

The Impact of Race/Ethnicity on the NAACCR I/M Ratio

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Objective

- As part of the NAACCR IM Ratio Method Review Committee, the TCR and CCR evaluated the impact of race/ethnicity on case completeness estimations using the current IM Ratio Method.
- Particular attention was given to the effects of race/ethnicity beyond “white” and “black” on a registry’s case completeness estimation.

Reasons for Consideration

- Observed consistent pattern of differences between NAACCR IM Ratio Method and other methods of case estimation
- Major Concern about comparability of populations used for generating rates in the IM Ratio Method
 - SEER 11 and U.S data not representative of certain registry populations

Population Percentage Comparisons by Race/Ethnicity, 2001

	White	Black	Asian/PI	Hispanic*
SEER 11	78.7	11.6	11.8	21.2
U.S.	75.1	12.3	3.7	12.5
California	78.9	7.4	12.4	33.3
Texas	84.3	11.9	3.1	32.9
Iowa	95.6	2.5	1.5	2.9
Georgia	68.0	29.2	2.5	5.7

Source: 2000 Census and the United States Cancer Statistics 2001 Incidence and Mortality.

*Hispanic is not mutually exclusive.

Reasons for Consideration

- NAACCR Method only adjusts for two races
- Cancer rates vary significantly by race/ethnicity and site
 - Large white Hispanic populations lower overall “white” or “all races” cancer incidence/mortality rates
 - Large proportions of other populations can affect registry cancer rates

Lung Cancer Age-Adjusted Incidence Rates by Race/Ethnicity, Males, 2001

	All Races	White	Black	Asian/PI	Hispanic*	NHW
USCS	87.7	86.8	109.0	50.4	52.0	--
SEER 11	73.5	72.7	108.2	54.7	39.6	77.1
CA	67.9	68.0	97.0	53.7	39.8	78.2
TX	87.3	85.5	115.9	42.3	52.4	99.4
IA	83.7	83.0	162.9	--	--	--
GA	108.1	105.7	123.0	--	55.0	--

Source: United States Cancer Statistics 2001 Incidence and Mortality. SEER11 rates from SEER*Stat Database: Incidence-SEER11 Regs Public Use Data Sets, Nov. 2003 (1992-2001). CA and TX NHW rates from the CCR and TCR. *Hispanic is not mutually exclusive.

Breast Cancer Age-Adjusted Incidence Rates by Race/Ethnicity, Females, 2001

	All Races	White	Black	Asian/PI	Hispanic*	NHW
USCS	127.2	129.9	106.7	78.1	86.6	--
SEER 11	132.1	139.0	111.9	97.8	84.2	147.3
CA	128.1	135.8	114.0	82.2	85.5	156.4
TX	109.7	110.4	103.8	39.8	77.4	131.0
IA	128.3	128.4	--	--	--	--
GA	124.6	131.6	105.4	59.1	101.3	--

Source: United States Cancer Statistics 2001 Incidence and Mortality. SEER11 rates from SEER*Stat Database: Incidence-SEER11 Regs Public Use Data Sets, Nov. 2003 (1992-2001). NHW rates from the CCR and TCR.

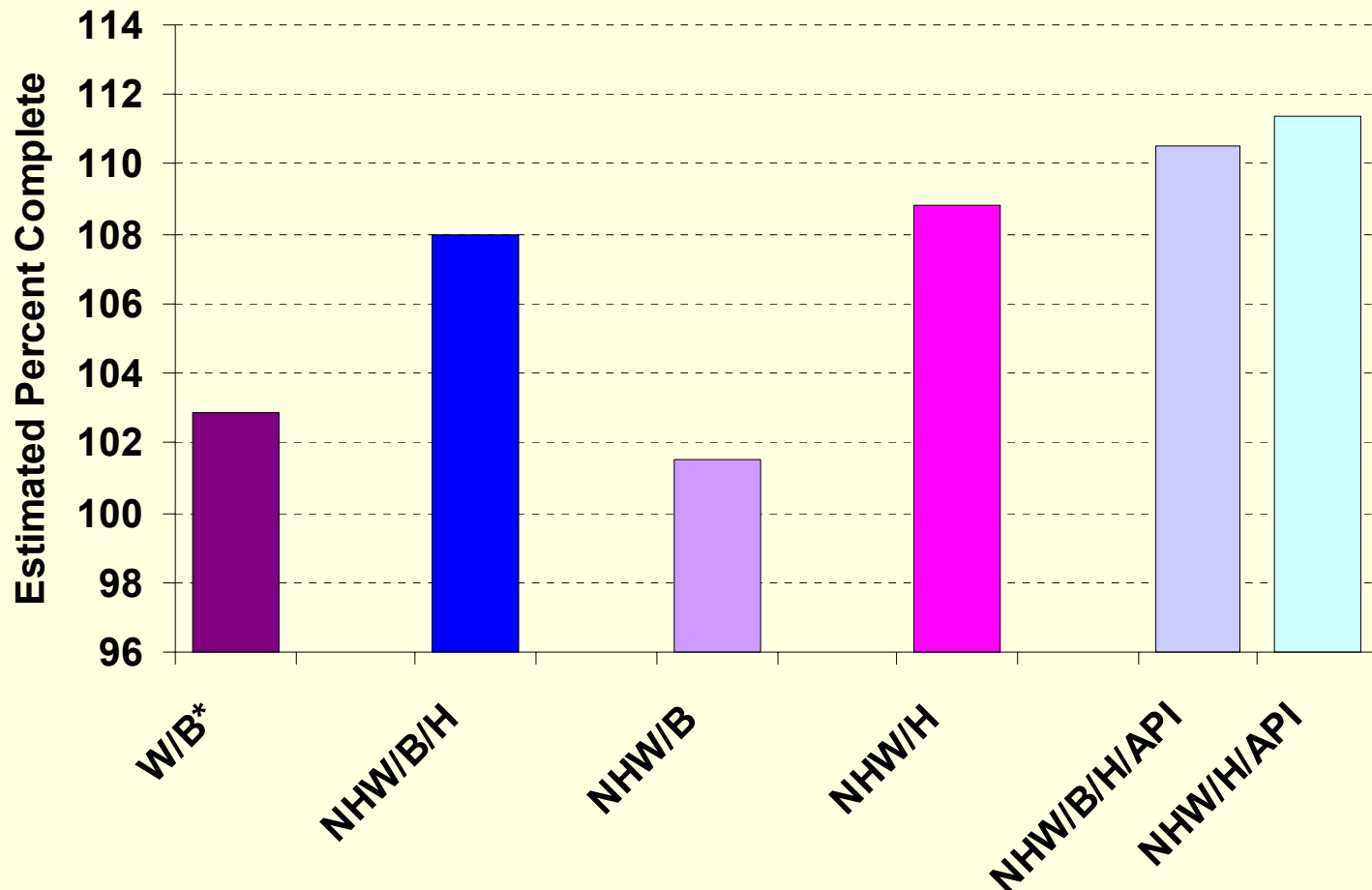
*Hispanic is not mutually exclusive.

Methods

- We reviewed NAACCR documentation to become more familiar with the history and current application of the IM ratio. IM case estimation spreadsheets were then
 - 1) modified to include race/ethnic adjustment for non-Hispanic whites, Blacks, Hispanics and Asian/PIs
 - 2) used to calculate individual sex/race/site-specific expected cases to examine the weighting of various sub-sites and further examine the potential impact of race/ethnicity

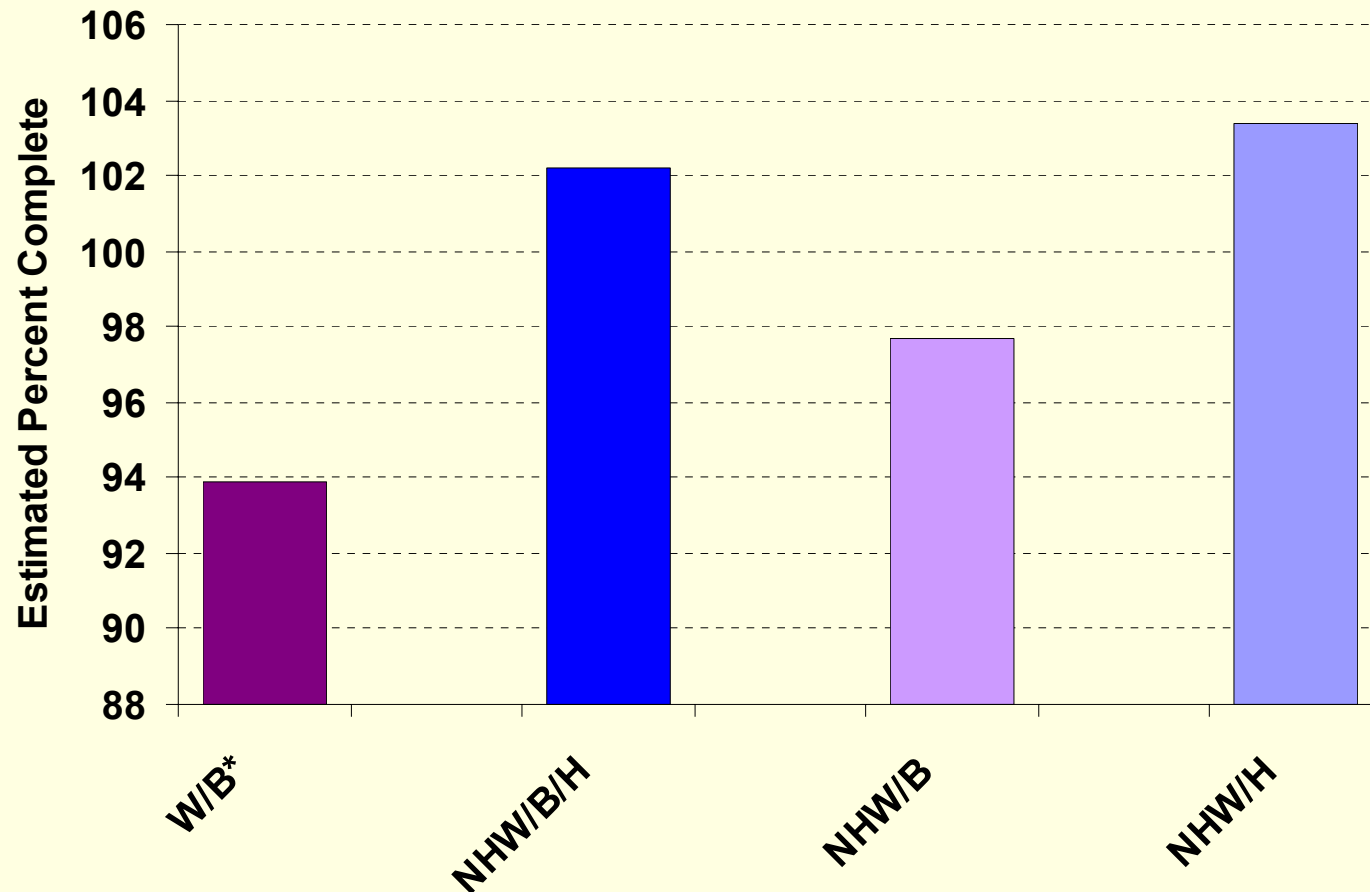
Modifying the Method: California

Estimated Completeness California Year of Diagnosis, 2001:
Varied Race/Ethnicity Combinations



Modifying the Method: Texas

Estimated Completeness Year of Diagnosis, 2001:
Varied Race/Ethnicity Combinations



Cancer Sub-Sites

- NAACCR method only considers certain cancer sites
 - Excludes a significant proportion of cancer cases for men (prostate cancers)
 - 42% of Texas 2001 male and 11% of female cancer cases excluded
 - Need to consider how this affects estimates of registry case completeness

Weighting of Cancer Sub-Sites When Estimating “Total” Completeness

Microsoft Excel - Case.Completeness.1995-01.v22.siteweight.xls

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	A	M	N	O	P	R	S	T	U	AA	AB
1	Worksheet for Completeness of Case Ascertainment, version 2.2.b										
2	Registry Incidence and Mortality Rates, Blacks										
3											
4	Adjusted for Mortality										
5	Black Males	Expected Incidence Rate	Interim Percent Complete	I/M Ratio Expected Cases*	I/M Ratio % of All Invasive	CINA % of All Invasive	Case Proportion Comparison	Texas Observed Cases	Texas % of All Invasive		
6	Cancer Site	Rate	Complete	Cases*	Invasive	Invasive	Comparison	Cases	% of All Invasive		
8	Buccal Cavity and Pharynx	17.56	84.3	214.9	4.7%	3.5%	1.4	121	3.0%		
9	Esophagus	8.33	96.0	102.0	2.2%	2.1%	1.1	56	1.4%		
10	Stomach	19.93	96.3	243.9	5.3%	2.7%	2.0	119	2.9%		
11	Colon and Rectum	75.85	87.5	928.4	20.3%	10.4%	1.9	463	11.3%		
12	Liver	14.02	81.3	171.6	3.7%	1.6%	2.3	92	2.2%		
13	Pancreas	18.73	83.8	229.2	5.0%	2.3%	2.1	102	2.5%		
14	Lung and Bronchus	128.84	91.9	1,576.8	34.4%	17.0%	2.0	782	19.1%		
15	Melanomas of the Skin	-	0.0	-	0.0%	0.0%	0.0	0	0.0%		
16	Prostate*	-	0.0	-	0.0%	0.0%	0.0	0	0.0%		
17	Bladder (including in situ)	18.66	92.2	228.4	5.0%	2.5%	2.0	102	2.5%		
18	Kidney and Renal Pelvis	18.06	109.6	221.0	4.8%	2.8%	1.7	143	3.5%		
19	Brain and Other Nervous Syste	6.53	64.3	79.9	1.7%	1.0%	1.8	41	1.0%		
20	Hodgkin Lymphoma	4.05	42.0	49.6	1.1%	0.7%	1.6	18	0.4%		
21	Non-Hodgkin Lymphoma	17.91	79.3	219.2	4.8%	3.2%	1.5	109	2.7%		
22	Multiple Myeloma	12.89	92.3	157.8	3.4%	1.8%	1.9	82	2.0%		
23	Leukemias	13.00	118.4	159.2	3.5%	2.0%	1.8	112	2.7%		
24	Sum of Rates for Black Males	374.37	90.4	4,581.9	100.0%	53.5%	1.9	4,099	57.1%		
25											
26	*Expected incidence rate*TX black male population/100,000										
60	Number of cancer cases for all invasive cancers, Texas black males = 4,099. IM Method sites only =2,342.										
61											
62											
63											

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Results

- Adjusting beyond only “white” and “black” when estimating case completeness using the IM Ratio method can help address under-estimation of case-completeness due to the race/ethnic variation in cancer rates and differences in registry population race/ethnic make-up
- Further examination is needed on including prostate cancers and “all other cancer sites”
 - Found that certain sub-sites contributed a much higher proportion to the final completeness estimate than what we normally see in our incidence files

Conclusions

- The final estimated number of cases by which central cancer registries are evaluated can be significantly impacted by the interaction of the race/ethnic make-up of a registry's population and subsequent proportional weighting of the various cancer sites.
- Understanding the impact of white/black only race adjustment in the IM ratio is important in addressing the validity of the case completeness measure for all central cancer registries.

Additional Questions

- Validity: are we truly measuring what we think we are measuring?
 - Does using only certain cancer sub-sites and SEER/US “whites” and “blacks” adequately represent the “total cancer” completeness for a registry?
- What are the implications for assessing cancer disparities?
 - Completeness for groups other than “whites” and “blacks” not currently addressed in assessing “high quality data” at the national level
 - Yet we are beginning to publish cancer incidence for other populations
- Is there one method or one way of applying a particular method for assessing completeness that fits all registries ?