

# Healthcare Payments Data Program Review Committee

November 21, 2019

Office of Statewide Health Planning and Development

2020 W. El Camino Avenue, Sacramento, CA, 95833

Conference Room 1237

# Welcome & Meeting Minutes

Cheryl Damberg

Vice-Chair

Review Committee

# Deputy Director's Report

Scott Christman,  
Deputy Director and Chief Information Officer,  
OSHDP

# End Users Panel

Paulette Cha, Research Fellow, Public Policy Institute of California

Shannon McConville, Research Fellow, Public Policy Institute of California

Conrad Amenta, Director of Policy and Strategic Initiatives, California Academy of Family Physicians

Isaac Menashe, Associate Director, Policy, Evaluation and Research, Covered California

Jill Yegian, Consultant, OSHPD

# How an APCD can support research to inform California policymakers

Preliminary, not for citation or distribution

November 21, 2019

Shannon McConville, Paulette Cha

Supported by the California Health Care Foundation



**PPIC**

PUBLIC POLICY  
INSTITUTE OF CALIFORNIA

25 YEARS

# California's research community is an important resource and potential user base for APCD

- Researchers have deep experience using health payment data
  - Most often commercial claims and Medicare
  - Experience validating and using other state APCDs
- We conducted in-depth interviews, online survey, lit review
  - Develop research use cases relevant for California policymakers
  - Gather researcher input for APCD development
- Inform discussions around researcher access and governance



# How does increased vertical integration affect costs, quality and patient outcomes?

- Vertical integration whereby hospitals acquire physician practices has increased considerably statewide
- Recent studies find associations between increased integration and higher costs
- Missing component in current research is how vertical integration impacts quality, patient outcomes
- Current sources of data: subset of commercial claims (e.g., IBM Marketscan, Truven Analytics Marketscan, IHA data)



# Value of an APCD and relevance for California

- Ability to examine effects on quality and outcomes
- Patient IDs to construct episodes of care, track referral patterns
- Quantify potential positive impacts of consolidation
  - Improvements in quality of care, better patient outcomes
- Inform state regulatory actions





# How do housing interventions affect health care use, public costs for Californians with mental illness?

- Using Medicaid funds for housing is prohibited
  - Several examples of housing investment by health care systems
- Whole Person Care pilots offer multi-county initiative to address housing instability among high-need Medi-Cal enrollees
- Evaluation analytic plans often limited in scope to respond to federal/state requirements
- Current sources of data: DHCS Medi-Cal claims/encounters; hospital discharge data; integrated county data systems



# Value of an APCD and relevance for California

- Streamlined, timely access to data
  - Individual-level Medi-Cal claims/encounters
  - Pathways for linkages to other public program data
- Facilitate more robust research opportunities not linked to formal, federally required evaluation studies.
  - Allow for opportunities for more robust study designs
  - “Finder files” could allow broader number of interventions at various levels to be evaluated
- Policy interventions to address homelessness, behavioral health needs are high priorities for local/state agencies, public



# Research Community Enthusiastic, Wants to Help

*“The CA APCD would be a FANTASTIC and IMPORTANT resource. It can be used to improve the health care market for millions of Californians.”*

- Experienced claims researchers want to be a resource for the state (design input, APCD data use, evaluation)
- 47 of 51 survey respondents (>90%) “likely” or “very likely” to apply to use APCD
- Researchers willing to pay for data access



# Study Types Researchers would Pursue

- Evaluate health care policies on health outcomes
- Social determinants of health / disparities
- Health services research
- Cost transparency
- Evaluate health care policies on non-health outcomes



# Variables and Linkages Needed for Study Feasibility

- Patient, provider, and plan IDs
- Geographical ID and geography-linked Census characteristics
- Race/ethnicity (quality issues acknowledged)
- Vital statistics
- Hospital discharges
- Disease registries
- Eventually: Safety net (CalWORKS, CalFresh, WIC)
- Eventually: Earnings / EITC



# Related research studies

## Vertical Integration of Hospitals and Physician Groups

- Baker et al. 2014. “ Vertical Integration: Hospital Ownership of Physician Practices is Associated with Higher Prices and Spending.” Health Affairs 33(5)
- Robinson and Miller. 2014. “Total Expenditures per Patient in Hospital-Owned and Physician-Owned Physician Organizations in California.” JAMA 312(16)
- Scheffler et al. 2018. “Consolidation Trends in California’s Health Care system Impacts on ACA Premiums and Outpatient Visit Prices.” Health Affairs 37(9)

## Evaluation of Whole Person Care Housing Pilots

- Berkowitz et al. 2019. “Association of the Use of a Medically Tailored Meal Plan on Health Care Use.” JAMA Inter Med 179(6)
- Kanzaria et al. 2019. “Frequent Emergency Department Users: Focus on Medical Utilization Misses the Whole Person.” Health Affairs 38(11)
- Lim et al. 2018. “Impact of a New York City Supportive Housing Program on Medicaid Expenditure Patterns among People with Serious Mental Illness and Chronic Homelessness.” BMC Health Services Research 18(15)



# Notes on the use of these slides

These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

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Thank you for your interest in this work.





# Measuring Primary Care Spending:

## A Proven Use for APCDs

*Conrad Amenta, CAFP Director of Policy and Strategic Initiatives*



# Why Measure Primary Care Spending?



- Lower health care costs, better patient outcomes
  - [Primary Care: A Critical Review Of The Evidence On Quality And Costs Of Health Care \(Health Affairs\)](#)
- Seeing a PCP first would save U.S. \$67 billion/year
  - [Report on Financing the New Model of Family Medicine \(Annals of Family Medicine\)](#)
- 19 percent lower odds of premature death than those who only see specialists
  - [Primary Care: Our First Line of Defense \(Commonwealth Fund\)](#)
- 1 in 5 Americans visit the ER annually; 12 percent result in admission. As many as 65 percent deemed unnecessary
  - [Signs of Overtreatment: How to Avoid Unnecessary Care \(USA Today\)](#)
- Patients who see a primary care provider save 33 percent over those who only see specialists
  - [Journal of Family Practice](#)
- Good primary health care makes health systems more inclusive and improves performance
  - [Organization for Economic Cooperation and Development](#)

# Why Measure Primary Care Spending?



- **Primary Care is the foundation of a high-quality, sustainable health care system because it improves value for healthcare dollars.**
- **However, proportion of revenues dedicated to primary care is poorly understood.**
  - International and inter-state comparisons (OECD, Commonwealth Fund) are speculative based on payment rates, investments in PC workforce, etc.
  - Commonwealth Fund's state report card ranks CA 22/51 in Access, 35/51 in Prevention, but does not track PC spend (<https://www.commonwealthfund.org/publications/fund-reports/2019/jun/2019-scorecard-state-health-system-performance-deaths-suicide>)

# Why Measure Primary Care Spending?



- “...poor access to primary care has contributed to inadequate prevention and management of chronic diseases, delayed diagnoses, incomplete adherence to treatments, wasteful overuse of drugs and technologies, and coordination and safety problems.” - International Comparison Reflects Flaws and Opportunities for Better U.S. Health Care, Commonwealth Fund, 2017 (<https://interactives.commonwealthfund.org/2017/july/mirror-mirror/>)

**Exhibit 2.** Health Care System Performance Rankings

	AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
<b>OVERALL RANKING</b>	<b>2</b>	<b>9</b>	<b>10</b>	<b>8</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>6</b>	<b>6</b>	<b>1</b>	<b>11</b>
Care Process +	2	6	9	8	4	3	10	11	7	1	5
Access +	4	10	9	2	1	7	5	6	8	3	11
Administrative Efficiency +	1	6	11	6	9	2	4	5	8	3	10
Equity +	7	9	10	6	2	8	5	3	4	1	11
Health Care Outcomes +	1	9	5	8	6	7	3	2	4	10	11

# How is Primary Care Spending Measured?



## Defining “Primary care”:

- Who are primary care providers?
- What are primary care services?
- What is a primary care setting?

# How is Primary Care Spending Measured?



## Oregon

### Claims-based payments

- All Payer All Claims Database, including health care claims and encounter data, services rendered, provider specialty and practice address.

### Non-claims-based payments

- Payments to incentivize efficient care delivery, reward quality and cost savings goals, and build primary care infrastructure and capacity.

### Oregon HMO Market Penetration: 40.2 percent

<https://www.beckershospitalreview.com/finance/hmo-volume-market-penetration-for-all-50-states.html>

#### ICD-10 Codes and Description

Z00	Encounter for general exam without complaint
Z000	Encounter for general adult medical examination
Z0000	Encounter for general adult medical exam without abnormal findings
Z0001	Encounter for general adult medical exam with abnormal findings
Z001	Encounter for newborn, infant and child health examinations
Z0011	Newborn health examination
Z00110	Health examination for newborn under 8 days old
Z00111	Health examination for newborn 8 to 28 days old
Z0012	Encounter for routine child health examination
Z00121	Encounter for routine child health exam with abnormal findings
Z00129	Encounter for routine child health exam without abnormal findings
Z008	Encounter for other general examination
Z014	Encounter for gynecological examination
Z0141	Encounter for routine gynecological examination
Z01411	Encounter for gynecological exam, general, routine with abnormal findings
Z01419	Encounter for gynecological exam, general, routine, without abnormal findings



# How is Primary Care Spending Measured?

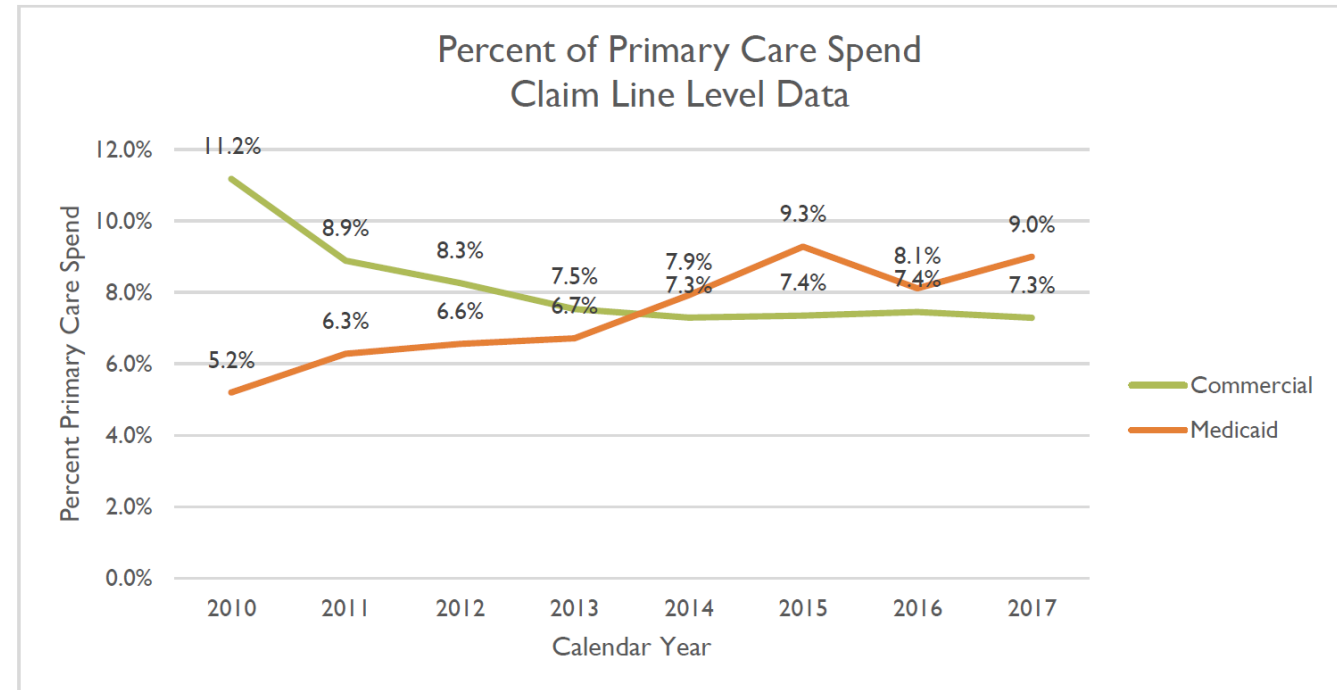


## Colorado

Multi-Payer Share of Primary Care Spend Report

Center for Improving Value in Health Care (CIVHC)

Establish baseline rates of the share of total health care expenditures going toward primary care and to track changes over the period 2010 through 2017.



# Primary Care Spending in Medicare



## *Primary Care Spending in the Fee-for-Service Medicare Population*

Authors: **Cheryl Damberg, PhD**; Rachel Reid, MD, MS; Mark W. Friedberg, MD, MPP

Published Online: April 15, 2019. doi:10.1001/jamainternmed.2018.8747

Table. Patient Characteristics and Primary Care Spending Among Fee-for-Service Medicare Beneficiaries in 2015

Characteristic	Primary Care Practitioner Definition, %			
	Narrow <sup>a</sup>		Broad <sup>b</sup>	
	Narrow Primary Care Services <sup>c</sup>	All Professional Services	Narrow Primary Care Services <sup>c</sup>	All Professional Services
Primary care spending				
Per beneficiary, \$	308.32	550.62	387.79	708.23
Fraction of total medical and prescription spending <sup>e</sup>	2.12	3.79	2.67	4.88

# Without an All Payer Claims Database?



## Milbank Spending Report

- Voluntary reporting was challenging to obtain.
- Analysts required detailed guidance and multiple rounds of submission to produce the requested data.
- <https://www.milbank.org/publications/standardizing-measurement-commercial-health-plan-primary-care-spending/>

### REPORT

## Standardizing the Measurement of Commercial Health Plan Primary Care Spending

by Michael H. Bailit, Mark W. Friedberg, and Margaret L. Houy

JULY 2017



# Challenges



- Tracking spending in a managed care environment.
  - Colorado – 16.6 percent
  - Rhode Island – 32.6 percent
  - Massachusetts – 34.2 percent
  - Oregon – 40.2 percent
- Return to Oregon’s definition of “non-claims based data”:
  - “Payments to primary care providers or provider organizations intended to motivate efficient care delivery, reward achievement of quality or cost-savings goals, and build primary care infrastructure and capacity”
- Must remain sufficiently flexible to capture all that plans do, while keeping the collection meaningful.

# Resources



- **Patient Centered Primary Care Collaborative – Primary Care Investment**  
<https://www.pcpcc.org/topic/primary-care-investment>
- **Oregon Health Authority – Primary Care Spending**  
<https://www.oregon.gov/oha/HPA/ANALYTICS/Pages/Primary-Care-Spending.aspx>
- **Colorado All Payer Claims Database**  
<https://www.civhc.org/wp-content/uploads/2019/01/2018-CO-APCD-Annual-Report-incl.-Appendices.pdf>



## **COVERED CALIFORNIA'S HEALTHCARE EVIDENCE INITIATIVE (HEI)**

November 21, 2019 Meeting of the  
Healthcare Payments Data (HPD) Review Committee

Isaac Menashe – Deputy Director, Evaluation and Research  
Policy, Eligibility & Research Division, Covered California

# COVERED CALIFORNIA USES FOR HPD DATA

Covered California has identified a range of use cases for the proposed Health Payments Database (HPD), as detailed in our April submission to the Review Committee.\*

These uses span from operational analytics focused on Marketplace members while in coverage with Covered California, to analyses that would help Covered California align its Qualified Health Plan contracting strategies with system reform efforts in use by large purchasers and other state entities.

# EXAMPLE 1 – EVALUATION OF NETWORK VALUE

Covered California’s quality strategy (as embodied in “Attachment 7” of its contract with Qualified Health Plans) includes as a core requirement that “Networks are Based on Value” (A7 section 1.02).

## **Evaluation Question:**

What are the major cost drivers in different networks? Which providers are “outlier poor performers” on either cost or quality? And how does Covered California network value compare to existing networks for large employer plans?

## **Challenge Under Current State:**

Covered California’s currently available data lacks cost information, and in many cases, sufficient sample sizes to make valid measurements for many providers. Additionally, an imperative for a measurement strategy is neutral and consistent reporting and analysis across providers and issuers.

# EXAMPLE 1 – EVALUATION OF NETWORK VALUE

## **HPD Value Added:**

With detailed cost information, and the ability to pool the coverage experience of members across commercial (and public) market segments, the HPD would provide a robust source on which to measure cost and quality among facilities and, potentially, provider groups, and to assess the overall value of Covered California networks.

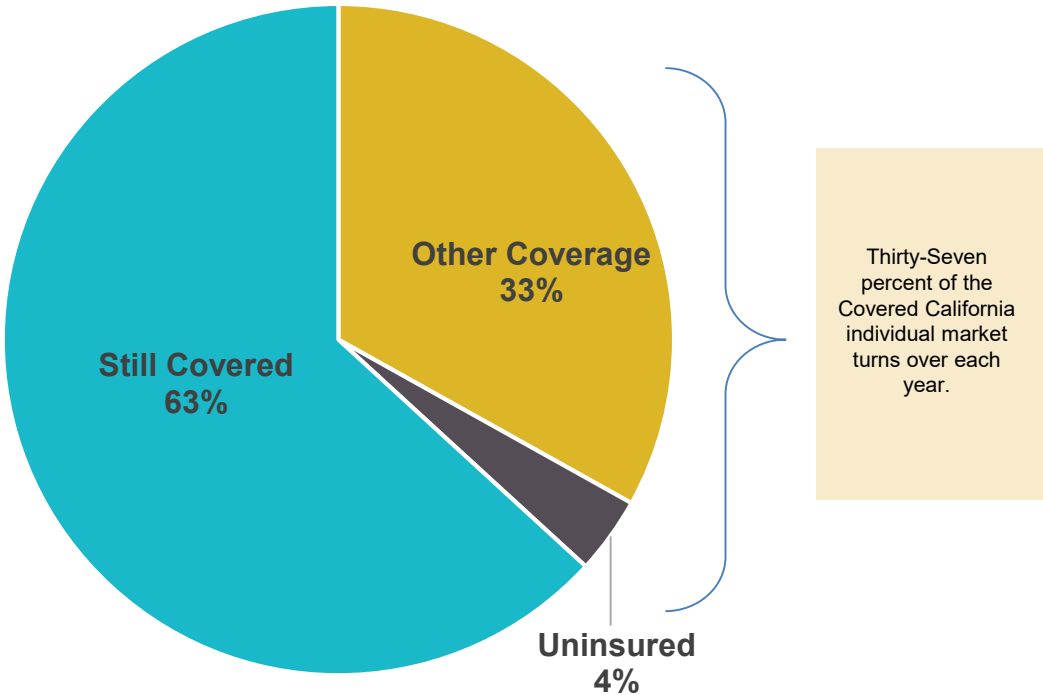
## **Actionable:**

Identification of network cost trends is immediately actionable by Covered California and its participating Issuers through the QHP Certification process. Additionally, with an operational HPD and alignment on the appropriate measurement strategy, the HPD could become a key source of data for the quality improvement strategy of reducing the presence of “outlier poor performers.”

# EXAMPLE 2 – COVERAGE TRANSITIONS

Each year, over one third of the Covered California individual market turns over, with the vast majority transitioning to a new source of coverage: among those leaving, two-thirds move to job-based coverage or Medi-Cal.

California’s Health Care Coverage Transitions:  
Current Source of Coverage for 2017 Members, As Reported on 2018 Member Survey



Source of Coverage Among Disenrolled	
Employer-sponsored insurance	43%
Medi-Cal	27%
Off-exchange plan	11%
Plan from another source	3%
Medicare	3%
Military coverage	1%
Coverage source unknown	1%
Uninsured	10%
Insurance status unknown	1%
Total	100%

## EXAMPLE 2 – COVERAGE TRANSITIONS

### **Evaluation Question:**

How can Covered California help ensure optimal care continuity for members who transition between sources and systems of coverage? And are certain subgroups in particular need of support?

### **Challenge Under Current State:**

No systematic way to link Covered California experience to experience in other sources of coverage. Each such linkage entails both legal agreements and non-trivial data initiatives to ensure data from each entity can be compared in a consistent way.



## EXAMPLE 2 – COVERAGE TRANSITIONS

### **HPD Value Added:**

Pre-establish the legal and data framework for following a member across sources of coverage and systems of care.

### **Actionable:**

Gaps for transitioning members may be able to be addressed through state policy (including interventions by Covered California).

# DATA USAGE AND QUALITY CONSIDERATIONS

As a potential user of HPD data, Covered California anticipates several critical aspects of usage that could have critical impacts on the viability of some use cases:

- Time to Information
- Data Blending
- Direct Analytic Support
- Data Updates or Augmentation

For any use case, Covered California reiterates the importance of attention to data quality and completeness, and that a priority from the start include:

- Allowed cost information
- Provider identification

# Adding Race/Ethnicity into a Common Data Set

Marc N. Elliott

Talk delivered to the  
Office of Statewide Health Planning and Development

*“Healthcare Payments Data Review Committee Meeting”*

November 21, 2019

# Outline

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1. Adding Race/Ethnicity (r/e) to an All-Payer Database
2. Using the RAND Bayesian Improved Surname Geocoding (BISG) tool to address missing r/e data
3. Applications

# Motivation for this Talk

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- One important goal of this effort is to ensure the data can be used to measure and monitor disparities, and drive quality improvements to address r/e disparities in access, utilization, and clinical quality
- Challenge: r/e information and other socioeconomic/demographic information may be missing or incomplete hindering the ability to examine and reduce disparities

# Building Race/Ethnicity into the Common All Payers Database

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- Assembly Bill 1810: OSHPD is authorized to develop a proposal to implement a statewide Healthcare Cost Transparency Database, which will include data on healthcare payments.
- Imputing r/e and other sociodemographic and economic variables from Census data can be done centrally, by OSHPD, and then distributed to potential end users
- Build this capability at front end so each end user of the APCD does not have to construct this
  - Address privacy concerns and associated liabilities

# Race/Ethnicity Data Are Essential for Monitoring Quality, Coverage, Cost, and Access

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- The Affordable Care Act requires all federal data collection efforts to obtain information on race, ethnicity, sex, primary language, and disability status
- The gold standard for r/e measurement is self-report
  - Subject to nonresponse
  - Sometimes only imperfect administrative information is available
- Missing r/e data create barriers to monitoring and improving quality, coverage, cost, and access
- Surnames and residential addresses are widely available, and can help impute r/e in a cost-effective, validated approach

# Example of a CMS Administrative Race/Ethnicity Data Problem

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- CMS's Office of Minority Health wanted to compare HEDIS clinical quality of care measures by r/e
- CMS only had administrative r/e based on the Social Security Administration form that only allowed **Black/White/Other** before 1980
  - Measured Black vs. not Black well
  - Often missed **Hispanic, Asian/Pacific Islander (API)** and misclassified as white or Other
- We developed a Medicare-specific algorithm to use surname and address to make HEDIS comparison by race/ethnicity possible
  - National and plan-level data appear on CMS' Website <https://www.cms.gov/About-CMS/Agency-Information/OMH/research-and-data/statistics-and-data/stratified-reporting.html>
  - Led to a Health Equity Summary Score to promote Quality Improvement (Agniel et al. 2019)



## Using the RAND Bayesian Improved Surname Geocoding (BISG) tool to address missing r/e data

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- Newer indirect estimation methods like RAND's produce accurate estimates of r/e disparities when direct r/e is lacking
- The most well-validated and widely-used new method is RAND's BISG

# Race/Ethnicity Estimation Project

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- BISG method endorsed by the National Academy of Medicine, NCQA, NQF, and other entities
- BISG method used by:
  - Numerous leading national and regional health plans, such as: consider just listing instead of logs given mergers



- Centers for Medicaid and Medicare Services
- Consumer Financial Protection Bureau
- Massachusetts CHIA

# BISG Method – Inputs Needed

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- From Administrative Files
  - Members last name
  - Members residential address or geocode (to Block Group level)
  - Optional: Self-reported or other reliable direct source of R/E data if available
- From Census Files:
  - Census Surname List
  - Census Demographic file (to Block Group level)
- Algorithm
  - Member surname/Census list generate “prior probability” of r/e group
  - Member neighborhood Census provides r/e neighborhood composition
  - Bayesian methods combine both types of information for final estimate

## BISG Method – Outputs

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- For each member, separate probabilities that (s)he belongs to each of 6 mutually exclusive major (OMB) race/ethnicity groups are produced
  - white, black, Hispanic, Asian/Pacific Islander, American Indian/Alaskan Native or Multi-racial
- Probabilities for each R/E group can be converted to counts or percentages
- Concordance of 92-98% for Hispanic, white, black, API
  - Limit use for AI/AN, Multiracial

# Surnames Can Be Linked to Race/Ethnicity

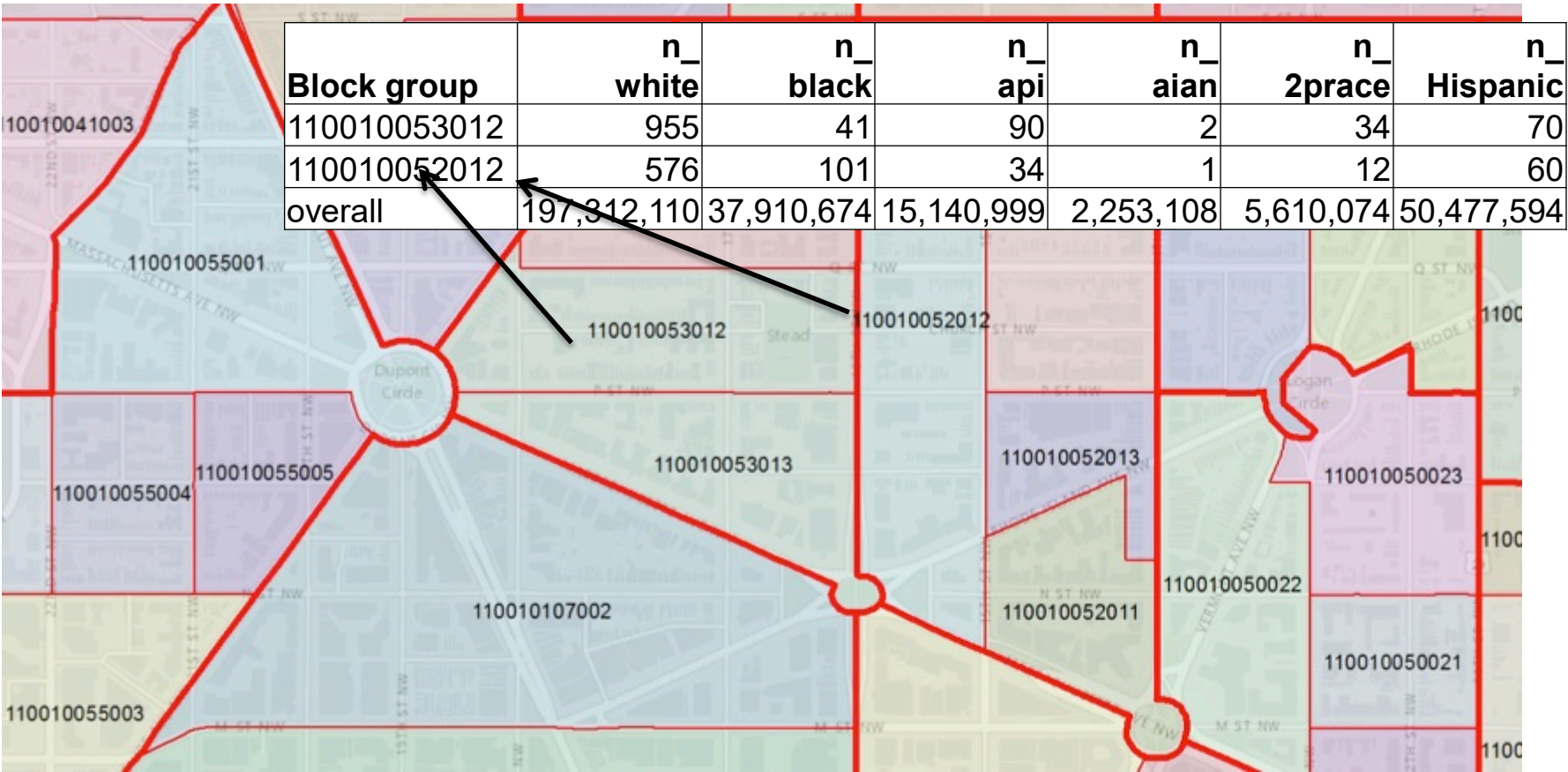
## Probabilities

- 2010 US Census surname database contains surnames listed by 100 or more individuals along with r/e percentages
- The list of 151,671 unique surnames covers 89.8% of U.S. population

name	rank	count	Pct._ white	Pct._ black	Pct._ api	Pct._ aian	Pct._ multirace	Pct._ Hispanic
SMITH	1	2,376,206	73.35	22.22	0.4	0.85	1.63	1.56
JOHNSON	2	1,857,160	61.55	33.8	0.42	0.91	1.82	1.5
WILLIAMS	3	1,534,042	48.52	46.72	0.37	0.78	2.01	1.6
BROWN	4	1,380,145	60.71	34.54	0.41	0.83	1.86	1.64
JONES	5	1,362,755	57.69	37.73	0.35	0.94	1.85	1.44
MILLER	6	1,127,803	85.81	10.41	0.42	0.63	1.31	1.43
DAVIS	7	1,072,335	64.73	30.77	0.4	0.79	1.73	1.58
GARCIA	8	858,289	6.17	0.49	1.43	0.58	0.51	90.81
RODRIGUEZ	9	804,240	5.52	0.54	0.58	0.24	0.41	92.7
WILSON	10	783,051	69.72	25.32	0.46	1.03	1.74	1.73

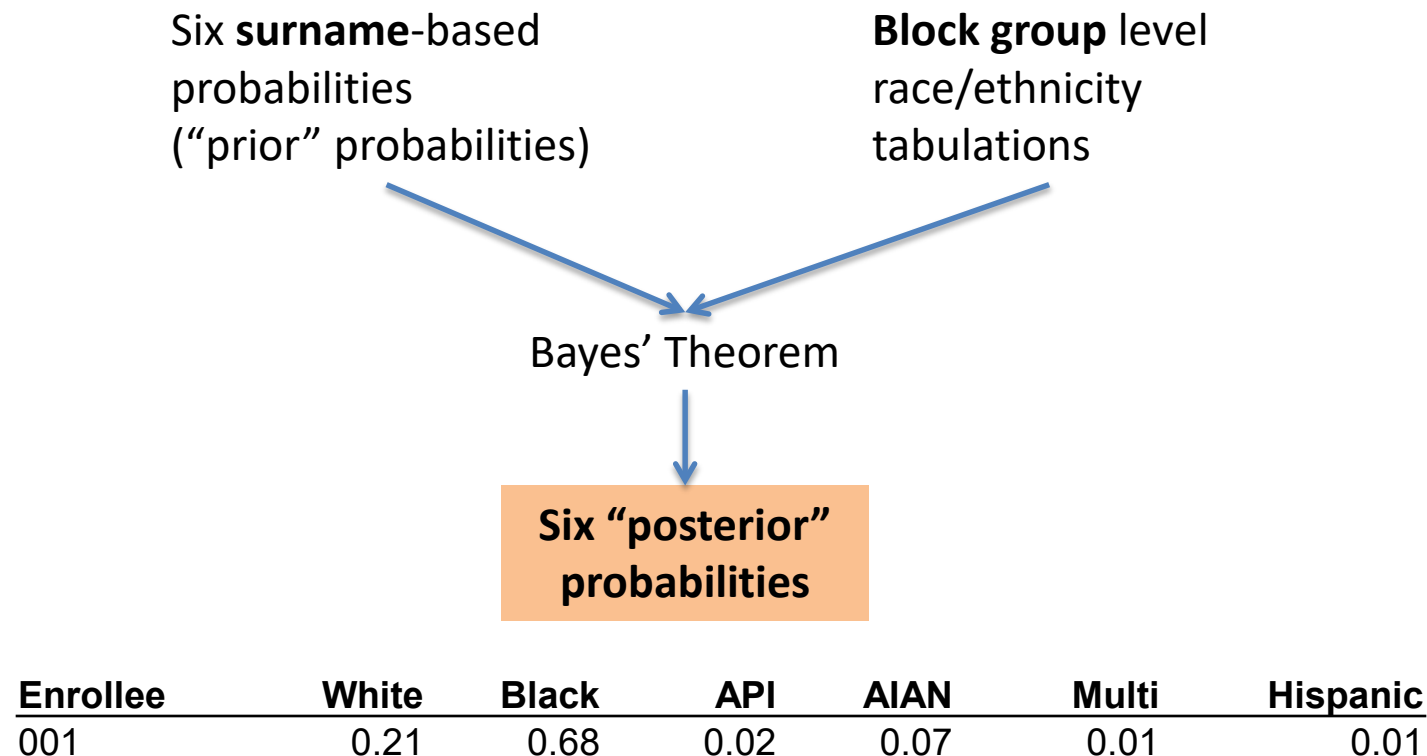
# Enrollee Residential Addresses Can Also Be Linked to Race/Ethnicity Information

- Enrollee addresses are “geocoded” to identify each enrollee’s *census block group*



# We Combine Both Sources of Information

- Initial probabilities based on surname are “updated” using information on block group r/e



# Race/Ethnicity Probabilities Can Be Used In Many Analytic Contexts

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- Descriptive statistics of how many in each r/e group
  - % enrollment by r/e by plan, state, overall
- Weighting to compare something by r/e
  - % who were screened for colorectal cancer for each group
- Regression Analysis
  - Include r/e in a statistical model that looks at the association of r/e with costs



# Example Uses of Self-Reported and BISG Estimates

Example Use Cases	Self-Report or Other Direct Source	BISG Estimate
Racial/ethnic composition of a patient population	X	X
Racial/ethnic differences in care quality and outcomes	X	X
Community-level outreach and interventions	X	X
Comparative effectiveness of interventions	X	X
Classification of individuals; race/ethnicity in electronic medical records	X	—

# Some Previous Applications of RAND's BISG Tool

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- Massachusetts Center for Health Information and Analysis (CHIA)
  - R/e imputations were added to state's All-Payer Claims Database
  - 5 years of data, 240 million cases
- Health Net
  - R/e imputations were conducted to identify quality gaps, support quality improvement
- CMS Office of Minority Health (<https://www.cms.gov/About-CMS/Agency-Information/OMH/research-and-data/statistics-and-data/stratified-reporting.html>)
  - Stratified reporting of quality measures for each Medicare Advantage contract by r/e
- Exchanges

# CMS Application:

## National versus plan-specific r/e disparities

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- Public reporting of HEDIS measure disparities at the national level
  - Inform CMS, plans, providers about quality improvement efforts typically needed
  - Inform patients in communicating with their providers/plans about types of care where disparities exist
- Public reporting of HEDIS measure disparities at the plan level
  - Inform CMS, plans, and providers to focus plan-specific quality improvement efforts
  - Inform patients in communicating with their providers/plans about types of care where disparities exist
  - May inform plan choice

# CMS Application: Developing a Health Equity Summary Score to Incentivize Excellent Care to At-Risk Groups (Agniel et al. 2019)

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- We created an equity summary score Medicare Advantage health plans based on HEDIS and CAHPS scores for beneficiaries with social risk factors (i.e., dually eligible for Medicare and Medicaid or r/e minority status),
- We considered:
  - Current levels of care
  - Within-plan improvement
  - Nationally-benchmarked improvement for those with SRFs
- R/e minority groups examined
  - Hispanic
  - Black
  - API
  - White

## CMS Application: Measuring racial/ethnic differences in voluntary disenrollment from Medicare plans

	Overall		
	Unadjusted disenrollment rate	Adjusted disenrollment rate	Difference of adjusted disenrollment rate from whites
White	7.7	8.5	--
API	8.7	9.2	0.7***
Black	10.0	10.2	1.7***
Hispanic	13.5	12.3	3.8***
*** p < 0.001 for all comparisons			

*We linked voluntary disenrollment information to MBISG 2.0.*

# Model Alternative Approach to Determine Pay for Performance Incentives

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- Pay-for-performance programs may have the undesired effects of moving resources away from providers who care for disadvantaged patient populations
- Classified physician organizations into “groups” based on r/e or other characteristics (e.g., income) of their patient population
- Ensured that average incentive payment across physician organizations did not differ by r/e
- Alternative payment approach preserved incentives for high performance (i.e., paid more for better quality within “group”) while strengthening incentives within disadvantaged groups
- Minimizes incentives for physician organizations to avoid challenging patient populations

BREAK

# The Limitations of Claims Data for Distinguishing Physician Performance at the Micro Level

OSHPD Healthcare Payments Database Review Committee

November 21, 2019

Terry Hill, MD, FACP

Physician Advisor, Hill Physicians Medical Group



# What evidence can distinguish physicians by quality (or efficiency)?

- Claims data
- Clinical data (extracted manually or electronically from patient charts)
- Patient-reported data (satisfaction, complaints, patient-reported outcomes)
- Traditional peer review (systematic chart reviews and interviews)
- Knowledge testing (e.g., board exams)
- Direct observation (e.g., proctoring, the UCSD PACE program)
- Education and training
- Practice setting (e.g., university)

What evidence is good enough for quality improvement, P4P, public reporting, network selection, hiring/firing?

# What keeps measurement professionals awake at night?

- Common sources of error discussed in following slides:
    - Patient attribution
    - Validity of data from claims (or encounters) vs EHR
    - Risk adjustment
    - Reliability
    - Measurement gaps
  - AHRQ's 2017 review of APCDs in particular discussed these same challenges:
    - Attribution, claims completeness and quality, risk adjustment, reliability, and measurement gaps, e.g., APCDs' lack of data on health status or outcomes
- Agency for Healthcare Research and Quality, 2017

# Attribution of patient to physician is a non-trivial task

- Attribution of responsibility for a patient to a physician can occur:
  - *ex ante*, before the measurement period
  - *ex post*, at the end of the measurement period, based on the patient's visits or costs, etc
- Patient and physician may be aware of the attribution, as in managed care, or unaware, as in traditional FFS Medicare analyses
- Claims-based assignment algorithms yield wildly varying results
  - Misattribution of the PCP of record varies from 14% to 75%
  - Misattribution is more likely for vulnerable populations

DuGoff, *Med Care* 2018

- ProPublica's *Surgeon Scorecard* assigned cases to non-surgeons and to surgeons of the wrong subspecialty

Friedberg, *Rand Health Q* 2016

# Claims/encounters yield different pictures than EHRs

- Claims identified only 75% of diabetics confirmed by EHR in 2007 study

Tang, *J Am Med Inform Assoc* 2007

- Somewhat less under-identification in 2018 study, but for those patients:

- HbA1c testing was under-recognized by claims
- Lipid testing was grossly under-recognized by claims

Laws, *Health Serv Res* 2018

- Diabetics managed via eHealth coordinated care may be excluded from denominators because they do not generate a claim, thus penalizing innovative care delivery approaches

McCoy, *Health Serv Res* 2016

- Claims-based algorithms used to identify poor performance of breast cancer detection on mammograms were good enough for quality improvement but not for public reporting

Hubbard, *Stat Med* 2015

Of the 108 MIPS quality measures that CMS used in 2017, 36% were derived from claims and 64% were derived from clinical registries

# We have consensus that we should risk adjust for social determinants (but no consensus how)

- After adjusting for sex, race/ethnicity, dual eligibility, disability, rurality, and neighborhood disadvantage, 20.3%, 19.5%, and 11.4% of Medicare Advantage plans improved by one or more quintiles on diabetes, cholesterol, and blood pressure measures, respectively.

Durfey, *Health Aff* 2018

- In a homogenous primary care organization with 22 medical centers, sociodemographic factors accounted for as much as 25% to 50% of the observed variance in selected HEDIS measures.

Hu, *Am J Med Qual* 2018

## ■ Other limitations:

- “Using only claims data to risk-adjust fails to capture severity of illness....
- “Intermediate outcome measures with fixed cutoffs..., such as hemoglobin A1c control of <7.0, have proven problematic. The best treatment goal for one person may be inappropriate for another.”

Damberg, *J Gen Intern Med* 2016

# Reliability (signal/noise) depends on denominator size and the variation across a measure

- Inadequate reliability leads to misclassification of physicians by HEDIS measures
  - Even reliabilities  $> 0.90$  can produce misclassification rates of  $> 10\%$
  - Reliabilities  $> 0.70$  can produce misclassification rates of  $> 20\%$

Adams, *Health Serv Res* 2017

- And to misclassification for physician cost profiling
  - In a study based on 44% of Massachusetts residents
    - Reliabilities ranged from 0.05 for vascular surgery to 0.79 for gastroenterology and ENT
    - 59% of physicians had cost-profile scores with reliabilities of less than 0.7
    - 22% of physicians would be misclassified as lower- vs higher cost

Adams, *N Engl J Med* 2010

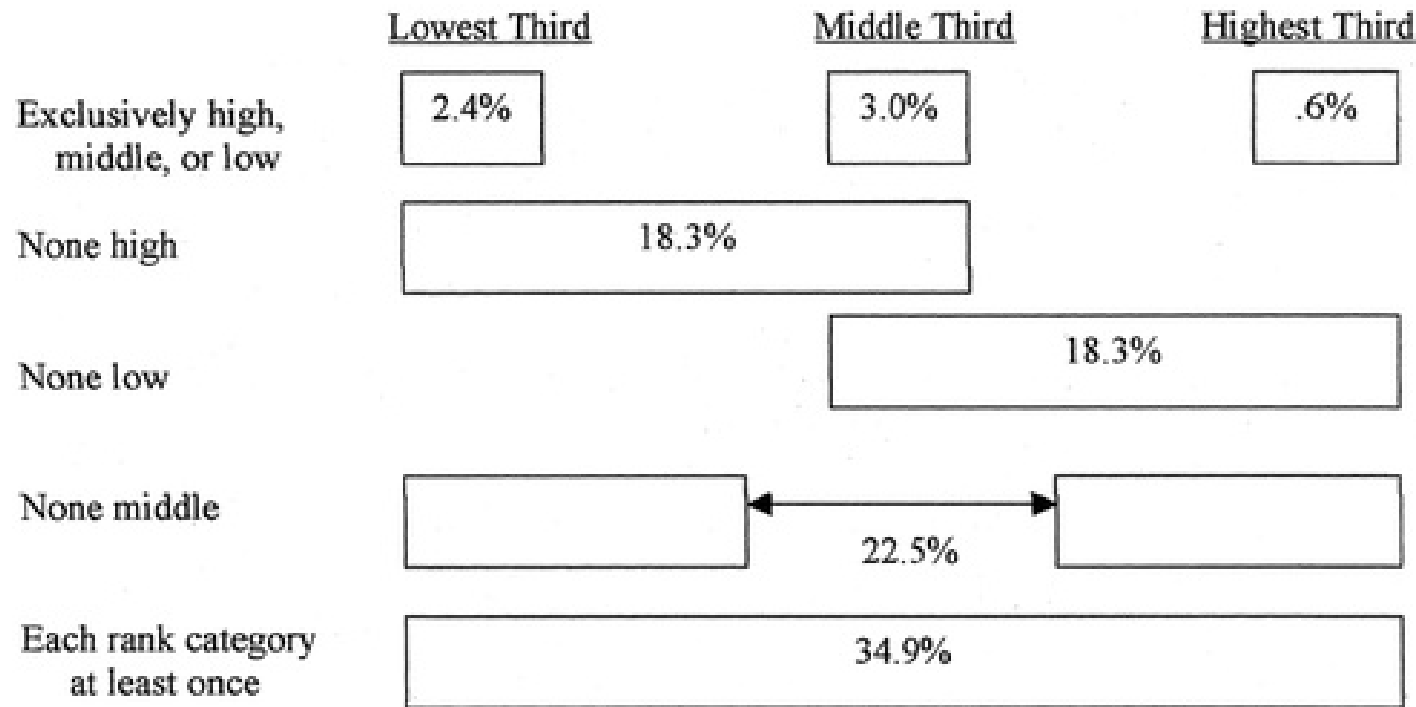
- For readmission rates, variation is insufficient for distinctions among physicians
  - There is almost no significant variation in readmission rates by PCP
  - The denominator required to detect differences in readmission rates far exceeds the number of admissions generated by individual PCPs

Singh, *Ann Intern Med* 2019

# Even if measures were reliable, physician performance varies across domains

PCPs were ranked in the top, middle, and lower thirds in four domains:

- Cancer screening, diabetic management, patient satisfaction, and ambulatory costs
- 81% of those getting a top score also got a low score
- Only 6% were consistent



“Conjoining measures might both deny accolades and mask poor practice”

# Measurement gaps: Measuring what matters most is challenging

- “Many common reasons for which patients seek care, including fever, cough, headache, shortness of breath, earache, rash, and throat symptoms, were not reflected by the quality measures”

Kanzaria, *JAMA* 2015

- “We have few measures to assess:
  - diagnosis errors...
  - providers’ ability to skillfully manage complex patients with varying combinations of multiple clinical and psychosocial problems”

Berenson, Urban Institute 2013

- We have no way to measure the quality of physicians’ conversations about end-of-life care



# Humility and caution are warranted

- Key Issue 1: The Process of Measuring and Reporting on the Health Care System's Performance is Error Prone and Lacks Standards
  - “Publicly reporting a measure whose reliability and validity are unknown poses risks... and raises potential ethical concerns, such as imposing unjust financial and reputation harm on physicians and provider organizations, misinforming patients about the risks and benefits associated with a treatment option, and guiding patients to riskier rather than to safer care”

Pronovost, National Academy of Medicine 2017
- Missteps can harm the measurement cause
  - E.g., as occurred with ProPublica's *Surgeon Scorecard* and CHPI
- An example of good governance and prudence:
  - IHA's Technical Measurement Committee recommended abandoning the effort to measure efficiency using episodes of care
  - Not only for physicians, but also for organizations, patient volumes did not permit reliable measurement of episode efficiency

Robinson, *Health Aff* 2009

# California Maternal Quality Care Collaborative: creatively leveraging data for meaningful results

- “While US maternal mortality has worsened in the 2010s, by 2013 California’s rate had been cut in half to a three-year average of 7.0 maternal deaths per 100,000 live births”
- Among the success factors:
  - Enthusiastic state agency and private partners
  - A Maternal Data Center with over 95 percent of California births combining claims and clinical EHR data supporting rapid-cycle improvement
  - Protection from legal discovery and public attack
  - Flexibility: “since quality improvement topics change”



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# Health Net Encounter Data Improvement Program

Healthcare Payments Data Review Committee

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November 21, 2019

Health Net's Community and Infrastructure Investment Program has committed \$50 million over five years to improve encounter data reporting in California

## **Program Goal:**

Mitigate barriers to the timely collection and submission of complete and accurate encounter data; and strengthen the data collection and reporting infrastructure.

Encounter data is playing an increasing role in Medi-Cal managed care plan rate setting, provider payment distribution, and quality scoring.



## Rate Setting & Encounter Data Stoplight Reporting

DHCS will increase encounter use in **rate development** starting in SFY2020-21



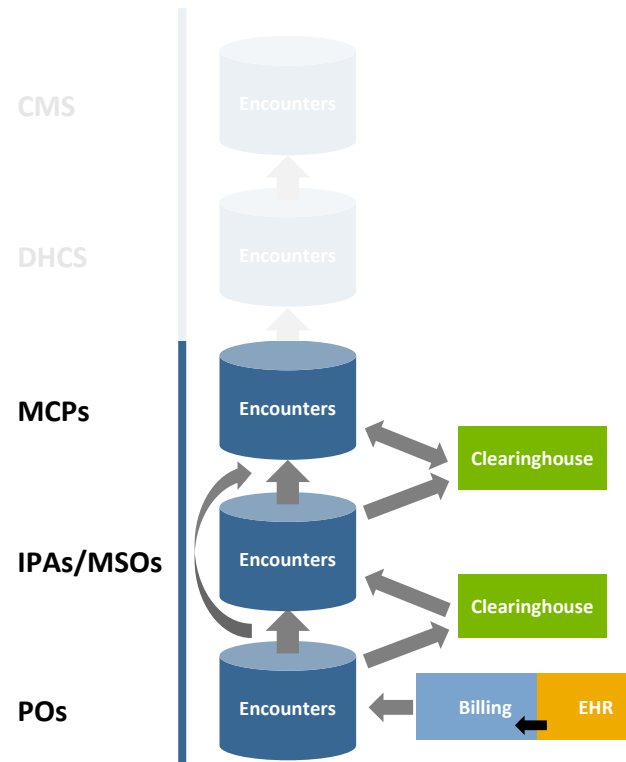
## Directed Payments

Directed Payments will utilize encounter data for Physician Directed Payments (Prop 56) and Hospital Directed Payments programs, such as the Designated Public Hospital (DPH) Quality Incentive Program; DPH Enhanced Payment Program; and Private Hospital Directed Payment Program.



## Improving HEDIS Scores

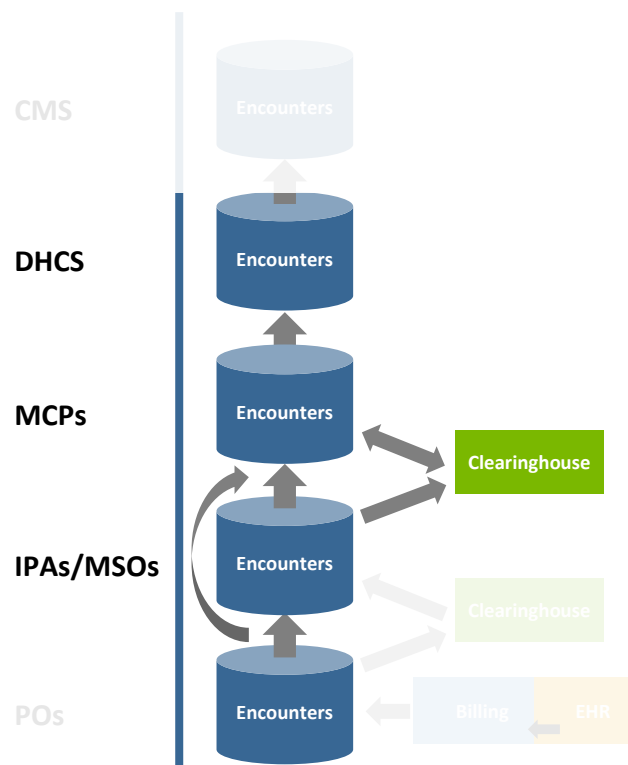
Health plans must meet the 50<sup>th</sup> national percentile for HEDIS measures, calculated in part using encounter data. Performance below the 25<sup>th</sup> percentile will trigger an “improvement plan” by DHCS.



## Provider Organizations (POs), Independent Practice Associations (IPAs) & Managed Services Organizations (MSOs)

### Encounter Data Reporting Challenges:

- **Lack of awareness** of encounter data significance
- High staff turnover and **limited training in proper coding** and encounter data submission processes
- Reliance on **antiquated or rigid EHR systems**, or paper-based submissions
- **Lack of timely or actionable feedback** on rejection reports at each submission level
- **Uneven data standards**, requirements and communication across clearinghouses and MCPs

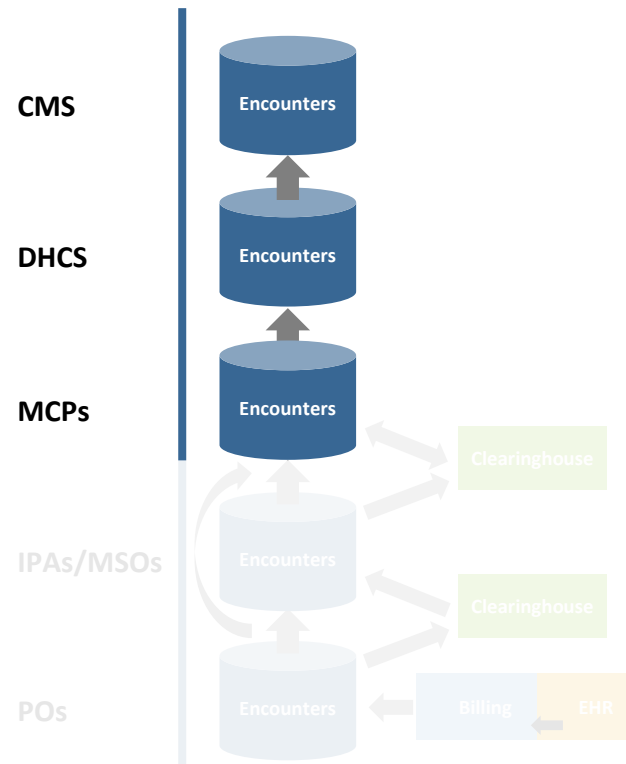


## Managed Care Plans (MCPs)

### Encounter Data Reporting Challenges:

- **Incomplete submissions** from contracted IPAs and providers
- **Unclear DHCS submission standards** (e.g. local codes) and inaccurate coding cross-walks
- **Lack of DHCS transparency/feedback on edits/rejections**

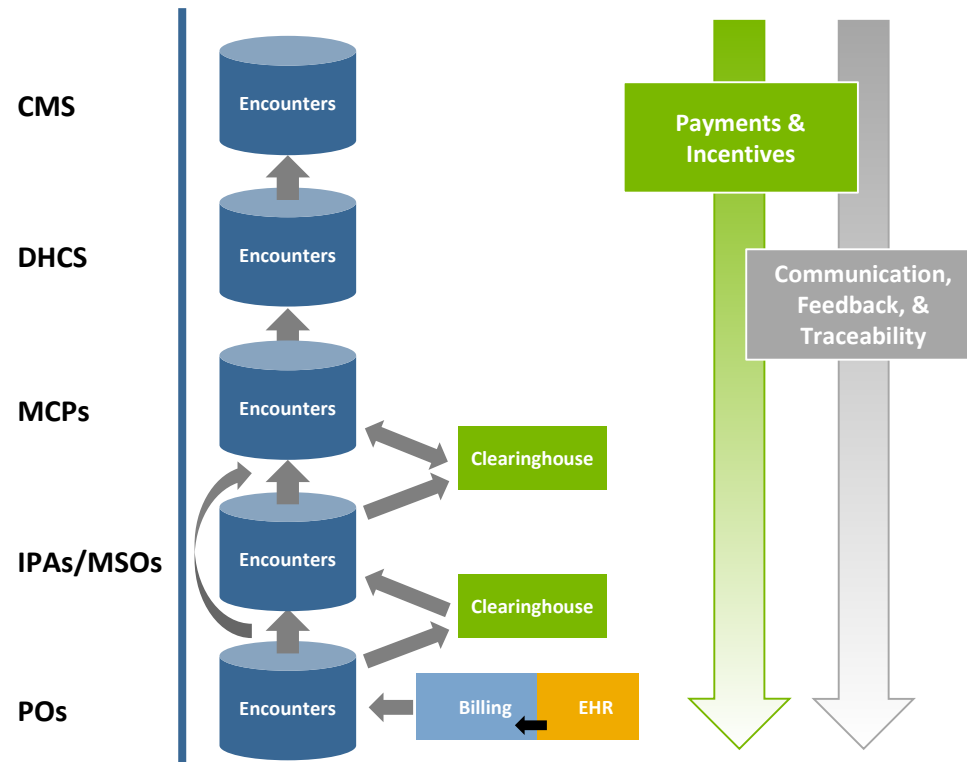




## Department of Health Care Services (DHCS) & Centers for Medicare & Medicaid Services (CMS)

### Encounter Data Reporting Challenges:

- **Lack of CMS guidance** leads to incomplete and unclear standards and state requirements (per GAO review)
- **Long lag times** for encounter completeness/quality feedback from CMS to DHCS and DHCS to MCPs
- **Limited understanding of downstream technical challenges** associated with submitting encounter data
- **Governing** a tremendously complex encounter data ecosystem without complete visibility, especially into intermediaries



## Cross-Cutting Issues

- **Poor Communication:** Lack of guidance on encounter reporting expectations, rules, and code changes
- **Limited Incentives:** for reporting complete, accurate and timely encounter data,
- **Lack of Traceability:** To trace data quality issues to the source of the problem

# Three Work Groups Have Been Established

75



## **Governance**

Establish data and program governance to coordinate and prioritize improvement initiatives, oversee changes to standards, policies and processes, and support communication and collaboration



## **Data Standardization**

Establish and update standardized encounter data code sets, specifications, and vocabularies to improve data quality, completeness and timeliness



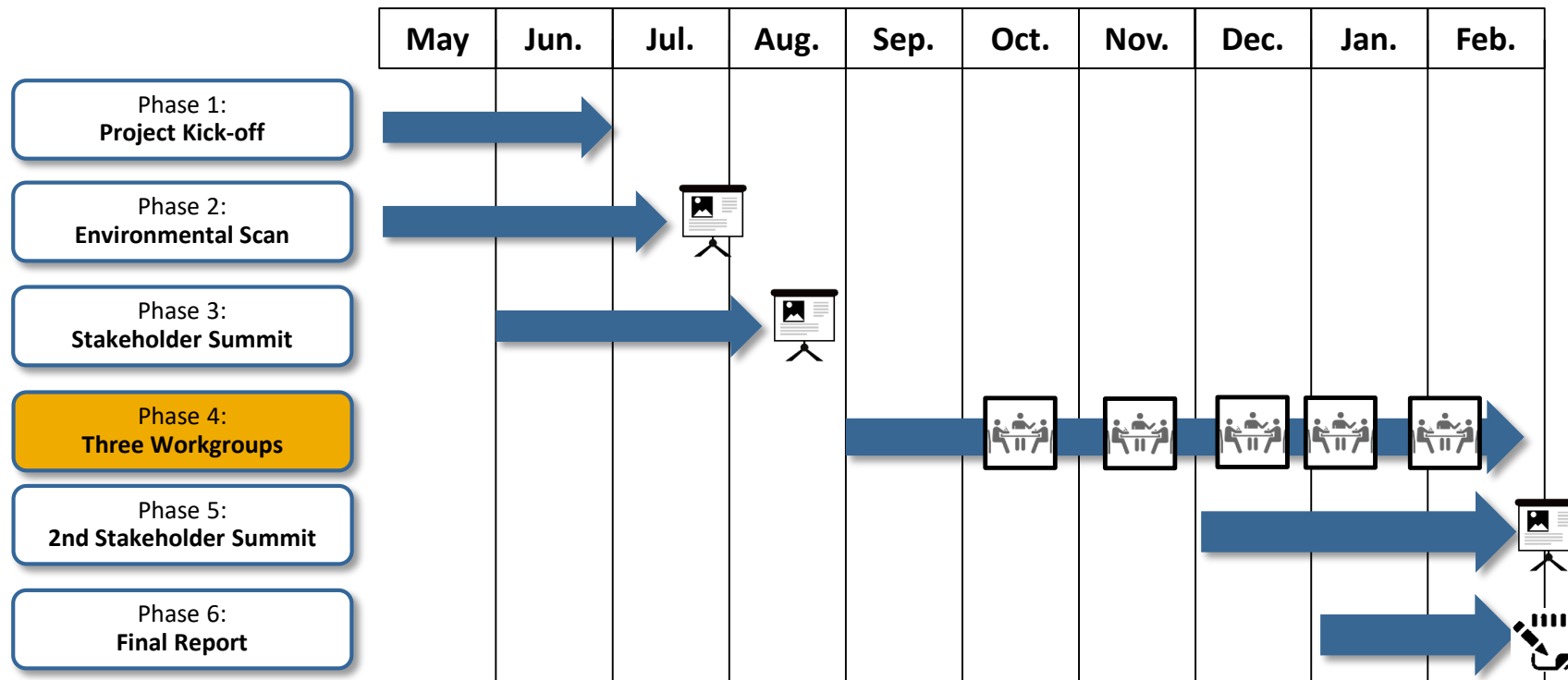
## **Technology & Technical Assistance**

Support outreach and deliver technical assistance to improve encounter data reporting capabilities

# Work Plan

76

HealthNet and Manatt's work plan includes an environmental assessment, two summits and three work groups to address challenges and develop solutions



Three workgroups will develop and present recommendations at the summit in Spring 2020



CALIFORNIA SCHOOLS  
VEBA

## THE POWER OF DATA 11/21/19

65 School Districts  
138 Bargaining Units  
1 County Government  
3 College Entities  
\$1 Billion in Annual HC Purchase

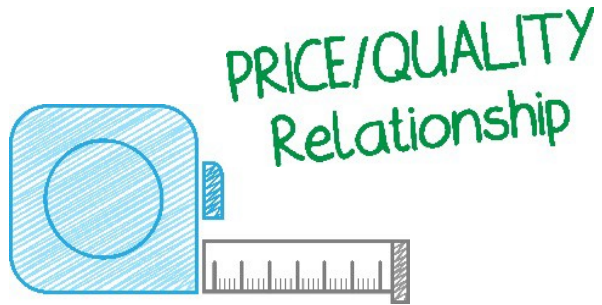
# Why We Do What We Do

**Vision:** Our members are engaged and empowered advocates for their own well-being

**Mission:** Through collaborative partnerships, we provide health resources that are effective, affordable and of the highest quality and value

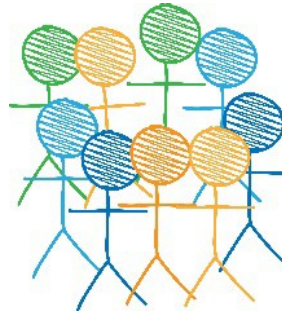


# VEBA's Philosophy



1. Give members visibility to cost and quality.

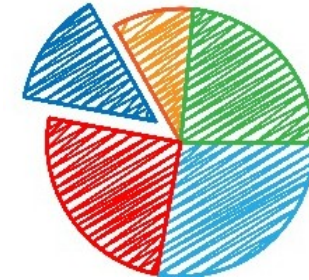
Using CA Office of Patient Advocate data, VEBA maps providers on a cost-quality matrix to determine the value of care delivered.



2. Create incentives to utilize high value providers.

VEBA realized cost savings of more than \$100 million by both improving unit cost and getting our members better quality care.

COMPETITION



3. Use competition to drive cost savings & innovation.

VEBA's next generation product and innovation strategy includes shared-risk Centers of Excellence, enhanced access to mental health services, & captive facilities.



# Performance HMO – San Diego

## Excerpt from 2014 OE Materials

Network 1: High Quality, Reasonable Price		
Medical Group	OPA Quality Score	Cost
Sharp Rees-Stealy Medical Centers	★★★★	Reasonable
Sharp Community Medical Group (Includes Chula Vista, Coronado, Graybill, Grossmont, Inland North, Metro San Diego)	★★★	Reasonable
Primary Care Associated MG (Includes Cassidy and Encinitas)	★★★	Reasonable
Arch Health Partners	★★★	Reasonable
Encompass MG	★★★	Lowest
Children's Physician MG*	★★★	Higher

Network 3: Much higher costs for the same or less quality than other networks		
Medical Group	OPA Quality Score	Cost
UCSD	★★★	Highest
Scripps Coastal (Formerly known as Scripps Mercy)	★★★	Highest
San Diego Physicians (Chula Vista and East County)	★★	Highest
Children's Physician MG*	★★★	Higher

Must meet these Performance Requirements to be included in Network 1.

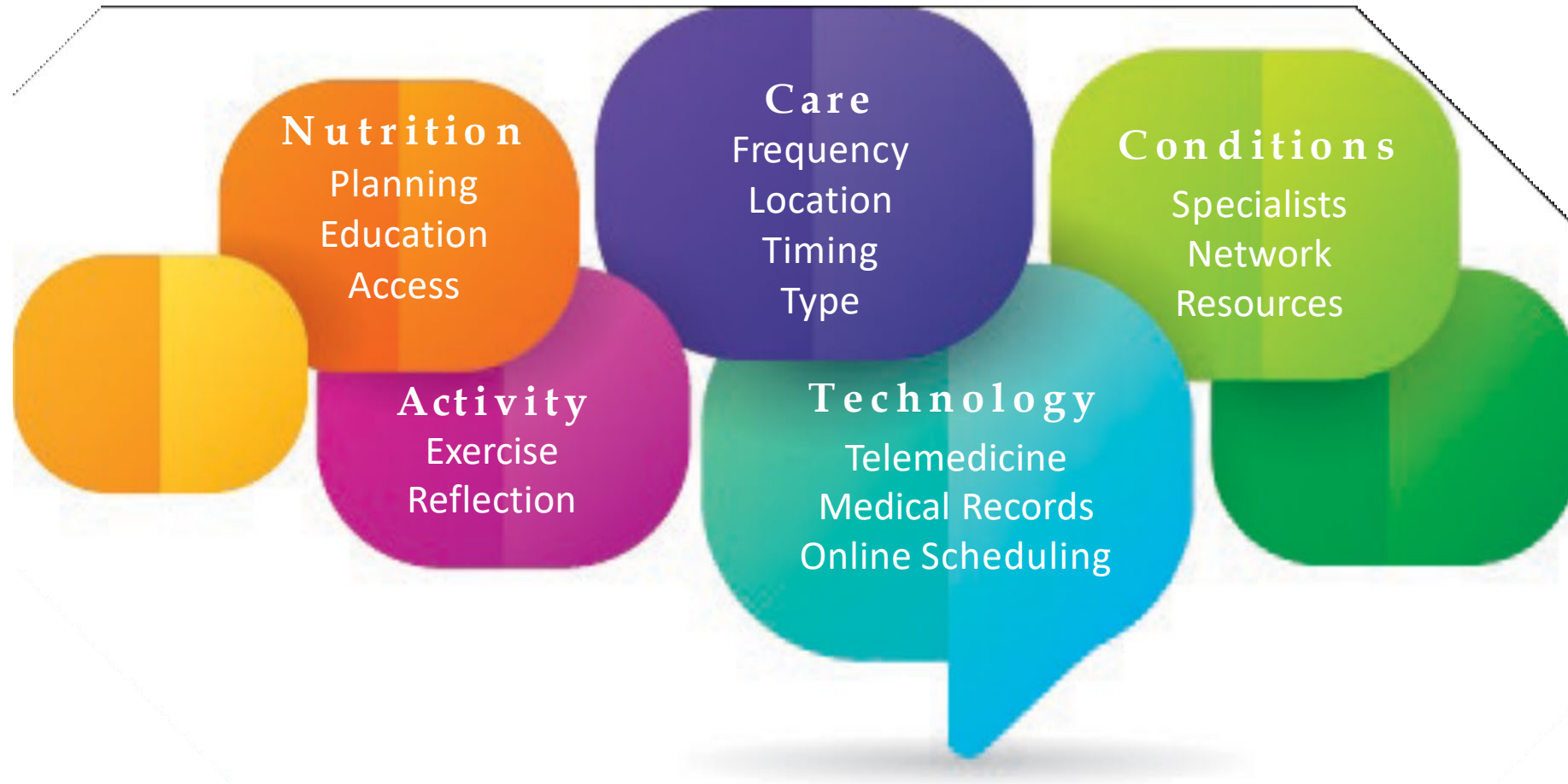
Performance Key	
OPA Quality Score	Cost
★★★★	Excellent
★★★	Good
★★	Fair
★	Poor
	Lowest
	Reasonable
	Higher
	Highest

- PHMO design based on a balance of cost and quality metrics
  - Overtime, Network 3 medical groups have become available in more affordable networks, like Alliance
  - Alliance network allowed for a lower-cost option for accessing Scripps and UCSD
- San Diego based-districts were given the choice to eliminate Network 3 over the past two enrollment periods
  - Many districts took advantage and no longer offer N3
- For 2020, Network 3 will no longer be an option for districts/bargaining units in San Diego
  - If no election, the default for these members will be the Alliance 20/30 plan

*Note: Network 3 will continue to be available to districts outside San Diego*



## VEBA Data Uses



# What this means

- We often know what to do –but why don't we do it?
- Stress, anxiety and trauma reduce our ability to effectively manage our significant health issues
- Rolling out new tools and resources for members to deal with the true drivers of health care costs



# Data Has Allowed:

- Customizing Networks
- Better Income Distribution to Providers
- Identifying Cost Trends
- Improve Efficiency
- Keeping Members Healthy
- Prediction Capability
- Error Minimization
- Real Time Alerts
- Compliance Tracking
- Enhancing Patient Engagement
- Informed Strategic Planning
- Staffing Allocations



# Technical Workgroup Report: Summary of APCD-CDL™ Feedback

Ted Calvert, Consultant, OSHPD

# Process

- Reviewing the Common Data Layout for State APCDs (APCD-CDL™) file types:
  - Member Eligibility File (July)
  - Medical Claims File (August)
  - Pharmacy Claims File (September)
  - Provider File (October)
  - Dental Claims File (November)
  - Review Data Maintenance Request (December)
- OSHPD sends “homework” / request for review prior to each meeting
- During meetings, review selected elements and note feedback
- Gather suggestions for a formal Data Maintenance Request

# Recurring Themes

- Health plans and insurers must pull data from several internal systems to prepare APCD-like data
- There's considerable variation in:
  - Availability of data (e.g., completeness) at the element-by-element level
    - Availability is often determined upstream and is not in the submitter's control
  - Interpretation of data element definitions
- Use of the APCD-CDL™ helps but is not a cure-all
  - Includes relevant data elements to support analysis (vs. adjudicating claims)
  - Provides definitions and references to other standards
  - Continued adoption will reduce reporting burden of national plans
  - Ongoing communications between submitters and OSHPD are necessary and critical



# Preview of Likely Changes to be Requested

- General requests:
  - Add even more references to underlying standards (e.g., HIPAA transaction elements)
  - Clarify which elements are expected to always be populated (e.g., dates of service, admission date on inpatient facility records) vs. “when available” (e.g., *Social Security Number*)
    - Note that OSHPD will still need to develop more specific data quality thresholds and feedback mechanisms
- Examples of specific requests:
  - Add a new data element, *Rendering Provider Street Address*
  - In definitions or documentation, further clarify what’s expected in the financial fields for encounters covered under a capitated arrangement (e.g., FFS equivalent in *Allowed Amount*)
  - Use NDC codes rather than drug names in the *Compound Drug Name* field
  - Expand length of *Provider Middle Name or Initial* on the Provider file to 25 characters to match same field on other files



# Selected APCD-CDL™ Financial Fields

- Trailer: Control Total of Paid Amount
- Eligibility File:
  - Total Monthly Premium
- Medical & Dental Claims Files:
  - Charge, Plan Paid, Allowed Amounts
  - Withhold Amount
  - Co-Pay, Coinsurance, Deductible Amounts
  - Other Insurance Paid Amount
  - COB/TPL Amount
  - Payment Arrangement Type Flag  
(Cap, FFS, %Charges, DRG, P4P, GP, Other, BP)

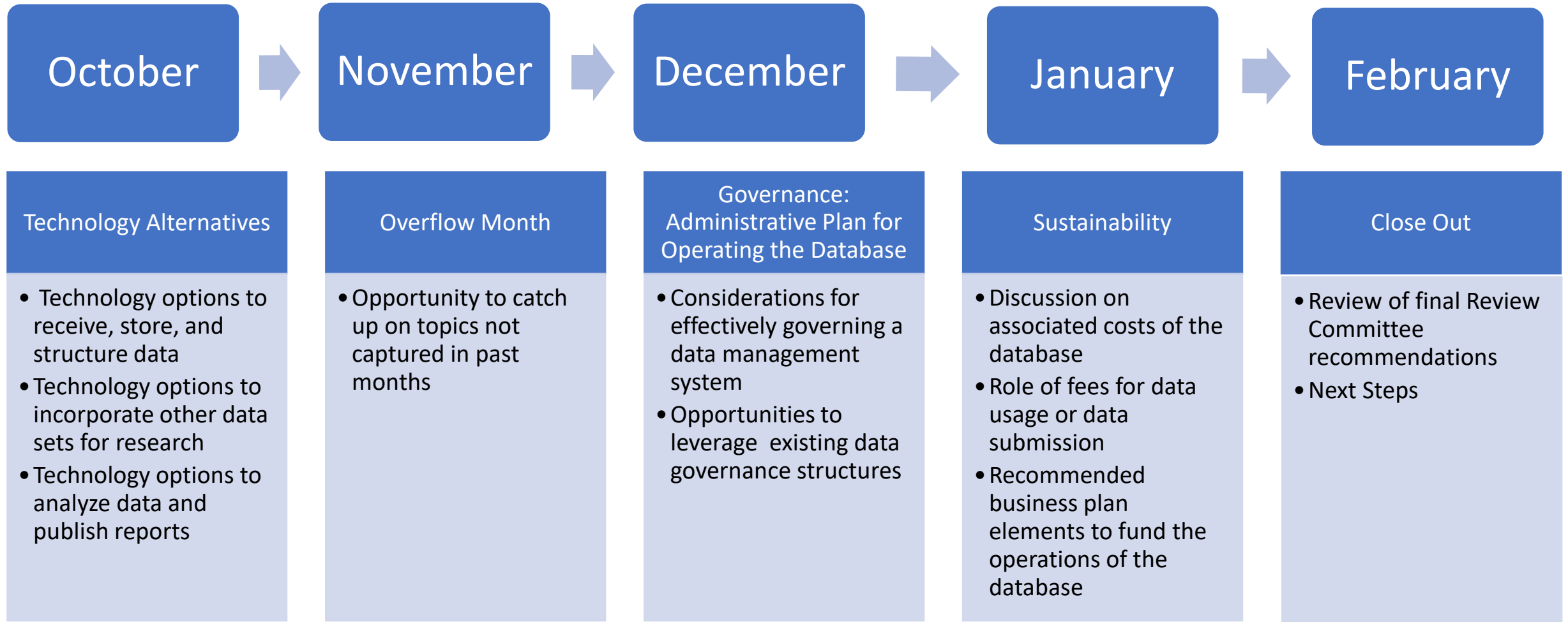
# Selected APCD-CDL™ Financial Fields, cont.

- Pharmacy Claims File:
  - Charge, Plan Paid, Allowed Amounts
  - Sales Tax Amount
  - Ingredient Cost/List Price
  - Postage Amount Claimed
  - Dispensing Fee
  - Co-Pay, Coinsurance, Deductible Amounts
  - COB/TPL Amount
  - Other Insurance Paid Amount
  - Member Self-Pay Amount
  - Payment Arrangement Type Flag (Cap, FFS, %Charges, Other)

# Public Comment

# Upcoming Review Committee Meeting : December 19, 2019

# Review Committee Meeting Topics



# Appendix

## EXAMPLE 3 – BENEFIT DESIGN EVALUATIONS

Covered California currently requires plans to submit products according to standardized Patient-centered Benefit Designs, developed with input from a diverse and collaborative stakeholder process.

These benefit designs have included key features designed to improve the patient experience with Covered California coverage, and to incentivize access and high-value care, with features such as:

- Bronze plans with 3 visits outside the deductible
- Caps on Specialty Drug co-pays (2016)
- ... and additional modifications each year

# EXAMPLE 3 – BENEFIT DESIGN EVALUATIONS

## Evaluation Question:

What is the impact of \_\_\_ change to the benefit design on utilization, member cost share, total cost of care, and quality of care (where applicable)?

## Challenge Under Current State:

Benefit design changes are implemented uniformly across all QHP products.

## HPD Value Added:

Create comparison groups from other *California* market segments (e.g. small group) that did not experience the change in benefit design.

## Actionable:

Findings would inform future revisions to the benefit designs.



## EXAMPLE 3B – NEW INTERVENTION EVALUATIONS

Beyond its work on benefit designs, Covered California is continually working with issuers and stakeholders to identify new product features or outreach strategies that may improve access to, and quality of, care, all while lowering cost.

(For example, in 2017 Covered California required all PPO and EPO products to assign a Primary Care Physician (PCP) to all members upon enrollment.)

As with benefit design changes, such interventions often must be imposed uniformly across the Covered California market (for operational or legal reasons). The HPD would provide a unique data asset to allow more rigorous assessments of the impacts of these changes on care.

# DATA USAGE CONSIDERATIONS

As a potential user of HPD data, Covered California anticipates several critical aspects of usage that could have critical impacts on the viability of some use cases:

- **Time to Information:** Many of Covered California's core use-cases are focused on results that could inform operational decisions: the timeframe for data availability and project execution will be important considerations for some use cases.
- **Data Blending:** Covered California may frequently seek to bring its own pre-defined study population to the HPD data, including additional administrative or other data (e.g. application characteristics specific to its enrollees; or campaign-specific information about consumer engagement in their plan choice decisions). Will the data governance and information security framework of the HPD allow this in a secure but practical way?

# DATA USAGE CONSIDERATIONS

- **Direct Analytic Support:** How will state agencies (or any users) access the technical expertise of the team that builds and maintains the HPD to assist in data analysis? If these resources are contractors of OSHPD, would HPD users be able to contract directly with these vendors, or only access as mediated by OSHPD team?
- **Data Updates or Augmentation:** If, despite the best planning, certain data elements are not available in the core data layouts for the HPD, will there be mechanisms to update the HPD with that information, or to enable analysis that incorporates that data through separate ad-hoc feeds?

# DATA QUALITY CONSIDERATIONS

For any use case, Covered California reiterates the importance of attention to data quality and completeness, and that a priority from the start include:

- **Allowed cost** information comprised of the insurer / payer paid amount and the consumer cost share amounts. Given the California market, a fee-for-service equivalent amount for capitated services also is essential.
- **Provider identification** accomplished via the individual practitioner National Provider Identifier (NPI); a comprehensive facility identifier (e.g., OSHPD identifier); the one-to-many roll-up of practitioners to medical practices; and the organization of facility and practitioner identifiers to show the composition of delivery system entities like Accountable Care Organizations (ACOs). To provide detailed analysis in patterns in care, it is essential to identify the individual (rendering) provider, and not rely only the tax ID, for example.

# References

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Haas, A., Elliott, M. N., Dembosky, J. W., Adams, J. L., Wilson-Frederick, S. M., Mallett, J. S., ... & Haviland, A. M. (2019). Imputation of race/ethnicity to enable measurement of HEDIS performance by race/ethnicity. *Health Services Research*, 54(1), 13-23.

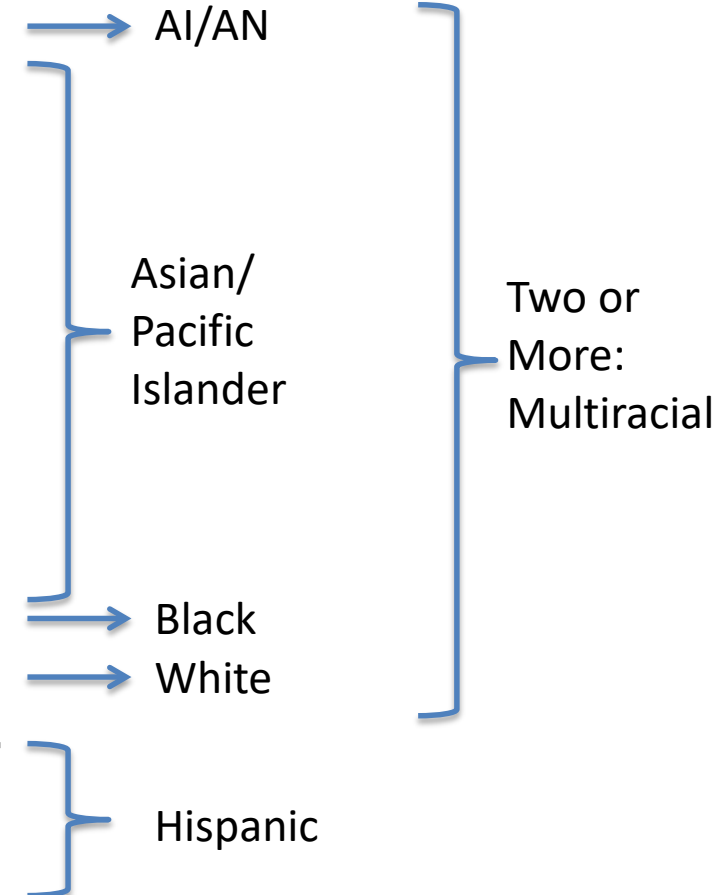
Agniel, D., Martino, S.C., Burkhart, Q. et al. (2019) *Journal of General Internal Medicine*.

Damberg C, Elliott MN, Ewing B. (2015) "Pay-for-Performance Schemes that Use Patient and Provider Categories Would Reduce Payment Disparities" *Health Affairs* 34(1): 134-142.

# Preparing Self-Reported Race/Ethnicity Data

- ssdfd

Race/Ethnicity	Options (Select All That Apply)
Race	American Indian/Alaska Native
	Asian Indian
	Chinese
	Japanese
	Korean
	Native Hawaiian
	Other Asian
	Other Pacific Islander
	Filipino
	Guamanian/Chamorro
	Samoan
	Vietnamese
	Black/African American
	White
	Unknown
Hispanic Ethnicity	Cuban
	Mexican, Mexican American or Chicano/a
	Puerto Rican
	Unknown



# Rules for Categorizing Self-Reported Race/Ethnicity into 6 Mutually Exclusive Groups

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1. Hispanic ethnicity +/- other races -> **Hispanic**
2. Non-Hispanic respondents who reported two or more races were classified as **multiracial**, with the exception of those who selected two or more from among the following options (but no other race): “Asian Indian”, “Other Indian”, “Chinese”, “Japanese”, “Korean”, “Native Hawaiian”, “Other Asian”, “Other Pacific Islander”, “Filipino”, “Guamanian or Chamorro”, “Samoan”, “Vietnamese.” These enrollees were classified as API.
3. Non-Hispanic respondents who reported exactly one race were classified as **AI/AN, API, black, or white**, according to their response.

# Geocoding Enrollee Residential Addresses

---

- Goal: Identify each enrollee's census block group
- Requires geocoding software (e.g., ArcGIS)
- Software identifies X,Y coordinates using the most precise geographic information possible:
  - Full address
  - 9-digit zip code
  - 5-digit zip code
- Software then links coordinates to a single block group



# Formatting Enrollee Surnames

---

- Goal: Enable merging of enrollee names with Census surname dataset
- Examples:
  - Mrs. Kim -> KIM
  - Smith Jr. -> SMITH
  - Wilson III -> WILSON
  - Davis Ph.D. -> DAVIS
  - Beck-Sullivan -> BECKSULLIVAN
  - De La Luz -> DELALUZ

# Generating Preliminary Race/Ethnicity Probabilities

- Apply Bayes' Theorem to generate 6 posterior probabilities

Illustrative calculation for 1 of the 6 probabilities:

$$\begin{aligned} p(\text{Black} | \text{surname } s, \\ \text{blkgrp } b) &= \frac{p(\text{Black} | \text{surname } s) * p(\text{blkgrp } b | \text{Black})}{p(\text{AIAN} | \text{surname } s) * p(\text{blkgrp } b | \text{AIAN}) + \\ &\quad p(\text{API} | \text{surname } s) * p(\text{blkgrp } b | \text{API}) + \\ &\quad p(\text{Black} | \text{surname } s) * p(\text{blkgrp } b | \text{Black}) + \\ &\quad p(\text{Hispanic} | \text{surname } s) * p(\text{blkgrp } b | \text{Hispanic}) + \\ &\quad p(\text{White} | \text{surname } s) * p(\text{blkgrp } b | \text{White}) + \\ &\quad p(\text{Multiracial} | \text{surname } s) * p(\text{blkgrp } b | \text{Multiracial})} \end{aligned}$$

## Overview of Improvement of Algorithm to Create MBISG 2.0 (Haas et al. 2019)

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- Improves the three currently used data elements of the existing algorithm within the Bayesian framework
  - Address
  - Surname
  - CMS administrative variable
- Incorporates additional data elements and more flexible modeling
- Turns CMS administrative classification into a vector of r/e probabilities using previous self-reported data from a national survey of Medicare beneficiaries, poststratified to CMS enrollment files
- Independently calculates a vector of BISG r/e probabilities from name, address
- Uses similar Bayesian approach to integrate these 2 estimates, 3 information sources
- Substantially improves the original CMS variable

# Race/Ethnicity Probabilities Are Recommended

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- Probability-based imputations exhibited excellent calibration and discrimination
- Classification-based imputations underestimated prevalence for non-White groups
- In most applications, probability-based estimates should suffice
  - Example: Re-enrollment campaign targeted to Hispanic enrollees:
    - Disseminate information to enrollees with probability of Hispanic ethnicity **0.8 and above**
    - Disseminate information to enrollees with probability of Hispanic ethnicity in the **highest decile**

# Census Surname list provides probabilities that person with that last name belongs to each of 6 R/E groups

Based on 270 million US citizens >99% of all surnames

	Proportion Belonging to a Specific Racial/Ethnic Group					
Surname	AI/AN	Asian	Black	Hispanic	White	Multiracial
Learner	0	0.1	0.1	0.15	0.65	0
<b>Lee</b>	<b>0</b>	<b>0.5</b>	<b>0.35</b>	<b>0.0</b>	<b>0.15</b>	<b>0</b>
Lopez	0.05	0.0	0.1	0.65	0.2	0

Example:

John **Lee**, 1501 Eastern Blvd, Montgomery, AL 36117\*

NOTE: \*Name, address, and numbers in the table are hypothetical.

# Census Block Group files provides proportions of residents belonging to each R/E Group in a neighborhood

Block groups have an average of 1,000 residents

	Probability of Belonging to a Specific Racial/Ethnic Group					
Block Group	AI/AN	Asian	Black	Hispanic	White	Multiracial
1012	0	0.1	0.3	0.1	0.5	0
1223	0	0.05	0.6	0.20	0.15	0
1056	0	0.1	0.3	0.2	0.4	0

Example:

John Lee, 1501 Eastern Blvd, Montgomery, AL  
36117

NOTE: \*Name, address, and numbers in the table are hypothetical.

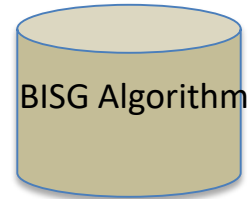
# RAND Method Combines Surname and Block Group Data to Estimate R/E probabilities

## Surname R/E Information

	Proportion Belonging to a Specific Racial/Ethnic Group					
Surname	AI/AN	Asian	Black	Hispanic	White	Multiracial
Learner	0	0.1	0.1	0.15	0.65	0
Lee	0	0.5	0.35	0.0	0.15	0
Lopez	0.05	0.0	0.1	0.65	0.2	0

## Block Group R/E Information

	Probability of Belonging to a Specific Racial/Ethnic Group					
Block Group	AI/AN	Asian	Black	Hispanic	White	Multiracial
1012	0	0.1	0.3	0.1	0.5	0
1223	0	0.05	0.6	0.2	0.15	0
1056	0	0.1	0.3	0.2	0.4	0



Uses Bayesian statistical methods to combine information

J. Lee from Alabama

	Probability of Belonging to a Specific Racial/Ethnic Group					
Member	AI/AN	Asian	Black	Hispanic	White	Multiracial
A	0	0.1	0.2	0.12	0.58	0
B	0	0.3	0.5	0.05	0.15	0
C	0.03	0.05	0.2	0.5	0.3	0

# Individual probabilities can be converted into group counts and proportions (or percentages)

	Probability of Belonging to a Specific Racial/Ethnic Group					
Member	AI/AN*	Asian	<b>Black</b>	Hispanic	White	Multiracial
A	0	0.1	0.6	0.2	0.1	0
B	0	0	0.1	0.7	0.2	0
C	0	0.5	0.1	0	0.4	0
D	0	0	0.1	0.4	0.5	0
E	0	0	0.2	0.2	0.6	0
F	0	0	0.2	0.1	0.6	0.1
G	0.1	0.6	0	0.2	0.1	0
H	0	0	0.1	0.5	0.3	0.1
I	0	0	0.0	0.2	0.8	0
J	0	0	0.7	0.2	0.1	0
<b>Sum</b>	0.1	1.2	2.1	2.7	3.7	0.2
<b>Mean</b>	0.01	0.12	0.21	0.27	0.37	0.02

Sum = Count Mean = Proportion or Percent if Multiplied by 100

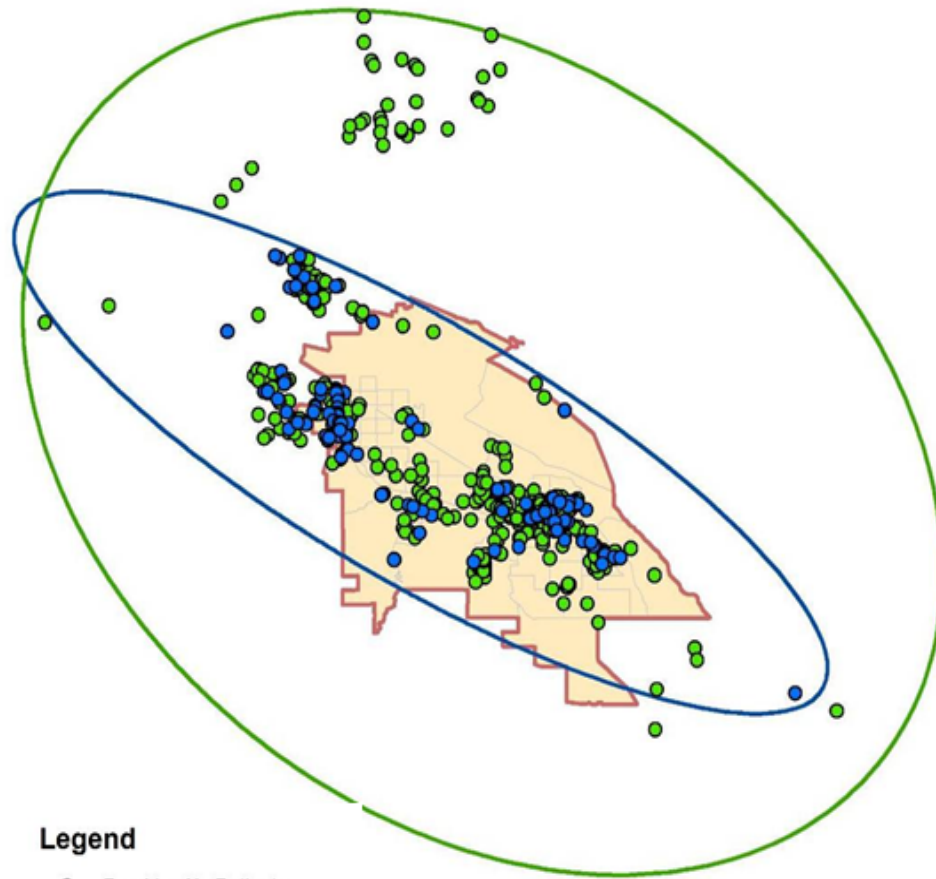


## Available R/E data can be combined with BISG probability estimates

	Probability of Belonging to a Specific Racial/Ethnic Group					
Member	AI/AN*	Asian	Black	Hispanic	White	Multiracial
<b>A</b>	0	0	<b>1</b>	0	0	0
<b>B</b>	0	0	0	<b>1</b>	0	0
C	0.1	0.5	0.1	0	0.3	0
D	0.1	0	0.3	0	0.6	0
<b>E</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
F	0	0	0.3	0	0.7	0
<b>G</b>	0	0	0	0	<b>1</b>	0
H	0.1	0	0	0.9	0	0
I	0	0	0.5	0.5	0	0
<b>J</b>	0	<b>1</b>	0	0	0	0
.						
<b>Sum</b>	0.3	1.5	2.2	2.4	3.6	0
<b>Mean</b>	0.03	0.15	0.22	0.24	0.36	0

Sum = Count; Mean = Proportion or Percent if Multiplied by 100

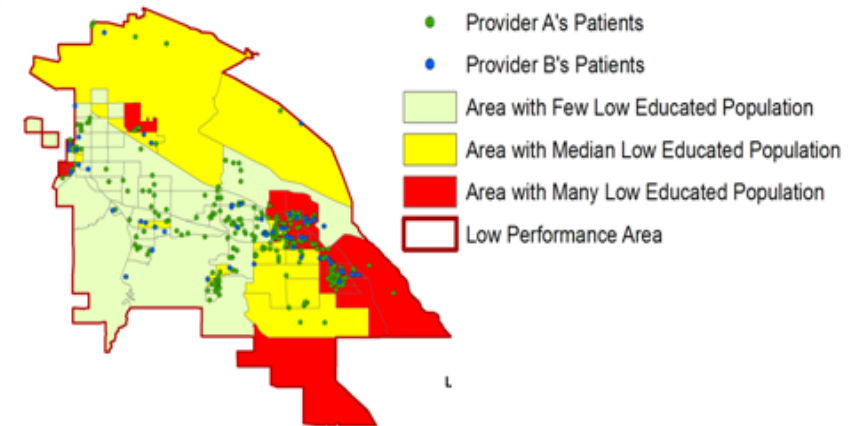
# Provider A & B Diabetic Patients



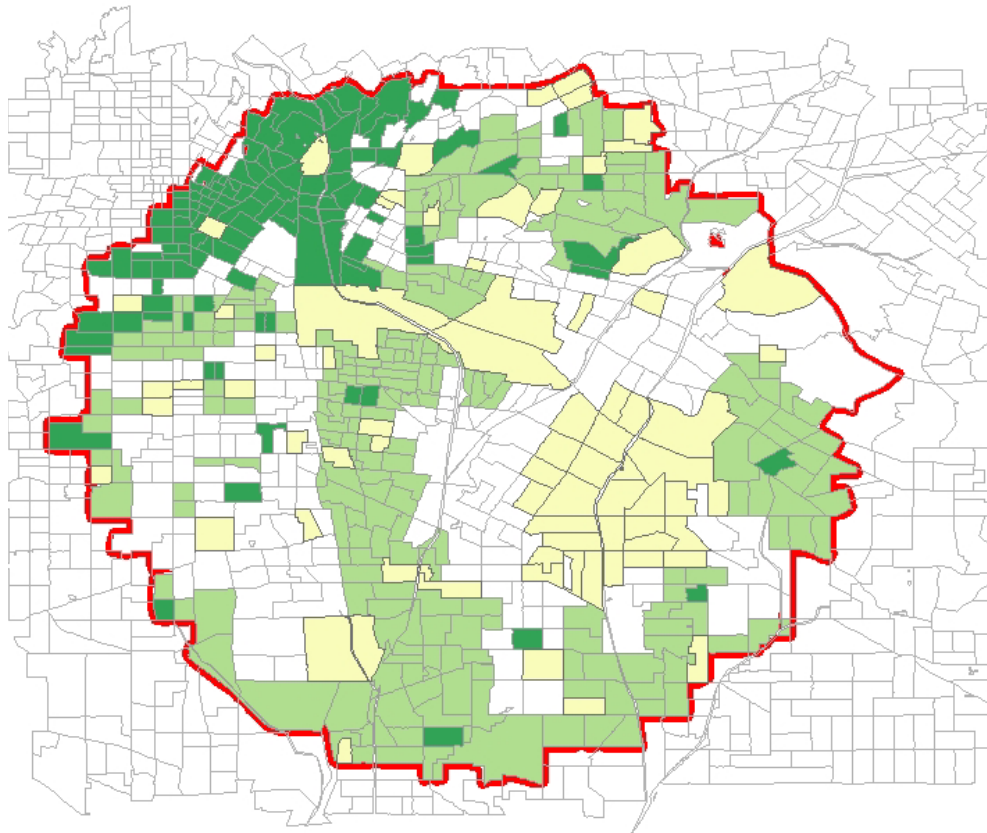
## Legend

- Provider A's Patients
- Provider B's Patients
- 95% of Provider A Patients
- 95% of Provider B Patients
- Low Performance Area

- Though Provider B serves similar patients as A, B's performance is relatively good inside and outside cluster without disparities
- Maps of local characteristics can help providers identify QI opportunities



# How might cost-effectiveness vary depending on intervention approach and targeting?



Hispanic - poor

Hispanic – affluent

White/Other

- Target all with simple intervention (mailing)?
- Tailor interventions depending on subgroup (mailing + intensive)?
- Intensive intervention vulnerable subgroup only (intensive)?

## Why Estimate Race/Ethnicity?

- Disparities in quality and outcomes are well documented but not well understood
- Measurement of disparities is limited by difficulties collecting R/E in claims data
- Indirect estimation methods can provide robust estimates when R/E lacking
- BISG method is robust, well validated, indirect R/E method that makes efficient use of information available and produces unbiased R/E estimates

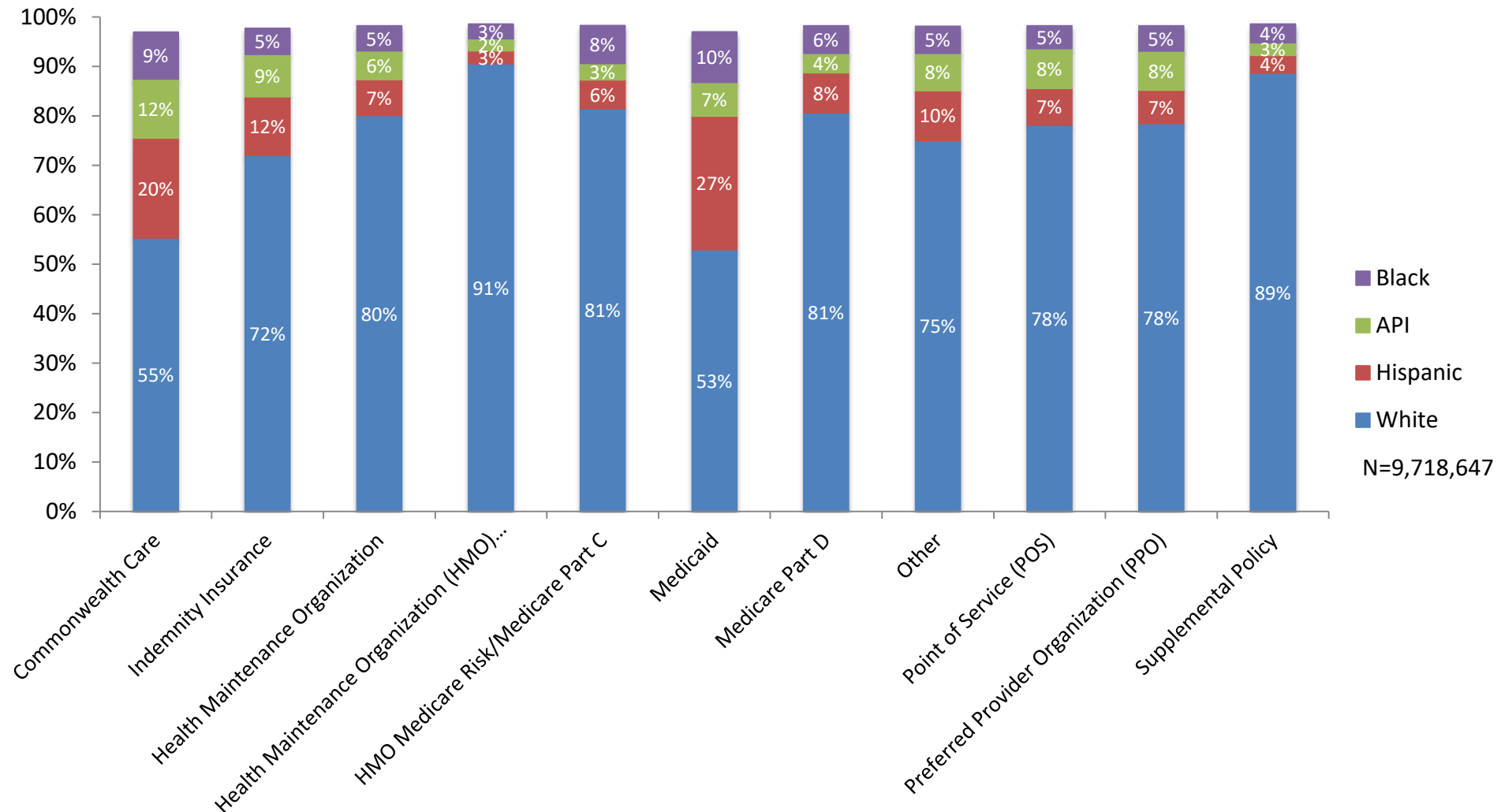
# Overview of the Algorithm

- Inputs from APCD Files
  - Member last name
  - Member residential address (or geocode)
  - Optional: Self-reported R/E data if available
- Census Files needed
  - Census Surname List
  - Census Demographic file (to Block Group level)
- Algorithm
  - Member surname/Census list generate “prior probability” of R/E group
  - Member neighborhood Census provides R/E neighborhood composition
  - Bayesian methods combine both types of information for final estimate

## What are the data sources?

- Original health plan or state agency data
  - Last name and Address from the APCD 4.0
  - Optional: self-reported R/E data as available
- Census Surname List (surname\_yes & surname\_no)
  - Contains 151,671 surnames listed by 100 or more individuals
  - Each surname has set of probabilities for each R/E group
  - Account for about 89.9% of the population
- GeoDemographic (new\_race\_counts\_cen10 & new\_race\_counts\_tract\_cen10 & new\_race\_totals\_cen10 & national)
  - Block Group/Tract population counts for six R/E categories
  - County identifiers, the first five digits of the FIPS code

# Estimated R/E (%) by Selected Insurance Types



## APCD 3.0: Estimated R/E (%) by Selected Plans

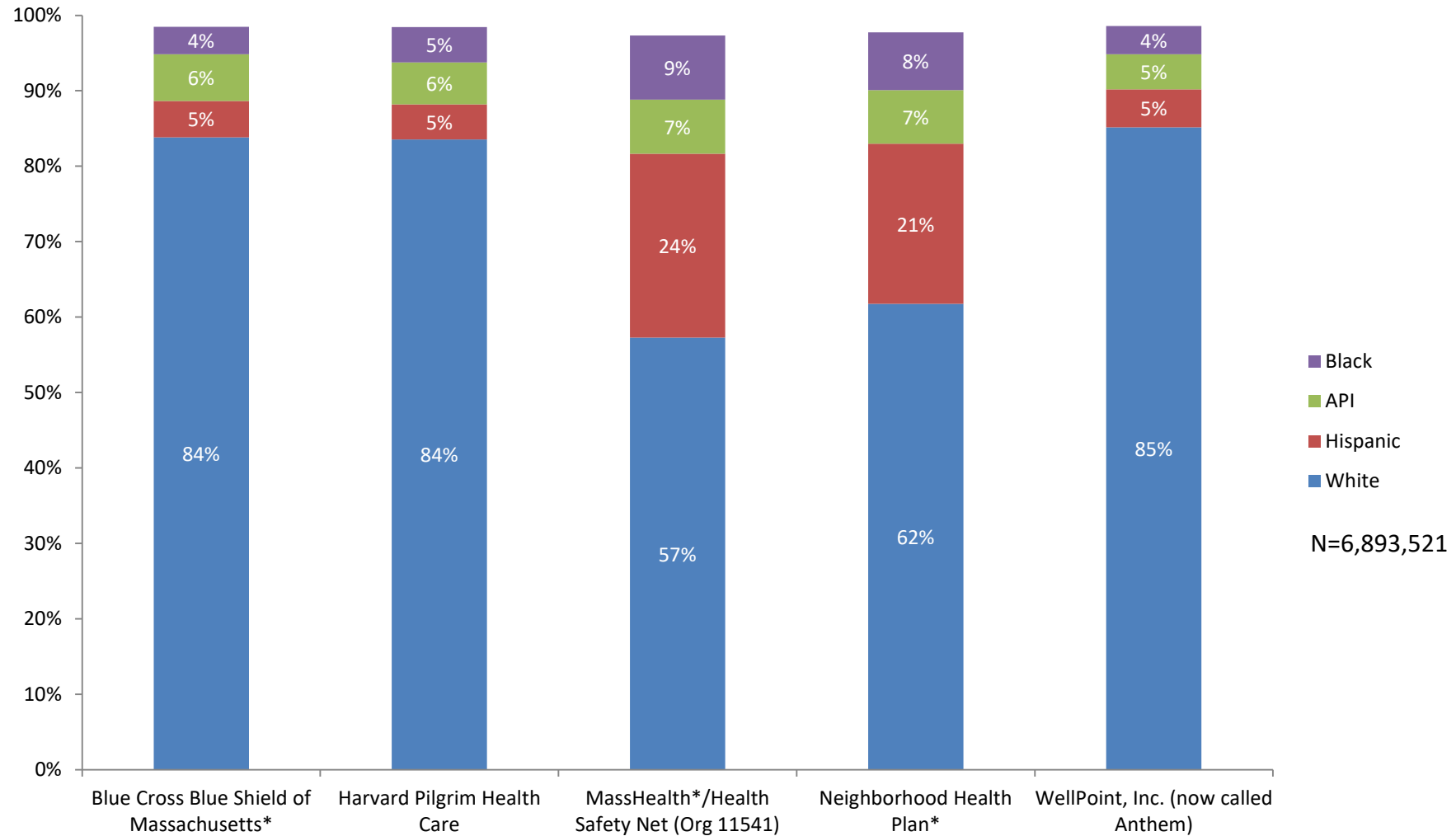


Figure based on Massachusetts residents with medical coverage  
included in 2013 APCD Member Eligibility File

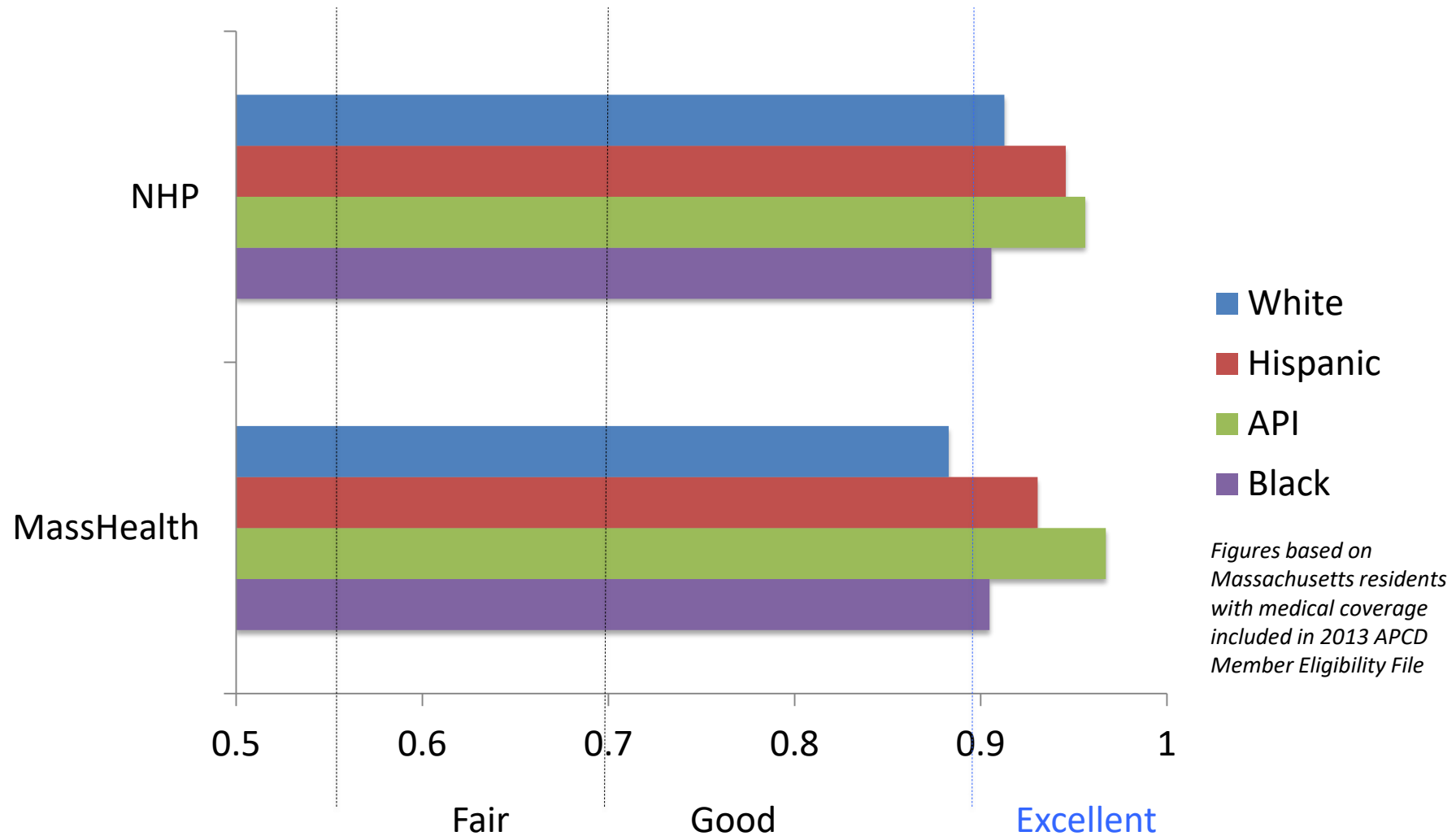


## Assessing Accuracy

- An accurate “test” should be able to distinguish between those who do and don’t belong to a group of interest
- The ability of the algorithm to correctly classify individual members R/E or concordance can be summarized with a C- statistic.\*
- A C-statistic of 0.9 is considered excellent

\* A C-statistic is also a measure of the area under an ROC curve which is commonly used to help assess the performance of a diagnostic test.

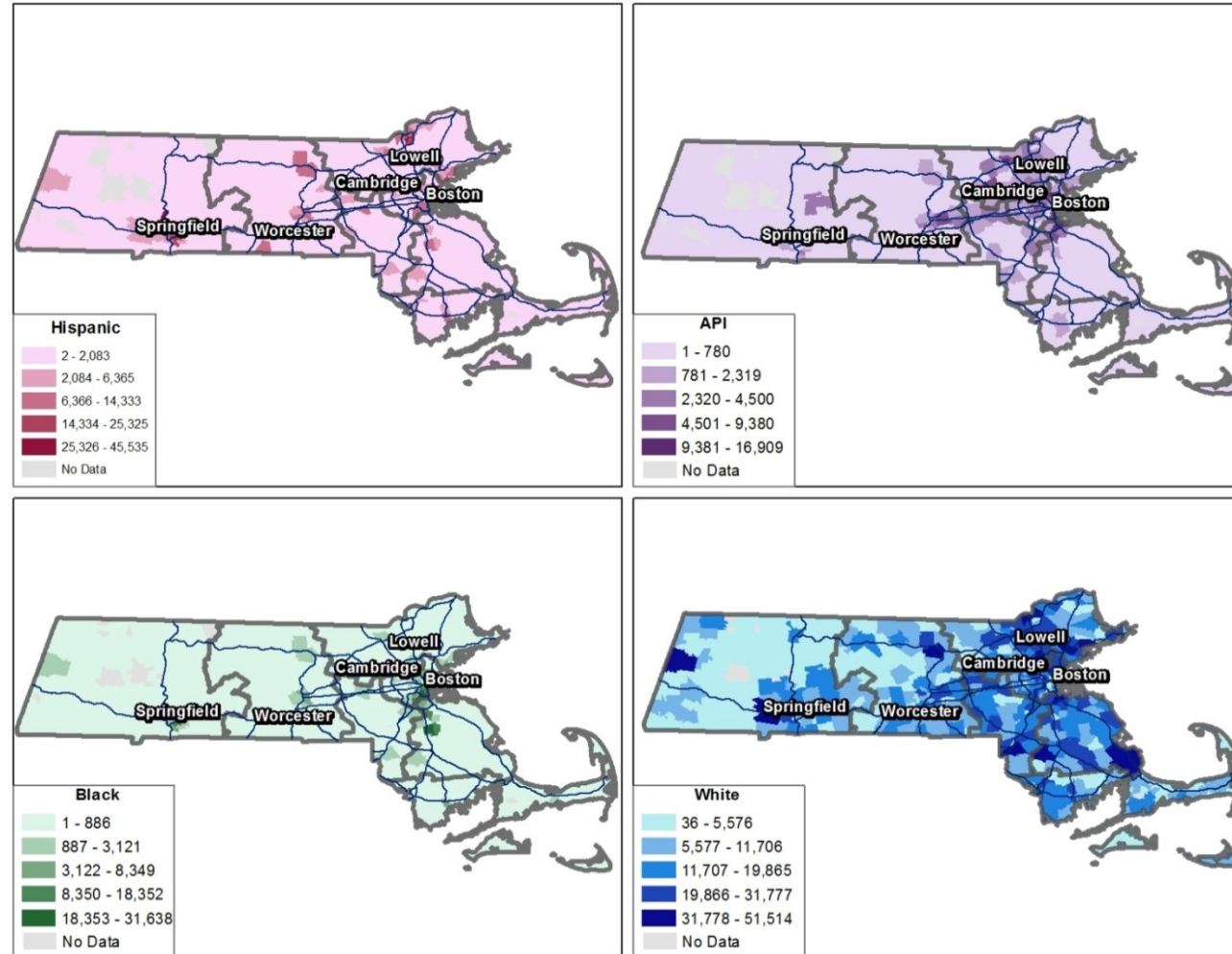
# C-Statistic Comparison



# Additional Uses and Complementary Approaches

- GIS mapping in MA
- Compare or combine with case mix files
- Estimate SES and other social determinants
  - For example: income, education, or language based on Census derived neighborhood information

## Additional Uses Example: Statewide Distribution of MA Residents with Medical Coverage



NOTE: The White population mirrors the overall population distribution in MA, while minorities are concentrated in larger cities

SOURCE: 2013 APCD Member Eligibility File

## Additional sources of IE literature

- Stephen F. Deroose, Richard Contreras, Karen J. Coleman, Corinna Koebnick, and Steven J. Jacobsen. “Race and Ethnicity Data Quality and Imputation Using U.S. Census Data in an Integrated Health System: The Kaiser Permanente Southern California Experience. *Medical Care Research and Review*, 70(3): June 2013, 330-345.
- Dzifa Adjaye-Gbewonyo, Robert A. Bednarczyk, Robert L. Davis, and Saad B. Omer. “Using the Bayesian Improved Surname Geocoding Method (BISG) to Create a Working Classification of Race and Ethnicity in a Diverse Managed Care Population: A Validation Study.” *Health Services Research*, 49(1): February 2014, 268-283.
- High-Value Health Care Project. “Indirect Estimation of Race and Ethnicity: An interim strategy to measure population-level health care disparities.” Engleberg Center for Health Care Reform at Brookings, March 2010.
- Marc Elliot. “Measuring Racial/Ethnic Disparities via Indirect Estimation: An overview.” Presentation at American Public Health Association, 7 November 2010.
- Marc N. Elliott, Peter A. Morrison, Allen Fremont, Daniel F. McCaffrey, Philip Pantoja, and Nicole Lurie. “Using the Census Bureau’s surname list to improve estimates of race/ethnicity and associated disparities.” *Health Services Outcomes Research Methodology*, 9(2): June 2009, 69-83.
- Marc N. Elliott, Peter A. Morrison, Allen Fremont, Daniel F. McCaffrey, Philip Pantoja, and Nicole Lurie. “Erratum to: Using the Census Bureau’s surname list to improve estimates of race/ethnicity and associated disparities.” *Health Services Outcomes Research Methodology*, 9(4): December 2009, 252-253.
- Kevin Fiscella and Allen M. Fremont. “Use of Geocoding and Surname Analysis to Estimate Race and Ethnicity.” *Health Research and Educational Trust*, 41(4): August 2006, 1482-1500.
- Phillip Pantoja. “Generating Calibrated Indirect Estimates of Race/Ethnicity.” RAND Corporation, December 2009.
- Joel Weissman and Romana Hasnain-Wynia. “Advancing Health Care Equity Through Improved Data Collection.” *New England Journal of Medicine*, 364(24): 16 June 2011, 2276-2277.