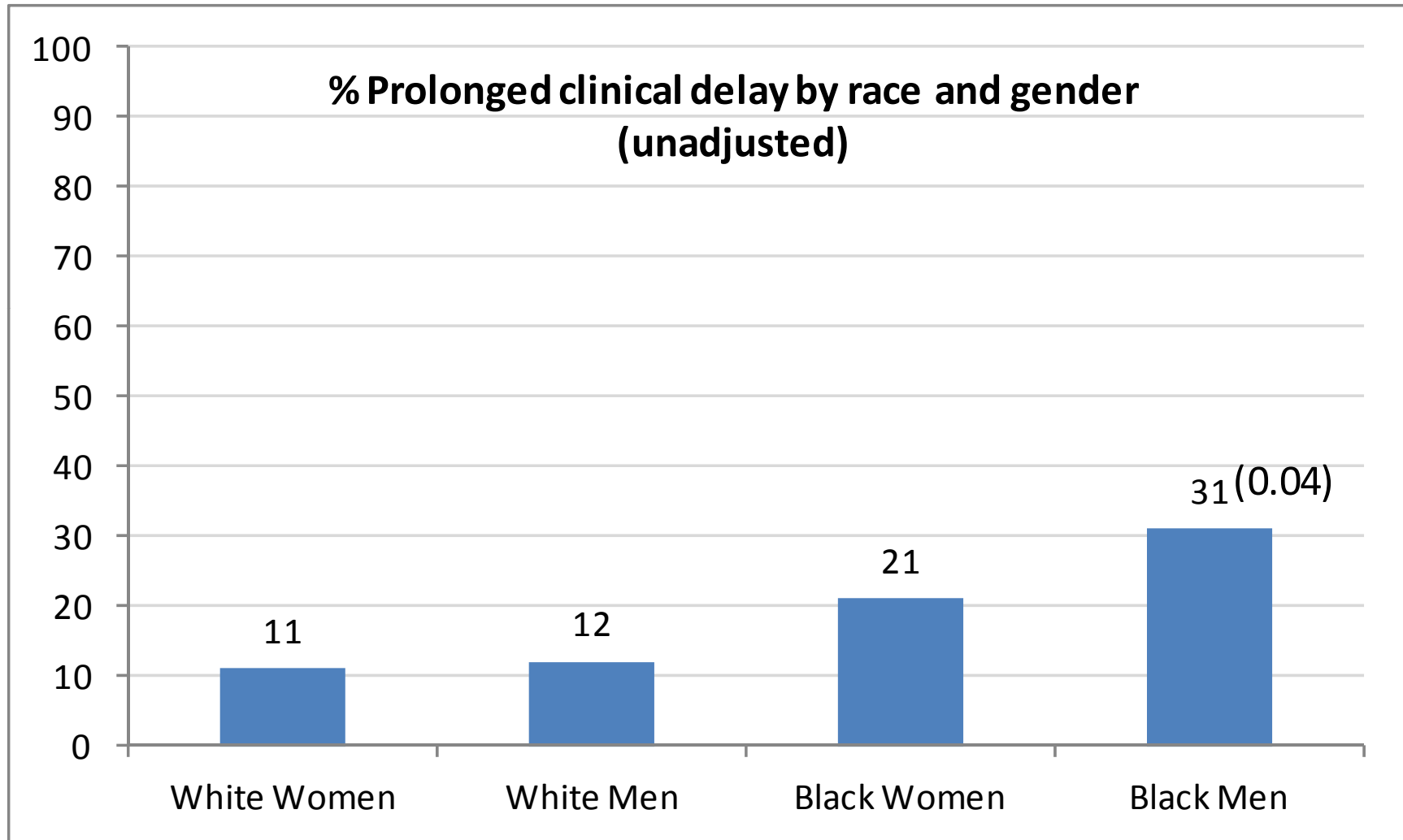
# Prolonged Clinical Delay

**Table. Clinical predictors of prolonged clinical delay**

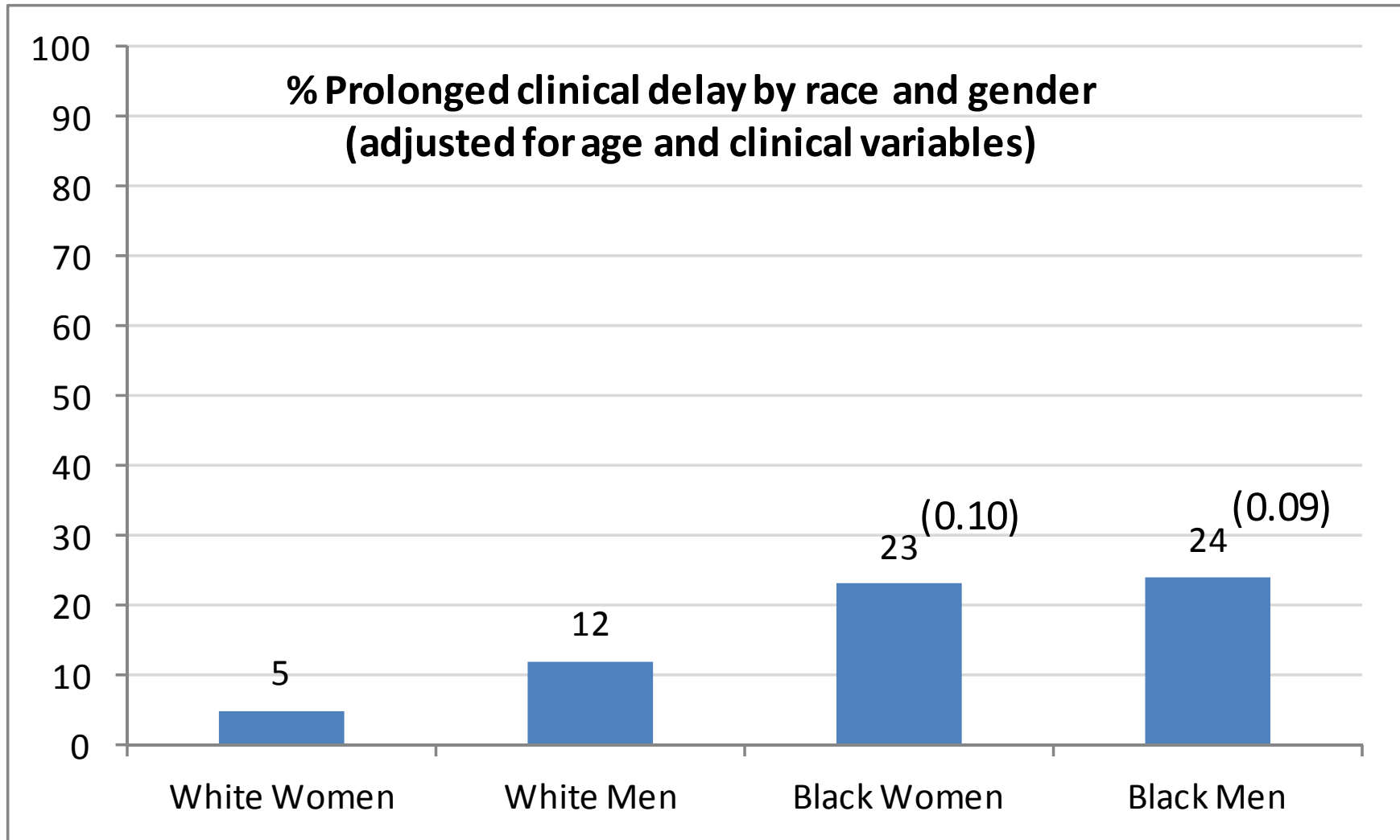
	>90 days	
	N	%
<b>Mode of detection</b>		<b>*</b>
GI Symptoms	68	<b>10</b>
Non-GI Symptoms	41	<b>20</b>
Asymptomatic	44	<b>30</b>
<b>Number of diagnostic visits</b>		<b>***</b>
0	30	<b>10</b>
1	62	<b>11</b>
2	34	<b>18</b>
3+	27	<b>44</b>
<b>Diagnostic colonoscopy</b>		<b>+</b>
No	9	<b>0</b>
Yes	144	<b>19</b>
<b>Abdominal scan</b>		
No	55	<b>16</b>
Yes	88	<b>18</b>
<b>Offered chemotherapy</b>		<b>**</b>
No	26	<b>35</b>
Yes	92	<b>11</b>

+p<0.20, \*p<0.10, \*\*p<0.01, \*\*\*p<0.001

# Prolonged clinical delay by race and gender



# Prolonged clinical delay by race and gender



# Diagnosis and Treatment

- As part of your diagnosis, did you have a colonoscopy? **(94%)**
- As part of ..., did you have a liver or other abdominal scan? **(68%)**
- Have you had any surgery to remove the cancer from your colon? **(94%)**
- Have you had an appointment or doctor's visit with a specialist, known as a medical oncologist or chemotherapy doctor, about your colon cancer? **(76%)**
- Were you offered chemotherapy as part of the treatment plan, or has a doctor suggested that you need it? **(79%)**
- Did you agree to have chemotherapy? **(95%)**
- Have you begun chemotherapy yet? **(95%)**
- Have you finished getting all of the chemotherapy ... **(17%)**



# Abdominal Scan

## Predictors of receiving an abdominal scan at diagnosis

	Descriptive		
	N	%	
Age at interview			0.02
18 to 49	26	85	
50 to 65	84	69	
66 and above	47	57	
Gender			
Female	79	71	
Male	78	65	
Race			
nH White	81	72	
nH Black	76	64	
Education			0.001
<= High school	59	53	
>High school	98	78	
Annual Household Income			0.2
<25,000	42	62	
25,000-<50,000	39	67	
>50,000	68	74	
Private insurance (diagnosis)			
No	53	64	
Yes	104	70	
Mode of detection			
GI symptoms	69	72	
Other problem	40	60	
Asymptomatic	43	67	

P-values > 0.2 are suppressed

# Summary of preliminary results

- Men are more likely than women to report a screen-detected colon cancer, a finding that to our knowledge has not been reported previously.
- Many patients with screen-detected colon cancer are still being diagnosed with late stage cancer, which is troubling.
- Black patients are more likely to experience prolonged delays from medical presentation to treatment initiation, a finding that is not due to racial differences in clinical variables measured.
- Receipt of a diagnostic scan appears to be more common among higher SES and perhaps Black patients.
- When analyzing data it is important to take into consideration how potential triaging related to prognosis might factor into the results.
- Results need to be examined within strata of race and gender, not just race.