UPMC's Department of Medicine Outpatient Experience Survey: Understanding Racial and Ethnic Differences in the Patient Experience

by

Scarlett Emma Minnie

BS, Miami University of Ohio, 2014

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This essay was submitted

by

Scarlett Emma Minnie

on

August 9, 2022

and approved by

Mark Roberts, MD MSS, Distinguished Professor, Health Policy and Management

Naudia Jonassaint, MD, MHS, Associate Professor, University of Pittsburgh School of Medicine

Laura Duncan, MHA, MHI, Executive Administrator, UPMC Department of Medicine

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Abstract

It is an understatement to say that the social construct of race has played a critical role in the history of the United States. These paradigms permeate structures and systems that exist today, and healthcare delivery is no exception. The last decade has seen renewed attention to health equity in the United States. In 2021, it became a key pillar in the Biden Administration's Executive Order 13985: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government. Although a comprehensive solution is required to combat multi-faceted systemic inequity, this essay will focus on the healthcare experience of BIPOC (Black, Indigenous, and People of Color) individuals, specifically relationships and experiences that can influence prioritization of preventative health, trusting relationships with health care professionals, and longterm health outcomes. Relationship-building and communication between providers and their patients are critical elements that can have an impact on health outcomes and care utilization. This essay will investigate relevant literature and studies around the subject of communication, relationships, and race in the health care delivery environment, as well as the importance of these interactions in connection to the utilization of services and resulting health outcomes. Using the literature review as a basis, the essay's hypothesis postulates that a patient's racial or ethnic identity is a statistically significant predictor of their experience at a Department of Medicine outpatient clinic. This is tested using Pittsburgh area UPMC patient survey responses, and a model is developed using logistic regression to determine survey independent variables' statistical veracity as predictors of the patient experience.

Table of Contents

Prefacex
1.0 Introduction 1
2.0 Literature Review
2.1 Definitions and Recent Federal Action
2.2 Results of Related Studies4
2.3 Physician-Patient Relationships and Communication
2.4 Impact on Care Utilization and Outcomes10
3.0 Hypothesis11
4.0 Methods 12
4.1 Study Design12
4.2 Data Population in Comparison to Local and National Averages
4.3 Variables and Measures17
4.4 Logistic Regression Analysis18
5.0 Results and Findings 22
5.1 Survey Results
5.2 Predictive Equation Derived from Logistic Regression Model
5.3 Supplemental Regression Outcomes 29
6.0 Discussion
6.1 Survey Analysis Results
6.2 Comparison to Literature 32
6.3 Study Limitations

7.0 Conclusion	34
Appendix A UPMC Wolff Center Survey	35
Appendix B Logistic Regression Models	38
Appendix B.1 Logistic Regression: Feb 2020 – June 2021 Total Data Set	38
Appendix B.2 Logistic Regression by Location	41
Appendix C Recommendation Results by Clinic and Race	42
Bibliography	44

List of Tables

Table 1 Survey Response Volumes by Location	14
Table 2 Patient Experience Survey Response Volumes by Education Level	16
Table 3 Survey Questions Regarding Provider Interaction	17
Table 4 Total Physician - Patient Interaction Question Results	23
Table 5 Physician - Patient Interaction Question Results - Clinic Summary	24
Table 6 Physician Recommendation by Clinic and Race - Rheum Wex	24
Table 7 Physician Recommendation by Clinic and Race - GI McKeesport	25
Table 8 Physician - Patient Interaction Question Results - Race Summery	25
Table 9 Would Patient Recommend Physician - Race Summary	26
Table 10 Survey Questions - Deep Dive by Race	27
Table 11 Variables in Order of Predictive Value	31
Appendix Table 1	42

List of Figures

Figure 1 Percentage of all active physicians by race / ethnicity, 2018 (AAMC, 2019)	8
Figure 2 Percentage of U.S. medical school graduates by race / ethnicity (alone), academi	C
year 2018-2019 (AAMC, 2019)	9
Figure 3 Pittsburgh Map with Clinic Locations1	3
Figure 4 Patient Race for Survey Responses1	5
Figure 5 Patient Respondents by Gender and Age Group1	6
Figure 6 Logistic Regression 11	9
Figure 7 Logistic Regression 4 - Final Model2	1
Figure 8 Rheum Data Regression Model 2	9
Figure 9 Gastro Data Regression Model3	0
Appendix Figure 1 3	8
Appendix Figure 2 3	9
Appendix Figure 3 4	0
Appendix Figure 4 4	1

Preface

I would like to acknowledge and thank my readers, Dr. Mark Roberts, Dr. Naudia Jonassaint, and Laura Duncan for their patience and insight throughout this process. Their extensive professional expertise in the world of health care, care equity, and data analytics was invaluable. I am grateful for the opportunity to work with each of these individuals and continue to learn from their unique expertise in the Health Care industry.

1.0 Introduction

It is an understatement to say that the social construct of race has played a critical role in the history of the United States. These paradigms permeate structures and systems that exist today, and healthcare delivery is no exception. National statistics published by the U.S. Department of Health and Human Services reveal this disparity, with minority groups experiencing higher rates of a variety of conditions ranging from high blood pressure, depression and anxiety, and maternal mortality (Gindi et al., 2021). This was most recently exemplified during the COVID-19 pandemic, with COVID patients in the Black and Hispanic populations experiencing higher death rates than white patients (Goss et al., 2020).

The last decade has seen renewed attention to health equity in the United States. In 2021, it became a key pillar in the Biden Administration's Executive Order 13985: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (Baker, 2022). In an impactful statement that engages 90 federal agencies and 50 independent organizations, the executive order states that: "our country faces converging economic, health, and climate crises that have exposed and exacerbated inequities, while a historic movement for justice has highlighted the unbearable human costs of systemic racism" (Executive Order 13985 of January 20, 2021). This executive order is necessarily broad in its engagement of Health and Human Services and other US department resources, as issues concerning equity are multi-faceted and deeply intertwined. Although a comprehensive solution is required to combat systemic inadequacies, this essay will focus on the healthcare experience of BIPOC (Black, Indigenous, and People of Color) individuals, specifically relationships and experiences that can influence

prioritization of preventative health, trusting relationships with health care professionals, and longterm health outcomes.

Relationship-building and communication between providers and their patients are a critical element that can have an impact on health outcomes and care utilization. It is this foundation - and its opportunities for improvement - that this essay will investigate. The following pages will explore relevant literature and studies around the subject of communication, relationships, and race in the health care delivery environment, as well as the importance of these interactions in connection to the utilization of services and resulting health outcomes. Using the literature review as a basis, a hypothesis will be proposed concerning the outpatient clinic experience of BIPOC patients and tested using Pittsburgh area patient survey responses. The survey data selected has been collected by the UPMC Wolff Center, a department described by the hospital system as "the coordinating and connecting function of high quality and safety care and improvement" (UPMC.com). The University of Pittsburgh Medical Center (UPMC) utilizes this department to maintain its pulse on the patient experience and continual improvement upon its services. The survey results were collected from a cross-section of Pittsburgh-area outpatient clinics within UPMC's Department of Medicine, a department comprised of 10 medical specialties and over 200,000 square feet of clinical and research space. This academic medicine institution is a world leader in innovation, and therefore utilizes this feedback in its continued examination and improvement of the patient experience. The data will be summarized, and its key elements evaluated using logistic regression to determine their statistical veracity as predictors of the patient experience. Empowered by the knowledge summarized from literature sources and local data, recommendations will be proposed for the Department of Medicine in its pursuit of continual patient experience improvement.

2.0 Literature Review

2.1 Definitions and Recent Federal Action

As referenced in the introduction, the Biden Administration passed Executive Order 13985 to mobilize numerous departments at the federal level to examine equity across the nation, with one of its priorities being that of social determinants of health and barriers to better health outcomes. The Department of Health and Human Services as well as Centers for Medicaid and Medicare Services are leading this effort. Both organizations have released statements outlining their plan of action.

The HHS Equity Action Plan, published in April of 2022, delineates the access barriers it is targeting into five groups: civil rights protections and language access, small business development, grant application and awardee diversity, capacity to study data around equity, and maternal health in underserved communities (Baker, April 2022). CMS also released its strategy in April of 2022, which will

"...respond to inequities in health outcomes, barriers to coverage, and access to care. This includes collaborating with health care facilities, providers, insurers, pharmaceutical companies, individuals experiencing health inequity, researchers, and other stakeholders to further its mission, while also encouraging health care leaders to advance health equity" (Baker, April 2022)

3

To ground the reader, this essay will utilize the following definitions from the Biden Administration to define the terms equity and underserved communities. While each subgroup enumerated in these definitions deserve their own in-depth studies to examine root causes of health disparities unique to each community, this essay will focus on racial minorities (also referred to by the acronym "BIPOC" – Black, Indigenous, and People of Color).

- Equity "...the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality" (Executive Order 13985, 2021)
- Underserved Communities "...populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life" (Executive Order 13985, 2021)

2.2 Results of Related Studies

Numerous studies and journal publications exist which examine health statistics within the BIPOC community and their experience when seeking care services. In an analysis conducted by Donaldson & colleagues, Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey results were aggregated to assess the patient experience based on ethnicity and primary language (Donaldson et al., 2022). The HCAHPS survey "…assesses patient experience

elements ranging from communication with doctors and nurses to cleanliness of the hospital facility. One domain of interest within patient experience research has been disparities in care and among patients from underrepresented groups" (Donaldson et al., 2022).

Their analysis referenced other similar studies that generated a mix of outcomes when evaluating patient demographics as a determining factor in their experience; although differences are widely observed in these studies, the nature of the differences has varied (Donaldson et al., 2022). In their study, it was observed that "... Spanish-speaking Hispanic/Latinx patients were more satisfied with their experience compared to non-Hispanic White patients" (Donaldson et al., 2022). At its face this appears to belie their hypothesis. However, the phenomenon of the "Hispanic paradox" is referenced when evaluating these outcomes. This theory, borne out of similar studies of patient experience, postulates that the "... [Hispanic patient] ratings of care might be influenced by expectations... [that] are shaped by culture, past experiences, and socioeconomic status. Hispanic/Latinx Americans are argued to have lower expectations of quality of care" (Donaldson et al., 2022). In summary, a patient may view mediocre or comparative treatment as standard. This is an excellent example of the nuance inherent in the study of race, ethnicity, and the patient experience.

Conversely, "Racial and ethnic disparities in patient experience of care among nonelderly Medicaid managed care enrollees" conducted a study that indicates a negative disparity when examining the care experience of nonelderly Medicaid managed care enrollees across 37 states and across the span of 4 years (Nguyen et al., 2022). "Despite having coverage identical to that of White enrollees, racial and ethnic minority enrollees reported worse experiences of care in Medicaid managed care plans" (Nguyen et al., 2022).

"Structural racism, which refers to the ways in which racial discrimination is infused into

policies and social norms through mutually reinforcing systems (for example, health care and housing), is a driver of worse experiences of care for minority populations.

Interpersonal racism (for example, biases and discrimination), differential expectations of care, availability of culturally inclusive services, and patient-provider concordance (such as by race and ethnicity, sex, or language) also affect patients' access to and experiences of care" (Nguyen et al., 2022)

This study touches upon the "wicked problem" nature of these health inequities in that the root of many of these experiences lies beyond patient-provider interaction and within the systems themselves.

2.3 Physician-Patient Relationships and Communication

Communication and rapport with a provider are critical elements in the formation of the patient's experience. In Miller and Peck's "A Prospective Examination of Racial Microaggressions in the Medical Encounter", published in the *Journal of Racial and Ethnic Health Disparities*, the presence of microaggressions in the healthcare space and how this impacts physician-patient communication is evaluated.

This article also brings up the positive movement in medicine away from "paternalistic" dynamics in physician-patient communication, and towards the more productive collaborative relationship "...known as patient-centered encounters... During this type of encounter, patients are more active in the decision-making process, which ensures the patient's needs and perspectives are considered when making decisions about diagnosis and treatment" (Miller & Peck, 2020). The potential for a collaborative and trusting relationship between physicians and BIPOC patients can

be hindered by unconscious bias and microaggressions such as dismissive tones, phrases, or stereotyping language.

Experts investigating these dynamics acknowledge these biases may be less prevalent when the physician and patient share similar demographic backgrounds. This is known as "race concordance" in the context of the provider and patient being of similar racial or ethnic identity. While some studies have shown that "... race concordance leads to trust, satisfaction, and intent to adhere to physician recommendations via patient perceptions of similarity to their physicians", this presents a challenge when implementing as a potential solution (Nazione et al., 2019). According to the two figures below, only 5% of current practicing physicians identify as Black, and 5.8% as Hispanic (AAMC, 2019). Unfortunately, the current demographic makeup of medical students does not look much different – 6.2% are Black and 5.3% are Hispanic (AAMC, 2019).

There has also been exploration of the difference in race-concordant interactions and those in which a physician has greater cultural sensitivity and knowledge (perhaps through bias training and education) or implements strategies like self-disclosure. Self-disclosure is defined as "revealing information about one's own life and experiences" to facilitate a level of connection and trust. It should be noted that traditionally this type of interaction between provider and patient is considered unprofessional (Nazione et al., 2019). "Interactions between provider self-disclosure and provider-patient race concordance were also investigated yielding no significant results. The lack of results is worth discussing because this supports disclosure functioning equally well regardless of provider-patient race makeup" (Nazione et al., 2019). This is encouraging, given that implementing a strictly race-concordance approach would not be able to adequately match all BIPOC patients with similar physicians given the current demographics of active physicians.



Figure 1 Percentage of all active physicians by race / ethnicity, 2018 (AAMC, 2019)



Figure 2 Percentage of U.S. medical school graduates by race / ethnicity (alone), academic year 2018-2019

(AAMC, 2019)

2.4 Impact on Care Utilization and Outcomes

Miller and Peck's article draws a critical connection between negative patient experiences that underscore the urgency of this issue: "Taken together, patients of color not only report being treated differently than white patients, but also they are at risk for adverse health outcomes due to differential treatment" (Miller & Peck, 2020). Lack of trust or the desire to avoid these negative interactions may lead members of underserved communities to not take advantage of preventative care, not adhere to or understand medical instructions / prescription regimens, or withhold important information which could inform a physician's approach to their care. This is further compounded by social determinants of health that these communities experience which make consistent access to care more difficult in the first place.

As stated in the introduction, national statistics published by the National Department of Health and Human Services, Centers for Medicare and Medicaid Services, and other national healthcare organizations indicate that there is a difference in the rates of disease and adverse health outcomes to the detriment of marginalized communities. The Biden Administrations Executive Order is just the first step in a long road of continual growth as organizations concerned with health equity uncover the root cause of these disparities and implement sustainable solutions.

3.0 Hypothesis

Based on the review of relevant journalistic and national statistic compilations, the following hypothesis will be explored by evaluating patient survey data collected by the UPMC Wolff Center following their experience at a cross-section of UPMC Department of Medicine outpatient clinic sites.

<u>Null Hypothesis:</u> A patient's racial or ethnic identity is not a statistically significant predictor of their experience at a Department of Medicine outpatient clinic.

<u>Alternative Hypothesis:</u> A patient's racial or ethnic identity is a statistically significant predictor of their experience at a Department of Medicine outpatient clinic.

4.0 Methods

4.1 Study Design

In the pursuit of using this data to paint a picture of the patient experience, a combination of descriptive statistic summaries and logistic regression are utilized. The raw data provided by the Wolff Center included patient responses from select outpatient sites from February of 2020 through February of 2022. During this period, two survey formats were utilized. The first, distributed through June of 2021, includes questions that prompt the patient to self-identify their race and ethnicity. Starting in July 2021, a new survey was implemented which removed these questions. Due to the fact that the patient responses were de-identified prior to summarizing the data, completed surveys from July 2021 – February 2022 were unable to be utilized in the analysis as no racial identifiers could be connected to the responses. The final data set, groomed to exclude surveys which did not contain race data, includes 5,959 completed responses across 13 clinics (N=5,959).

4.2 Data Population in Comparison to Local and National Averages

When selecting the population parameters for this data set, a cross section of clinics in a variety of Pittsburgh area neighborhoods and several different medical specialties were selected to ensure the patient group represented the demographics of the area. Figure 1 illustrates the locations

of each clinic overlaid on a map of Pittsburgh, while Table 1 details the volume of responses per location.



Figure 3 Pittsburgh Map with Clinic Locations

Feb 2020 – June 2021 Patient Experience Survey Response Volumes by Clinic								
Clinic Name	Survey Vol.	% Total Responses						
Endocrinology South Hills	378	6.34%						
Family Health Center Bloomfield-Garfield	563	9.45%						
Family Health Center Lawrenceville	910	15.27%						
Family Health Center New Kensington	434	7.28%						
Gastroenterology McKeesport	128	2.15%						
Gen Med South	857	14.38%						
Geriatric Medicine Benedum Geriatrics	524	8.79%						
Infectious Disease	608	10.20%						
Kidney Clinic Monroeville	88	1.48%						
Pulmonology Thoracic	381	6.39%						
Rheumatology St. Margaret	201	3.37%						
Rheumatology Wexford	639	10.72%						
UPP Gastro St. Margaret	248	4.16%						

Table 1 Survey Response Volumes by Location

Replies included in the dataset were restricted to patients 18 and older at the time of their visit. According to the most recent Census Bureau statistics, Allegheny County is mostly comprised of individuals identifying as White and non-Hispanic or Latinx – 77.5% - which is higher than the national average of 59.3% (census.gov). As can be seen in Figure 2, the racial breakdown of the survey responses resembles that of Allegheny County, in which the clinics are located and many patients reside. 15% of respondents identify as Black or Multi-Racial, and only 2.73% ethnically identify as Hispanic or Latinx.



Figure 4 Patient Race for Survey Responses

Figure 3 breaks down this same group by gender and age group. 60% of patients that responded to the survey are female, which is a higher percentage than the Allegheny female population of 51% (census.gov). Allegheny County and Western Pennsylvania in general skew older than the rest of the nation: 20% of individuals are 65 and older, as compared to 16.8% nationally (census.gov). When looking at survey responses, 47% were completed by individuals over 60 at the time of their visit.



Figure 5 Patient Respondents by Gender and Age Group

The survey also asks the patients to identify their level of education. Table 2 reveals that 96% of the responses were completed by individuals with a high school education or greater, which is higher than both county and national statistics – 95% in Allegheny County, and 88.5% nationally (census.gov).

Patient Experience Survey Response Volumes by Education Level								
Clinic Name	Survey Vol.	% Total Responses						
decline to answer	89	1.49%						
less than or equal to 8th grade	1	0.02%						
Some high school	128	2.15%						
High school graduate	1191	19.99%						
Some college	1840	30.88%						
4yr college graduate	1123	18.85%						
more than 4yrs of college	1587	26.63%						

Table 2 Patient Experience Survey Response Volumes by Education Level

4.3 Variables and Measures

The full survey distributed by the UPMC Wolff Center from February 2020 – June 2021 can be found in Appendix A, however there were certain questions that this essay focused on during its investigation of the data. Table 3 lays out the questions considered during the analysis that focus on the patient's interaction with their provider. Responses to these questions were restricted to 3 options: yes definitely, yes somewhat, and no. These questions regarding patient interaction, along with patient demographic responses, are considered independent variables in the logistic regression. The patient is also asked to rate whether they would recommend this provider to their family and friends, with the potential answers being yes definitely, yes somewhat, and no. This response, which could be used to infer a patient's overall impression and trust of their provider based on their experience, is considered the dependent variable upon the statistical relevance of the independent variables are assessed.

Survey Questions Regarding Provider Interaction
Possible Answers: 1.) Yes, Definitely 2.) Yes, Somewhat 3.) No
During this visit, did this provider explain things in a way that were easy to understand?
During this visit, did this provider listen carefully to you?
During this visit, did this provider seem to know important information about your medical history?
During this visit, did this provider show respect for what you had to say?
During this visit, did this provider spend enough time with you?
During this visit, did this provider give you easy to understand information about health questions?

Table 3 Survey Questions Regarding Provider Interaction

4.4 Logistic Regression Analysis

As there are three potential answers which the patient can select when responding to the question identified as the dependent variable, logistic regression was determined to be the best model to use when analyzing the data set. The goal of completing this regression was to evaluate the statistical significance of the identified independent variables – particularly a patient's racial or ethnic identity – and these variables' ability to predict the patient's experience with their provider following the encounter. The data was stored in Microsoft Excel and groomed to have all responses converted to numeric representation, with the dependent variable and 13 independent variables included as input values. The Add-In Data Analysis - Regression functionality was used to produce the initial regression results shown in Figure 4.

SUMMARY OUTPUT 1

Regression Statistics					
Multiple R	0.692633273				
R Square	0.479740851				
Adjusted R Square	0.478603194				
Standard Error	0.218781842				
Observations	5959				

ANOVA

PhysKnowHistory

PhysShowRespect

PhysSpendTime

0.120723543

0.171546973

0.34228659

0.0085123

0.019946966

0.016001848

	df	SS	MS	F	Significance F			
Regression	13	262.3985211	20.18450163	421.6921156	0			
Residual	5945	284.5603646	0.047865494					
Total	5958	546.9588857						
				0.05				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.016721588	0.027587165	0.60613654	0.544447231	-0.037359271	0.070802448	-0.037359271	0.070802448
Age	-0.000317416	0.000174788	-1.816008786	0.069419372	-0.000660064	2.52314E-05	-0.000660064	2.52314E-05
Gender	-0.010795529	0.00582649	-1.852835723	0.063955432	-0.022217565	0.000626507	-0.022217565	0.000626507
Race	-0.002105449	0.001331688	-1.581037529	0.113922654	-0.004716042	0.000505143	-0.004716042	0.000505143
Hispanic	-0.007431389	0.007230663	-1.027760361	0.30410438	-0.021606114	0.006743336	-0.021606114	0.006743336
GradeLevel	0.000621947	0.002326069	0.267381236	0.78918492	-0.003937993	0.005181888	-0.003937993	0.005181888
OverallHealth	0.002996076	0.003537351	0.846982853	0.397038773	-0.003938417	0.009930569	-0.003938417	0.009930569
EmotionalHealth	0.007604627	0.003040752	2.50090346	0.012414391	0.001643649	0.013565605	0.001643649	0.013565605
PhysExplain	0.139950838	0.018806749	7.441522014	1.13663E-13	0.103082781	0.176818895	0.103082781	0.176818895
PhysListen	0.193059613	0.020232887	9.541871997	1.99588E-21	0.153395809	0.232723418	0.153395809	0.232723418
PhysInstruct	0.07525467	0.00969394	7.763063582	9.69669E-15	0.056251028	0.094258312	0.056251028	0.094258312

Figure 6 Logistic Regression 1

6.33436E-45

1.85525E-64

1.42572E-26

0.104036344

0.303183295

0.14017754

0.137410742

0.381389885

0.202916407

0.104036344

0.303183295

0.14017754

0.137410742

0.381389885

0.202916402

14.18224727

17.15983264

10.72044732

A couple of elements contained in Figure 4 are used in determining the effectiveness of the model. The first is R-Square, which is shown to be 0.47974. This can be interpreted to mean that around 48% of the time, the independent variable values accurately predict the likelihood that a patient will recommend the provider to their family and friends. To evaluate the veracity of the 13 independent variables, their P-values were inspected. Independent variables with a P-value below 0.05 are considered to be statistically significant in predicting the dependent variable. Variables with P-values greater than 0.05 are not statistically significant and should be removed from the

model to increase the accuracy of the remaining variables and the predictive accuracy of their coefficient values.

6 of the 13 independent variables are highlighted as having P-Values marking them as not reliable indicators of the dependent variable outcome: Age, Gender, Race, Ethnicity (Hispanic), Education, and how the patient personally rates their Overall Health. Three more iterations of the logistic regression analysis were conducted, with each iteration gradually removing the least reliable variables (those with the highest P-values) and assessing the impact on the remaining P-Values and R Square until only significant variables remained. All regression results can be found in Appendix B.

The final regression, which contains only independent variables with a P-value less than 0.05, is shown in Figure 5 below. It is noted that the variable of Race has a P-value of 0.04512, making it a moderately good predictor of the dependent variable.

SUMMARY OUTPUT 4

Regression Statistics				
Multiple R	0.692140637			
R Square	0.479058662			
Adjusted R Square	0.478358236			
Standard Error	0.218833229			
Observations	5959			

ANOVA

	df	<u>SS</u>	MS	F	Significance F			
Regression	8	262.0253917	32.75317396	683.9539372	0			
Residual	5950	284.933494	0.047887982					
Total	5958	546.9588857						
				0.05				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.024339041	0.018677353	-1.303131179	0.192580406	-0.060953427	0.012275346	-0.060953427	0.012275346
Race	-0.002596825	0.0012959	-2.003877816	0.045128401	-0.005137259	-5.63911E-05	-0.005137259	-5.63911E-05
EmotionalHealth	0.009755867	0.002555621	3.817415271	0.000136227	0.004745922	0.014765811	0.004745922	0.014765811
PhysExplain	0.139177485	0.018801452	7.402485935	1.52205E-13	0.102319818	0.176035152	0.102319818	0.176035152
PhysListen	0.193844271	0.020230708	9.581685231	1.36596E-21	0.154184746	0.233503797	0.154184746	0.233503797
PhysInstruct	0.075339868	0.009675827	7.786401201	8.07809E-15	0.056371737	0.094307998	0.056371737	0.094307998
PhysKnowHistory	0.123045021	0.008450132	14.56131303	3.1883E-47	0.106479696	0.139610346	0.106479696	0.139610346
PhysShowRespect	0.342608154	0.019944509	17.17806931	1.37135E-64	0.303509682	0.381706626	0.303509682	0.381706626
PhysSpendTime	0.171612316	0.015996494	10.7281207	1.31363E-26	0.140253385	0.202971246	0.140253385	0.202971246

Figure 7 Logistic Regression 4 - Final Model

5.0 Results and Findings

5.1 Survey Results

When reviewing the results of the surveys, several insights regarding the patient's experience and variations across race and clinic location come to light. The following tables summarize responses for digestible insights; individuals who did not answer certain questions were excluded from the summaries, however this was a very small number of individuals (less than 0.5%). Table 4 displays a summary of answers to physician interaction questions for the entire data set. At this high-level view, variances are very slight, however "did the physician appear to know important information about your medical history" had the highest percentage of "No" responses.

Total Physician - Patient Interaction Question Results									
Survey Question Yes, Definitely Yes, Somewhat No									
explain things in a way that were easy to understand?	97%	2%	0.51%						
listen carefully to you?	97%	3%	0.72%						
know important information about your medical history?	90%	8%	1.89%						
show respect for what you had to say?	97%	2%	0.82%						
spend enough time with you?	97%	2%	0.79%						
give you easy to understand information about health questions?	96%	3%	0.63%						

Table 4 Total Physician - Patient Interaction Question Results

Table 5 breaks the average responses to these questions down by clinic. Again, a very small percentage of questions were answered in the negative, however Rheumatology Wexford (N=639) and Gastroenterology McKeesport (N=128) had the highest proportion of "Somewhat" and "No" responses to questions involving physician interaction. When taking a closer look at the Rheumatology Wexford location, it is noted that Black and Multi-Racial patients had much higher rates of dissatisfaction than other groups despite only making up 2% of the total respondents. All negative respondents at the Gastroenterology McKeesport location identified as White.

Physician - Patient Interaction Question Results - Clinic Summary							
Clinic	Yes, Definitely	Yes, Somewhat	No				
Endocrinology South Hills	96%	3%	0.26%				
Family Health Center Bloomfield-Garfield	98%	2%	0.36%				
Family Health Center Lawrenceville	97%	3%	0.44%				
Family Health Center New Kensington	96%	4%	0.69%				
Gastroenterology McKeesport	94%	5%	1.56%				
Gen Med South	97%	2%	0.70%				
Geriatric Medicine Benedum Geriatrics	98%	2%	0.00%				
Infectious Disease	98%	1%	0.33%				
Kidney Clinic Monroeville	95%	5%	0.00%				
Pulmonology Thoracic	99%	1%	0.00%				
Rheumatology St. Margaret	97%	1%	1.49%				
Rheumatology Wexford	93%	5%	1.88%				
UPP Gastro St. Margaret	95%	4%	0.81%				

Table 5 Physician - Patient Interaction Question Results - Clinic Summary

Table 6 Physician Recommendation by Clinic and Race - Rheum Wex

Physician Recommendation by Clinic and Race							
Clinic	Race	Yes, Definitely	Yes, Somewhat	No	Volume		
	Asian	100%	0%	0.00%	4		
	Black	63%	0%	37.50%	8		
Dl	Decline	92%	0%	8.33%	12		
Kneumatology Wowford	Multi Racial	67%	0%	33.33%	3		
wextoru	Native Am	100%	0%	0.00%	1		
	Other	100%	0%	0.00%	6		
	White	93%	5%	2.48%	605		

Physician Recommendation by Clinic and Race							
Clinic	Race	Yes, Definitely	Yes, Somewhat	No	Volume		
	Black	92%	8%	0.00%	13		
C (()	Decline	100%	0%	0.00%	4		
Gastroenterology	Multi Racial	100%	0%	0.00%	1		
wickeesport	Other	100%	0%	0.00%	1		
	White	90%	6%	3.67%	109		

Table 7 Physician Recommendation by Clinic and Race - GI McKeesport

When looking at a summary of patient responses to questions involving physician interaction broken down by racial identities, the percentage of negative responses overall is again small. However, Asian (N=80) patients, those who identified as a race outside of the options provided (Other, N=136), and multi-Racial patients (N=94) had the highest percentages of overall negative responses. When viewing these racial groups by their ultimate recommendation of this provider to others, the trend carries for Asian and Other patients. It is interesting that the patients who declined to answer the question regarding race (N=114) answered positively on the whole for questions regarding physician interaction, but ultimately 5.26% of these individuals would not recommend this provider to family and friends.

Physician - Patient Interaction Question Results - Race Summary						
Clinic	Yes, Definitely	Yes, Somewhat	No			
Asian	95%	3%	2.50%			
Black	98%	2%	0.00%			
Decline	95%	4%	0.88%			
Hawaiian / Pac. Island	100%	0%	0.00%			
Multi-Racial	96%	2%	2.13%			
Native American	100%	0%	0.00%			
Other	94%	4%	1.47%			
White	97%	3%	0.63%			

Table 8 Physician - Patient Interaction Question Results - Race Summery

Would Patient Recommend Physician - Race Summary						
Clinic	Yes, Definitely	Yes, Somewhat	No			
Asian	88%	9%	3.75%			
Black	95%	5%	0.40%			
Decline	92%	3%	5.26%			
Hawaiian / Pac. Island	71%	29%	0.00%			
Multi-Racial	96%	2%	2.13%			
Native American	100%	0%	0.00%			
Other	88%	8%	4.41%			
White	95%	4%	1.26%			

 Table 9 Would Patient Recommend Physician - Race Summary

The racial groups who left the highest rates of unfavorable responses were examined at the question level for further insight as to which aspect of the physician-patient rapport could be impacting their overall impression. Table 10 highlights a trend that extends across all groups: "physician appears to know important medical history information" has the highest proportion of negative reviews, followed by "the physician shows respect for what I have to say".

Survey Questions - Deep Dive by Race							
Race	Patient Relationship Question	Yes, Definitely	Yes, Somewhat	No			
	Easy to understand explanations	95%	2.50%	2.50%			
	Listened to you	95%	2.50%	2.50%			
Acian	Knows important medical history information	86%	7.50%	6.25%			
Asiaii	Shows respect for what you have to say	96%	0.00%	3.75%			
	Spends enough time with you	95%	2.50%	2.50%			
	Give easy to understand info for health questions	99%	0.00%	1.32%			
	Easy to understand explanations	95%	4.50%	0.00%			
	Listened to you	95%	3.60%	0.90%			
Deeline	Knows important medical history information	89%	8.77%	2.63%			
Decime	Shows respect for what you have to say	96%	3.51%	0.88%			
	Spends enough time with you	97%	1.77%	0.88%			
	Give easy to understand info for health questions	94%	5.83%	0.00%			
	Easy to understand explanations	96%	2.13%	2.13%			
	Listened to you	97%	1.06%	2.13%			
Multi-	Knows important medical history information	81%	13.83%	5.32%			
Racial	Shows respect for what you have to say	96%	2.15%	2.15%			
	Spends enough time with you	95%	3.19%	2.13%			
	Give easy to understand info for health questions	96%	3.30%	1.10%			
	Easy to understand explanations	96%	2.22%	1.48%			
	Listened to you	96%	2.94%	1.47%			
Other	Knows important medical history information	87%	8.89%	4.44%			
Other	Shows respect for what you have to say	96%	0.74%	2.94%			
	Spends enough time with you	93%	4.44%	2.22%			
	Give easy to understand info for health questions	95%	4.65%	0.78%			

Table 10 Survey Questions - Deep Dive by Race

5.2 Predictive Equation Derived from Logistic Regression Model

Out of all the questions asked of patients, the physician knowing important medical history information (P-value of 3.1883⁻⁴⁷), as well as the physician showing respect for what the patient has to say (P-value of 1.37135⁻⁶⁴) are the strongest predictors of that patient recommending their physician to others. This corresponds with trends seen in the descriptive statistics summarizing survey results. The "patient history" question had the highest number of negative responses overall, and when looking at racial groups that had the highest percentage of negative responses, all had "patient history" and "respect" as the leading negative responses.

The coefficient values from the final regression model shown in Figure 5 can be used to craft an equation that predicts the recommendation score (dependent variable) given the values of the independent variables. According to the regression's R Square value, the predictions will be accurate around 48% of the time. If this equation were being used to predict an outcome like financial investment performance, those odds would not be encouraging. However, as this is being used to predict a qualitative patient experience, an extremely high R Square value may not be critical when evaluating the model's utility.

The below equation template can be implemented, with Y representing the dependent variable prediction, β_0 as the intercept, β_1 thru β_6 the independent variable coefficients, and X_1 thru X_6 representing independent variable inputs such as race and question responses. (*e*) could also be added to the equation to account for a margin of error.

 $Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \dots + e$ $Y = -0.0243 + -0.0026X_1 + 0.0098X_2 + 0.1392X_3 + 0.0753X_4 + 0.1938X_5$ $+ 0.1716X_6 + 0.1230X_7 + 0.3426X_8 + e$

5.3 Supplemental Regression Outcomes

Once a regression model with all statistically significant variables had been identified for the full data set of N=5959, supplemental regression models were created for several of the medical specialties. The models created for the locations with the highest rate of negative responses are shown in the figures below. These models appear to be more accurate than the model for the full data set, as their R Square values are higher. The variable of Race also appears to be a stronger indicator for the Rheum survey data, however it has been eliminated from the Gastro model as it was determined to be not statistically significant.

SUMMARY OUTPUT	- Rheum Clini	c Data						
Regression Sto	atistics							
Multiple R	0.82105271							
R Square	0.674127553							
Adjusted R Square	0.671385838							
Standard Error	0.220370896							
Observations	840							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	7	83.58459379	11.94065626	245.8780288	1.0756E-197			
Residual	832	40.40469192	0.048563332					
Total	839	123.9892857						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.132397593	0.059036572	2.242636881	0.025182843	0.016519468	0.248275719	0.016519468	0.248275719
Race	-0.02380815	0.0064242	-3.706010172	0.00022448	-0.036417694	-0.01119861	-0.036417694	-0.011198606
PhysExplain	0.113866572	0.039719603	2.866760058	0.004251665	0.035904166	0.191828977	0.035904166	0.191828977
PhysListen	0.182563453	0.044771681	4.077654619	4.98599E-05	0.094684731	0.270442176	0.094684731	0.270442176
PhysInstruct	0.08914067	0.020767459	4.292324416	1.9762E-05	0.0483779	0.12990344	0.0483779	0.12990344
PhysKnowHistory	0.144173778	0.024927504	5.783723109	1.03369E-08	0.095245592	0.193101965	0.095245592	0.193101965
PhysShowRespect	0.346929474	0.047558096	7.294856301	6.97422E-13	0.253581524	0.440277425	0.253581524	0.440277425
PhysSpendTime	0.202903849	0.043024839	4.715969949	2.8202E-06	0.118453862	0.287353837	0.118453862	0.287353837

Figure 8 Rheum Data Regression Model

SUMMARY OUTPUT - Gastro Clinic Data

Regression St	atistics			
Multiple R	0.742274502			
R Square	0.550971436			
Adjusted R Square	0.544903482			
Standard Error	0.254472078			
Observations	376			

ANOVA

	df	SS	MS	F	Significance F
Regression	5	29.3993083	5.87986166	90.80020634	3.68754E-62
Residual	370	23.95973425	0.064756039		
Total	375	53.35904255			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.05695561	0.060167549	-0.946616673	0.344451941	-0.175268846	0.061357635	-0.175268846	0.061357635
EmotionalHealth	0.028946714	0.012478808	2.319669695	0.020902412	0.004408432	0.053484995	0.004408432	0.053484995
PhysInstruct	0.12769414	0.044340069	2.879881413	0.004209701	0.040503997	0.214884283	0.040503997	0.214884283
PhysKnowHistory	0.091324205	0.033467495	2.728743395	0.006661043	0.025513851	0.157134559	0.025513851	0.157134559
PhysShowRespect	0.604429562	0.062254377	9.709029197	5.30715E-20	0.482012792	0.726846331	0.482012792	0.726846331
PhysSpendTime	0.201131562	0.070173459	2.866205605	0.00439172	0.063142739	0.339120385	0.063142739	0.339120385

Figure 9 Gastro Data Regression Model

6.0 Discussion

6.1 Survey Analysis Results

The alternative hypothesis of this essay is that a patient's racial or ethnic identity is a statistically significant predictor of their experience at a Department of Medicine outpatient clinic. The regression model created for the UPMC Department of Medicine data set indicates that patient race is considered a significant variable when predicting a patient's willingness to recommend their provider to family and friends, but ethnicity (Hispanic or Latinx) is not. It should be noted that although race is a significant variable, the other variables are stronger predictors – the independent variables are listed in order of veracity in the table below. The strongest variables were connected to predicting overall patient recommendation of a provider when looking patients grouped by race as well as grouped by clinic location.

Regression Model Significant Variables in order of Predictive Value		
Independent Variable	P-value	
show respect for what you had to say?	1.37E-64	
know important information about your medical history?	3.19E-47	
spend enough time with you?	1.31E-26	
listen carefully to you?	1.37E-21	
give you easy to understand information about health questions?	8.08E-15	
explain things in a way that were easy to understand?	1.52E-13	
Patient's Emotional Health	0.000136	
Patient's Racial Identity	0.045128	

Table 11 Variables in Order of Predictive Value

6.2 Comparison to Literature

The observations extrapolated from the Department of Medicine outpatient clinic survey results echoes the conclusions drawn in many literature sources referenced during this essay's literature review. The intersection of race and variances in the health care experience are nuanced, and existing studies have revealed a spectrum of conclusions. However, it is generally agreed that current data demands further study into the root cause of patient dissatisfiers and how to forge better patient relationships and health outcomes by extension.

While many results of patient-physician interaction surveys and their correlation to overall satisfaction are true for all groups, particular attention must be devoted to developing inclusive approaches that capture marginalized individuals who may already experience a disadvantage in accessing care (Nápoles et al., 2009). "A prospective examination of racial microaggressions in the medical encounter" draws the connection between these importance of these relationships and the resulting quality of medical information exchanged between patient-physician and vice-versa (Miller & Peck, 2020). Like the survey results analyzed for UPMC's Department of Medicine clinics, "Patient–physician relationships and racial disparities in the quality of Health Care" determined "treating patients with respect" to be among the strongest predictor of experience among BIPOC patients. (Saha et al., 2003).

6.3 Study Limitations

Although the data's regression modeling appears to support the hypothesis, there are several limitations to this data that must be acknowledged. First is the absence of demographic questions in the new iteration of the Wolff Center distributed survey that was implemented July of 2021. Literature and analysis as well as this study would indicate that although the impact of race as a determinant of patient experience is nuanced, evidence would suggest that there is in fact a disparity between white and BIPOC health care experiences. Second is the fact that survey responses are voluntary, and those who do or don't respond may have motivations for doing so, which will skew the tone of the responses received. For example, someone who is a part of a group that historically has negative experiences in healthcare may in fact have a negative review of their experience, but do not bother to fill out the survey as they do not feel it will make an impact. Third is the regional population demographics. Western Pennsylvania, the region in which Allegheny County is located, is known to skew older and whiter than the rest of the country (census.gov). Therefore, it is difficult to get a survey data set with a greater volume of responses from individuals who identify as a racial minority without seeking those individuals out. And lastly, the essay would be remiss without mentioning the fact that this data set was gathered during the height of the COVID-19 lockdown, a pandemic which disproportionally impacted minority communities, and caused general decreases in non-essential health care activity.

7.0 Conclusion

In summation, there are peer reviewed literature, data studies, and statistic evidence to support the fact that patients belonging to minority groups experience more negative experiences in the health care settings than their white counterparts. The root cause is nuanced and suggests that more data from these groups is necessary to extrapolate actionable conclusions to combat disparities through effective and compassionate communication (Johnson et al., 2010). Drs. Saha, Arbelaez, and Cooper, propose that "future studies should also control for the complex nature of racial disparities in health care. Our findings suggest that socioeconomic, linguistic, and cultural factors probably all contribute to racial disparities in health care quality. (Saha et al., 2003).

The data collected from Pittsburgh area UPMC Department of Medicine clinics emulate the trends observed in similar studies across the nation. To maintain pace with other health delivery organizations, it is imperative that UPMC's Wolff Center continue the collection of patient demographics alongside patient experience data. Hopefully, the Biden Administration Executive Order, as well as HHS and CMS action plans, is an indication that the topic of health equity and social determinants of health for underserved populations will remain a frequent topic of national discourse.

Appendix A UPMC Wolff Center Survey

© 2019 PRESS GANEY ASSOCIATES, INC., PRESS GANEY All Rights Reserved CL#1615-CV0101-06-05/19 PMC CHANGING MEDICINE **Clinician and Group Experience Survey** SURVEY INSTRUCTIONS: Answer each question by completely filling in the circle to the left of your answer. You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next, like this: ● Yes → If Yes, go to #1 Please use black or blue init to fill in the circle completely O No Example: YOUR PROVIDER 8. In the last 3 months, when you phoned this provider's office during regular office hours, how 1. Our records show that you visited the provider often did you get an answer to your medical named below question that same day? Precode 3 (MD_NAME) O Never Is that right? O Sometimes O Yes O Usually ${\rm O}~{\rm No} \rightarrow$ If No, please stop and return the O Always survey in the envelope provided. 9. In the last 3 months, did you phone this provider's The questions in this survey will refer to the provider office with a medical question after regular office named in Question 1 as "this provider." Please think of hours? that person as you answer the survey. O Yes 2. Is this the provider you usually see if you need a \bigcirc No \rightarrow If No, go to #11 check-up, want advice about a health problem, or get sick or hurt? 10. In the last 3 months, when you phoned this provider's office after regular office hours, how O Yes often did you get an answer to your medical O No question as soon as you needed? Questions that ask about "this visit" are referring to your O Never visit with this provider on O Sometimes Precode 1 (DISDATE) O Usually APPOINTMENT AND OFFICE CONTACT O Always 3. Was this visit with this provider an appointment In the last 3 months, did this provider order a 11. for an illness, injury or condition that needed care blood test, x-ray, or other test for you? right away? O Yes O Yes ○ No → If No, go to #13 ○ No → If No, go to #5 12. In the last 3 months, when this provider ordered a 4. When you made this appointment for care you blood test, x-ray, or other test for you, how often needed right away, did you get this appointment did someone from this provider's office follow-up as soon as you thought you needed? to give you the results? O Yes O Never O No O Sometimes 5. Was this visit with this provider an appointment O Usually for a check-up or routine care? O Always O Yes YOUR CARE FROM THIS PROVIDER ON O No → If No, go to #7 Precode 2 (DISDATE) 6. When you made this appointment for a check-up Wait time includes time spent in the waiting room 13 or routine care, did you get this appointment as and exam room. During this visit, did you see this soon as you thought you needed? provider within 15 minutes of your appointment O Yes time? O No O Yes O No 7. In the last 3 months, did you phone this provider's office with a medical question during regular office hours? O Yes ○ No → If No, go to #9 continued...

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	14.	During this visit, did this provider explain things in a way that was easy to understand?	23.	Would you recommend this provider's office to your family and friends?
		O Yes, definitely		O Yes, definitely
		O Yes, somewhat		O Yes, somewhat
		O No		O No
	15.	During this visit, did this provider listen carefully to you?	CLEP PRO	RKS AND RECEPTIONISTS AT THIS VIDER'S OFFICE
		O Yes, definitely	24.	During this visit, were clerks and receptionists at
		O Yes, somewhat		this provider's office as helpful as you thought they should be?
	16	During this visit, did you talk with this provider		O Yes definitely
	10.	about any health questions or concerns?		O Yes, somewhat
		O Yes		O No
		O No → If No, go to #18	25.	During this visit, did clerks and receptionists at
	17.	During this visit, did this provider give you easy		this provider's office treat you with courtesy and
		to understand information about these health		respect?
		questions or concerns?		O Yes, definitely
		O Yes, definitely		O No
		O No	AL 1	YOUR CARE IN THE LAST 3 MONTHS
	18	During this visit, did this provider seem to know	Thee	a questions ask about all your health care. Include
	10.	the important information about your medical	all the	e providers you saw for health care in the last 3
		history?	mont	hs. Do not include the times you saw a dentist.
		O Yes, definitely	26.	In the last 3 months, did you take any
		O Yes, somewhat		prescription medicine?
				O Yes
	19.	During this visit, did this provider have your medical records?	27	\bigcirc No \rightarrow in No, go to #28
		O Yes	27.	in the last 3 months, how often did you and anyone on your health care team talk about all
		O No		the prescription medicines you were taking?
	20.	During this visit, did this provider show respect for		O Never
		what you had to say?		O Sometimes
		O Yes, definitely		O Usually O Always
		O Yes, somewhat		
	~ 1		200	
	21.	time with you?	20.	health?
		O Yes, definitely		O Excellent
		O No		O Good
	22	Using any number from 0 to 10, where 0 is the		O Fair
	22.	worst provider possible and 10 is the best		O Poor
		provider possible, what number would you use to	29.	In general, how would you rate your overall
		rate this provider?		mental or emotional health?
		O 0 Worst provider possible		O Excellent
		02		O Good
		03		O Fair
		O 4		O Poor
		05		
		07		
		08		
		09		
152206		O 10 Best provider possible		
				continued

30. 31. 32.	What is the highest grade or level of school that you have completed? O 8th grade or less O Some high school, but did not graduate O High school graduate or GED O Some college or 2-year degree O 4-year college graduate O More than 4-year college degree Are you of Hispanic, Latino, or Spanish origin? O Yes, Hispanic, Latino, or Spanish O No, not Hispanic, Latino, or Spanish What is your race? Mark one or more. O White O Black or African American O Asian O Native Hawaiian or Other Pacific Islander O American Indian or Alaska Native O Other	33.	 Did someone help you complete this survey? Yes No → Thank you. Please return the completed survey in the postage-paid envelope. How did that person help you? Mark one or more. Read the questions to me Wrote down the answers I gave Answered the questions for me Translated the questions into my language Helped in some other way <i>Please print</i>:
ADD Plea	ITIONAL COMMENTS ABOUT THIS VISIT se comment on good or bad experiences related to y	your c	are provider:

Please provide any additional comments related to your visit:

Patient's Name: (optional)

Telephone Number: (optional)

Thank you! Please return the completed survey in the postage-paid envelope. Return to: Survey Processing, 710 Rush Street, South Bend, IN 46601.

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Appendix B Logistic Regression Models

Appendix B.1 Logistic Regression: Feb 2020 – June 2021 Total Data Set

SUMMARY OUTPUT 1: Feb 2020 - June 2021								
Regression St	atistics							
Multiple R	0.692633273							
R Square	0.479740851							
Adjusted R Square	0.478603194							
Standard Error	0.218781842							
Observations	5959							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	13	262.3985211	20.18450163	421.6921156	0			
Residual	5945	284.5603646	0.047865494					
Total	5958	546.9588857						
				0.05				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	Coefficients 0.016721588	Standard Error 0.027587165	t Stat 0.60613654	P-value 0.544447231	Lower 95%	Upper 95% 0.070802448	Lower 95.0%	Upper 95.0%
Intercept Age	Coefficients 0.016721588 -0.000317416	Standard Error 0.027587165 0.000174788	t Stat 0.60613654 -1.816008786	P-value 0.544447231 0.069419372	Lower 95% -0.037359271 -0.000660064	Upper 95% 0.070802448 2.52314E-05	Lower 95.0% -0.037359271 -0.000660064	Upper 95.0% 0.070802448 2.52314E-05
Intercept Age Gender	Coefficients 0.016721588 -0.000317416 -0.010795529	Standard Error 0.027587165 0.000174788 0.00582649	t Stat 0.60613654 -1.816008786 -1.852835723	<i>P-value</i> 0.544447231 0.069419372 0.063955432	Lower 95% -0.037359271 -0.000660064 -0.022217565	Upper 95% 0.070802448 2.52314E-05 0.000626507	Lower 95.0% -0.037359271 -0.000660064 -0.022217565	Upper 95.0% 0.070802448 2.52314E-05 0.000626507
Intercept Age Gender Race	Coefficients 0.016721588 -0.000317416 -0.010795529 -0.002105449	Standard Error 0.027587165 0.000174788 0.00582649 0.001331688	t Stat 0.60613654 -1.816008786 -1.852835723 -1.581037529	P-value 0.544447231 0.069419372 0.063955432 0.113922654	Lower 95% -0.037359271 -0.000660064 -0.022217565 -0.004716042	Upper 95% 0.070802448 2.52314E-05 0.000626507 0.000505143	Lower 95.0% -0.037359271 -0.000660064 -0.022217565 -0.004716042	Upper 95.0% 0.070802448 2.52314E-05 0.000626507 0.000505143
Intercept Age Gender Race Hispanic	Coefficients 0.016721588 -0.000317416 -0.010795529 -0.002105449 -0.007431389	Standard Error 0.027587165 0.000174788 0.00582649 0.001331688 0.007230663	t Stat 0.60613654 -1.816008786 -1.852835723 -1.581037529 -1.027760361	P-value 0.544447231 0.069419372 0.063955432 0.113922654 0.30410438	Lower 95% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114	Upper 95% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336	Lower 95.0% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114	Upper 95.0% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336
Intercept Age Gender Race Hispanic GradeLevel	Coefficients 0.016721588 -0.000317416 -0.010795529 -0.002105449 -0.007431389 0.000621947	Standard Error 0.027587165 0.000174788 0.00582649 0.001331688 0.007230663 0.002326069	t Stat 0.60613654 -1.816008786 -1.852835723 -1.581037529 -1.027760361 0.267381236	P-value 0.544447231 0.069419372 0.063955432 0.113922654 0.30410438 0.78918492	Lower 95% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993	Upper 95% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888	Lower 95.0% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993	Upper 95.0% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888
Intercept Age Gender Race Hispanic GradeLevel OverallHealth	Coefficients 0.016721588 -0.000317416 -0.010795529 -0.002105449 -0.007431389 0.000621947 0.002996076	Standard Error 0.027587165 0.000174788 0.00582649 0.001331688 0.007230663 0.002326069 0.003537351	t Stat 0.60613654 -1.816008786 -1.852835723 -1.581037529 -1.027760361 0.267381236 0.846982853	P-value 0.544447231 0.069419372 0.063955432 0.113922654 0.30410438 0.78918492 0.397038773	Lower 95% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417	Upper 95% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569	Lower 95.0% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417	Upper 95.0% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569
Intercept Age Gender Race Hispanic GradeLevel OverallHealth EmotionalHealth	Coefficients 0.016721588 -0.000317416 -0.010795529 -0.002105449 -0.007431389 0.000621947 0.002996076 0.007604627	Standard Error 0.027587165 0.000174788 0.00582649 0.001331688 0.007230663 0.002326069 0.003537351 0.003040752	t Stat 0.60613654 -1.816008786 -1.852835723 -1.581037529 -1.027760361 0.267381236 0.846982853 2.50090346	P-value 0.544447231 0.069419372 0.063955432 0.113922654 0.30410438 0.78918492 0.397038773 0.012414391	Lower 95% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649	Upper 95% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605	Lower 95.0% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649	Upper 95.0% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605
Intercept Age Gender Race Hispanic GradeLevel OverallHealth EmotionalHealth PhysExplain	Coefficients 0.016721588 -0.000317416 -0.010795529 -0.002105449 -0.007431389 0.000621947 0.002996076 0.007604627 0.139950838	Standard Error 0.027587165 0.000174788 0.00582649 0.001331688 0.007230663 0.002326069 0.003537351 0.003040752 0.018806749	t Stat 0.60613654 -1.816008786 -1.852835723 -1.581037529 -1.027760361 0.267381236 0.846982853 2.50090346 7.441522014	P-value 0.544447231 0.069419372 0.063955432 0.113922654 0.30410438 0.78918492 0.397038773 0.012414391 1.13663E-13	Lower 95% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649 0.103082781	Upper 95% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605 0.176818895	Lower 95.0% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649 0.103082781	Upper 95.0% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605 0.176818895
Intercept Age Gender Race Hispanic GradeLevel OverallHealth EmotionalHealth PhysExplain PhysListen	Coefficients 0.016721588 -0.000317416 -0.010795529 -0.002105449 -0.007431389 0.000621947 0.002996076 0.007604627 0.139950838 0.193059613	Standard Error 0.027587165 0.000174788 0.00582649 0.001331688 0.007230663 0.002326069 0.003537351 0.003040752 0.018806749 0.02222887	t Stat 0.60613654 -1.816008786 -1.852835723 -1.581037529 -1.027760361 0.267381236 0.846982853 2.50090346 7.441522014 9.541871997	P-value 0.544447231 0.069419372 0.063955432 0.113922654 0.30410438 0.78918492 0.397038773 0.012414391 1.13663E-13 1.99588E-21	Lower 95% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649 0.103082781 0.153395809	Upper 95% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605 0.176818895 0.232723418	Lower 95.0% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649 0.103082781 0.153395809	Upper 95.0% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605 0.176818895 0.232723418
Intercept Age Gender Race Hispanic GradeLevel OverallHealth EmotionalHealth PhysExplain PhysListen PhysInstruct	Coefficients 0.016721588 -0.000317416 -0.010795529 -0.002105449 -0.007431389 0.000621947 0.002996076 0.007604627 0.139950838 0.193059613 0.07525467	Standard Error 0.027587165 0.000174788 0.00582649 0.001331688 0.007230663 0.002326069 0.003537351 0.003040752 0.018806749 0.020232887 0.00969394	t Stat 0.60613654 -1.816008786 -1.852835723 -1.581037529 -1.027760361 0.267381236 0.846982853 2.50090346 7.441522014 9.541871997 7.763063582	P-value 0.544447231 0.069419372 0.063955432 0.113922654 0.30410438 0.78918492 0.397038773 0.012414391 1.13663E-13 1.99588E-21 9.69669E-15	Lower 95% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649 0.103082781 0.153395809 0.056251028	Upper 95% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605 0.176818895 0.232723418 0.094258312	Lower 95.0% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649 0.103082781 0.153395809 0.056251028	Upper 95.0% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605 0.176818895 0.232723418 0.094258312
Intercept Age Gender Race Hispanic GradeLevel OverallHealth EmotionalHealth PhysExplain PhysListen PhysInstruct PhysKnowHistory	Coefficients 0.016721588 -0.000317416 -0.010795529 -0.002105449 -0.007431389 0.000621947 0.002996076 0.007604627 0.139950838 0.193059613 0.07525467 0.120723543	Standard Error 0.027587165 0.000174788 0.00582649 0.001331688 0.007230663 0.002326069 0.003537351 0.003640752 0.018806749 0.020232887 0.00969394 0.0085123	t Stat 0.60613654 -1.816008786 -1.852835723 -1.581037529 -1.027760361 0.267381236 0.846982853 2.50090346 7.441522014 9.541871997 7.763063582 14.18224727	P-value 0.544447231 0.069419372 0.063955432 0.113922654 0.30410438 0.78918492 0.397038773 0.012414391 1.13663E-13 1.99588E-21 9.69669E-15 6.33436E-45	Lower 95% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649 0.103082781 0.153395809 0.056251028 0.104036344	Upper 95% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605 0.176818895 0.232723418 0.094258312 0.137410742	Lower 95.0% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649 0.103082781 0.153395809 0.056251028 0.104036344	Upper 95.0% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605 0.176818895 0.232723418 0.094258312 0.137410742
Intercept Age Gender Race Hispanic GradeLevel OverallHealth EmotionalHealth PhysExplain PhysListen PhysInstruct PhysKnowHistory PhysShowRespect	Coefficients 0.016721588 -0.000317416 -0.010795529 -0.002105449 -0.007431389 0.000621947 0.002996076 0.007604627 0.139950838 0.193059613 0.07525467 0.120723543 0.34228659	Standard Error 0.027587165 0.000174788 0.00582649 0.001331688 0.007230663 0.002326069 0.003537351 0.003640752 0.018806749 0.02022887 0.00969394 0.0085123 0.019946966	t Stat 0.60613654 -1.816008786 -1.852835723 -1.581037529 -1.027760361 0.267381236 0.846982853 2.50090346 7.441522014 9.541871997 7.763063582 14.18224727 17.15983264	P-value 0.544447231 0.069419372 0.063955432 0.113922654 0.30410438 0.78918492 0.397038773 0.012414391 1.13663E-13 1.99588E-21 9.69669E-15 6.33436E-45 1.85525E-64	Lower 95% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649 0.103082781 0.153395809 0.056251028 0.104036344 0.303183295	Upper 95% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605 0.176818895 0.232723418 0.094258312 0.137410742 0.381389885	Lower 95.0% -0.037359271 -0.000660064 -0.022217565 -0.004716042 -0.021606114 -0.003937993 -0.003938417 0.001643649 0.103082781 0.153395809 0.056251028 0.104036344 0.303183295	Upper 95.0% 0.070802448 2.52314E-05 0.000626507 0.000505143 0.006743336 0.005181888 0.009930569 0.013565605 0.176818895 0.232723418 0.094258312 0.137410742 0.381389885

Appendix Figure 1

Regression Statistics				
Multiple R	0.692586078			
R Square	0.479675475			
Adjusted R Square	0.478713046			
Standard Error	0.218758794			
Observations	5959			

ANOVA								
	df	SS	MS	F	Significance F			
Regression	11	262.3627635	23.85116032	498.4005029	0			
Residual	5947	284.5961222	0.04785541					
Total	5958	546.9588857						
				0.05				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.020089204	0.025987717	0.773026903	0.439537182	-0.030856153	0.071034562	-0.030856153	0.071034562
Age	-0.000281546	0.000167384	-1.682038771	0.092613823	-0.000609678	4.65869E-05	-0.000609678	4.65869E-05
Gender	-0.01056226	0.00581375	-1.816772239	0.06930231	-0.021959321	0.000834801	-0.021959321	0.000834801
Race	-0.002064341	0.001321279	-1.562380167	0.118251665	-0.004654528	0.000525846	-0.004654528	0.000525846
Hispanic	-0.007161003	0.007161616	-0.999914427	0.317392605	-0.021200371	0.006878364	-0.021200371	0.006878364
EmotionalHealth	0.008873441	0.002587305	3.429607577	0.000608562	0.003801384	0.013945498	0.003801384	0.013945498
PhysExplain	0.140185413	0.018799599	7.456830115	1.01316E-13	0.103331376	0.17703945	0.103331376	0.17703945
PhysListen	0.193186267	0.020230173	9.549412407	1.85766E-21	0.153527785	0.232844749	0.153527785	0.232844749
PhysInstruct	0.075736257	0.009676125	7.827126901	5.86803E-15	0.05676754	0.094704974	0.05676754	0.094704974
PhysKnowHistory	0.121001943	0.008505093	14.2269976	3.41309E-45	0.104328873	0.137675013	0.104328873	0.137675013
PhysShowRespect	0.342470533	0.019941202	17.17401617	1.46828E-64	0.303378538	0.381562527	0.303378538	0.381562527
PhysSpendTime	0.171389122	0.01599272	10.71669601	1.48331E-26	0.140037585	0.202740658	0.140037585	0.202740658

SUMMARY OUTPUT 3: Feb 2020 - June 2021

Regression Statistics					
Multiple R	0.692522921				
R Square	0.479587997				
Adjusted R Square	0.478713061				
Standard Error	0.218758791				
Observations	5959				

ANOVA

	df	SS	MS	F	Significance F
Regression	10	262.3149163	26.23149163	548.1405861	0
Residual	5948	284.6439694	0.047855408		
Total	5958	546.9588857			

				0.05				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.007526828	0.02274909	0.330862799	0.740759777	-0.037069644	0.052123299	-0.037069644	0.052123299
Age	-0.000273028	0.000167167	-1.633265629	0.10246607	-0.000600735	5.46797E-05	-0.000600735	5.46797E-05
Gender	-0.010486245	0.005813253	-1.803851508	0.071305163	-0.021882331	0.00090984	-0.021882331	0.00090984
Race	-0.002250842	0.001308048	-1.720764043	0.085345656	-0.004815091	0.000313407	-0.004815091	0.000313407
EmotionalHealth	0.00879339	0.002586066	3.400296053	0.000677558	0.003723762	0.013863018	0.003723762	0.013863018
PhysExplain	0.139982033	0.018798498	7.446447762	1.09531E-13	0.103130155	0.176833911	0.103130155	0.176833911
PhysListen	0.192890989	0.020228018	9.535832625	2.11332E-21	0.153236734	0.232545244	0.153236734	0.232545244
PhysInstruct	0.075697703	0.009676048	7.823204667	6.05178E-15	0.056729138	0.094666269	0.056729138	0.094666269
PhysKnowHistory	0.121156964	0.00850368	14.24759184	2.56616E-45	0.104486665	0.137827263	0.104486665	0.137827263
PhysShowRespect	0.342680964	0.019940092	17.18552606	1.21469E-64	0.303591148	0.38177078	0.303591148	0.38177078
PhysSpendTime	0.171416671	0.015992696	10.71843469	1.45607E-26	0.140065183	0.20276816	0.140065183	0.20276816

Appendix Figure 2

SUMMARY OUTPUT 4: Feb 2020 - June 2021

Regression Statistics					
Multiple R	0.692140637				
R Square	0.479058662				
Adjusted R Square	0.478358236				
Standard Error	0.218833229				
Observations	5959				

ANOVA

	df	SS	MS	F	Significance F			
Regression	8	262.0253917	32.75317396	683.9539372	0			
Residual	5950	284.933494	0.047887982					
Total	5958	546.9588857						
				0.05				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.024339041	0.018677353	-1.303131179	0.192580406	-0.060953427	0.012275346	-0.060953427	0.012275346
Race	-0.002596825	0.0012959	-2.003877816	0.045128401	-0.005137259	-5.63911E-05	-0.005137259	-5.63911E-05
EmotionalHealth	0.009755867	0.002555621	3.817415271	0.000136227	0.004745922	0.014765811	0.004745922	0.014765811
PhysExplain	0.139177485	0.018801452	7.402485935	1.52205E-13	0.102319818	0.176035152	0.102319818	0.176035152
PhysListen	0.193844271	0.020230708	9.581685231	1.36596E-21	0.154184746	0.233503797	0.154184746	0.233503797
PhysInstruct	0.075339868	0.009675827	7.786401201	8.07809E-15	0.056371737	0.094307998	0.056371737	0.094307998
PhysKnowHistory	0.123045021	0.008450132	14.56131303	3.1883E-47	0.106479696	0.139610346	0.106479696	0.139610346
PhysShowRespect	0.342608154	0.019944509	17.17806931	1.37135E-64	0.303509682	0.381706626	0.303509682	0.381706626
PhysSpendTime	0.171612316	0.015996494	10.7281207	1.31363E-26	0.140253385	0.202971246	0.140253385	0.202971246

Appendix Figure 3

Appendix B.2 Logistic Regression by Location

SUMMARY OUTPUT	- Gastro Clinio	: Data						
Regression St	atistics							
Multiple R	0.742274502							
R Square	0.550971436							
Adjusted R Square	0.544903482							
Standard Error	0.254472078							
Observations	376							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	5	29.3993083	5.87986166	90.80020634	3.68754E-62			
Residual	370	23.95973425	0.064756039					
Total	375	53.35904255						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.05695561	0.060167549	-0.946616673	0.344451941	-0.175268846	0.061357635	-0.175268846	0.061357635
EmotionalHealth	0.028946714	0.012478808	2.319669695	0.020902412	0.004408432	0.053484995	0.004408432	0.053484995
PhysInstruct	0.12769414	0.044340069	2.879881413	0.004209701	0.040503997	0.214884283	0.040503997	0.214884283
PhysKnowHistory	0.091324205	0.033467495	2.728743395	0.006661043	0.025513851	0.157134559	0.025513851	0.157134559
PhysShowRespect	0.604429562	0.062254377	9.709029197	5.30715E-20	0.482012792	0.726846331	0.482012792	0.726846331
PhysSpendTime	0.201131562	0.070173459	2.866205605	0.00439172	0.063142739	0.339120385	0.063142739	0.339120385

Regression Statistics					
Multiple R	0.82105271				
R Square	0.674127553				
Adjusted R Square	0.671385838				
Standard Error	0.220370896				
Observations	840				

SUMMARY OUTPUT - Rheum Clinic Data

ANOVA

	df	SS	MS	F	Significance F
Regression	7	83.58459379	11.94065626	245.8780288	1.0756E-197
Residual	832	40.40469192	0.048563332		
Total	839	123.9892857			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.132397593	0.059036572	2.242636881	0.025182843	0.016519468	0.248275719	0.016519468	0.248275719
Race	-0.02380815	0.0064242	-3.706010172	0.00022448	-0.036417694	-0.01119861	-0.036417694	-0.011198606
PhysExplain	0.113866572	0.039719603	2.866760058	0.004251665	0.035904166	0.191828977	0.035904166	0.191828977
PhysListen	0.182563453	0.044771681	4.077654619	4.98599E-05	0.094684731	0.270442176	0.094684731	0.270442176
PhysInstruct	0.08914067	0.020767459	4.292324416	1.9762E-05	0.0483779	0.12990344	0.0483779	0.12990344
PhysKnowHistory	0.144173778	0.024927504	5.783723109	1.03369E-08	0.095245592	0.193101965	0.095245592	0.193101965
PhysShowRespect	0.346929474	0.047558096	7.294856301	6.97422E-13	0.253581524	0.440277425	0.253581524	0.440277425
PhysSpendTime	0.202903849	0.043024839	4.715969949	2.8202E-06	0.118453862	0.287353837	0.118453862	0.287353837

Appendix Figure 4

Appendix C Recommendation Results by Clinic and Race

Physician Recommendation by Clinic and Race							
Clinic	Race	Yes, Definitely	Yes, Somewhat	No	Volume		
Endocrinology South Hills	Asian	60%	40%	0.00%	5		
	Black	100%	0%	0.00%	13		
	Decline	100%	0%	0.00%	8		
	Multi Racial	100%	0%	0.00%	2		
	Other	75%	25%	0.00%	4		
	White	95%	4%	1.16%	346		
	Asian	83%	6%	11.11%	18		
FHC Bloomfield - Garfield	Black	96%	4%	0.00%	204		
	Decline	100%	0%	0.00%	10		
	Hawaiian / Pac. Island	100%	0%	0.00%	1		
	Multi Racial	100%	0%	0.00%	15		
	Other	87%	6%	6.45%	31		
	White	97%	2%	0.70%	284		
FHC Lawrenceville	Asian	82%	18%	0.00%	17		
	Black	93%	7%	0.00%	101		
	Decline	80%	0%	20.00%	10		
	Hawaiian / Pac. Island	100%	0%	0.00%	1		
	Multi Racial	96%	4%	0.00%	24		
	Native Am	100%	0%	0.00%	1		
	Other	88%	12%	0.00%	25		
	White	92%	7%	1.23%	731		
	Asian	100%	0%	0.00%	6		
	Black	91%	9%	0.00%	55		
	Decline	86%	14%	0.00%	7		
FIIC New Konsington	Multi Racial	100%	0%	0.00%	16		
Kensington	Native Am	100%	0%	0.00%	1		
	Other	80%	10%	10.00%	10		
	White	92%	7%	1.47%	339		
Gastroenterology McKeesport	Black	92%	8%	0.00%	13		
	Decline	100%	0%	0.00%	4		
	Multi Racial	100%	0%	0.00%	1		
	Other	100%	0%	0.00%	1		
	White	90%	6%	3.67%	109		
	Asian	91%	0%	9.09%	11		
Con Mod South	Black	96%	4%	0.00%	45		
Gen meu South	Decline	95%	5%	0.00%	21		
	Hawaiian / Pac. Island	100%	0%	0.00%	1		

Appendix Table 1

	Multi Racial	100%	0%	0.00%	11
	Native Am	100%	0%	0.00%	2
	Other	76%	12%	11.76%	17
	White	97%	2%	1.20%	749
	Asian	100%	0%	0.00%	7
	Black	95%	5%	0.00%	40
Contratio Dona dona	Decline	100%	0%	0.00%	18
Gerlatric Benedum	Multi Racial	100%	0%	0.00%	3
	Other	100%	0%	0.00%	17
	White	97%	3%	0.23%	439
	Asian	83%	17%	0.00%	6
	Black	95%	5%	0.00%	172
	Decline	67%	0%	33.33%	9
Infactions Discoss	Hawaiian / Pac. Island	50%	50%	0.00%	4
meetious Disease	Multi Racial	92%	8%	0.00%	12
	Native Am	100%	0%	0.00%	4
	Other	89%	11%	0.00%	18
	White	97%	3%	0.52%	383
Kidney Clinic	Black	100%	0%	0.00%	13
	Multi Racial	100%	0%	0.00%	1
	White	93%	5%	1.35%	74
	Asian	100%	0%	0.00%	4
	Black	98%	2%	0.00%	66
Pulmonology Thoracic	Decline	100%	0%	0.00%	8
	Multi Racial	100%	0%	0.00%	3
	Native Am	100%	0%	0.00%	1
	Other	83%	0%	16.67%	6
	White	99%	1%	0.00%	293
	Asian	100%	0%	0.00%	2
	Black	100%	0%	0.00%	7
Rheumatology St.	Decline	50%	50%	0.00%	2
Margaret's	Multi Racial	67%	0%	33.33%	3
	Other	100%	0%	0.00%	1
	White	93%	6%	1.08%	186
	Asian	100%	0%	0.00%	4
Rheumatology Wexford	Black	63%	0%	37.50%	8
	Decline	92%	0%	8.33%	12
	Multi Racial	67%	0%	33.33%	3
	Native Am	100%	0%	0.00%	1
	Other	100%	0%	0.00%	6
	White	93%	5%	2.48%	605
Castroontorology	Black	100%	0%	0.00%	8
St Margaret's	Decline	100%	0%	0.00%	5
St. Margaret's	White	94%	4%	2.55%	235

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