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Indirect Estimation of Race/Ethnicity to Measure Health Care Disparities

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Harvard Pilgrim Health Care

- Not-for-profit health plan, based in Wellesley, MA
  - 1100 employees across 7 locations
  - Over one million members in MA, NH, ME . . . and beyond
  - Full range of health insurance choices, funding arrangements and cost-sharing options
- Rated #1 health plan in the U.S. in both quality of care and member satisfaction by NCQA / U.S. News and World Report for past 5 years
- Mission to improve the health of the people we serve and the health of society.
- Racial/ethnic disparities observed in several quality measures

Quest for equity

- 2002 First identified disparities in care based on statewide population surveys stratified by health plan
- 2004 Became one of ten original members of National Health Plan Collaborative to reduce racial/ethnic disparities in care
- 2005 Presented first equity report to senior leadership; based entirely on indirect estimation of race/ethnicity
- 2007 Intensified efforts to collect self-reported REaL data; currently have data on 15-20 percent of members
- 2009 Introduced self-reported R/E data into disparities analyses
- 2010 Continued reliance on indirect estimation to supplement self-reported data for both identifying disparities and targeting interventions

Defining a disparity:
Specifying what we mean by “differences”

- Different from what?
  - A target or goal
  - White/Caucasian population
  - Population with the best rate
- Type of difference?
  - Absolute
  - Relative
- Magnitude of difference?
- Significance of difference?
  - Statistical significance
  - Clinical significance
  - Programmatic significance
- Stability of difference?

Defining a disparity
Our definition

- Harvard Pilgrim currently defines a disparity as

> a performance rate for a given population group that is 6 or more percentage points below that of the group with the best performance rate (i.e., benchmark population)

  - This definition works across all types of disparities that we measure
  - For racial/ethnic disparities, the white population is frequently not the benchmark population
  - Margin of error on many measures is +/- 5% or higher
  - For preventive care measures, which have very large denominators, very small differences (1-2%) are statistically significant, but may not be clinically or programmatically significant
  - For acute illness and chronic disease measures, which have much smaller denominators, large differences (6% +) may not be statistically significant but can be clinically important
  - For measures with small sample size (<30), we look for disparities that persist for two consecutive measurement cycles

Selecting Measures:
An evolving portfolio

- Annual since 2003
  - Preventive Care
    - Chlamydia screening
    - Cancer screening
      - Breast CA
      - Cervical CA
      - Colorectal CA
  - Chronic Disease Care
    - Asthma meds
      - 5-17 year olds
      - 18-56 year olds
    - Diabetes care
      - HbA1c testing
      - LDL-C testing
      - Retinal screening
      - Nephropathy monitoring
  - CAHPS measures
- Added in 2006
  - Chronic Disease Care
    - Cardiovascular disease
      - Persistent use of beta-blocker after AMI
      - LDL-C testing in CAD
      - *LDL-C control in CAD*
      - *BP control in patients with HTN*
      - Monitoring patients on Persistent Medications
    - Diabetes
      - *HbA1c >9 (poor control)*
      - *HbA1c <7 (good control)*
      - *LDL-C <100 (good control)*
      - *BP Control*
    - Rheumatoid Arthritis (DMARDs)
  - Acute Care
    - Inappropriate antibiotic use for adult bronchitis
    - Imaging for low back pain in adults
- Added in 2007
  - Preventive Care/Access
    - Well Visits
      - Infants 0-15 mo.
      - Children 3-6 yr.
      - Adolescents 12-21yr.
  - Acute Care
    - Strep Tx prior to antibiotic Rx for children w/ Pharyngitis
    - Appropriate antibiotic use for children w/URI

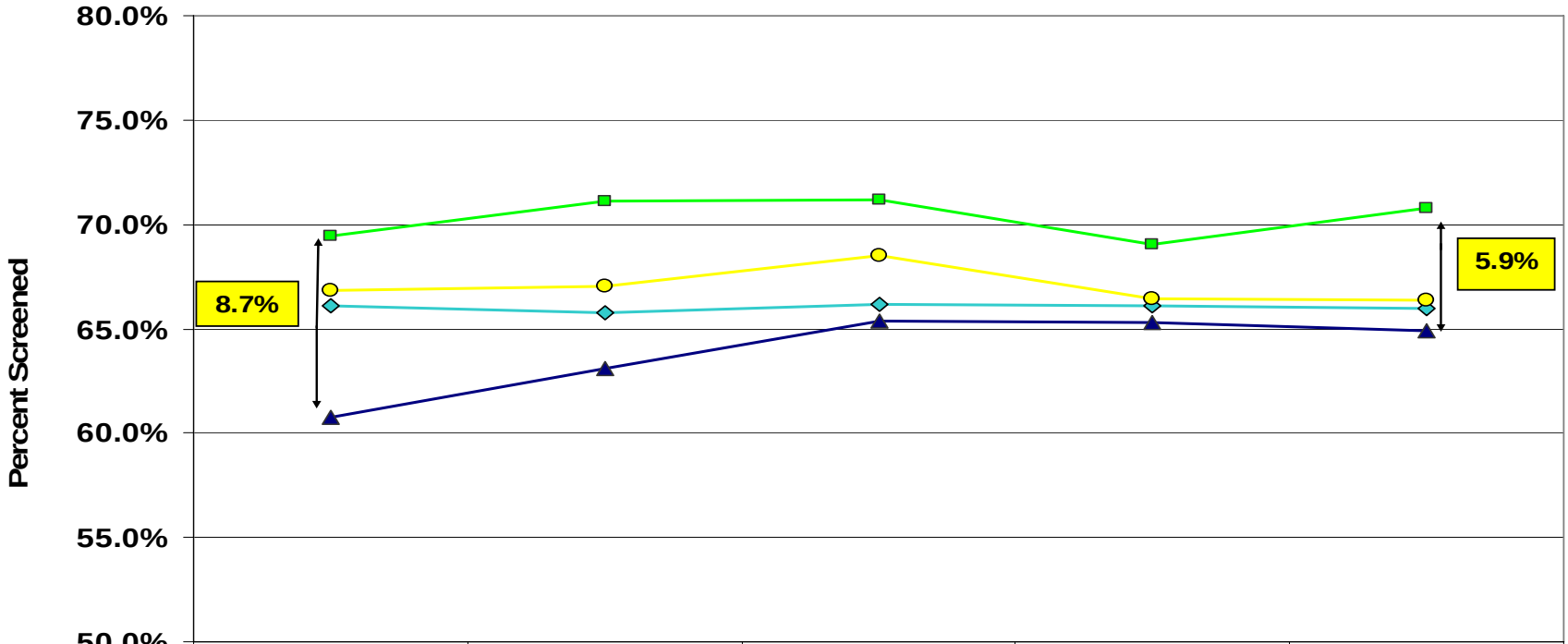
Note: *Italicized measures are outcome measures*

Identifying Disparities:
Data and Methods

- Analyses of access and process of care measures
  - are based on claims data only
  - have somewhat lower performance rates than those reported to NCQA due to care events or exclusions found in medical records but missing from claims
- Analyses of outcome measures
  - are based on the HEDIS chart review sample plus members with electronic laboratory test result data, if applicable to the measure
  - have somewhat higher performance rates than for our medical record review sample due to selection bias in practices that can report electronic lab data
  - due to small sample sizes, some outcome measures require
    - the combination of two years of performance data on the same measure;
    - the combination of 2+ measures or age groups for the same year; or
    - both combinations
- We currently rely on simple charts and graphs to analyze disparities but look forward to implementing more sophisticated mapping tools

Colorectal Cancer Screening Rates by Race/Ethnicity*

2003-2007



	2003	2004	2005	2006	2007
Asian	66.1%	65.8%	66.2%	66.1%	66.0%
Black	69.4%	71.1%	71.2%	69.1%	70.8%
Hispanic	60.7%	63.1%	65.4%	65.3%	64.9%
White/other	66.9%	67.0%	68.5%	66.5%	66.4%

*Note that all data are based on “proxy” race/ethnicity

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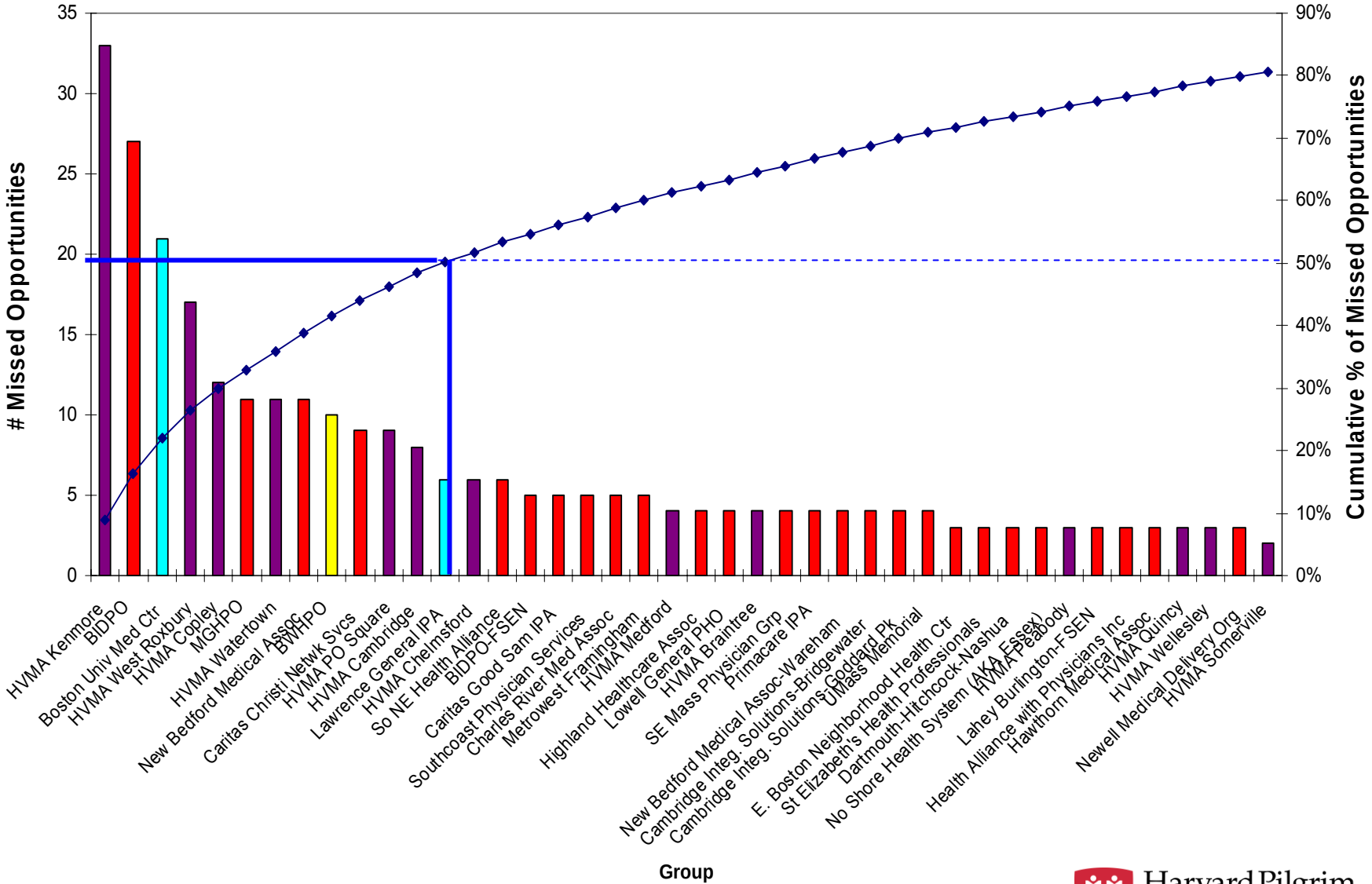
Diabetic Eye Exam
Distribution of Missed Opportunities among Members with Hispanic Surname by Physician Group



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Potential channels for collecting REaL data

- Enrollment process
  - * Paper forms
  - * EDI transactions
  - √ Online enrollments
- Member Service initiatives
  - – Mailed correspondence
  - √ Online services
  - – Telephonic services
  - √ Member surveys
- Clinical Care initiatives
  - √ Online services (health risk assessment, wellness programs)
  - √ Telephonic services (IVR outreach calls)
  - √ Direct care services: Case management, Disease management
- Provider initiatives
  - √ Contracting requirements
  - √ Enhancements to existing provider transactions
  - – Incentives for reporting?

* Language only

Indirect estimation methods

- Two approaches
  1. Select most likely race/ethnicity based on geo & surname coding
     - Method 1 (Old RAND)
       - Hispanic if surname is Hispanic
       - Asian if surname is Asian
       - Black if live in neighborhood that is >66% black
       - White/Other if none of the above

2004-2006

     - Method 2 (Old HPHC)
       - Same as above for Hispanic, Asian and Black
       - White if live in neighborhood that is >90% white
       - Unknown/Other if none of the above

2007-2008

     - Method 3 (New RAND)
       - Select the racial/ethnic category with the highest calculated probability above a threshold, using RAND's new methodology

2009

     - Method 4 (New HPHC)
       - Combine self-reported data with data from Method 3

2010

Indirect estimation methods (continued)

- Two approaches (continued)

2. Use the calculated probabilities to create population-based rates by race/ethnicity

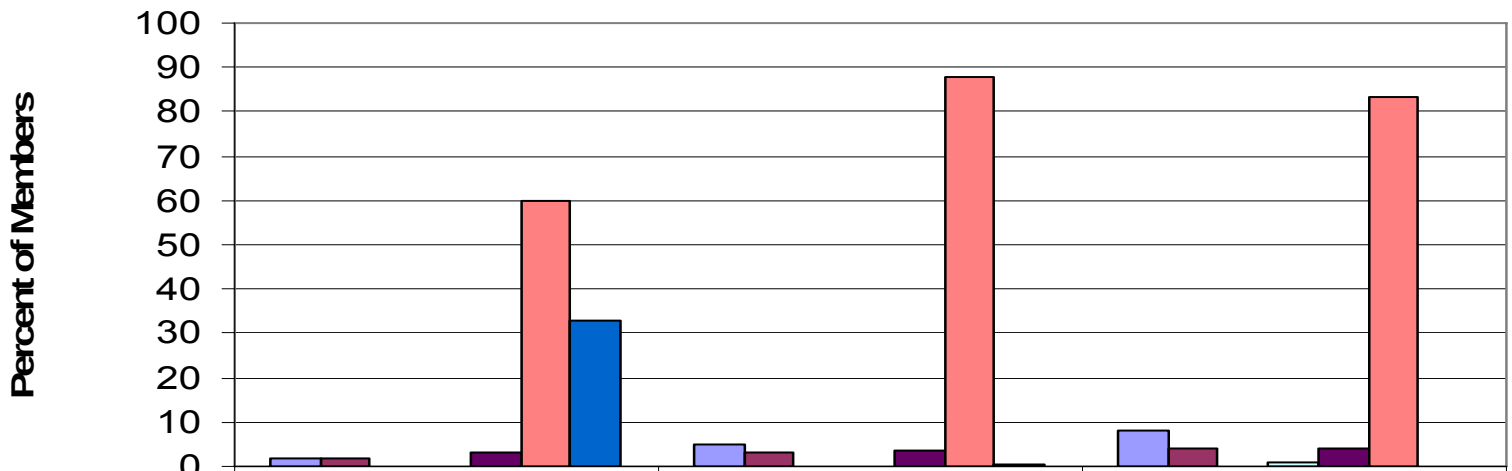
2007-2008

- Method 5
  - Use original RAND Bayesian probabilities

2009

- Method 6
  - Use new RAND Bayesian probabilities
  - Recode probabilities for members with self-reported race/ethnicity
  - Use calculated probabilities for members without self-reported race/ethnicity

Membership profile by classification method



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Sensitivity/specificity of indirect estimates
Members with self-reported race/ethnicity (n=194269)

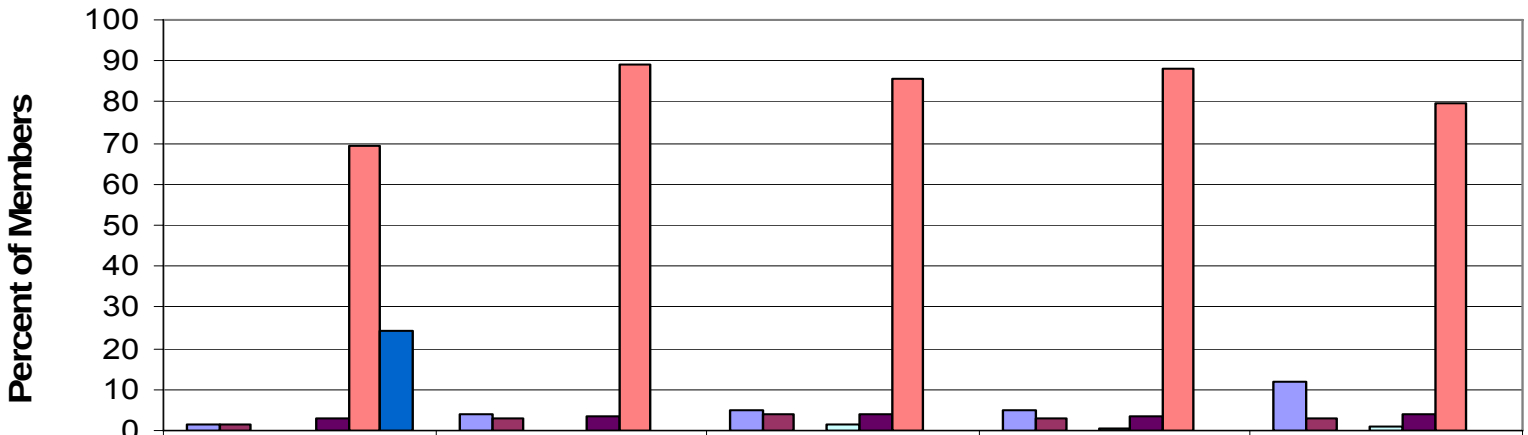
	Sensitivity						Specificity					
	Black	Asian/PI	AIAN	2+ Races	Hispanic	White	Black	Asian/PI	AIAN	2+ Races	Hispanic	White
Old Geo/Surname	21.03	43.99			62.94	67.45	99.87	99.81			99.07	77.84
New Geo/Surname	50.44	67.66	0.37	0.55	66.62	97.95	99.26	99.36	99.99	99.88	98.95	61.47

	Positive Predictive Value					
	Black	Asian/PI	AIAN	2+ Races	Hispanic	White
Old Geo/Surname	93.50	90.80			73.19	93.75
New Geo/Surname	85.76	81.97	20.00	3.44	71.87	92.60

Case example: Adolescent well care

- Measures of disparities in well visit rates for infants, children and adolescents were introduced in 2007
- The largest target population was adolescents with ~95,000 eligible members; self-reported R/E data for ~20,000 of these members
- 78.4% of adolescent HMO/POS members had a well visit in 2008 based on a review of both claims and medical records for a random sample
  - HEDIS National 90th percentile for HMO/POS population was 63.3%
  - HPHC administrative (claims only) rate for target population was 64.9%
- Disparities between the benchmark adolescent population (white members) and black and Hispanic members were >10 percentage points

Adolescent profile by classification method

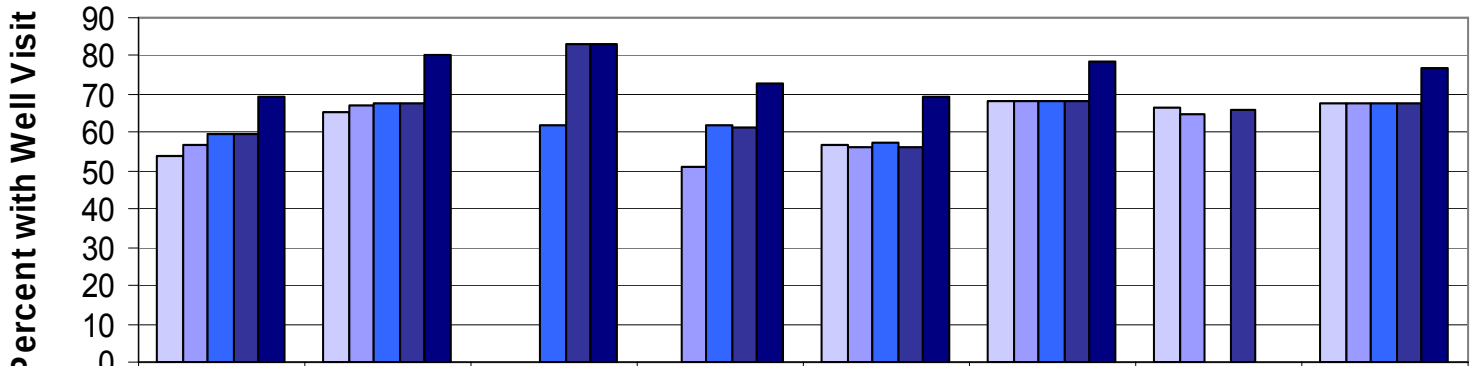


	HPHC Algo	RAND (High)	RAND Probabilities	Race Blend	Self Report (subset, n=20614)
Black	1.5	4.1	4.89	5.1	11.9
Asian/PI	1.6	3	3.87	3.1	3.2
AIAN			0.14	0.03	0.1
2+ Races		0.2	1.25	0.4	0.8
Hispanic	3	3.4	3.83	3.4	4.1
Non-Hispanic White	69.5	89.1	85.80	87.9	79.8
Other/Unknown	24.5	0.2	0.22	0.2	0

Classification Method

Disparity findings by estimation method

Adolescent Well Care by Race/Ethnicity and Classification Method



	Black	Asian/PI	AIAN	2+ Races	Hispanic	Non-Hispanic	Other/ Unknown	Total
HPHC Algo	54.1	65.2			56.9	68.5	66.7	67.5
Race High	56.9	66.9		51	56	68.4	64.5	67.5
Race Prob	59.45	67.40	61.94	61.99	57.43	68.46		67.46
Race Blend	59.5	67.8	83.3	61.4	56.1	68.4	66	67.5
Self Report (subset,n=20614)	69.1	80	83.3	72.6	69.3	78.6		77.1

Race/Ethnicity

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