Does Diversity Matter for Health? Experimental Evidence from Oakland

Online Appendix

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Contents

I. Additional Results

Appendix Table 1: Separate Balance Tests

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Doctor Randomization			*Incentive Level Randomization*					
	Mean (S.D.)	*Black MD*	*N*	*Mean (S.D.)*	*$5*	*$10*	*F-test*	*p-value*	*N*
Self-Reported Health	0.65	0.068	563	0.73	-0.027	-0.092	1.934	0.146	563
	[0.48]	(0.039)		[0.45]	(0.047)	(0.048)			
Any Health Problem	0.62	-0.025	614	0.61	-0.019	0.014	0.230	0.795	614
	[0.49]	(0.040)		[0.49]	(0.049)	(0.048)			
ER Visits	1.95	-0.406	511	1.60	0.099	0.371	0.552	0.576	511
	[3.65]	(0.285)		[2.97]	(0.332)	(0.358)			
Nights Hospital	1.39	0.433	511	2.08	-1.175	-0.312	2.849	0.059	511
	[4.42]	(0.572)		[8.85]	(0.702)	(0.803)			
Medical Mistrust	1.64	-0.031	611	1.62	0.071	-0.054	1.437	0.238	611
	[0.74]	(0.061)		[0.74]	(0.076)	(0.072)			
Has Primary MD	0.63	-0.020	537	0.60	0.012	0.034	0.223	0.800	537
	[0.48]	(0.042)		[0.49]	(0.052)	(0.051)			
Uninsured	0.28	-0.006	517	0.27	0.0005	0.028	0.216	0.806	517
	[0.45]	(0.040)		[0.45]	(0.049)	(0.048)			
Age	44.61	-0.286	620	44.84	-0.966	-0.183	0.251	0.778	620
	[14.53]	(1.167)		[14.28]	(1.437)	(1.408)			
Married	0.14	0.023	586	0.17	-0.017	-0.037	0.534	0.586	586
	[0.35]	(0.030)		[0.38]	(0.037)	(0.036)			
Unemployed	0.30	0.011	570	0.29	0.005	0.032	0.255	0.775	570
	[0.46]	(0.039)		[0.46]	(0.047)	(0.047)			
≤ High School Education	0.62	0.022	556	0.61	0.044	0.027	0.379	0.684	556
	[0.49]	(0.041)		[0.49]	(0.050)	(0.050)			
Low Income	0.45	-0.002	571	0.45	0.018	-0.019	0.258	0.773	571
	[0.50]	(0.042)		[0.50]	(0.051)	(0.050)			

Note: Table reports balance tests separately by doctor, Column (2), and incentive, Columns (5) and (6). Control mean in Column (1) refers to those randomized to a non-black doctor. Control mean in Column (4) refers to those randomized to no incentive. Observation count varies due to missing responses in the baseline survey. See Section III of the Appendix for variable definitions. Robust standard errors in parentheses. Standard deviations in brackets.

Appendix Table 2: Demand for Preventives with Controls

	(1)	(2)	(3)
	Pre	*Post*	*Delta*
Black Doctor	0.024	0.190	0.166
	{0.034}	{0.045}	{0.042}
$5 Incentive	0.121	0.130	0.010
	{0.026}	{0.026}	{0.018}
$10 Incentive	0.100	0.091	-0.009
	{0.028}	{0.025}	{0.038}
Age	0.002	0.005	0.002
	{0.006}	{0.006}	{0.006}
Age Squared	0.00002	-0.00002	-0.00004
	{0.00007}	{0.00007}	{0.00007}
≤ High School Education	-0.067	-0.061	0.006
	{0.036}	{0.038}	{0.030}
Low Income	-0.100	-0.058	0.042
	{0.035}	{0.038}	{0.042}
Self-Assessed Health	0.026	0.012	-0.013
	{0.024}	{0.021}	{0.016}
Has Primary MD	-0.057	-0.096	-0.039
	{0.038}	{0.033}	{0.027}
Uninsured	0.014	-0.017	-0.031
	{0.048}	{0.058}	{0.034}
Reception Officer Fixed Effects	Yes	Yes	Yes
Date of Visit Fixed Effects	Yes	Yes	Yes
Prob($\lvert \beta^{RI:\ Black\ Dr} \rvert > \lvert \beta^{Study\ Est.} \rvert$)	0.714	0.062	0.052
Control Mean	0.36	0.37	0.01
Observations	637	637	637

Note: Table reports OLS estimates with controls and associated coefficients. Missing values of the controls coded as -9 and a missing indicator included when relevant. The outcome is the share of invasive screenings selected and the stage varies by column heading. *Pre* refers to demand upon viewing assigned doctor photo on tablet, but before meeting doctor in person. *Post* refers to demand after meeting doctor in person. *Delta* share is post - pre demand. See text for further details. Control mean refers to subjects randomized to a non-black doctor. Robust standard errors clustered at the doctor level in curly brackets. *Prob* indicates randomization inference p-value using the 3,003 $\binom{14}{6}$ combinations of doctors.

Appendix Table 3: Demand for Preventives, Fixed Effects and Alternative Samples

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Pre	Post	Delta	Pre	Post	Delta	Pre	Post	Delta
	PANEL A: FIXED EFFECTS								
	Reception Officer			*Study Date*			*Recruitment Location*		
Black Doctor	0.024	0.192	0.168	0.018	0.180	0.162	0.021	0.184	0.163
	{0.034}	{0.044}	{0.044}	{0.038}	{0.048}	{0.049}	{0.034}	{0.048}	{0.048}
Prob(| $\beta^{RI: Black Dr}$ | > | $\beta^{Study Est.}$ |)	0.642	0.025	0.013	0.770	0.045	0.048	0.658	0.022	0.018
Control Mean	0.36	0.37	0.01	0.36	0.37	0.01	0.36	0.37	0.01
Observations	637	637	637	637	637	637	618	618	618
	PANEL B: ALTERNATIVE SAMPLES								
	All Subjects			*Without Assisted Subjects*			*Strict Specification*		
Black Doctor	0.015	0.181	0.166	0.008	0.180	0.172	0.021	0.188	0.167
	{0.038}	{0.045}	{0.052}	{0.038}	{0.046}	{0.052}	{0.040}	{0.046}	{0.054}
Prob(| $\beta^{RI: Black Dr}$ | > | $\beta^{Study Est.}$ |)	0.788	0.018	0.017	0.872	0.019	0.015	0.694	0.013	0.017
Control Mean	0.35	0.37	0.01	0.36	0.37	0.01	0.36	0.37	0.01
Observations	651	651	651	623	623	623	578	578	578

Note: Table reports OLS estimates of Equation 1, adding in various fixed effects (Panel A) or estimated on alternative data samples (Panel B). In Panel A, Columns (1)–(3) add in fixed effects for reception officer; Columns (4)–(6) add in fixed effects for the date of the study; Columns (7)–(9) add in fixed effects for the location where the subject was recruited. In Panel B, Columns (1)–(3) include all subjects, regardless if they met study criteria; Columns (4)–(6) remove observations where a reception officer assisted the subject because of issues of illiteracy or blindness; Columns (7)–(9) drop subjects who did not answer questions relating to race, age, or gender. The outcome is the share of invasive screenings selected and the stage varies by column heading. *Pre* refers to demand upon viewing assigned doctor photo on tablet, but before meeting doctor in person. *Post* refers to demand after meeting doctor in person. *Delta* share is post - pre demand. See Section III of the Appendix and text for further details. Control mean refers to subjects randomized to a non-black doctor. Indicators for incentive levels are included but not reported. Robust standard errors clustered at the doctor level in curly brackets. *Prob* indicates randomization inference p-value using the 3,003 $\binom{14}{6}$ combinations of doctors.

Appendix Table 4: Demand for Preventives, Doctor Only

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Pre	Post	Delta	Pre	Post	Delta	Pre	Post	Delta
					PANEL A				
	Blood Pressure			*BMI*			*Diabetes*		
Black Doctor	0.026	0.108	0.082	0.021	0.162	0.141	0.055	0.210	0.155
	{0.043}	{0.076}	{0.100}	{0.043}	{0.099}	{0.102}	{0.047}	{0.061}	{0.058}
Prob(| $\beta^{RI: Black Dr}$ | > | $\beta^{Study Est.}$ |)	0.618	0.256	0.466	0.693	0.221	0.273	0.374	0.034	0.050
Control Mean	0.559	0.716	0.157	0.497	0.602	0.105	0.373	0.423	0.049
Observations	637	637	637	637	637	637	637	637	637
					PANEL B				
	Cholesterol			*Flu Vaccination*			*Share of Invasives*		
Black Doctor	0.012	0.259	0.246	0.006	0.114	0.108	0.024	0.194	0.170
	{0.051}	{0.070}	{0.072}	{0.040}	{0.039}	{0.052}	(0.037)	(0.046)	(0.052)
Prob(| $\beta^{RI: Black Dr}$ | > | $\beta^{Study Est.}$ |)	0.835	0.021	0.005	0.896	0.034	0.111	0.627	0.013	0.015
Control Mean	0.349	0.358	0.009	0.200	0.183	-0.017	0.36	0.37	0.01
Observations	637	637	637	637	637	637	637	637	637

Note: Table reports OLS estimates of Equation 1, without including indicators for the incentive levels. The outcome varies across columns (see headings). *Pre* refers to demand upon viewing assigned doctor photo on tablet, but before meeting doctor in person. *Post* refers to demand after meeting doctor in person. *Delta* share is post - pre demand. Control mean refers to subjects randomized to a non-black doctor. See text for further details. Robust standard errors clustered at the doctor level in curly brackets. *Prob* indicates randomization inference p-value based on interaction coefficients using the 3,003 $\binom{14}{6}$ combinations of doctors.

Appendix Table 5: Communication, Time Spent, and Satisfaction, Controlling for Testing

	(1)	(2)	(3)	(4)	(5)	(6)
PANEL A: Communication						
Outcome =	*Subject Talk to MD*		*Doctor Notes about Subject*		*Non-Preventive Notes*	
Black Doctor * Invasive		0.172		0.190		0.083
		{0.122}		{0.080}		{0.051}
Black Doctor	0.100	-0.021	0.077	-0.049	0.063	0.008
	{0.153}	{0.128}	{0.145}	{0.150}	{0.064}	{0.088}
Invasive Test		-0.064		-0.235		-0.096
		{0.068}		{0.079}		{0.040}
Observations	498	498	498	498	498	498
PANEL B: Time Spent and Satisfaction						
Outcome =	*Length Visit, Minutes*		*Subject Rating of Experience*		*Subject Recommend MD*	
Black Doctor * Invasive		-0.658		-0.127		-0.018
		{1.108}		{0.158}		{0.033}
Black Doctor	1.016	1.616	-0.033	0.056	-0.005	0.006
	{1.207}	{0.886}	{0.047}	{0.134}	{0.009}	{0.031}
Invasive Test		4.370		0.071		0.041
		{1.675}		{0.143}		{0.026}
Observations	498	498	453	453	469	469

Note: Table reports OLS estimates from a modified version of Equation 1. Even columns include an interaction between black doctor and an indicator for whether the subject chose any invasive preventive service (cholesterol, diabetes, or flu). All specifications include a control for the length of the visit in minutes, except for Panel B Columns (1) and (2), which instead include fixed effects for each screening received. Indicators for incentive levels included but not reported. See Data Appendix and text for variable definitions. Robust standard errors clustered at the doctor level in curly brackets.

Appendix Table 6: MEPS Patient-Doctor Race

	(1)	(2)	(3)	(4)
	White MD	*Black MD*	*Hispanic MD*	*Asian MD*
White Patient	0.851	0.017	0.039	0.093
Black Patient	0.527	0.257	0.065	0.151
Hispanic Patient	0.381	0.029	0.439	0.151
Asian Patient	0.254	0.009	0.027	0.710

Note: Table reports the share of adult respondents in the Medical Expenditure Panel Survey (MEPS) who have a doctor of a particular race or ethnicity from 2005–2015. Gray cells highlight respondents with a concordant medical doctor.

Appendix Table 7: MEPS Patient-Doctor Concordance

	(1)	(2)	(3)
	Go To Doctor for Preventive Care	*Doctor Listens*	*Understand Doctor*
Black Respondent	-0.008	-0.013	-0.015
	(0.005)	(0.012)	(0.014)
Black MD	-0.012	-0.064	-0.066
	(0.009)	(0.025)	(0.040)
Black Resp * Black MD	0.020	0.082	0.080
	(0.009)	(0.026)	(0.041)
Any Insurance	0.004	0.051	0.022
	(0.003)	(0.010)	(0.013)
Resp. Race Indicators	Yes	Yes	Yes
MD Race Indicators	Yes	Yes	Yes
Concordance Interactions	Yes	Yes	Yes
Control Mean	0.99	0.94	0.97
Observations	32,189	22,118	7,649
Years	2005–2015	2005–2015	2011–2015

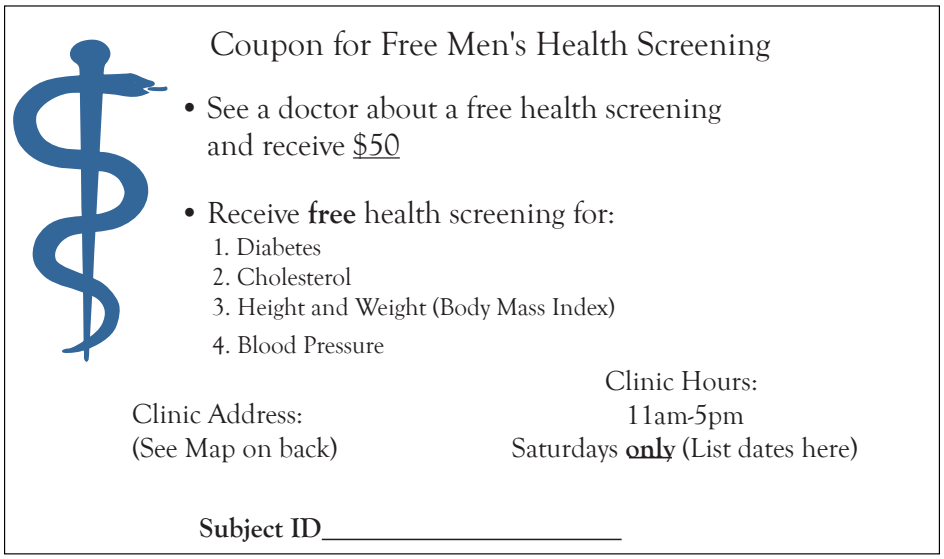
Note: Table reports WLS estimates using data from the Medical Expenditure Panel Survey and provided survey weights. The outcome variable varies by column and includes responses to the following survey questions: would the respondent go to their medical doctor for preventive care (Column (1)), whether the respondent said their doctor "usually" or "always" listens to them carefully (Column (2)), and whether the respondent said their doctor's instructions regarding a specific illness or health condition were "usually" or "always" easy to understand (Column (3)). The sample is restricted to adult males who identify as either white, black, Hispanic, or Asian and who report having a medical doctor who is white, black, Hispanic, or Asian. Control mean refers to white male subjects. Controls in every specification include indicator variables for: insurance, age greater than 65, education less than or equal to high school, and household income below 125% of the federal poverty line. In addition we include respondent race/ethnicity indicators, doctor race/ethnicity indicators, and concordant patient-doctor interactions for each race/ethnicity (not reported). Robust standard errors in parentheses.

Appendix Table 8: Heterogeneity by Increased Risk

	(1)	(2)	(3)	(4)	(5)	(6)
	Pre	Post	Delta	Pre	Post	Delta
X =	*Increased Risk, High Cholesterol*			*Increased Risk, Diabetes*		
Black Doctor * *X*	0.039	0.024	-0.016	-0.160	-0.154	0.006
	{0.095}	{0.094}	{0.063}	{0.159}	{0.235}	{0.164}
X	0.018	0.047	0.030	0.031	-0.015	-0.046
	{0.074}	{0.074}	{0.031}	{0.124}	{0.175}	{0.074}
Black Doctor	-0.022	0.234	0.256	0.058	0.202	0.144
	{0.105}	{0.108}	{0.097}	{0.059}	{0.065}	{0.061}
Observations	620	620	620	561	561	561

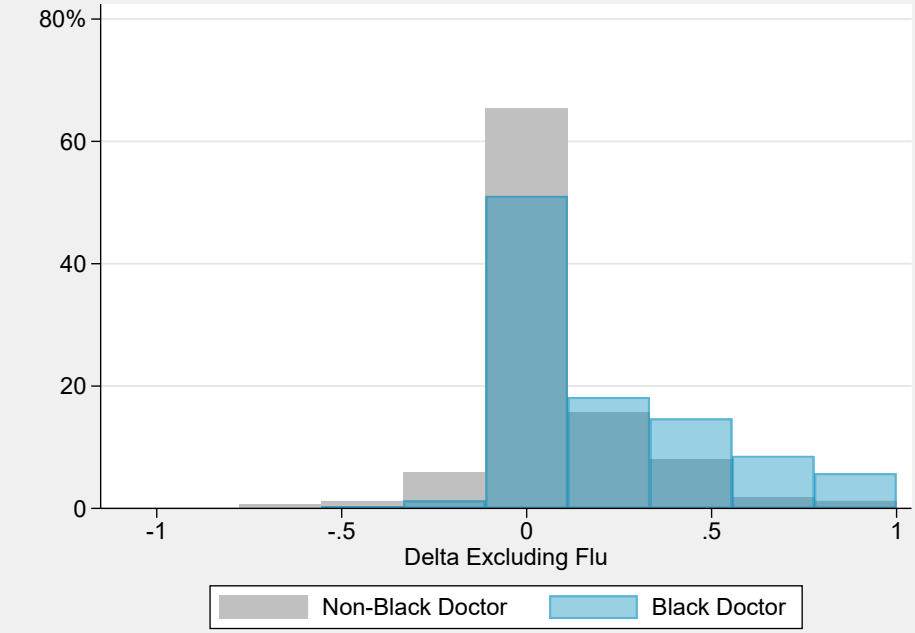
Note: Table reports OLS estimates from a modified version of Equation 1 including interactions between black doctor and an indicator for whether the subject was at increased risk for high cholesterol or diabetes. See Section III of the Appendix and text for details on the increased-risk groups. *Pre* refers to demand upon viewing assigned doctor photo on tablet, but before meeting doctor in person. *Post* refers to demand after meeting doctor in person. *Delta* share is post - pre demand. Columns (1)–(3) report the demand for the cholesterol screening. Columns (4)–(6) report the demand for the diabetes screening. Indicators for incentive levels are included but not reported. Observation count varies due to missing responses in the baseline survey. Robust standard errors clustered at the doctor level in curly brackets.

Appendix Figure 1: Clinic Coupon



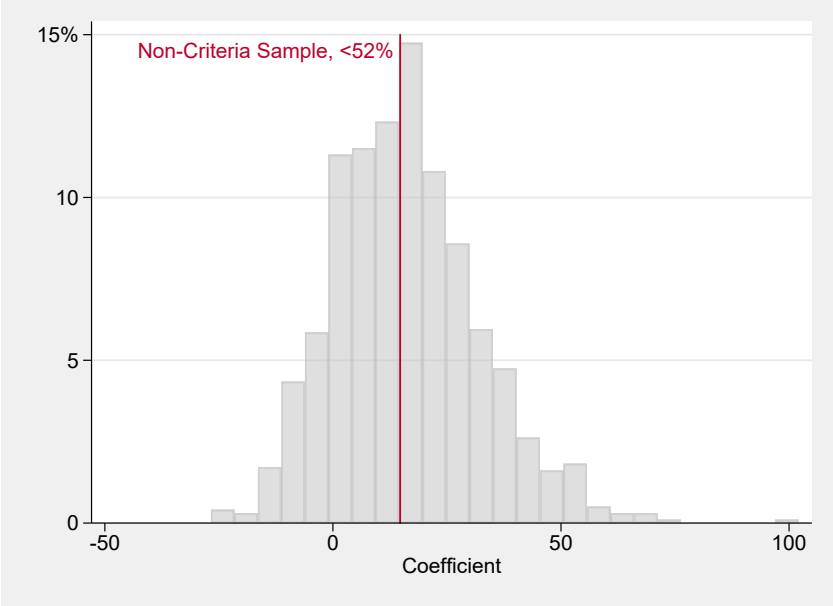
Note: Image of coupon subjects received in barbershops, which served as their ticket to enter the clinic.

Appendix Figure 2: Delta Distribution

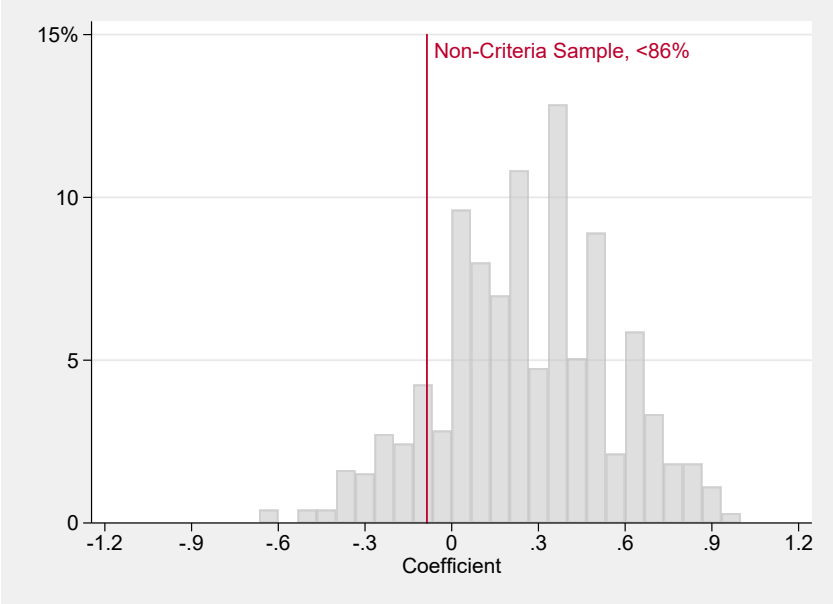


Note: Figure plots the delta distribution for the share of the four non-incentivized preventives by doctor race.

Appendix Figure 3: Permutation Test of Black Doctor Effect on Non-Criteria Sample



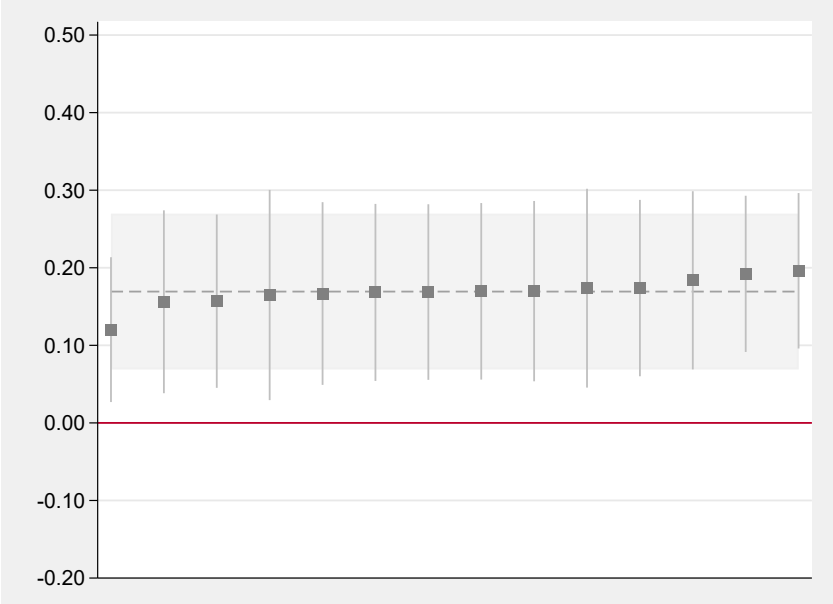
(a) Length of MD Notes



(b) Subject Talk to MD

Note: Figure plots the black doctor coefficient on a random selection of N subjects with replacement, where $N = 12$. We limit the random selection to subjects who were assigned to the eight doctors who saw the 12 out-of-sample subjects. Permutation test runs the main regression 1,000 times. The outcome variable is in the panel labels. Vertical (red) line signifies the coefficient from the subjects who did not meet study criteria.

Appendix Figure 4: Plot of Leave-One-Out Estimates



Note: Figure plots the coefficients from jackknife resampling for the main treatment effect of black doctor and their 95% confidence intervals. The outcome is delta share invasive. The treatment effect reported in Table 3 Panel (C) Column (7) (dashed line) and 95% confidence intervals (shaded area) are drawn for reference.

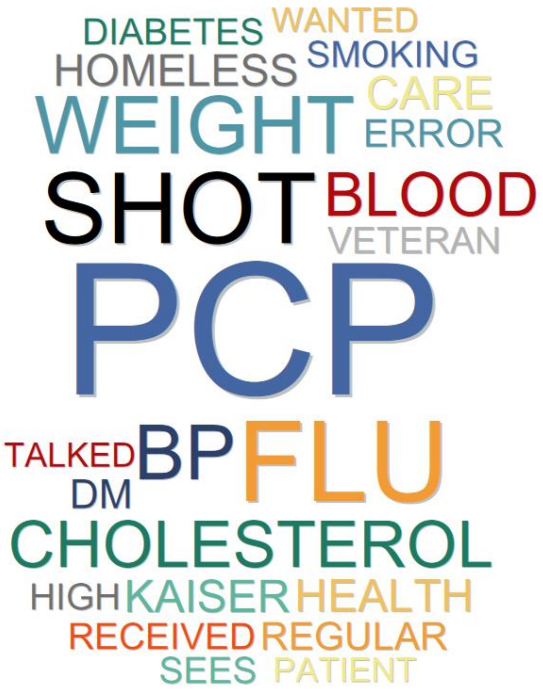
Appendix Figure 5: Subjects' Comments about Doctors

(a) Assigned to Black Doctor

(b) Assigned to Non-Black Doctor

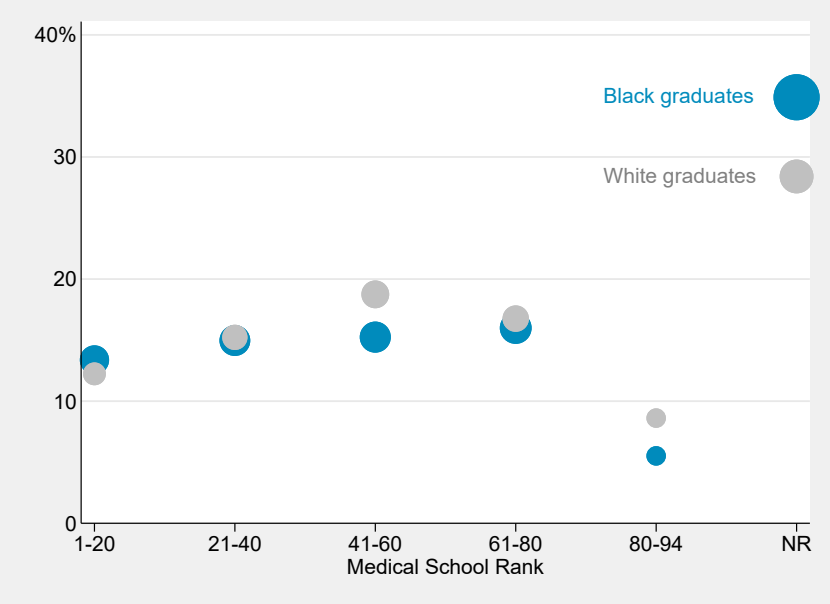
Appendix Figure 6: Doctors' Notes about Subjects

(a) Black Doctor



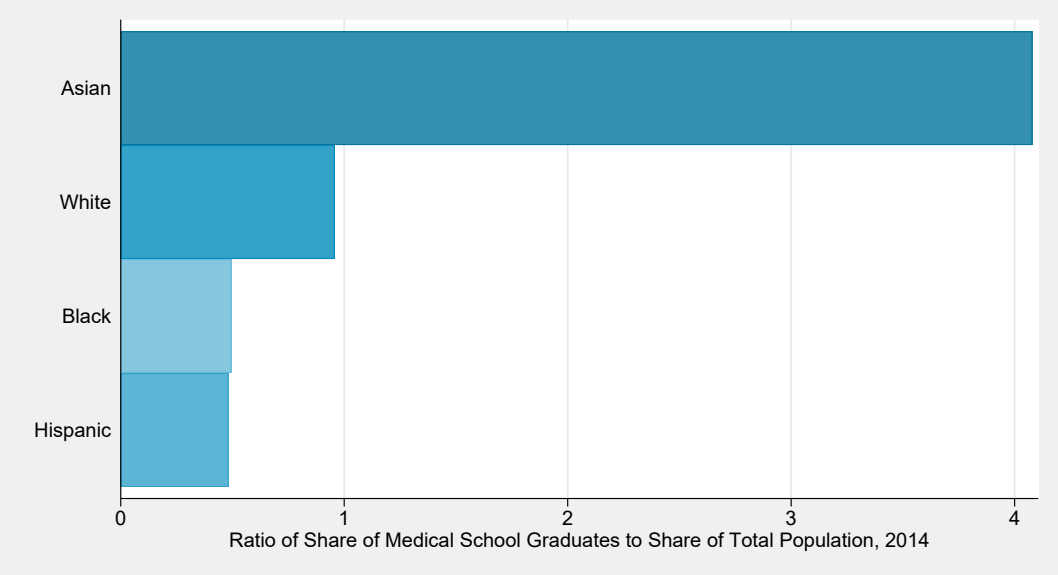
(b) Non-Black Doctor

Appendix Figure 7: Medical School Graduates by School Rank, 2016–17



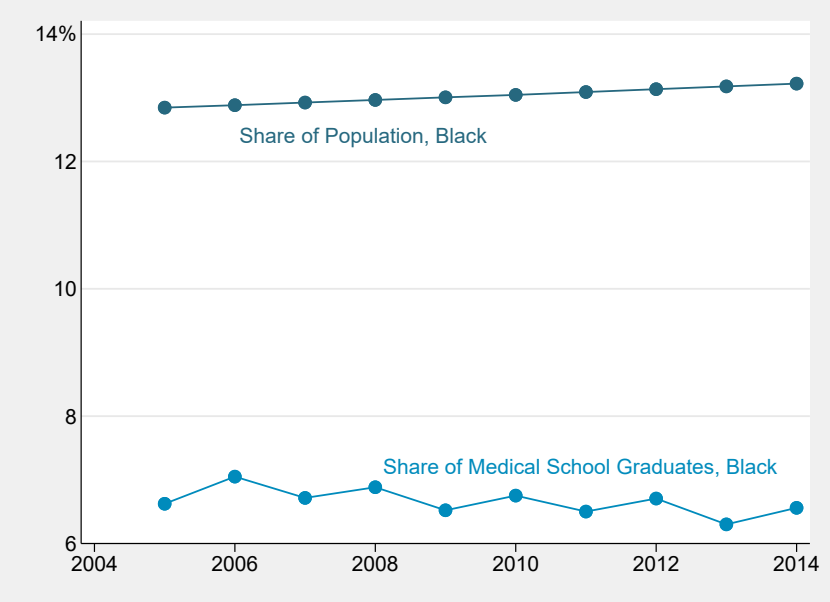
Note: Graduates data are from the Association of American Medical Colleges; medical school rank data is from U.S. News 2018 research rankings. See Section III of the Appendix for data sources. Figure plots the share of medical school graduates in each category of school rank by race for 2016–17. U.S. News rankings stop at number 94; NR stands for "not ranked." Size of the bubble reflects the percent of the race-specific medical school graduate population in each category relative to all race-specific medical school graduates.

Appendix Figure 8: Ratio of the Share Medical School Graduates to Share Population



Note: Data from the Association of American Medical Colleges and Census Bureau Population Estimates. See Section III of the Appendix for data sources. Figure plots the ratio of the share of a given race/ethnicity among medical school graduates to their respective share in the U.S. population.

Appendix Figure 9: Trends in Medical Students and Population



Note: Data from the Association of American Medical Colleges and Census Bureau Population Estimates. See Section III of the Appendix for data sources. Figure plots black medical school graduates as a share of all graduates and the share of U.S. population that is black over time.

II. Conceptual Framework

We develop a straightforward model that formalizes the hypotheses tested in the experiment and facilitates interpretation of the results. Recall that the experiment consists of two stages, the pre-consultation stage where subjects are introduced to their randomly assigned doctor via photo and text on a tablet and select preventives, and the post-consultation stage whereby the subject and the doctor interact and then subjects re-optimize based on the encounter. For ease of exposition, we use white instead of non-black and refer to subjects as patients in this section.

A. Pre-Consultation Stage (Period 0)

We incorporate insights from Pauly and Blavin (2008) and Baicker, Mullainathan, and Schwartzstein (2015), assuming patients have inaccurate beliefs about the value of preventive health benefits b discounting them by $\beta \sim U[0,1]$. This assumption mirrors what we observed in the field with many patients expressing false beliefs or present-bias.[1] The model assumes that preventive care does provide a benefit to all subjects. A more nuanced model would allow for potential contraindications.

We incorporate race into the take-up decision as a non-negative psychic cost d associated with the assignment of doctor j from race group $\{black, white\}$, as $r_{j=b}$ and $r_{j=w}$, respectively (Becker 1957). This cost is additive to other utility costs c where $c + d \leq b$.[2] The utility to taking up a preventive is therefore:

$$U_i^0 = \beta_i \cdot b - c - d_{r_j}. \tag{1}$$

Patients only choose preventives if the perceived benefits outweigh the costs. Since the experiment randomized subjects across arms, β_i should be similar on average across those who receive a black vs. white doctor. We consider three cases: $d > 0$ if $r_{j=w}$, $d > 0$ if $r_{j=b}$, and $d = 0 \,\forall\, r_j$ or $d > 0 \,\forall\, r_j$. $d = 0$ and $\beta = 1$ is the first best; patients only use services if the benefits outweigh the non-doctor race related costs.

Case 1: $d > 0$ if $r_{j=w}$ and $d = 0$ otherwise: If black male patients have an aversion for white doctors, then the fraction of black subjects that demand preventives in the pre-consultation stage will be strictly greater for those randomized to black versus white doctors (i.e. $\Pr(\beta_i > \frac{c+d_{r_{j=w}}}{b} | r_{j=w}) = 1 - \frac{(c+d_{r_{j=w}})}{b} < 1 - \frac{c}{b} = \Pr(\beta_i > \frac{c}{b} | r_{j=b})$).

Case 2: $d > 0$ if $r_{j=b}$ and $d = 0$ otherwise: In contrast, if internalized racism leads black men to discriminate against doctors of their own race then $\Pr(\beta_i > \frac{c}{b} | r_{j=w}) > \Pr(\beta_i > \frac{c+d_{r_{j=b}}}{b} | r_{j=b})$.

Case 3: $d = 0 \,\forall\, r_j$ or $d > 0 \,\forall\, r_j$. Finally, in the absence of aversion to doctors based on their race, or if patients have the same level of aversion to doctors regardless of their race, then $\Pr(\beta_i > \frac{c+d}{b} | r_{j=w}) = \Pr(\beta_i > \frac{c+d}{b} | r_{j=b})$ or $\Pr(\beta_i > \frac{c}{b} | r_{j=w}) = \Pr(\beta_i > \frac{c}{b} | r_{j=b})$. This implies that the fraction of patients who demand preventives will be equal across the two groups, though it will be higher in the absence than in the presence of aversion.

[1] Or perhaps they lack perfect foresight in predicting the risks of chronic disease/influenza infection — see Gabaix and Laibson (2017).

[2] For a review of discrimination models and empirical literature, see Charles and Guryan (2011). In our setting, it is reasonable to characterize tablet choices as revealing generic race-based aversion since the patient and doctor are not interacting.

B. Post-Consultation Stage (Period 1)

In the post-consultation stage, patients interact with doctors and have an opportunity to revise their choices on preventives before receiving them. In particular, doctors can provide information that allows the patient to correct his false belief. Consistent with a behavioral framework, we do not assume patients are Bayesian. Rather, we model this correction as an additive term in the utility function, ϵ_i, and note that patients are completely disabused of false beliefs when $\beta_i b + \epsilon_i^* = b \iff \epsilon_i^* = (1-\beta_i)b$.[3]

Consider all doctors aim to provide information ϵ_i^* but whether the information is considered credible or comprehensible may depend on social distance, Δr_{ji}, which reflects the difference between the race of assigned doctor j and race of patient i (i.e. $\mid r_j - r_i \mid$), with $r_{j=b} = r_{i=b} = 1$ and $r_{j=w} = 0$.[4] Δr_{ji} in principle reflects all the factors that influence the successful transmission of a signal. For instance, it may capture differential effort by the doctor in trying to communicate, or differential perceived doctor quality or trustworthiness on the part of the patient.[5]

Post-consultation utility is therefore given by:

$$U_i^1 = \beta_i \cdot b - c + (1 - \delta \mathbb{1}^{\Delta_{r_{ij}}})\epsilon_i^* - d_{r_j}. \tag{2}$$

where $\delta \in [0,1]$ captures the discounting of information received from a socially distant source. We again consider three cases, focusing on $d_{r_j} = 0$ and discussing other cost possibilities below.

Case 1: $\mathbb{1} = \begin{cases} 1 & \text{if } \Delta r_{ji} = 1 \\ 0 & \text{if } \Delta r_{ji} = 0 \end{cases}$ and $\delta \in (0,1)$. If patients self-identify as black, then minimizing social distance by pairing such patients with black doctors dominates pairing such patients with white doctors, $\mathbb{E}[U^1 | r_{j=w}] = b - c - \frac{\delta b}{2} < b - c = \mathbb{E}[U^1 | r_{j=b}]$.[6]

Case 2: $\mathbb{1} = \begin{cases} 0 & \text{if } \Delta r_{ji} = 1 \\ 1 & \text{if } \Delta r_{ji} = 0 \end{cases}$ and $\delta \in (0,1)$. In contrast, if white doctors are viewed as more credible sources of information than black doctors then $\mathbb{E}[U^1 | r_{j=w}] > \mathbb{E}[U^1 | r_{j=b}]$.

Case 3: $\delta = 0$ or $\delta = 1$ for all r_j. Finally, there will be no difference in demand for preventives across treatment arms of doctor race in the post-consultation stage if there is either no discounting of information by social distance, so that the first best is achieved no matter which doctor race is assigned, or the information from either source (black or white) is discounted fully.

If there is an aversion to a particular race of doctor in the pre-consultation stage and this is followed by a lower perceived benefit, on average, from the same, this will reinforce the gap in demand across the two groups. If, on the other hand, aversion early on is countered by a less

[3] If $\beta_i = 1$, then the patient perceives the benefit of preventives accurately prior to interacting with a doctor.

[4] For a continuous social distance formulation, see Tabellini (2008).

[5] Our empirical findings (discussed in more detail in Section V.B) suggest informational content did not vary drastically across physicians by race nor did their effort. For instance, an equal number of subjects from the treatment and control group stated their doctor provided useful information in their feedback forms and there was no evidence of costly targeting or lengthy notes by black doctors. This, combined with strong evidence on willingness to share and record information during the encounter between concordant pairs, leads us to interpret social proximity as facilitating communication between doctor and patient.

[6] Note that white doctors increase demand too, just not as much as black doctors (and vice-versa for post-consultation case 2).

discounted health benefit post-consultation, the overall effect of doctor race on demand will be ambiguous.

III. Data Appendix

A. Preanalysis Plan

Preanalysis Plan:
Online at https://www.socialscienceregistry.org/trials/2497.

B. Data Sources

We collected five primary data sources throughout the course of the experiment as follows:

Baseline Survey: A survey of socio-demographics, connections to medical care, and feelings of mistrust. Men recruited at the barbershops and flea markets were given either coupons for free haircuts or cash incentives for taking the survey. At this time, the participants also signed a consent form and were given a coupon for the free clinic screening. The baseline survey can be found in Appendix Section V.

Encounter Form: A form used in the clinic by staff and doctors to confirm test selections, record subject values, and write notes about the visit. This form is referenced in the study doctor protocol.

Physician Survey: A short digital survey given to all physicians who participated in the experiment. The survey asked the doctors how many black patients they saw in a typical week, how often patients complied with their medical recommendations, and whether they were successful at convincing patients to comply with recommendations. It also asked three questions commonly seen on medical examinations to assess the physicians' knowledge of current medical practices. We administered this survey after the experiment and after the physicians were unblinded. See Appendix Section V.

Tablet Survey: A digital clinic survey where subjects were introduced to their assigned doctor and selected which screenings they would like to receive (see tablet screenshots in Figure 2). Subjects then chose whether they would like to receive screenings for BMI, blood pressure, cholesterol, and diabetes (or none of the above). Lastly, they learned of the flu shot option, possible incentive for receiving the vaccination, and selected whether they would like to receive a flu shot from their doctor.

Subject Feedback Form: A short survey given to participants before they left the clinic. The feedback survey asked the subjects to rate the experience on a scale of 1–5, whether they would recommend their doctor to a friend, whether they would be interested in a future screening, and provided space for subjects to write any additional comments.

In addition to our experimental data collection, we use data from the following sources:

Association of American Medical Colleges (AAMC): We use publicly available AAMC data to calculate annual shares of medical school graduates. We use 2004–2014 graduates data by race (AAMC 2016) and 2016–2017 data by race and medical school (AAMC 2017). Specifically, see Table 11 here: http://www.aamcdiversityfactsandfigures2016.org/; and https://www.aamc.org/download/

321538/data/factstableb6.pdf

American Community Survey (ACS): We use 2016 one-year ACS microdata downloaded from the Integrated Public Use Microdata Series (IPUMS) compiled by the University of Minnesota to estimate demographics information (https://usa.ipums.org/usa/). Specifically, we use variables relating to age, education, insurance coverage, employment, and income to create averages for the adult U.S. black male population.

Census Bureau Population Estimates: We use publicly available population estimates, compiled and formatted by the National Bureau of Economic Research, to construct various estimates of the non-Hispanic black and non-Hispanic white populations (http://www.nber.org/data/census-intercensal-county-population-age-sex-race-hispanic.html).

Medical Expenditure Panel Survey (MEPS): We use publicly available 2005–2015 MEPS data from IPUMS to further assess concordance between patients and doctors. Specifically, we focus on the Access to Care supplementary questionnaire, which includes the respondent's usual source of care, the race of their provider, as well as questions regarding satisfaction with their care. The MEPS survey also includes data on gender, income, and education. (https://meps.ipums.org/meps/index.shtml).

National Health Interview Survey (NHIS): We use publicly available 2007–2017 NHIS data from IPUMS to estimate the percentage of respondents who get an annual flu shot and see a physician by race. (https://nhis.ipums.org/nhis/).

Non-Experimental Survey Sample: We conducted a non-experimental survey of about 1,500 men over the age of 18 to assess their preferences for certain doctor characteristics. The sampling frame was a panel of respondents managed by Qualtrics. By design, roughly two-thirds of the sample identified their race as African-American and about half of the sample had a high school education or less, to match the educational characteristics of our experimental sample. In addition to demographic characteristics, the respondents answered questions relating to preferences for certain doctors. Respondents were asked to choose physicians by race and age relating to perceived access, quality, and communication. The demographic variables used in the analysis — age, education, and income — are categorical.

C. Variable Definitions

>5 Black Patients / Week: An indicator variable equal to one if the study doctor reported seeing more than five African-American adult male patients in a typical week.

$5 Incentive: An indicator variable equal to one if the subject was randomized to a $5 incentive for choosing the flu vaccination.

$10 Incentive: An indicator variable equal to one if the subject was randomized to a $10 incentive for choosing the flu vaccination.

Age: The subject's self-reported age in years.

Alternative Concordance — Age, 5 Years: An indicator variable equal to one if the subject's age was within five years of the doctor's age.

Alternative Concordance — Age, 10 Years: An indicator variable equal to one if the subject's age was within ten years of the doctor's age.

Alternative Concordance — Education: An indicator variable equal to one if the subject's highest level of education completed was a bachelor's degree or a graduate degree.

Any Health Problem: An indicator variable for whether the subject had been told by a doctor or other healthcare professional that he has any of the following health problems: high blood pressure, heart disease, cancer, diabetes or sugar diabetes, anxiety or depression, mental health problems, obesity, asthma, arthritis, or any other health problems.

Attrition: An indicator variable equal to one if the subject redeemed the clinic voucher but left before the conclusion of the clinic visit.

Black Doctor: An indicator variable equal to one if the subject was randomized to an African-American physician.

Black Respondent: An indicator variable equal to one if the non-experimental study respondent identified his race as black.

Board Question Performance: An indicator variable equal to one if the study doctor got all three board exam questions correct on the doctor survey. See questions 3–5 on the doctor survey in Appendix Section V.

Clinic Show Up: An indicator variable equal to one if the subject redeemed the clinic voucher.

Communication: An indicator variable equal to one if the non-experimental study question was "Which doctor do you think would understand your concerns best?"

Doctor Notes About Subject: An indicator variable equal to one if the doctor reported anything else notable about the subject or the encounter, apart from logistical notes (e.g. "None," "error on machine").

ER Visits: The total number of times the subject visited an emergency room or urgent care office in the last two years. We winsorize extreme values to the 99th percentile.

Friends Enrolled: An indicator variable equal to one if the subject's friends were enrolled in the study, which was asked on the tablet survey.

Has Primary MD: An indicator variable equal to one if the subject reported having a regular doctor or other health professional to see when he is sick or needs health care.

High Congestion: An indicator variable equal to one if there were more than nine people (median value) in the waiting room when a subject arrived.

$\leq$ *High School Education:* An indicator variable equal to one if the subject's highest grade of school completed was "grade or middle school," "some high school," or "high school or GED."

Hospital Visits: The total number of times the subject visited the doctor, a hospital, or a medical clinic for any reason pertaining to his health in the last two years.

Increased Risk, Diabetes: An indicator variable equal to one if the subject was at increased risk of diabetes, as defined by the U.S. Preventive Services Task Force.[7]

Increased Risk, High Cholesterol: An indicator variable equal to one if the subject was at increased risk of hyperlipidemia, as defined by the U.S. Preventive Services Task Force.[8]

Internist: An indicator variable equal to one if the clinic physician was board certified in internal medicine.

Length Visit: The total time in minutes of the clinic visit, from the time the subject was taken back to see the doctor to the end of the doctor encounter.

Long Commute: An indicator variable equal to one if the subject was recruited from a location that was more than an 18 minute drive (median value) from the study clinic.

Long Wait Time: An indicator variable equal to one if the subject waited over an hour in the clinic waiting room to see the doctor.

Low Income: An indicator variable equal to one if the subject's household gross income was below \$5,000 in the last year.

Married: An indicator variable equal to one if the subject answered "married" or "remarried" when asked about his marital status.

Medical Mistrust: A variable scaled from 1 (low mistrust) to 3 (high mistrust) in answer to a question about whether subjects would trust their doctor at the end of life. We code an answer as 1 if a respondent said they would trust their doctor "completely" or "a great deal," as 2 if they answer "somewhat," and 3 if they say "only a little" or "not at all." We also discuss the interaction with the disaggregated 1–5 scale.

Medical School Rank: The rank of the study physician's medical school, according to the U.S. News Medical School Research Rankings.[9] We top-coded the rank at 100, as the U.S. News rankings only went up to 94.

Most Comply: An indicator variable equal to one if the study doctor said that his patients comply with his recommendations "always" or "most of the time."

[7] See https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/screening-for-abnormal-blood-glucose-and-type-2-diabetes.

[8] See https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/lipid-disorders-in-adults-cholesterol-dyslipidemia-screening.

[9] See https://www.usnews.com/best-graduate-schools/top-medical-schools/research-rankings.

Nights Hospital: The total number of nights the subject spent hospitalized for his health in the last two years.

Non-Preventive Notes: An indicator variable equal to one if the content of the *Doctor Notes About Subject* was unrelated to the screening. To do this, we use a grounded theory approach where we look for emergent themes from the doctor notes. Specifically, we create three content categories: related to the clinic encounter or preventive services, related to personal issues, or related to other health matters. We then had three students, blind to the race of doctor, hand code them into these three groups. We define the content as "non-preventive notes" if all three students coded the note as regarding personal issues or other health matters.

No Recent Screening: An indicator variable equal to one if the subject had not been screened for blood pressure, cholesterol, diabetes, or weight within a recommended time frame. This interval is one year for blood pressure, five years for cholesterol, two years for diabetes, and five years for weight.[10]

Persuade Black Men: An indicator variable equal to one if the study doctor said he is able to persuade African-American male patients to accept a health screening "always" or "most of the time."

Persuade White Men: An indicator variable equal to one if the study doctor said he is able to persuade Caucasian male patients to accept a health screening "always" or "most of the time."

Self-Reported Health: An indicator variable equal to one if the subject described his health as "excellent," "very good," or "good."

Share Four: The share of services the subject selected from the four non-incentivized screenings: blood pressure, body mass index, diabetes, and cholesterol.

Share of Invasives: The share of services the subject selected from the three invasive services requiring a finger prick of blood or an injection: cholesterol, diabetes, and flu.

SSI/DI/UI: An indicator variable equal to one if a subject reported receipt of Supplemental Security Income, Disability Insurance, or Unemployment Insurance.

Subject Talk to MD: An indicator variable equal to one if the doctor reported that the subject tried to talk about other health problems during the clinic encounter.

Subject Rating of Experience: The subject's rating of the clinic experience on a scale of 1–5.

Subject Recommend MD: An indicator variable equal to one if the subject said he would recommend his clinic doctor to a friend.

Top 10 Ranked Medical School: An indicator variable equal to one if the study doctor attended a top 10 ranked medical school according to the U.S. News medical school research rankings.

[10] Intervals come from the U.S. Preventive Services Task Force — for example, see https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/high-blood-pressure-in-adults-screening. The USPSTF did not have a recommended interval for a weight measurement as far as we could find — we therefore denote a recent BMI screening as within five years.

Unemployed: An indicator variable equal to one if the subject described his current employment status as "unemployed."

Uninsured: An indicator variable equal to one if the subject was uninsured at the time of the baseline survey.

White Respondent: An indicator variable equal to one if the non-experimental study respondent identified his race as white.

Years of Experience: The total number of years since the study physician graduated from medical school.

Younger than 40: An indicator variable equal to one if the subject was below 40 years of age.

D. Details on Health Value Calculation

To calculate the health values from seeing a black doctor, we use several studies that estimate the benefits of preventive screenings and which decompose the causes of the black-white gap in life expectancy.

Dehmer et al. (2017) calculate the number of cardiovascular deaths and myocardial infarctions prevented if 90% of the population received screenings for hypertension and cholesterol. Kahn et al. (2010) estimate the number of deaths and myocardial infarctions averted if the entire population was screened for diabetes. Both studies perform Monte-Carlo simulations and assume those who screen positive receive the recommended therapy. The Dehmer et al. calculations are separated by race and gender; the Kahn et al. study is not.

We use our estimates of post-consultation demand for preventives when assigned to a black doctor to calculate the potential health outcomes if black individuals received medical care from black physicians. Specifically, our estimates for deaths and myocardial infarctions prevented are as follows:[11]

Number of Cardiovascular-Related Deaths Averted

Blood Pressure: .107 * (1,080/.90) = 128.4 deaths per 100,000 people — where .107 is the post-consultation demand for black doctors relative to non-black doctors (Table 3 of main text), 1,080 is the number of deaths averted as in Dehmer et al. (per 100,000), and .9 scales the estimate to the entire population (Dehmer et al. considers a screening rate of 90%).

Cholesterol: .256 * (1,450/.90) = 412.4 deaths per 100,000 people — where .256 is the post-consultation demand for black doctors relative to non-black doctors (Table 3 of main text), 1,450 is the number of deaths averted as in Dehmer et al. (per 100,000), and .9 scales the estimate to the entire population.

[11] We do not calculate the effects of a screening for obesity, due to evidence that an obesity screening on it's own likely does not contribute to improved life outcomes (Maciosek 2010).

Diabetes: .204 * (400) = 81.6 deaths per 100,000 people — where .204 is the post-consultation demand for black doctors relative to non-black doctors (Table 3 of main text) and 400 is the number of deaths averted as in Kahn et al. (we multiply by 100 to report per 100,000, see Kahn et al. Figure 2).

Therefore in total, we estimate that access to a black physician reduces cardiovascular-related deaths by 622 per 100,000 over a 40-year time horizon.[12] In annual terms, this equals 15.6 deaths averted per 100,000. According to Murphy et al. (2017), the black-white gap in annual cardiovascular mortality per 100,000 is 81.9 deaths (350.3 - 268.4, see Murphy et al. Table 10). Applying our estimate results in a 19% reduction in the cardiovascular mortality difference (15.6 / 81.9).

Number of Influenza and Pneumonia Deaths Averted by Vaccination

Flu Vaccination: .100 * ((2,715/.417)/240,000,000) = .271 deaths per 100,000 people — where .100 is the post-consultation demand for black doctors relative to non-black doctors (Table 3 of main text), 2,715 is the number of adult deaths averted due to flu vaccinations in 2015–2016 (CDC 2017), .417 is the rate of flu vaccination in 2015–2016 (CDC 2016), and 240 million scales the estimate per 100,000 adults in the United States (population figure comes from tabulating Census Bureau Population Estimates, see Data Sources).

The black-white difference in influenza/pneumonia is 2.7 deaths per year (20.3 versus 17.6, see Murphy et al. Table 10). Our estimated black doctor effect therefore accounts for 10% of the influenza mortality gap (.271 / 2.7).

Number of Myocardial Infarctions (MIs) Averted

Blood Pressure: .107 * (970/.90) = 115.3 MIs per 100,000 people — where .107 is the post-consultation demand for black doctors relative to non-black doctors (Table 3 of main text), 970 is the number of MIs averted as in Dehmer et al. (per 100,000), and .9 scales the estimate to the entire population.

Cholesterol: .256 * (2,860/.90) = 813.5 MIs per 100,000 people — where .256 is the post-consultation demand for black doctors relative to non-black doctors (Table 3 of main text), 2,860 is the number of MIs averted as in Dehmer et al. (per 100,000), and .9 scales the estimate to the entire population.

Diabetes: .204 * (700) = 142.8 MIs per 100,000 people — where .204 is the post-consultation demand for black doctors relative to non-black doctors (Table 3 of main text) and 700 is the number of MIs averted as in Kahn et al. (we multiply by 100 to report per 100,000, see Kahn et al. Figure 2).

In total, this equals 1,072 MIs averted per 100,000 as a result of access to a black doctor.

[12]We use a 40-year period as Dehmer et al. and Kahn et al. model the screenings at ages between 18 and 30.

IV. Medical and Public Health Literature

A. Literature on Concordance

There is a vast literature on patient-doctor racial concordance in public health and medicine.[13] We highlight some of the more prominent studies herein, while acknowledging that much more space would be needed to cover all of the studies or any study in detail. At a high level, the studies concern whether or not concordance of race between patient and doctor is correlated with various processes and health measures. Saha et al. (1999) analyze data from the 1994 Commonwealth Fund's Minority Health Survey. They find that black patients with black physicians were more likely to report their care as excellent and more likely to receive needed care, including preventive care. They also find that Hispanic patients rated Hispanic physicians highly. LaVeist, Nuru-Jeter, and Jones (2003) show that black patients with concordant providers were 60% less likely (based on adjusted odds ratios) to fail to receive necessary health services than black patients with discordant providers. Street et al. (2008) explore mechanisms that could explain why race and gender concordance between patient and doctor are correlated with higher average ratings, satisfaction, and intention to adhere. The authors hypothesize that it could be due to patients perceived personal similarity, and not necessarily race or gender. They find that race concordance is a primary predictor of perceived personal similarity.

Strumpf (2011), examining data from the 2001–2003 National Ambulatory Medical Care Survey, finds that concordance does not affect certain screening-related outcomes, such as blood pressure tests and tobacco counseling. However she does find that cholesterol screenings increase twofold when black patients see black doctors. While our results show a concordance effect for all services we measure, this is consistent with our finding that concordance is especially impactful for invasive services.

Meghani et al. (2009) perform a meta-analysis of 27 studies to ascertain whether patient-physician concordance affects minority health. The authors find inconclusive results, citing small samples as a potential limitation. No randomized trials were reviewed. The authors conclude by calling for further research.

B. Literature on Communication

With regards to communication, Cooper-Patrick et al. (1999), publishing in *JAMA*, investigate factors that influenced participatory (or shared) decision-making (PDM). The study finds that African-American patients rated their physician interactions as significantly less participatory than white patients; however, those with doctors of their own race rated their physician as higher on the PDM scale. A follow-up study by Cooper et al. (2003) in *Annals of Internal Medicine* audiotaped interactions between African-American patients and their doctors. The study finds that race-concordant visits were longer (2.15 minutes — 95% CI, 0.61 to 3.71) and that patients assigned to racially concordant providers reported higher satisfaction scores. Notably, audiotape measures of patient-centered communication behaviors did not explain the difference in ratings by the patients.

Decomposing patient-physician communication, Elliott et al. (2016) conduct a randomized trial to examine doctors' verbal and non-verbal behaviors when treating patients of different races. They randomize black and white terminally-ill patients to 33 doctors (the majority of whom were white)

[13] In addition, studies also examine gender concordance, see Kerssens, Bensing, and Andela (1997); Franks and Bertakis (2003); Tobler et al. (2016); and Nolen et al. (2016).

and record two encounters per patient. The researchers perform content analysis of the patient-physician encounter, categorizing elements such as emotion-handling and decision-making as verbal behaviors and posture and physical proximity as non-verbal behaviors. When comparing black and white patients, they find identical doctor scores in terms of verbal behaviors. However regarding non-verbal behaviors, doctors had fewer positive interactions when randomized to black patients.

C. Literature on Medical Mistrust

Several studies show that African Americans have a higher level of medical mistrust than other groups (Kennedy, Mathis, and Woods 2007; Benkert et al. 2009; Halbert et al. 2009). High levels of mistrust are often associated with the underutilization of health services (Hammond et al. 2010; Laveist, Issac, and Williams 2009), lower quality of life among men living with prostate cancer (Kinlock et al. 2017), and more aggressive end of life care options (Wicher and Meeker 2012). Furthermore, Arnett et al. (2016) find that blacks were more likely than whites to use the emergency department (ED) as their usual source of care. However, they find that the ED gap between blacks and whites closed when controlling for medical mistrust, suggesting higher rates of ED use may not be solely related to socio-demographics and access.

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V. Project Surveys

This section includes both the baseline survey and the study doctor survey.

A. Baseline Survey

The baseline survey queried subjects on socio-demographics, healthcare, and mistrust and was administered by field officers in flea markets and barbershops. A copy of the survey begins on the next page.

Oakland Men's Health Disparities Survey

STUDY ID:_____

Survey Instructions

- **You should only fill out this survey if you have signed the Research Study Consent form for the Oakland Men's Health Disparities Study.**
- **If you have any questions about this survey, please ask the Field Officer (Wearing a Red Stanford-Bridge Clinical Shirt).**
- **Please answer all of the questions that apply to you.**
- **You will sometimes be asked to skip questions. When this happens, you will see an arrow with a note that tells you which question to go to next, like this:**
  - ☐ **Yes**
  - ☒ **No →If No, go to Question 5.**

SECTION A

In this section, you will be asked questions about your health.

A1. In general, how would you describe your own health? (Check only one.)

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor
- ☐ Don't know
- ☐ Prefer not to answer

Have you been told by a doctor or other healthcare professional that you have any of the following health problems? (Select one box per row.)

	Yes	No	Don't know	Prefer not to answer
A2. High blood pressure	☐	☐	☐	☐
A3. Heart attack, or heart disease	☐	☐	☐	☐
A4. Cancer	☐	☐	☐	☐
A5. Diabetes or sugar diabetes	☐	☐	☐	☐
A6. Anxiety or depression	☐	☐	☐	☐
A7. Other mental health problem	☐	☐	☐	☐
A8. Obesity	☐	☐	☐	☐
A9. Asthma	☐	☐	☐	☐
A10. Arthritis	☐	☐	☐	☐
A11a. Any other health problems	☐	☐	☐	☐
If No to A11a -> go to A12. A11b. Specify_____				

When was the last time you were screened for the following? (Select one box per row.)

	0 to 6 months	6 months to 1 year	1 to 2 years	2 to 5 years	More than 5 years	Do not know	Prefer not to answer
A12. Blood pressure	☐	☐	☐	☐	☐	☐	☐
A13. Cholesterol	☐	☐	☐	☐	☐	☐	☐
A14. Diabetes	☐	☐	☐	☐	☐	☐	☐
A15. HIV/AIDS or other sexually transmitted diseases	☐	☐	☐	☐	☐	☐	☐
A16. Weight	☐	☐	☐	☐	☐	☐	☐
A17. Hepatitis	☐	☐	☐	☐	☐	☐	☐

SECTION B

In this section you will be asked some questions about **your experiences with the healthcare system**.

B1. In the last 2 years, how many times did you visit a doctor, hospital or medical clinic for any reason pertaining to your health (including check-ups, visits to the emergency room or the hospital outpatient department)?

Write Number _____ OR ☐ Don't know ☐ Prefer not to answer

B2. In the last 2 years, how many times did you visit an emergency room (ER) or urgent care office for your health?

Write Number _____ OR ☐ Don't know ☐ Prefer not to answer

B3. All together how many nights did you spend hospitalized over the last 2 years for your health?

Write Number _____ OR ☐ Don't know ☐ Prefer not to answer

B4. Where do you usually go when you are sick or need healthcare? (Check the one you use most.)

- ☐ Doctor's office or private clinic
- ☐ Community health center or other public clinic
- ☐ Hospital outpatient department
- ☐ Hospital emergency room
- ☐ Urgent care center
- ☐ Don't know
- ☐ Prefer not to answer

B5. How much choice do you have in where you go for medical care? (Check only one.)

- ☐ A great deal of choice
- ☐ Some choice
- ☐ Very little choice
- ☐ No choice
- ☐ Don't know
- ☐ Prefer not to answer

B6. Do you have a regular doctor or other health professional, such as a nurse, you usually go to when you are sick or need healthcare? (Check only one.)

- ☐ Yes
- ☐ No →**If No, go to Section C**
- ☐ Don't know
- ☐ Prefer not to answer

B7. Is your primary care doctor male or female? (Check only one.)

☐ Male ☐ Female ☐ Don't know ☐ Prefer not to answer

B8. What is the race or ethnicity of your primary care?

☐ White
☐ Black or African American
☐ Hispanic or Latino
☐ East Asian (such as Chinese, Korean, Japanese, etc.)
☐ South Asian (such as Indian, Pakistani, etc.)
☐ Native Hawaiian or other Pacific Islander
☐ American Indian or Alaskan Native
☐ Other
☐ Don't know
☐ Prefer not to answer

B9. When was the first time you were seen by your primary careprovider?

Date (MM/YYYY) _____ OR ☐ Don't know ☐ Prefer not to answer

B10. Was your primary care doctor assigned to you, or did you get to choose him/her? (Check only one.)

☐ I chose him/her ☐ I was assigned to him/her ☐ Don't know ☐ Prefer not to answer

The next few questions will ask you about the costs you expect to pay to see your doctor for a basic check-up. It is ok if you are not sure about your answers. Please report your best estimate of the following costs.

B11. How many minutes does it take for you to travel to your doctor for a basic check-up? (Check only one.)

Less than 10 mins	☐
10-29 mins	☐
30-59 mins	☐
1-2 hrs	☐
More than 2 hrs	☐
Don't know	☐
Prefer not to answer	☐

B12. How many minutes do you usually wait at your doctor's office before being seen? (Check only one.)

Less than 10 mins	☐
10-29 mins	☐
30-59 mins	☐
1-2 hrs	☐

More than 2 hrs	☐
Don't know	☐
Prefer not to answer	☐

B13. How much do you pay out-of-pocket to receive a basic check-up with your primary care doctor? If a basic check-up is free for you, write "$0" below.

Write Amount _____ OR ☐ Don't know ☐ Prefer not to answer

SECTION C

C1. Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people? (Check only one.)

☐ Can trust
☐ Cannot trust
☐ Depends

People sometimes are incapable of making decisions about their care and medical treatment **at the end of life**. If you were incapable, how much trust would you put in the following people to do what was best for you? (Select one box per row.)

	Completely	A great deal	Somewhat	Only a little	Not at all
C2. I would trust my doctor.	☐	☐	☐	☐	☐
C3. I would trust the courts.	☐	☐	☐	☐	☐

As you read each of the following statements, please think about the medical care you are now receiving. If you have not received any medical care recently, circle the answer based on what you would expect if you had to seek care today. Even if you are not entirely certain about your answers, we want to remind you that your best guess is important for each statement. (Select one box per row.)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
C4. I worry that I will be denied the treatment or services I need.	☐	☐	☐	☐	☐
C5. I trust my doctor's judgments about my medical care.	☐	☐	☐	☐	☐
C6. I trust my doctor to put my medical needs above all other considerations when treating my medical problems.	☐	☐	☐	☐	☐

C7. I trust my doctor to tell me if a mistake was made about my treatment.	☐	☐	☐	☐	☐

SECTION D

In this section, you will be asked some questions about your background.

D1. What is your gender? (Check only one.)

☐ Male ☐ Female ☐ Trans ☐ Prefer not to answer

D2. What is your age?

Write Number _____

D3. What is your marital status? (Check only one.)

☐ Single ☐ Married ☐ Remarried ☐ Separated ☐ Divorced ☐ Widower

D4. What is your race/ethnicity? (Check only one.)

☐ White
☐ Black or African American
☐ Hispanic or Latino
☐ Asian
☐ Native Hawaiian or other Pacific Islander
☐ American Indian or Alaskan Native
☐ Other _____
☐ Don't know
☐ Prefer not to answer

The following are questions about different kinds of health insurance, including those provided by your job, somebody else's job, or the government. Please read carefully each of the following health plans and check whether or not you are currently covered by any of them. (Select one box per row.)

	Currently enrolled	Not currently enrolled	Don't know
D5. Private health insurance.	☐	☐	☐
D6. Medicare, a government plan that pays health care bills for people over age 65 and people who are disabled.	☐	☐	☐
D7. Medicaid, also called Medi-Cal.	☐	☐	☐

D8. Was there any time in the past two years when you were completely without any health plan or insurance coverage? (Check only one.)

☐ Yes ☐ No ☐ Don't know

D9. Are you currently uninsured? (Check only one.)

☐ Yes ☐ No ☐ Don't know

D10. How would you describe your current employment status? (Check only one.)

☐ Working outside the home full time
☐ Working outside the home part time
☐ Retired
☐ Attending school
☐ Maintaining the home
☐ Unemployed
☐ Disabled
☐ Other – specify _____

D11. What is your occupation? _____

D12. What is the highest grade or year of school that you have completed? (Check only one.)

☐ Grade or Middle school (K - 8)
☐ Some high school (9 – 12, but not complete)
☐ High School or GED
☐ Some College
☐ Associate Degree
☐ Bachelor's Degree
☐ Graduate Degree (e.g. MA, MD, JD, PhD)
☐ Don't know
☐ Prefer not to answer

D13. To get a picture of people's financial situation, we need to know the general range of income of all people we survey. Now, think about your household's total income from all sources, before taxes, including wages, salaries, and any other income. About how much did your household receive in the last year? (Check only one.)

☐ Under $5,000
☐ $5,000 to $19,999
☐ $20,000 to $34,999
☐ $35,000 to $44,999
☐ $45,000 to $59,999
☐ $60,000 to Over

D14. Do you receive Suplemental Security Income SSI? (Check only one.)

☐ Yes ☐ No ☐ Don't know

D15. Do you receive Unemployment Benefits UI? (Check only one.)

☐ Yes ☐ No ☐ Don't know

D16. Do you receive Disability Insurance? (Check only one.)

☐ Yes ☐ No ☐ Don't know

D17. How much of that income did you yourself earn in the last year? (Check only one.)

☐ Under $5,000
☐ $5,000 to $19,999
☐ $20,000 to $34,999
☐ $35,000 to $44,999
☐ $45,000 to $59,999
☐ $60,000 and Over

D18. How often do you get flu vaccinations? (E.g. once a year, once every two years, … never)

Write Answer _____

SECTION E

The following questions are required and asked for research purposes. These pieces of information will be kept secure at all times. We'd like to text reminders about the free clinic dates and incentive, though individuals can opt out after the first text. By supplying your cell phone number you are agreeing to receiving communications via text. Up to 4 messages per month. No purchase necessary to join. Reply STOP to cancel, HELP for help. Msg&data rates may apply.

E1. What is your date of birth (DD/MM/YYYY)? _____

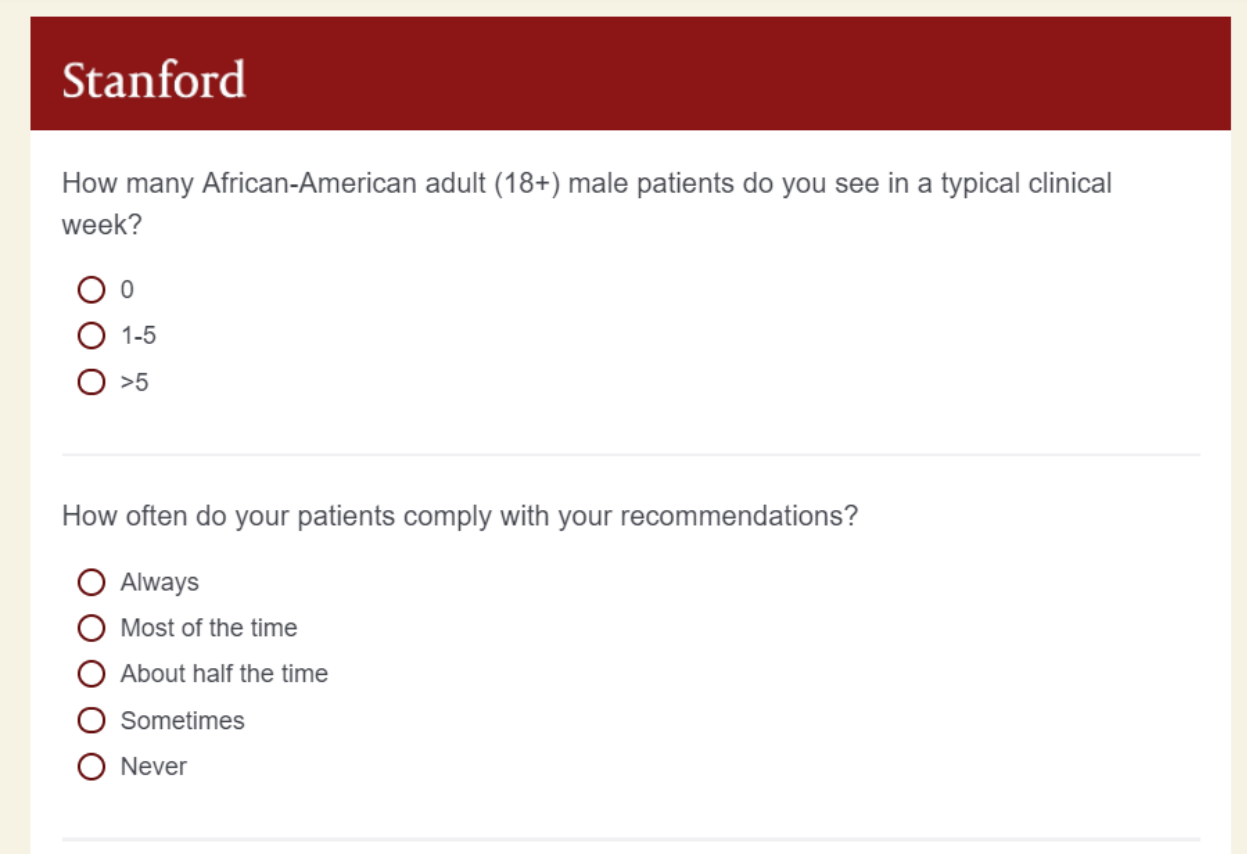
E2. What is your mobile telephone number? _____

E3. What is your first and last name? _____

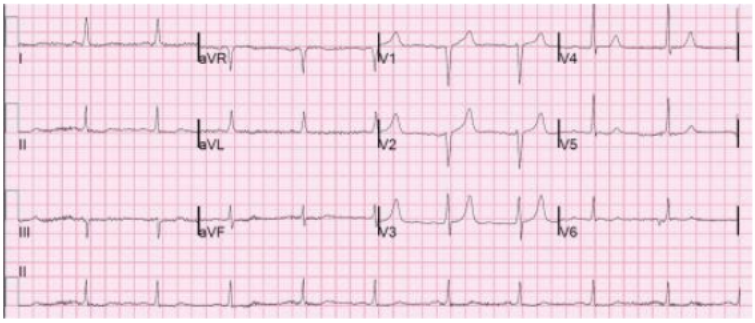
E4. How did you hear about the study? _____

B. Study Doctor Survey

The following survey asked the study physicians about their ability to persuade patients to comply with their medical recommendations as well as medical exam-style questions. We administered this survey after the completion of the experiment and after the the doctors were unblinded. Note the order of the final two questions regarding the ability to persuade African-American and Caucasian patients was randomized.



A 32-year-old athletic male presents to you for a general medical examination. He does not have any known medical diagnoses. He runs 5 miles a day. Recently, while he was exercising at the gym, he had an episode of lightheadedness. He reports no similar prior episodes. He does mention that it was a hot, sunny day and he had worked out much more than usual. He denies any chest pain, palpitations or syncopal episodes. One of his cousins is studying in medical school and did quick vitals on him. She was concerned that his heart rate was consistently in the low 50s. She suggested that he be checked at a medical clinic for further work up. His EKG is shown. Which of the following is true?



- ○ Infections almost never cause bradycardia.
- ○ Sinus bradycardia occurs in healthy patients as an adaptive response, particularly in well-conditioned persons or while sleeping.
- ○ The diagnosis warrants immediate holter monitor.
- ○ The prognosis is guarded.

A 24-year-old patient presents by referral from the emergency department (ED) for evaluation of shortness of breath. On review of the ED records, the patient has presented frequently over the past 4 months with shortness of breath, mild respiratory distress, mild wheezing, and intermittent stridor. Oxygen saturations were normal at each presentation. Empiric treatment with albuterol and intramuscular epinephrine did not alleviate the symptoms. The symptoms subsided spontaneously each time. The past medical history is unremarkable, and the patient is taking no medications. Currently, the physical examination and vital signs are normal. Which of the following is the most likely diagnosis?

- ○ Chronic rhinosinusitis
- ○ Reactive airways disease
- ○ Angioedema
- ○ Paradoxical vocal cord motion
- ○ Laryngospasm

A 76-year-old woman is evaluated in the emergency department for dizziness, shortness of breath, and palpitations that began acutely one hour ago. She has a history of hypertension and heart failure with preserved ejection fraction. Medications are hydrochlorothiazide, lisinopril, and aspirin.

On physical examination, she is afebrile, blood pressure is 80/60 mm Hg, pulse rate is 155/min, and respiration rate is 30/min. Oxygen saturation is 80% with 40% oxygen by face mask. Cardiac auscultation reveals an irregularly irregular rhythm, tachycardia, and some variability in S1 intensity. Crackles are heard bilaterally one-third up in the lower lung fields. EKG reveals atrial fibrillation with a rapid ventricular response. Which of the following is the most appropriate acute treatment?

- ○ Adenosine
- ○ Amiodarone
- ○ Cardioversion
- ○ Diltiazem
- ○ Metoprolol

What percentile did your most recent medical exam board score fall into? Please just provide an estimate if you can't recall the exact score.

- ○ bottom 25th percentile
- ○ 25th to 50th percentile
- ○ 50th to 75th percentile
- ○ 75th to 90th percentile
- ○ top 10th percentile

Stanford

If a Caucasian male initially refuses to accept a test that you think is important for their health, how often are you able to persuade them to accept it?

- ○ Always
- ○ Most of the time
- ○ About half the time
- ○ Sometimes
- ○ Never

If an African-American male initially refuses to accept a test that you think is important for their health, how often are you able to persuade them to accept it?

- ○ Always
- ○ Most of the time
- ○ About half the time
- ○ Sometimes
- ○ Never

→

VI. Protocol Appendix

The protocol appendix includes general instructions for the receptionist officers and study doctors. The study also involved a dozen field officers who were organized by a field manager. The field officers were responsible for recruitment. The field manager was responsible for making sure field officers had adequate supplies, troubleshooting any field issues, and settling payments with barbers. The field officers training was done via PowerPoint in a site in Oakland. Receptionist officers also had a training specifically for working in the clinic.

The doctor protocol included additional links to study-related forms including but not limited to: CDC-required vaccination information sheets, Alameda County required flu consent and log files, handouts to subjects on cardiovascular health, handouts for connecting with Covered California, primary care doctors accepting new patients by insurance provider, and information on nearest emergency room facility.

[REST OF PAGE INTENTIONALLY BLANK– PROTOCOLS BEGIN NEXT PAGE]

STANFORD
SCHOOL OF MEDICINE

Marcella Alsan, MD, MPH, PhD
Assistant Professor of Medicine
117 Encina Commons, Room 186
Stanford, CA 94305-5411
Phone: (650) 721-1352
Fax: (650) 723-1919

[redacted]

Dear Dr. [redacted],

We would like you to invite you to be a study doctor for the Stanford-Bridge Clinical Research Oakland Men's Health Disparities Study. The aim of the study is to improve preventive care uptake among African-American men in order to help close the gap in black-white male morbidity and mortality. This letter includes important information regarding: (1) online training (2)compensation (3) liability and (4) an in-person meeting.

1. Training

If you do not have expertise in providing flu shots or the specific point-of-care tests used for screening, please complete the training before working at the clinic. Training for point-of-use services and administering the flu shot takes about 1 hour.
Details on training are as follows:

a) Online training for influenza vaccination
   i. Please review information on vaccine administration from the CDC here: CDC Vaccine Administration
   ii. *Extra credit!* Youtube Stanford Flu Administration note aspiration is outdated
      a. Please note the contraindications and precautions for flu vaccination and do not give the vaccine to subjects who fall into those categories. Information is provided by the CDC here: CDC Vaccine Safety and by Alameda County on their Flu Screening Form
      b. Please note that subjects must read the "Inactivated Influenza Vaccine Information Statement" (VIS) and sign the Flu Screening Form before receiving the vaccine. The VIS can be found here: Flu VIS
      c. Vaccines must be logged on the Alameda County Provided Log Book provided here: Flu Authorization Record
      d. Paper copies of VIS, the Screening and Authorization forms will be on site
b) Online training for point of care Hemoglobin A1c test here: A1C Now Training [~8 minutes]
   i. Please complete the corresponding quiz A1c Now Quiz and send results to malsan@stanford.edu

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c) Online training for point of care cholesterol test (**note we will not be using the glucose strip**) can be found here: Cardiocheck Training [~8 minutes]
   i. Please complete the corresponding quiz Cardiocheck Quiz and send results to malsan@stanford.edu
   ii. *Extra credit!* Youtube Cardiocheck Plus

d) Please send any relevant CITI and HIPPA training certificates to malsan@stanford.edu.

2. Compensation

The training and the hours you work in the clinic are both compensated. The fixed rate for *all* time spent on onboarding is $[redacted] and payment is conditional on completing the steps discussed herein. For the clinic, payment is $[redacted]. Thus, for a 7 hour shift (11am – 6pm) the compensation would be $[redacted]. Payment will be processed [redacted]

3. Liability Coverage

Clinical Trials Liability and Medical Professional Liability coverage are provided by Stanford.

4. In-person meeting for Photo

Please email malsan@stanford.edu with a convenient time and location for our team to stop by to take a photo used to introduce subjects to their providers and identification in the clinic.

Thank you for your participation! Please contact us if you have any questions, concerns or feedback. Our team members include [redacted]

Sincerely yours,

Marcella Alsan

- You can reach all of us with one email using oaklandhealth@brigdeclinical.com

Enclosures:
(1) Study Doctor Protocol

*** slightly altered to remove personal details of the study team

Study Doctor Protocol

Preventative Healthcare Screening Instructions –Oakland Health Disparities Study
Updated 8/28/2017

Study Doctors (SDs) will have a conference room area where they will be able to relax between study subjects and a patient room assigned to them where they will perform the screening. Auxiliary study staff (receptionist officers –ROs) will greet the subjects and perform an intake in which the subject chooses which screening services they would like to receive and is assigned and provider. The ROs will then place the subject in their assigned patient room, walk to the conference room and inform the appropriate SD that a subject is waiting for him in his assigned patient room. The RO will also hand the SD the Clinic Encounter Form that is partially filled out (Items 1-6) and the Subject Service List Form which shows which services the subject has chosen. Note due to the study design, a SD may see a few subjects in a row from time to time, while another SD is idle. On average, all SDs will see the same number of subjects. The preventative screening visit with the Study Doctor should follow these steps:

1. Introduce yourself to the subject
2. Wash or sanitize your hands before performing any testing and between tests if necessary
3. Begin filling out the Clinic Encounter Form starting with item 7
4. Clarify and confirm your role and which services will be provided
    a. Clarify that you are only able to provide the items they selected as part of the study protocol. *Note it is important for the study that you only provide services in the protocol.*
    b. Confirm which items the subject would like to receive (refer to their **Subject Service List Form**).
    c. If some available items are not selected, ask the subjects if they would like to receive these services since they are free and generally recommended for adult males (for flu, please be mindful of precautions and contra-indications – see links in the "welcome letter").
5. Perform the subject selected screening according to the manufacturer's specification and current best practices. Refer to the welcome letter for specific links to the trainings. Some tips are below:
    a. Weight (a scale is located in the clinic, around the corner from the exam rooms)
    b. Height (automatic height available in clinic, located with scale)
    c. Calculation of BMI = (weight in kg/height in cm-squared). Since weight and height are measured in pounds and inches in the clinic we will be using – the formula is BMI = (weight in lbs*.45)/((height in inches*.025)^2), alternatively consider downloading a BMI calculator application for your android or iphone smartphone
    d. Blood pressure (cuffs and stethoscopes will be provided)
    e. Total Cholesterol and HDL (non-fasting – requires venous blood via fingerstick)
    f. Hemoglobin A1c (requires venous blood via fingerstick)
    g. Flu Shot - as discussed in the Welcome Letter –it's important to note the contraindications and precautions for flu vaccination
        i. Please note the contraindications and precautions for flu vaccination and do not give the vaccine to subjects who fall into those categories. Information is provided by the CDC here: CDC Vaccine Safety and by Alameda County on their Flu Screening Form

Study Doctor Protocol

   ii. Please note that subjects must read the "Inactivated Influenza Vaccine Information Statement" (VIS) and sign the Flu Screening Form before receiving the vaccine. The VIS can be found here: Flu VIS
   iii. Vaccines must be logged on the Alameda County Provided Log Book provided here: Flu Authorization Record

6. Record the results from each measurement/test on the Clinic Encounter Form and Subject Results Form
7. If any part of the clinical encounter is concerning for an urgent health problem, refer the subject to the nearest emergency department. Refer to List Nearby Emergency Facilities
8. Once the encounter is complete and the Subject Results Form is filled out, the Study Doctor should give the subject his Subject Results Form. The Study doctor should also give the subject:
   a. The American College of Black Cardiologists 7 Steps for Healthy Living Brochure.
   b. If the subject does not have insurance, available instructions on Covered California. Refer to List Nearby Covered California Enrollee Experts
   c. If the subject does have insurance but does not have a primary care provider, hand them a list of open providers in their network List of Primary Care Providers Accepting Patients in Common Insurance Plans
9. The SD should fill out the entire of the Clinic Encounter Form. The SD should escort the subject to the front of the clinic, hand the Clinic Encounter Form to one of the ROs seated at the reception area and return to the conference room to await the next subject.

Note --- we modified the last step of the study doctor protocol (step 9) so that the ROs waited outside doctor rooms and escorted subjects out of clinic. See RO protocol (next page).

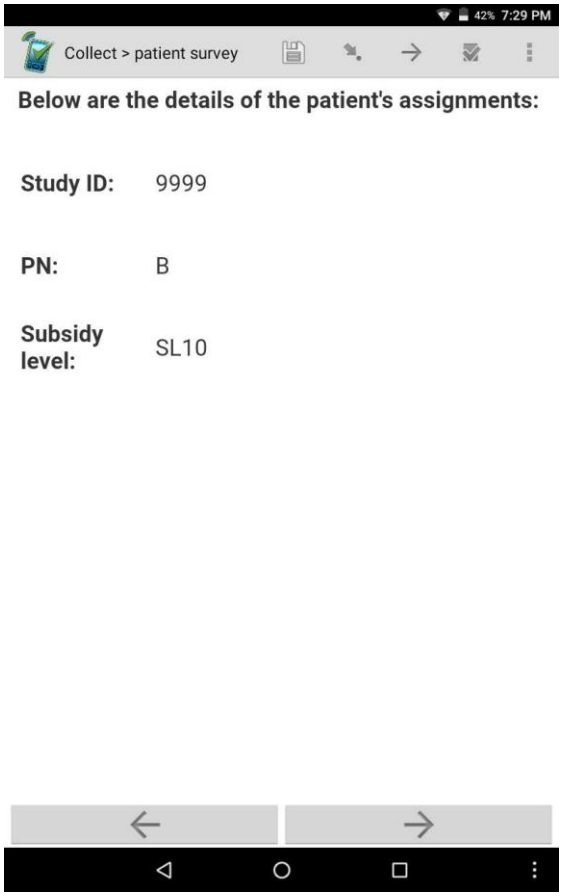
Oakland Health Disparities Project
Reception Officer Manual
Updated 10/13/2017

RO 1: Clinic entrance

- Patients will enter from the back door of the clinic. The RO will be stationed at this door.
- RO will check if the patient has a coupon. Only patients who have coupons will be given entry.
- RO will give the patient a waiting letter slip and take him to the front desk.
- Book Ubers for patients to go back to the barbershop if they want.

RO 2: Front Desk

- Will have a master spreadsheet on google docs – shared with [redacted]
- [redacted] will enter Patient ID and waiting letter in the spreadsheet
- [redacted] will enter the Patient ID on Survey CTO on the tablet and select the available doctors.
- [redacted] will copy information from the tablet onto her spreadsheet from the following screen:

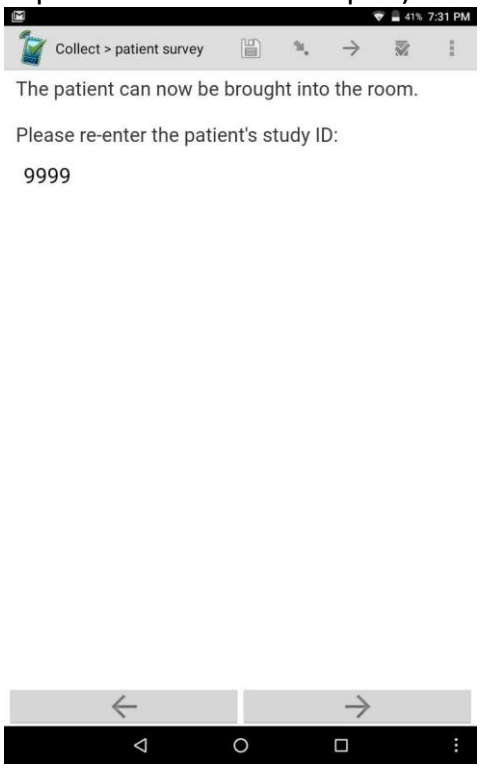


- RO will prepare the clipboard + tablet package
    - Copy Patient ID on exit form
    - Attach doctor checklist and copy Patient ID
    - Attached an envelope with $50
    - Give the tablet + clipboard package to RO3/RO4 when the patient is taken to the assigned patient room (RO 2 should leave the tablet on the screen shown above when handing the tablet to RO3/RO4).
- RO 2 should keep track of which patient rooms are available and call out patient by waiting number.
- When RO3/RO4 return to tell RO2 whether the patient has opted for the flu shot, then RO 2 should give RO3/RO4 and envelope with the subsidy amount.
- When RO3/RO4 return the completed forms and tablet, RO 2 should put the forms in the given boxes. RO2 should also save the survey and reset the tablet.

RO 3 + RO 4: Patient Rooms (2 each)

- Stationed in the patient room area. Will be responsible for 2 (out of 4) patient rooms. **Must follow steps in correct order.**
- Will inform RO 2 about which patient rooms are available

- Step 1: Take the patient to the assigned patient room and hand him the envelope with $50 and take the coupon back from the patient.
- Step 2: Enter the patient's patient ID on the following screen (cross check with clipboard forms and coupon):



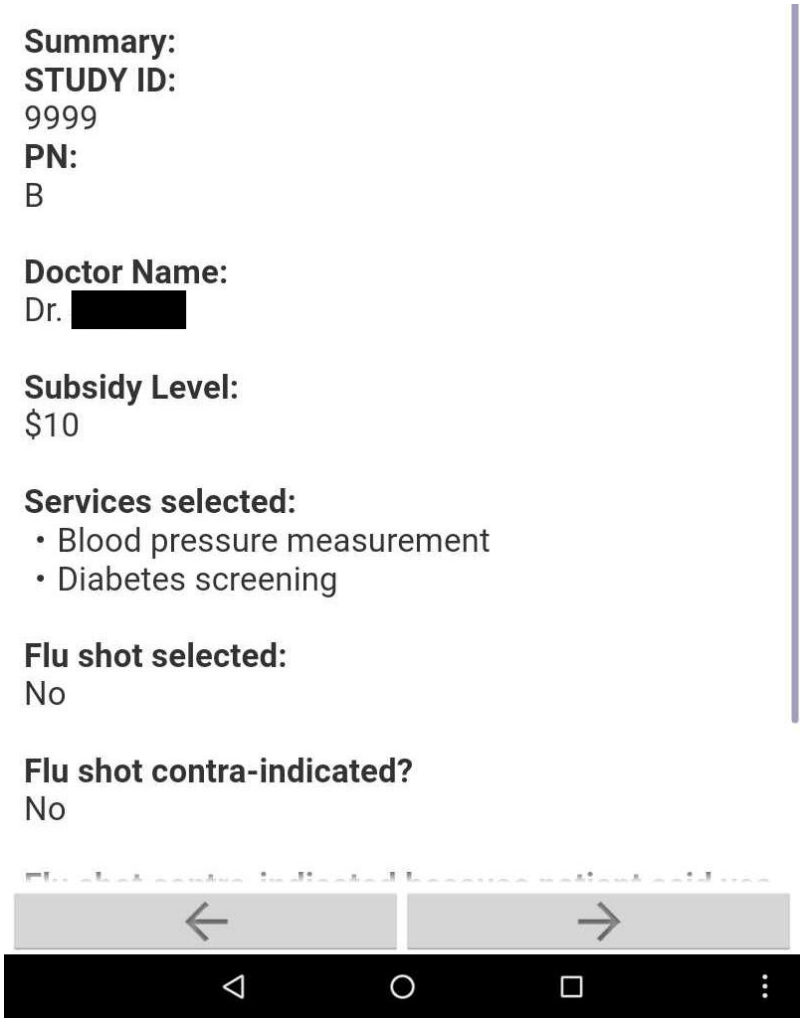
- Step 3: Give patient the survey tablet. The tablet should be set to the following screen when handed to the patient:

- Step 4: Wait in the patient room for the patient to try entering the response to the first question – ‘Did you come to the clinic with friends?’ Leave the patient room and wait outside when the following screen appears:

Ask the patient to let you know when they have completed the survey. In case the patient does not call you in 1-2 mins, knock on the patient room door and check in.

- Step 5: When the patient completes the survey, request the patient to wait in the patient room for a few minutes till the doctor arrives. Leave the patient room

with the tablet. You will be asked to re-enter the Patient ID on the tablet. From the following screen, copy the information onto the Clinic Encounter Form:



- Step 6: Take the tablet to the front desk with the above screen open. [redacted] will double check that you have copied the information correctly onto the Clinic Encounter Form. After verifying she will put a green sticker on the form. You should leave the tablet at the front desk and take the rest of the clipboard back with you. [redacted] will also give you the money for the flu subsidy if the patient has selected the option to get a flu shot and he has been assigned a subsidy amount.
- Step 7: RO will call the doctor from the doctors' room and take him to the assigned patient room. Doctors will be assigned to specific patient rooms at the beginning of the day. To minimize bias and error in the study, it is very important to call the correct doctor to the correct patient room.

- Step 8: RO will give the Clinic Encounter Form to the doctor and wait outside the patient room. RO should also tell the doctor not to worry about the Exit Form and the Subsidy envelope on the clipboard (the doctor should not hand over the subsidy amount to the patient).
- Step 9: When the doctor leaves the patient room, the RO should fill in the subject ID on the Feedback Form. Then the RO should request the patient to fill the Feedback Form. When the patient completes the Feedback Form, the RO should give the flu subsidy money (if any was assigned), the doctor's results and the cardiologists' pamphlet to the patient.
- Step 10: Escort the patient towards the exit and away from the waiting area. The patient should be handed over to RO 1. It is important that the patients do not go back to the waiting area because they might tell other patients about the flu subsidy.

Notes:

- Do not tell the patient about the flu shot. They should learn about the flu shot only when they see the option on the tablet.
- Do not tell the patients about the flu shot subsidy. They should learn about this from the tablet as well.
- Patients should be given the flu subsidy even if they didn't choose the shot but actually got it. RO3/RO4 should verify this from the doctor's form after the doctor treats the patient and leaves the patient room.
- If the patient does not select any services, he should still be introduced to the doctor because we want to check if he will select any services after meeting with the doctor.