

OHIO FAMILY HEALTH SURVEY

SPONSORED RESEARCH

Effective Access to Health Care Providers and Services in Ohio: Analysis of Intermediate and Proximate Outcomes

Sharon K. Hull, MD, MPH ^{1,2}
Principal Investigator

Kristin R. Baughman, PhD ^{1,2}
Joseph J. Sudano, Jr., PhD ³
Mike Hewit, MS ¹
Ryan C. Burke, MPH ⁴



Northeastern Ohio Universities
COLLEGES OF MEDICINE & PHARMACY



OFHS
Ohio Family Health Survey

¹ Northeast Ohio Medical University (Formerly Northeastern Ohio Universities Colleges of Medicine and Pharmacy)

² Austen BioInnovation Institute in Akron

³ Case Western Reserve University-The Metro Health System, Center for Health Care Research and Policy

⁴ Health Policy Research Northwest



What is the Ohio Family Health Survey?

The Ohio Family Health Survey (OFHS) is a phone survey that gathers information on health-related issues impacting Ohioans. It is considered one of the largest and most comprehensive state-level health and insurance surveys conducted in the nation. Four iterations of the survey (1998, 2003/04, 2008 and 2010) have been conducted and current survey sponsors include the Ohio departments of Insurance, Job and Family Services, Health, and Mental Health, the Health Foundation of Greater Cincinnati, the Health Policy Institute of Ohio, and The Ohio State University.

The OFHS Steering Committee partners decided to conduct a smaller interim survey in **2010**, with HPIO continuing its involvement as the disseminator of survey data. The emphasis for the 2010 survey was gauging the level of economic stress on Ohio families and how that stress was impacting Ohio's health system and indicators of health, in light of the severe economic downturn that began in late 2008. The 2010 OFHS included responses from 8,276 adults and proxy responses for 2,002 children.

Ohio Family Health Survey Web site (all sponsored research reports are available for download here):

<http://grc.osu.edu/ofhs>

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- Northeast Ohio Medical University (Formerly Northeastern Ohio Universities Colleges of Medicine and Pharmacy)
- Austen BioInnovation Institute in Akron
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Corresponding Author:

Sharon K. Hull, MD, MPH
 Professor, Department of Family and Community Medicine
 Northeast Ohio Medical University (Formerly Northeastern Ohio Universities Colleges of Medicine and Pharmacy)
 4209 State Route 44, PO Box 95
 Rootstown, OH 44272
 Phone: 330-325-6177
 Fax: 330-3225-5907

Email: shull1@neucom.edu (shull1@neomed.edu after August 15, 2011)

Executive Summary

Access to medical care is not simply a matter of having health insurance, or dental insurance, or having a usual source of medical care. Access is a complex and multifactorial outcome of an effective health care delivery system. This analysis seeks to define effective access to health care in a model that takes into account standard measures of these items, as well as realized care (utilization) and foregone care as intermediate outcomes of an effective system. It also takes the concept of effective access one step further, and relates it to individual health outcomes (proximate measures because they are “nearest” to the individual whose access is in question). There are ten outcomes studied in this analysis, available in the Ohio Family Health Survey, which can help define access to care in this way. They are:

1. Medical care utilization (intermediate measure)
2. Foregone medical care (intermediate measure)
3. Dental care utilization (intermediate measure)
4. Foregone dental care (intermediate measure)
5. Foregone prescriptions (intermediate measure)
6. Self-reported health status (proximate measure)
7. Physically healthy/unhealthy days (proximate measure)
8. Mentally healthy/unhealthy days – as defined by the Centers for Disease Control and Prevention (CDC; proximate measure)
9. Mentally healthy/unhealthy days – as defined by the Ohio Department of Mental Health (ODMH; proximate measure)
10. Psychological distress (K6 Score)¹⁻³ for non-specific psychological distress (proximate measure)

Significant findings from the study include:

- 8.3% of respondents do not have a usual source of medical care
- Among adults age 18-64, 18.8% are uninsured for medical care
- 22.8% of all adults have no prescription drug coverage
- 46.7% of all adults do not have dental care insurance
- Risky health behaviors such as use of tobacco products and being overweight are associated with worse health outcomes, which impacts public policy regarding funding for programs that support health behavior change.
- There are significant gender differences in rates of health care utilization, dental care utilization, foregone medical care and foregone prescriptions, with women generally utilizing more care, while paradoxically being more likely to forego needed care.
- There are significant racial/ethnic and geographic/regional differences in foregone dental care, with Asians and African-Americans more likely to forego needed dental care.
- Medical care utilization has increased since 2008, but rates of foregone medical care have increased as well.
- Dental care utilization has decreased slightly since 2008, but rates of foregone dental care have increased over the same period.
- Rates of foregone prescriptions have increased since 2008.

- Self-reported health status, rates of physically unhealthy days and rates of mentally unhealthy days have all increased since 2008.
- Appalachian counties as compared to urban, suburban, and other rural (non-Appalachian) counties experience the lowest overall access to effective health care.
- Suburban counties have seen significant worsening in access measures since 2008.
- For women:
 - those without a usual source of care are six times less likely to have utilized medical care within the past year than women who have a usual source of care
 - Those who are uninsured are nearly four times less likely to have utilized medical care within the past year compared to those with private insurance
- Lesbian, gay, bisexual and transgendered (LGBT) men are more likely to have foregone medical care; this does not hold true for LGBT women.
- Those at lower income levels are less likely to have utilized medical care or dental care; more likely to have foregone needed dental, medical or prescription care; likely to report more physically and mentally unhealthy days; and likely to report higher rates of severe psychological distress.
- The disabled, compared to the currently employed, are:
 - 1.6 times more likely to have foregone needed prescriptions
 - 4.1 times more likely to report fair or poor health status
 - 4.3 times more likely to report high rates of physically unhealthy days
 - 7.1 times more likely to report high rates of mentally unhealthy days
 - 6.3 times more likely to report high rates of severe psychological distress

These findings paint a picture of a state whose access to effective health care is diminishing over time, and that access has been particularly hard-hit by the economic downturn over the time period of this study. Noting that suburban counties seem to have been hardest hit in terms of health trends, and that the Appalachian region experiences the least access offers some guidance as to where the state might target scarce health care resources.

It is also worth noting that this analysis includes review of the degree to which health behaviors are associated with reduced experience of effective access. High-risk health behaviors are, as one might expect, associated with worse health outcomes and higher utilization. In an era of efforts to reduce overall health costs at the state level, consideration should be given to continued support for long-term investments in programs that address high-risk health behaviors such as those studied.

Introduction

Efforts to define access to health care, and to measure the prevalence of access to care, have taken many approaches. Most widely utilized approaches are grounded to a greater or lesser degree in a theoretical model that originated with Aday and Andersen⁴ in 1974. This model has been refined over time by both original authors, and more recently has been summarized by Aday et al. in a model related to behavioral health care, but applicable to health care in general.⁵ This model focuses on accessing health care as a multi-tiered approach focusing on the structure of the system (health care delivery system, population factors and environmental characteristics); the process of care (utilization of care and satisfaction as “realized access” and personal health behaviors and environmental factors as “health risks”) and posits as intermediate outcomes of the system the effectiveness of care, equity of care and efficiency of care. The ultimate outcome of access to health care in this model is “health,” both for individuals and the community. **This premise, that health outcomes are a measure of the effectiveness of a complex set of factors that comprise access to care, is central to our analysis strategy.** This project is intended to define, in the clearest way possible using Ohio Family Health Survey (OFHS) data, the degree to which Ohioans experience “effective access to health care.”

In addition to the Andersen and Aday models, the breadth of measures relevant to measuring access that played a role in defining our analytic approach included Gold’s work⁶ regarding measurement of access in emerging health care markets, particularly the managed care environment; the work of Oliver and Mossialos regarding measurement of equity in health care access;⁷ and the work of Seid et. al. in defining unrealized access to care.⁸ We also relied upon work by Donabedian et. al. who defined a model of structure, process and outcomes related to quality and patient safety.^{9,10}

There are three specific aims of this project:

1. To evaluate the current state of access to health care providers and services in Ohio at the individual level and assess the factors related to effective access to health care (realized care, foregone care, health outcomes).
2. To assess the equity of health care access among four population subgroups of interest (gender; race/ethnicity; lesbian, gay, bisexual or transgender [LGBT] status; and region of residence).
3. To rank counties and regions on intermediate and proximate measures of access to health care; to examine trends in these measures from 2008 to 2010.

This report summarizes data related to each of the specific aims of the project, as well as additional analyses which serve to clarify the primary results or which elucidate more in depth findings of interest in the primary analyses. Results are summarized in the results section of this report, but all results tables are presented in Appendix 1.

Methodology

Background and Theoretical Framework

The analysis for this study is based on the access to health care frameworks described by Andersen and Aday,⁴ Aday et. al.,⁵ Seid et. al.,⁸ and others described above. The composite framework we adopted based on their work includes five sets of parameters: environment, population characteristics, health behaviors, health care utilization (including realized care and unrealized [foregone] care) and health outcomes to broadly describe effective access to health care. A logic model (Figure 1) describes our theoretical framework for the interrelationship of these factors and outcomes. In this model, environmental characteristics, population characteristics and individual health behaviors serve as independent variables, health care utilization serves as an intermediate outcome (dependent variable) while individual health outcome measures serve as the final outcome of the pathway and also serve as dependent variables. It should be noted that the relationships here are associations only, and that no causal link can be inferred from this data, as the basis for analysis is a cross-sectional survey representing a single point in time. In order to establish causal relationships, a longitudinal study of individuals over time is required. This project serves as a guidepost for developing such a longitudinal study in the future.

Study Population

Three datasets were used for this study – the 2008 Ohio Family Health Survey (OFHS), 2010 OFHS, and the 2009 Area Resource File (ARF) produced by the United States Health Resources and Services Administration (HRSA). The OFHS is a stratified random telephone survey of non-institution-based Ohio residents. Both the 2008 and 2010 OFHS were conducted by ICF Macro, with 50,944 adult (18 years or older) surveys completed in 2008 and 8,276 adult surveys completed in 2010. Two sampling frames were used for both surveys – a landline sampling frame and a cell phone sampling frame. The 2010 survey included a higher proportion of respondents from the cell phone sampling frame. All completed survey responses were included in the analysis.

The ARF contains county-level information on the availability of providers and health care facilities. Only Ohio counties were included in this analysis. The ARF data were linked to the OFHS data using the Federal Information Processing Standard (FIPS) Codes for counties. The county-level data from the ARF were applied to each survey respondent based on their county of residence.

Statistical Program

All analyses were conducted using SAS Version 9.1.3 (Cary, North Carolina) and STATA Version 11.0 (College Park, Texas), using the procedures that account for complex sample design. These procedures were used to calculate accurate population-level estimates and standard errors for use in confidence interval estimation for both the bivariate and multivariate analyses.

Variables

The five domains of OFHS variables used for this study were categorized into dependent variables (health utilization and health outcomes) and independent variables (environment, population characteristics and health behaviors). We further divided healthcare utilization into unrealized need and realized need and then built composite measures in order to capture utilization from a number of different questions. All health care utilization measures were categorized into dichotomous (Yes/No) categories. The key health care utilization outcomes are outlined below and more specifically defined in Appendix 2:

1. Realized need
 - a. Medical care utilization in past 12 months (including emergency department utilization and physician office visit)
 - b. Dental care utilization in past 12 months (including dentist, orthodontist, oral surgeon, all other dental specialists and dental hygienist visits)
2. Unrealized need
 - a. Foregone medical care in past 12 months (perceived need for medical care that either was not met or not met in a timely manner due to cost or lack of insurance)
 - b. Foregone dental care in past 12 months (perceived need for dental care that was not met)
 - c. Foregone filling prescriptions in past 12 months (perceived need for prescriptions that was not met)

Four health outcome variables were identified in the OFHS for inclusion in this analysis. One of the variables was dichotomized using two different cut points, giving five health outcome models. The health outcomes are outlined below and more specifically defined in Appendix 2.

1. Health Status: Poor/Fair vs. Good/Very Good/Excellent
2. The K6 screening scale for determining presence of psychological distress: ≥ 13 (severe distress) vs. < 13 (not severe distress)¹⁻³ ENREF_8
3. Number of days out of the past 30 where respondent's physical health was not good (physically unhealthy days): ≥ 14 days vs. < 14 days¹¹
4. Number of days out of the past 30 where respondent's mental health was not good (mentally unhealthy days): ≥ 14 days vs. < 14 days (cut point recommended by Centers for Disease Control and Prevention [CDC])¹¹
5. Number of days out of the past 30 where respondent's mental health was not good: ≥ 20 days vs. < 20 days (cut point recommended by Ohio Department of Mental Health [ODMH])¹²

As discussed earlier, the independent variables used for model-building were categorized into environment, population characteristics and health behaviors. These variables were pulled from both the OFHS and the ARF. The variables included are described below and are described more specifically in Appendix 3.

Environment

- Provider to population ratios (from the ARF)
 - Primary Care Physician (MD or DO), including OB/GYN (and not including physician extenders because data about their discipline, i.e., primary care, are not available from the ARF)
 - Dentists
 - Dental Allied Health (dental hygienists and dental assistants)
 - Mental Health Providers
 - Pharmacists
- Number of hospital beds (from the ARF)
- Health Professional Shortage Area (HPSA) designations (from the HRSA website)
 - Primary Medical Care
 - Dentists
 - Mental Health

Population Characteristics (from the OFHS)

- Usual source of care (whether or not respondent has usual source of care)
- Health insurance (prescription drug coverage, insurance type, dental coverage)
- Transportation (availability of car/truck)
- Sociodemographic characteristics (gender, age, race/ethnicity, LGBT status, urban/rural/suburban/Appalachian region, number of persons in household, presence of children in household, income as a percent of poverty, education, employment, marital status, home ownership status)
- Economic burden of healthcare (whether or not the respondent had difficulty paying medical bills)
- Health Behavior (from the OFHS)
- Tobacco use (both cigarettes and other tobacco products)
- Alcohol use
- Soda consumption
- Body Mass Index (BMI)

Analytic Framework

Several analyses were conducted as part of this study. All analyses included only the adult OFHS respondents. We first performed a descriptive analysis of all variables of interest in the 2010 OFHS and ARF. The ARF data was linked to the survey responses based on county of residence. Both unweighted and weighted numbers and percents for the OFHS variables are reported. The unweighted data are presented to provide the reader with sample size numbers and the weighted data are presented to provide population-based estimates. Bivariate analyses were performed to calculate the crude relationship between each dependent variable with each independent variable proposed for the multivariate models. Appendix 4 outlines the independent variables considered for each dependent variable.

Each bivariate analysis that showed a statistically insignificant result was independently discussed by the study team to determine if it should remain in the multivariate model or be removed. Reasons for keeping an independent variable in the model fell into one of two categories: (1) there was a strong theoretical reason for keeping it in due to a relationship with the dependent variable, or (2) the independent variable was a key demographic variable the study team believed should be accounted for in the model. The following variables were insignificant in bivariate analysis but were kept in the models for reason 1 or 2:

- For the model predicting health care utilization: economic burden of health care (1), education (2), region (2), LGBT status (2), race/ethnicity (2)
- For the model predicting health status: LGBT status (2), prescription drug coverage (1), gender (2), economic burden of health care (1)
- For the model predicting number of physically healthy days: smoking status (1), LGBT status (2), prescription drug coverage (1)
- For the model predicting number of mentally healthy days (CDC cut point): smoking status (1), number of children (2), economic burden of health care (1)
- For the model predicting number of mentally healthy days (ODMH cut point): prescription drug coverage (1), number of children (2), economic burden of health care (1)

Multivariate logistic regression models were built for each dependent variable using the *surveylogistic* procedure in SAS, accounting for the complex survey design. Adjusted odds ratios (ORs) and 95% confidence intervals (CI95) were calculated. The tables presented include the crude or unadjusted measure of association (the result of the bivariate analysis) and a 95% confidence interval, along with the fully adjusted results from the multivariate logistic regressions. Because the OR tends to overestimate the strength of the relationship between two variables in populations with a high prevalence (>10%) of the dependent variable,¹³ ORs were converted to relative risks

(RR) as recommended by Zhang and Yu:¹⁴

$$\text{Corrected RR} = \text{OR} / ((1 - P_0) + (P_0 \times \text{OR}))$$

In this formula, the OR is the unadjusted or adjusted odds ratio obtained from the bivariate or logistic regression analysis; P₀ indicates the prevalence of the outcome of interest for the referent category.

In order to assess the equity of access, stratified analysis was employed. Independent variables targeted for stratified analysis were gender, race/ethnicity, LGBT status and geography. For each of the ten logistic regression models built, if one of these four independent variables was significant, the logistic regression model was run again but stratified by the independent variable in question. For example, gender was significant in the multivariate model for foregone medical care. Therefore, we ran the same model for foregone medical care only on males and again only on females, to identify significant relationships in these subpopulations.

Finally, to explore trends in both realized access and effective access, we compared the weighted percent prevalence rates for eight of our nine key outcome variables. Psychological distress, as measured by the K6, was not included in the 2008 survey and was therefore excluded from this analysis. Weighted percents and ranks are presented by county for 2008. The 2010 survey was not designed to provide county-level analysis. Therefore the weighted percents are presented at a region-level for both 2008 and 2010. The ten regions chosen were the regions used in the survey stratification procedure. They are listed below; the counties included in regions 7 through 10 are listed in Appendix 5:

1. Cuyahoga County
2. Franklin County
3. Hamilton County
4. Lucas County
5. Montgomery County
6. Summit County
7. The remaining metropolitan counties
8. Suburban counties
9. Appalachian counties
10. Rural (non-Appalachian) counties

Results from all analysis are summarized below in the results section of this report. All results tables are presented in Appendix 1. Each summary section in the results references the table with the corresponding data tables.

Results

Specific Aim #1: Current State of Access to Health Care Providers and Services in Ohio – OFHS 2010

Univariate Data Summary (Appendix 1, Table 1)

Based on the weighted univariate analysis of the 2010 OFHS sample population, approximately 52% of Ohioans were female, the median income was \$40,000, 11.3% were African-American and 54.7% resided in metropolitan areas. With an Ohio median primary care provider-to-population ratio of 74 providers per 100,000 population (and a national mean of 89.6 primary care providers per 100,000 population),¹⁵ 27.3% of Ohioans lived in a county below the state median; 24.4% lived in a county below the median of 73 pharmacists per 100,000 population and 19.6% lived in a county below the median of 34 dentists per 100,000 population. Two-thirds (66.1%) of Ohioans lived in a county designated as either a partial-county or whole-county primary care health professional shortage area (HPSA); 72.6% lived in a county designated as either a partial-county or whole-county dental health professional shortage area; and 40.6% lived in a partial-county or whole county mental health professional shortage area.

With regard to classic measures of access to health care, 8.3% of Ohioans did not have a usual source of medical care. Among those between the ages of 18 - 64, 65.7% had privately paid health insurance, 15.5% had publicly paid health insurance and 18.8% were uninsured. For all adults, 22.8% had no prescription drug coverage and 46.7% did not have dental care insurance. Examination of the social determinants of health revealed that 55.9% of Ohioans lived in a household with one or two persons and 65.6% lived with children as members of their household. Nearly one quarter (23.4%) had an income below the federal poverty line (FPL), 44.2% live at 200% of the FPL or less and 61.4% live at or below 300% of the FPL. In terms of highest educational attainment, 36.0% had a high school education, 14.1% had a bachelor's degree and 11.8% had an advanced degree beyond a bachelor's. One-fifth (19.4%) were not working (excluding retired and disabled individuals), 58.0% were married, 70.3% owned their home and 28.2% reported having had difficulty paying their medical bills within the past year.

In regards to health behaviors, 24.7% of Ohioans were current cigarette smokers, 2.9% were current smokeless tobacco users, 17.5% had experienced an alcohol binge (5 drinks per occasion for men, 4 drinks per occasion for women) within the past 30 days and 31.5% were obese (BMI >29.9).

The results indicated that 25.4% of Ohioans had foregone medical care in the past 12 months, 7.7% had not seen a physician or been to an emergency room within the past year, 14.8% had foregone dental care, 29.2% had not had dental care and 16.8% had foregone prescriptions within the past year. Regarding the proximate outcome variables, 21.9% reported their health status to be fair or poor, 15.1% had experienced >14 physically unhealthy days within

the past 30 days and 8.9% had experienced >14 mentally unhealthy days within the past 30 days. K6 psychological distress scores classified 7.4% of the population as at very high risk for distress.

Medical Care Utilization – “Realized Care” as an Intermediate Outcome of Access to Medical Care (Appendix 1, Table 2)

For the outcome of “Utilization of Health Care,” the “negative” outcome of “no physician or emergency room visit within the past 12 months” was selected as the dependent variable for purposes of regression modeling. Table 2 in Appendix 1 displays these results with all statistically significant relationships in bold. See Appendix 2 for a detailed definition of the outcome variable “Utilization of Medical Care.”

Significant Findings Related to Population Characteristics

- Those who did not have a usual source of care were 3.5 times more likely (RR 3.52, CI95 2.65, 4.61) than those with a usual source of care to have had no physician or emergency room visit within the past 12 months. **(Those without a usual source of care were less likely to have used the medical care system than those with a usual source of care.)**
- The uninsured were 3.4 times more likely (RR 3.37, CI95 2.49, 4.48) than those with private insurance to have had no physician or emergency room visit within the past 12 months. **(The uninsured were less likely to have used the medical care system than those with private insurance.)**
- Females were approximately half as likely (RR 0.44, CI95 0.34, 0.58) compared with males to have had no physician or emergency room visit within the past 12 months. **(Women were more likely to have used the medical care system than men.)**
- Those age 65 and older are approximately one-third as likely (RR 0.33, CI95 0.16, 0.70) compared with those 18-34 to have had no physician or emergency room visit within the past 12 months. **(Older [Medicare-eligible] individuals were more likely to have used the medical care system than younger individuals.)**
- Those with four (RR 0.56, CI95 0.32, 0.98) and five or more (RR 0.50, CI95 0.29, 0.87) persons in the household are approximately half as likely as those with one person in the household to have had no physician or emergency room visit within the past 12 months. **(Those living in households with four or more persons were more likely to have used the medical care system than those living in smaller households.)**
- Those with no children in the household were approximately 30% less likely (RR 0.71, CI95 0.50, 0.99) than those with children in the household to

have had no physician or emergency room visit within the past 12 months. **(Those with no children in the household were more likely to have used the medical care system than those with one or more children in the household.)**

- Those with an income between 101% and 138% of the FPL (RR 1.78, CI95 1.14, 2.74), between 139% and 200% of the FPL (RR 1.65, CI95 1.11, 2.41) and between 201% and 300% of the FPL (RR 1.48, CI95 1.07, 2.04) were more likely than those with an income at or above 300% FPL to have had no physician or emergency room visit in the past 12 months. **(Those with incomes between 100% of Federal Poverty Level (FPL) and 300% of FPL were less likely to have used the medical care system than those whose incomes were over 300% of FPL.)**
- Retired individuals (RR 0.60, CI95 0.36, 0.98), disabled individuals (RR 0.13, CI95 0.05, 0.34) and those not working (RR 0.61, CI95 0.43, 0.87) were less likely than employed individuals to have had no physician or emergency room visit within the past 12 months. **(Those not working for any reason were more likely to have used the medical care system than employed persons.)**
- Those who had difficulty paying medical bills (RR 0.53, CI95 0.39, 0.72) were less likely than those who did not have difficulty paying medical bills to have had no physician or emergency room visit within the past 12 months. **(Those who had trouble paying medical bills were more likely to have used the medical care system than those who had no difficulty.)**

Significant Findings Related to Health Behaviors

- Past smokers were less likely than never smokers to have had no physician or emergency room visit within the past 12 months (RR 0.67, CI95 0.48, 0.94). No relationship exists between current smokers and never smokers. **(Past smokers were more likely to have used the medical care system than never smokers).**
- Overweight (RR 0.68, CI95 0.51, 0.90) and obese (RR 0.53, CI95 0.41, 0.70) individuals were less likely than normal-weight individuals to have had no physician or emergency room visit within the past 12 months. **(Overweight and obese individuals were more likely to have used the medical care system than normal-weight individuals.)**

Important Non-Significant Findings

- There were no significant relationships between the environmental characteristics (primary care provider to population ratio compared to state median, hospital bed density for the region and primary care HPSA designation for the region), race, educational attainment, LGBT status or marital status and this measure of medical care utilization.

Foregone Medical Care – “Unrealized Care” as an Intermediate Outcome of Access to Medical Care (Appendix 1, Table 3)

For the outcome of “Foregone Medical Care,” the negative outcome of “experiencing a need for medical care that was not obtained at any time in the past 12 months” was selected for purposes of regression modeling. See Appendix 2 for detailed definition of this variable. It is important to note that this variable is dependent on individuals’ self-perception of needed care, and that perceptions of need vary with some of the independent variables studied, such as gender, having a usual source of care, and other sociodemographic characteristics.

Significant Findings Related to Population Characteristics

- Uninsured individuals were more than 2.5 times more likely (RR 2.65, CI95 2.31, 3.00) than those with private insurance to have foregone needed medical care within the past 12 months. **(Those without insurance were more likely to foregone medical care than those with private insurance.)**
- Females were approximately 25% more likely than males (RR 1.27, CI95 1.11, 1.45) to have foregone needed medical care within the past 12 months. **(Women were more likely to foregone health care than men.)**
- Those with children in the household were approximately 25% more likely (RR 1.24, CI95 1.02, 1.48) than those with no children to have foregone needed medical care within the past 12 months. **(Those with children in the household were more likely to foregone health care than those without children in the household.)**
- Those with income below 100% of FPL (RR 1.46, CI95 1.15, 1.82), between 101% and 138% of the FPL (RR 1.44, CI95 1.10, 1.86), between 139% and 200% of the FPL (RR 1.54, CI95 1.22, 1.93) and between 201% and 300% of the FPL (RR 1.34, CI95 1.08, 1.64) were more likely than those with income at or above 300% FPL to have foregone care within the past 12 months. **(Those with incomes below 300% of FPL were more likely to foregone health care than those with incomes above that level.)**
- Retired individuals were approximately 25% less likely than employed individuals (RR 0.71, CI95 0.54, 0.92) to have foregone needed medical care within the past 12 months. **(Retired individuals were more likely to foregone medical care than those who were currently employed.)**
- Those who experienced difficulty paying their medical bills were 4.5 times more likely (RR 4.47, CI95 4.07, 4.88) than those who did not have these difficulties to have foregone needed medical care within the past 12 months. **(Those who had difficulty paying medical bills were significantly more likely to have foregone**

medical care than those who did not have such difficulty.)

Significant Findings Related to Health Behaviors

- Current smokers were 1.6 times more likely (RR 1.55, CI95 1.34, 1.80) than never smokers to have foregone needed medical care within the past 12 months. **(Smokers were more likely than non-smokers to have foregone medical care.)**
- Non-drinkers were approximately 20% less likely (RR 0.82, CI95 0.70, 0.97) than individuals who drink, but did not binge drink, to have foregone needed medical care within the past 12 months. **(Those who drank, but did not binge drink, were more likely than non-drinkers to have foregone medical care.)**
- Obese individuals were approximately 30% more likely (RR 1.27, CI95 1.08, 1.48) than normal-weight individuals to have foregone needed medical care within the past 12 months. **(Obese individuals were more likely to foregone medical care than normal-weight individuals.)**

Important Non-Significant Findings

There were no significant relationships between environmental characteristics (primary care provider to population ratio compared to state median, hospital bed density for the region and primary care HPSA designation for the region), age, race, educational attainment, LGBT status or marital status and this measure of foregone medical care.

Dental Utilization – “Realized Dental Care” as an Intermediate Outcome of Access to Dental Care (Appendix 1, Table 4)

For the outcome of “Utilization of Dental Care,” the “negative” outcome of “no dentist, orthodontist, oral surgeon, other dental specialist or dental hygienist visit within the past 12 months” was selected as the dependent variable for purposes of regression modeling. See Appendix 2 for detailed definition of this variable.

Significant Findings Related to Population Characteristics

- Individuals with no usual source of medical care were more likely (RR 1.41, CI95 1.17, 1.66) than those with a usual source of medical care to have experienced no dental visit within the past 12 months. **(Those with no usual source of medical care used less dental services than those with a usual source of medical care.)**
- Individuals with no medical insurance were nearly 1.5 times more likely (RR 1.47, CI95 1.21, 1.77) than those with private health insurance to have experienced no dental visit within the past 12 months. **(Those with no medical insurance used less dental services than those with private insurance.)**

- Those who did not have dental insurance were 1.5 times more likely (RR 1.51, CI95 1.34, 1.70) than those with dental insurance to have experienced no dental visit within the past 12 months. **(Those without dental insurance used less dental services than those with dental insurance.)**
- Females were approximately 20% less likely (RR 0.78, CI95 0.70, 0.88) than males to have experienced no dental visit within the past 12 months. **(Women used more dental services than men.)**
- Those with three persons in the household were approximately 20% less likely (RR 0.82, CI95 0.67, 0.99) than those with one person in the household to have experienced no dental visit within the past 12 months. **(Those with three persons in the household used more dental services than those with only one person in the household.)** It should be noted that no other household size showed a statistically significant relationship with dental utilization, but this could be due to a sample size too small to detect significant differences.
- Those with an income below 100% of FPL (RR 1.84, CI95 1.54, 2.18), between 101% and 138% of the FPL (RR 1.55, CI95 1.25, 1.89), between 139% and 200% of the FPL (RR 1.37, CI95 1.12, 1.66) and between 201% and 300% of the FPL (RR 1.27, CI95 1.06, 1.51) were more likely than those with an income at or above 300% FPL to have experienced no dental visit in the past 12 months. **(Those with incomes less than 300% of Federal Poverty Level (FPL) used less dental services than those whose incomes were over 300% of FPL.)**
- Those with less than a high school education (RR 2.11, CI95 1.59, 2.75), those with a high school education (RR 1.90, CI95 1.48, 2.40) and those with some college education but no degree (RR 1.62, CI95 1.25, 2.08) were more likely to have experienced no dental visit within the past 12 months than those with an advanced degree. **(Those with lower educational attainment used less dental services than those with advanced degrees.)**
- Those who were widowed were approximately 25% more likely (RR 1.27, CI95 1.04, 1.53) than those who were married or part of an unmarried couple to have experienced no dental visit within the past 12 months. **(Those who were widowed used less dental services than those who were married or part of an unmarried couple.)**
- Those who rented their home were more likely (RR 1.25, CI95 1.08, 1.42) than those who owned their home to have experienced no dental visit within the past 12 months. **(Renters used less dental services than those who own their home.)**

- Those who experienced difficulty paying their medical bills were nearly 35% more likely (RR 1.34, CI95 1.19, 1.50) than those without such difficulties to have experienced no dental visit within the past 12 months. **(Those who had difficulty paying their medical bills used less dental services than those who did not have such difficulties.)**

Significant Findings Related to Health Behaviors

- Current (RR 1.40, CI95 1.23, 1.59) and past (RR 1.18, CI95 1.03, 1.34) smokers were more likely than never smokers to have experienced no dental visit within the past 12 months. (Current and past smokers used less dental services than never smokers.)
- Non-users of alcohol were more likely (RR 1.14, CI95 1.00, 1.29) than those who drank but did not binge drink to have experienced no dental visit within the past 12 months. (Non-drinkers used less dental services than those who drank but did not binge drink.)

Important Non-Significant Findings

There were no significant relationships between environmental characteristics (dentist provider-to-population ratio, allied dental care provider-to-population ratio, or dental care HPSA designation for the region), age, race, employment status, LGBT status or marital status and this measure of dental care utilization.

Foregone Dental Care – “Unrealized Dental Need” as An Intermediate Outcome of Access to Dental Care (Appendix 1, Table 5)

For the outcome of “Foregone Dental Care,” the negative outcome of “experiencing a need for dental care that was not obtained at any time in the past 12 months” was selected for purposes of regression modeling. See Appendix 2 for detailed definition of this variable. It is important to note that this variable is dependent on individuals’ self-perception of needed care, and that perceptions of need vary with some of the independent variables studied, such as gender and other sociodemographic characteristics.

Significant Findings Related to Population Characteristics

- Those who had Medicare and Medicaid as their insurance status (“dual-eligibles”) were 1.6 times more likely (RR 1.62, CI95 1.02, 2.49) than those with private insurance to have foregone dental care in the past 12 months. **(Dual-eligibles were more likely than those with private insurance to have foregone dental care.)**
- Those who did not have dental insurance were nearly twice as likely (RR 1.93, CI95 1.57, 2.35) as those who had dental insurance to have foregone dental care in the past 12 months. **(Those without dental insurance were more likely than those with dental insurance to have foregone dental care.)**
- Those in the 45-to-54-year-old age group (RR 0.76, CI95 0.58, 0.97) and those who were age 65 and older

(RR 0.40, CI95 0.24, 0.66) were less likely than those in the 18-to-34-year-old age group to have foregone dental care in the past 12 months. **(Older persons were more likely than those 18-34 years of age to have foregone dental care.)**

- Asians (RR 2.48, CI95 1.16, 4.41) and African-Americans (RR 1.31, CI95 1.01, 1.68) were 1.5 to 2.5 times more likely than White/Other respondents to have foregone dental care in the past 12 months. **(Asians and African-Americans were more likely to have foregone dental care than whites.)**
- Those who lived in rural areas were less likely (RR 0.58, CI95 0.41, 0.83) than their suburban counterparts to have foregone dental care in the past 12 months. **(Those in rural areas are less likely to forego dental care than those who live in suburban areas.)**
- Those with incomes less than 100% of FPL (RR 1.75, CI95 1.27, 2.39) and those between 100% of FPL and 138% of FPL (RR 1.65, CI95 1.16, 2.31) were approximately 1.7 times more likely than those with incomes greater than 300% of FPL to have foregone dental care in the past 12 months. **(Those with incomes below 138% of FPL were more likely to have foregone dental care than those with incomes greater than 300% of FPL.)**
- Those who rented their home were more likely (RR 1.37, CI95 1.11, 1.70) than those who owned their home to have foregone dental care in the past 12 months. **(Renters are more likely than home owners to forego dental care.)**
- Those who had experienced difficulty paying their medical bills were more than four times as likely (RR 4.35, CI95 3.67, 5.12) than those who had not experienced such difficulties to have foregone dental care in the past 12 months. **(Those with difficulty paying medical bills were more likely than those without such difficulties to have foregone dental care.)**

Significant Findings Related to Health Behaviors

Current smokers were more than 1.5 times as likely (RR 1.58, CI95 1.28, 1.93) than never smokers to have foregone dental care in the past 12 months. (Smokers were more likely than non-smokers to have foregone dental care.)

Important Non-Significant Findings

There were no significant relationships between environmental characteristics (dentist provider-to-population ratio, allied dental care provider-to-population ratio, or dental care HPSA designation for the region), gender, educational attainment, employment status, LGBT status or marital status and this measure of foregone dental care.

Foregone Pharmaceutical Care (Prescriptions) – “Unrealized Prescription Care” as an Intermediate Outcome of Access to Pharmaceutical Care (Appendix 1, Table 6)

For the outcome of “Foregone Pharmaceutical Care,” the negative outcome of “experiencing a need for a prescription that was not obtained at any time in the past 12 months” was selected for purposes of regression modeling. See Appendix 2 for detailed definition of this variable. It is important to note that this variable is dependent on individuals’ self-perception of needed care, and that perceptions of need vary with some of the independent variables studied, such as gender and other sociodemographic characteristics.

Significant Findings Related to Population Characteristics

- Those who did not have prescription drug coverage were 1.5 times more likely (RR 1.51, CI95 1.12, 2.00) than those with prescription drug coverage to have foregone purchasing a needed prescription in the past 12 months. **(Those with prescription drug coverage were more likely than those with such coverage to have foregone a needed prescription.)**
- Females were 1.5 times more likely (RR 1.50, CI95 1.28, 1.76) than males to have foregone purchasing a needed prescription in the past 12 months. **(Women were more likely than men to have foregone a needed prescription.)**
- Those with incomes below 100% of FPL were nearly 1.5 times more likely (RR 1.46, CI95 1.11, 1.90) than those with incomes above 300% of FPL to have foregone purchasing a needed prescription in the past 12 months. **(Those with incomes below 100% of FPL were more likely than those with incomes above 300% of FPL to have foregone a needed prescription.)**
- Those who were not working because they were disabled were 1.6 times more likely (RR 1.56, CI95 1.18, 2.02) than those who were employed to have foregone purchasing a needed prescription in the past 12 months. **(Those who were not working due to disability were more likely than those who were working to have foregone a needed prescription.)**
- Those who had experienced difficulty paying medical bills in the past 12 months were over five times more likely (RR 5.63, CI95 4.92, 6.37) than those who had no such difficulty to have foregone purchasing a needed prescription in the past 12 months. **(Those who had difficulty paying medical bills were significantly more likely than those without such difficulty to have foregone a needed prescription.)**

Significant Findings Related to Health Behaviors

- Past (RR 1.27, CI95 1.04, 1.55) and current (RR 1.22, CI95 1.01, 1.48) smokers were more likely than

never smokers to have foregone purchasing a needed prescription in the past 12 months. **(Current and former smokers were more likely than non-smokers to have foregone a needed prescription.)**

- Those who drank one or more sodas per day were more likely (RR 1.26, CI95 1.03, 1.53) than those who never drank sodas to have foregone purchasing a needed prescription in the past 12 months. **(Those who drank one or more sodas per day were more likely than those who did not drink sodas to have foregone needed prescriptions.)**

Important Non-Significant Findings

There were no significant relationships between environmental characteristics (pharmacist provider-to-population ratio), age, race, educational attainment, LGBT status, or marital status and this measure of foregone pharmaceutical care.

Self-Reported Fair or Poor Health Status – A Proximate Measure of Effective Access to Health Care (Appendix 1, Table 7)

For the outcome of “Self-Reported health Status,” the negative outcome of “self-reported health fair or poor” was selected for purposes of regression modeling. See Appendix 2 for detailed definition of this variable.

Significant Findings Related to Population Characteristics

- The uninsured (RR 1.59, CI95 1.13, 2.18), those with Medicare as their sole source of insurance (RR 1.74, CI95 1.29, 2.30), those with Medicaid as their sole source of insurance (RR 1.51, CI95 1.11, 2.02) and dual eligibles (those who have both Medicaid and Medicare as their sources of insurance) (RR 1.59, CI95 1.05, 2.33) were more likely than those with private insurance to have self-reported fair or poor health status. **(All groups who did not have private health insurance were more likely to have reported fair or poor health status than those with private health insurance.)**
- Those aged 35-44 (RR 1.66, CI95 1.26, 2.14), those 45-54 (RR 1.79, CI95 1.38, 2.27), those 55-64 (RR 1.84, CI95 1.39, 2.38) and those over age 65 and older (RR 1.52, CI95 1.01, 2.20) are more likely than those age 18-34 to have self-reported fair or poor health status. **(Older individuals are more likely than those age 18-34 years to report fair or poor health status.)**
- Those with less than a high school education (RR 1.91, CI95 1.40, 2.54) and those with a high school education (RR 1.43, CI95 1.10, 1.84) were more likely than those with an advanced college degree to have self-reported fair or poor health status. **(Those with a high school education or less were more likely to have reported fair or poor health status than those with an advanced college degree.)**

- Those who were retired (RR 1.84, CI95 1.47, 2.27), not working because they were disabled (RR 4.10, CI95 3.38, 4.84), or not working for other reasons (RR 1.37, CI95 1.11, 1.67) were more likely than those who were currently employed to have self-reported fair or poor health status. **(All groups who were not working were more likely to have reported fair or poor health status than those who were currently employed.)**
- Those who had experienced difficulty paying medical bills in the past 12 months were more likely (RR 1.96, CI95 1.72, 2.21) than those who had not experienced such difficulties to have self-reported fair or poor health status. **(Those with difficulty paying medical bills were more likely than those without such difficulties to have reported fair or poor health status.)**

Significant Findings Related to Health Behaviors

- Current (RR 1.62, CI95 1.37, 1.90) and past smokers (RR 1.40, CI95 1.20, 1.62) were more likely than never smokers to have self-reported fair or poor health status. **(Current and former smokers were more likely than non-smokers to have reported fair or poor health status.)**
- Non-drinkers of alcohol were more likely (RR 1.29, CI95 1.10, 1.50) than those who drank alcohol but did not binge drink to have self-reported fair or poor health status. **(Non-drinkers of alcohol were more likely than those who drank without bingeing to have reported fair or poor health status.)**
- Those who were underweight (RR 1.55, CI95 1.01, 2.24) and those who were obese (RR 1.60, CI95 1.37, 1.85) were more likely than normal-weight individuals to have self-reported fair or poor health status. **(The underweight and the obese were more likely than normal-weight individuals to have reported fair or poor health status.)**

Important Non-Significant Findings

There were no significant relationships between environmental characteristics (primary care provider-to-population ratio, pharmacist provider-to-population ratio, dental provider-to-population ratio, number of hospital beds, or primary care HPSA designation for the region), gender, race, LGBT status, or marital status and this proximate measure of effective access to health care.

Healthy Days (Physical) – A Proximate Measure of Effective Access to Health Care (Appendix 1, Table 8)

For the outcome of “Healthy Days (Physical),” the negative outcome of “14 or more physically unhealthy days out of the last 30 days”¹¹ was selected for purposes of regression modeling. See Appendix 2 for detailed definition of this variable.

Significant Findings Related to Population Characteristics

- Those who had Medicare health insurance were more likely (RR 1.48, CI95 1.05, 2.06) than those with private health insurance to have reported 14 or more physically unhealthy days in the past 30 days. **(Those with Medicare reported more physically unhealthy days than those with private insurance.)**
- Those aged 45-54 (RR 1.48, CI95 1.09, 1.98) and those aged 55-64 (RR 1.60, CI95 1.16, 2.17) were more likely than those age 18-34 to have reported 14 or more physically unhealthy days in the past 30 days. **(Older individuals reported more physically unhealthy days than those age 18-34 years.)**
- Those who lived with two persons in the household were more likely (RR 1.24, CI95 1.01, 1.50) than those who lived alone to have reported 14 or more physically unhealthy days in the past 30 days. It should be noted that no larger household size showed any statistical difference compared to those who lived alone. **(Those who lived with two persons in the household reported more physically unhealthy days than those who lived alone.)**
- Those whose income was 100% - 138% of FPL (RR 1.46, CI95 1.07, 1.95) and those whose income was 139% - 200% of FPL (RR 1.35, CI95 1.01, 1.78) were more likely than those whose income was 300% of FPL or more to have reported 14 or more physically unhealthy days in the past 30 days. **(Those with incomes between 100% and 200% of FPL reported more physically unhealthy days than those with an income above 300% of FPL.)**
- Those who were not working because they were retired (RR 1.38, CI95 1.04, 1.83), those who were not working because they were disabled (RR 4.35, CI95 3.43, 5.40) and those who were not working for any other reason (RR 1.62, CI95 1.28, 2.04) were more likely than those who were currently employed to have reported 14 or more physically unhealthy days in the past 30 days. **(All groups who were not working reported more physically unhealthy days than those who were currently employed.)**
- Those who were divorced were more likely (RR 1.29, CI95 1.02, 1.61) than those who were married or part of an unmarried couple to have reported 14 or more physically unhealthy days in the past 30 days. **(Those who are divorced are likely to report more physically unhealthy days than those who are married or are part of an unmarried couple.)**
- Those who had experienced difficulty paying medical bills in the past 12 months were more likely (RR 2.18, CI95 1.86, 2.53) than those who had not experienced such difficulties to have reported 14 or more physically unhealthy days in the past 30 days. **(Those**

with difficulty paying medical bills reported more physically unhealthy days than those without such difficulties.)

Significant Findings Related to Health Behaviors

- Current smokeless tobacco users were more likely (RR 1.93, CI95 1.27, 2.74) than never-users to have reported 14 or more physically unhealthy days in the past 30 days. **(Current smokeless tobacco users reported more physically unhealthy days than those who had never used smokeless tobacco.)**
- Current smokers were more likely (RR 1.36, CI95 1.10, 1.66) than never smokers to have reported 14 or more physically unhealthy days in the past 30 days. **(Current smokers reported more physically unhealthy days than those who had never smoked.)**
- Non-drinkers of alcohol were more likely (RR 1.32, CI95 1.09, 1.58) than those who drank alcohol but did not binge drink to have reported 14 or more physically unhealthy days in the past 30 days. **(Non-drinkers of alcohol reported more physically unhealthy days than those who drank but did not binge drink alcohol.)**
- Those who drink less than one soda per day were less likely (RR 0.83, CI95 0.69, 0.99) than those who drank no soda to have reported 14 or more physically unhealthy days in the past 30 days. **(Those who drank less than one soda per day reported fewer physically unhealthy days than those who drank no soda.)**
- The underweight (RR 1.90, CI95 1.18, 2.86) and the obese (RR 1.22, CI95 1.00, 1.48) were more likely than normal-weight individuals to have reported 14 or more physically unhealthy days in the past 30 days. **(Underweight and obese individuals reported more physically unhealthy days than those who were normal weight.)**

Important Non-Significant Findings

There were no significant relationships between environmental characteristics (primary care provider-to-population ratio, pharmacist provider-to-population ratio, dental provider-to-population ratio, primary care HPSA designation for the region, or hospital bed density for the region), gender, race, LGBT status, educational attainment, or marital status and this proximate measure of effective access to health care.

Healthy Days (Mental) – A Proximate Measure of Effective Access to Health Care (Appendix 1, Tables 9 and 10)

For the outcome of “Healthy Days (Mental),” two separate models were run first using as an outcome measure the cutoff recommend for this item by the US Centers for Disease Control and Prevention (CDC)¹¹ of “14 or more mentally unhealthy days out of the last 30 days.” Second, the Ohio Department of Mental Health (ODMH) recommended cutoff was used,^{12,16} in which the negative outcome of “20 or more mentally unhealthy days out of the last 30 days” was utilized as the outcome for purposes of regression modeling.

Results will be summarized here from both regression models and will be designated as “CDC cutoff” (from Table 9) or “ODMH cutoff” (from Table 10). See Appendix 2 for detailed definitions of these variables.

Significant Findings Related to Population Characteristics

- Those who were uninsured (RR 1.77, CI95 1.02, 3.00) and those whose health insurance was through Medicaid (RR 1.79, CI95 1.14, 2.77) were more likely than those with private health insurance to have reported 14 or more mentally unhealthy days in the past 30 days. (CDC cutoff) **(Those who were uninsured or on Medicaid reported more mentally unhealthy days than those with private health insurance.)**
- Those age 65 or older were less likely (RR 0.53, CI95 0.29, 0.96) than those age 18-34 to have reported 14 or more mentally unhealthy days in the past 30 days. (CDC cutoff) **(Those aged 65 or older reported more mentally unhealthy days than those age 18-34.)**
- Those whose income was below 100% of FPL were more likely (RR 1.67, CI95 1.12, 2.45) than those whose incomes were more than 300% of FPL to have reported 14 or more mentally unhealthy days in the past 30 days. (CDC cutoff) **(Those whose income was below 100% of FPL reported more mentally unhealthy days than those whose income was above 300% of FPL.)**
- Those whose income was below 100% of FPL were more likely (RR 1.73, CI95 1.10, 2.70) than those whose incomes were more than 300% of FPL to have reported 20 or more mentally unhealthy days in the past 30 days. (ODMH cutoff) **(Those whose income was below 100% of FPL reported more mentally unhealthy days than those whose income was above 300% of FPL.)**
- Those who were not employed because they were retired (RR 1.82, CI95 1.13, 2.88), because they were disabled (RR 7.10, CI95 5.10, 9.55), or for reasons other than retirement or disability (RR 2.22, CI95 1.62, 3.01) were more likely than those who are currently employed to have reported 14 or more mentally unhealthy days in the past 30 days. (CDC cutoff) **(Those who were unemployed for any reason reported more unhealthy days than those who are currently employed.)**
- Those who were not employed because they were disabled (RR 7.06, CI95 4.81, 10.00) or for reasons other than retirement or disability (RR 2.19, CI95 1.53, 3.10) were more likely than those who were currently employed to have reported 14 or more mentally unhealthy days in the past 30 days. (ODMH cutoff) **(Those who were unemployed for any reason reported more unhealthy days than those who were currently employed.)**
- Those who had experienced difficulty paying medical bills in the past 12 months were more likely (RR 2.94, CI95 2.33, 3.67) than those who had not experienced such difficulties to have reported 14 or more mentally unhealthy days in the past 30 days. (CDC cutoff) **(Those**

with difficulty paying medical bills reported more mentally unhealthy days than those who had not experienced such difficulties.)

- Those who had experienced difficulty paying medical bills in the past 12 months were more likely (RR 2.82, CI95 2.15, 3.68) than those who had not experienced such difficulties to have reported 20 or more mentally unhealthy days in the past 30 days. (ODMH cutoff) **(Those with difficulty paying medical bills reported more mentally unhealthy days than those who had not experienced such difficulties.)**

Significant Findings Related to Health Behaviors

- Current smokers were more likely (RR 1.82, CI95 1.39, 2.37) than never smokers to have reported 14 or more mentally unhealthy days in the past 30 days. (CDC cutoff) **(Current smokers reported more mentally unhealthy days than those who had never smoked.)**
- Current smokers were more likely (RR 2.04, CI95 1.49, 2.78) than never smokers to have reported 20 or more mentally unhealthy days in the past 30 days. (ODMH cutoff) **(Current smokers reported more mentally unhealthy days than those who had never smoked.)**
- Binge drinkers of alcohol were more likely (RR 1.52, CI95 1.06, 2.15) than those who drank alcohol but did not binge to have reported 14 or more mentally unhealthy days in the past 30 days. (CDC cutoff) **(Binge drinkers reported more mentally unhealthy days than those who drank alcohol but did not binge drink.)**
- Binge drinkers of alcohol were more likely (RR 1.60, CI95 1.07, 2.37) than those who drank alcohol but did not binge to have reported 20 or more mentally unhealthy days in the past 30 days. (ODMH cutoff) **(Binge drinkers reported more mentally unhealthy days than those who drank alcohol but did not binge drink.)**
- The obese were more likely (RR 1.52, CI95 1.14, 2.02) than normal-weight individuals to have reported 14 or more mentally unhealthy days in the past 30 days. (CDC cutoff) **(Obese individuals reported more mentally unhealthy days than those who were normal weight.)**
- The underweight (RR 2.41, CI95 1.13, 4.72) and the obese (RR 1.42, CI95 1.01, 1.98) were more likely than normal-weight individuals to have reported 20 or more mentally unhealthy days in the past 30 days. (ODMH cutoff) **(Underweight individuals were likely to report more mentally unhealthy days than those who were normal weight.)**

Important Non-Significant Findings

Using both the CDC and the ODMH cutoffs, no significant relationships were found between environmental

characteristics of primary care provider-to-population ratio, mental health provider-to-population ratio, or mental health HPSA designation for the county of respondents' residence and this proximate measure of access to health care. For both cutoffs, there were no significant relationships between gender, race, LGBT status, marital status or educational status and this proximate measure of access to health care. Using the ODMH cutoff, there were no significant relationships between age and this proximate measure of access to health care.

Psychological Distress (K6) – A Proximate Measure of Effective Access to Health Care (Appendix 1, Table 11)

For the outcome of psychological distress the negative outcome of “a score of ≥ 13 reflecting a very high risk for distress”¹⁻³ was selected for purposes of regression modeling. See Appendix 2 for detailed definition of this variable.

Significant Findings Related to Environmental Characteristics

Those who lived in a county with a mental health provider-to-population ratio below the State of Ohio median were more likely (RR 1.54, CI95 1.06, 2.19) than those who live in a county at or above the median to have reported a K6 score ≥ 13 , indicating a very high risk for distress. **(Those who lived in a county with fewer mental health workers than the state median reported higher levels of psychological distress than those who lived in a county with more mental health providers.)**

Significant Findings Related to Population Characteristics

- Those with Medicare only as their health insurance (RR 2.17, CI95 1.29, 3.59) and those with both Medicare and Medicaid as their health insurance (dual-eligibles) (RR 2.07, CI95 1.13, 3.68) were more likely than those with private health insurance to have reported a K6 score ≥ 13 , indicating a very high risk for distress. **(Those with Medicare and those with Medicaid and Medicare as their health insurance reported higher levels of psychological distress than those with private health insurance.)**
- Those whose income was below 100% of FPL were more likely (RR 1.82, CI95 1.18, 2.79) than those whose income was above 300% of FPL to have reported a K6 score ≥ 13 , indicating a very high risk for distress. **(Those with incomes below 100% of FPL reported higher levels of psychological distress than those whose incomes were above 300% of FPL.)**
- Those who were not working due to disability (RR 6.27, CI95 4.29, 8.87) and those who were not working for reasons other than disability or retirement (RR 2.55, CI95 1.81, 3.55) were more likely than those who were currently working to have reported a K6 score ≥ 13 , indicating a very high risk for distress. **(Those who were not working due to disability or for reasons**

other than disability or retirement reported higher levels of psychological distress than those who were currently working.)

- Those who had experienced difficulty paying medical bills in the past 12 months were more likely (RR 3.28, CI95 2.53, 4.21) than those who had not experienced such difficulties to have reported a K6 score ≥ 13 , indicating a very high risk for distress. **(Those who had experienced difficulty paying medical bills reported higher levels of psychological distress than those who had no such difficulties.)**

Significant Findings Related to Health Behaviors

- Current smokers were more likely (RR 2.13, CI95 1.58, 2.84) than never smokers to have reported a K6 score ≥ 13 , indicating a very high risk for distress. **(Current smokers reported higher levels of psychological distress than those who had never smoked.)**
- Those who consume one or more sodas per day were more likely (RR 1.57, CI95 1.16, 2.10) than those who did not consume any soda to have reported a K6 score ≥ 13 , indicating a very high risk for distress. **(Those who consumed one or more sodas per day reported higher levels of psychological distress than those who did not consume any soda.)**
- Those who are underweight are more likely (RR 2.16, CI95 1.01, 4.27) than those of normal weight to have reported a K6 score ≥ 13 , indicating a very high risk for distress. **(Those who were underweight reported higher levels of psychological distress than those who were of normal weight.)**

Important Non-Significant Findings

No significant relationships were found between environmental characteristics (primary care provider-to-population ration or mental health HPSA designation for the county of respondents' residence), gender, age, race, LGBT status, educational attainment or marital status and this proximate measure of access to health care.

Specific Aim #2: Equity of Access to Health Care – OFHS 2010

Four demographic characteristics were considered for stratified analysis: gender, race/ethnicity, LGBT status and region. In the ten models presented previously as part of specific aim 1, LGBT status was not significant in any so no stratified analysis was conducted. Gender was significant in four models (health care utilization, dental care utilization, foregone medical care and foregone prescriptions). Race/ethnicity and region were significant in the same model – foregone dental care. The results of the stratified analysis are summarized in the following sections.

Gender Differences in Medical Care Utilization

Gender was significantly associated with medical care utilization in the multivariate model. Females were more

likely to have had a physician visit or used the emergency department in the past 12 months than males. The following variables were significantly associated with whether males had not used the medical care system during the past 12 months:

- Number of hospital beds below median for the state (RR 1.72, CI95 1.10, 2.60) compared to areas above the median
- No usual source of care (RR 2.61, CI95 1.88, 3.51) compared to having a usual source of care
- Uninsured (RR 3.03, CI95 2.15, 4.09) compared to privately insured
- Age (65 and older RR 0.21, CI95 0.07, 0.60) compared to 18-34 year olds
- Family size (Three persons RR 0.55, CI95 0.31, 0.94; Four persons RR 0.44, CI95 0.21, 0.88; Five or more persons (RR 0.41, CI95 0.21, 0.78) compared to 1 person in the household
- Income 139%-200% (RR 1.98, CI95 1.14, 3.25) compared to >300% of FPL
- Employment (Disabled RR 0.16, CI95 0.05, 0.48); Not working RR 0.51, CI95 0.32, 0.80) compared to employed
- Never Married (RR 0.61, CI95 0.39, 0.95) compared to married or living with a partner
- Difficulty paying medical bills (RR 0.48, CI95 0.32, 0.72) compared to no difficulty
- Past Smoker (RR 0.64, CI95 0.43, 0.95) compared to never smoked
- Overweight (RR 0.65, CI95 0.46, 0.91) or obese (RR 0.60, CI95 0.41, 0.87) compared to normal weight individuals

The following variables were significantly associated with whether **females** had not used the medical care system during the past 12 months:

- No usual source of care (RR 5.95, CI95 3.78, 8.93) compared to those with a usual source
- Medicaid insurance (RR 0.11, CI95 0.03, 0.39) or Uninsured (RR 3.83, CI95 2.10, 6.58) compared to the privately insured
- Age (35-44 years RR 2.15, CI95 1.05, 4.18; 45-54 years RR 1.97, CI95 1.01, 3.68; 55-64 years RR 2.34, CI95 1.14, 4.52) compared to those age 18-34
- Income of 139%-200% of the FPL (RR 1.96, CI95 1.04, 3.60) or 201%-300% of the FPL (RR 1.96, CI95 1.15, 3.28) compared to >300% of the FPL
- Employment (Disabled RR 0.07, CI95 0.01, 0.33) compared to the currently employed
- Difficulty paying medical bills (RR 0.56, CI95 0.34, 0.90) compared to no difficulty
- Underweight (RR 0.12, CI95 0.02, 0.75) or Obese (RR 0.48, CI95 0.28, 0.81) compared to normal weight

Four variables were significant in the model with males only that were not significant in the model with females only: number of hospital beds, family size, marital status and smoking status. No variables were significant in the model with females only but not significant in the model with males only.

Gender Differences in Dental Care Utilization

Gender was significantly associated with dental care utilization in the multivariate model. Females were more likely to have used dental services than males in the past 12 months. The following variables were significantly associated with whether males had not used dental services during the past 12 months:

- No usual source of care (RR 1.38, CI95 1.10, 1.68) compared to having a usual source of care
- Medicaid insurance (RR 0.60, CI95 0.36, 0.96) compared to private insurance
- Had no dental insurance (RR 1.60, CI95 1.34, 1.87) compared to having dental insurance
- Family size (Five or more persons RR 0.64, CI95 0.42, 0.93) compared to 1 person in household
- Income less than 100% of FPL (RR 1.73, CI95 1.35, 2.15) or (101%-138% of FPL (RR 1.46, CI95 1.08, 1.92) compared to > 300%
- Educational attainment (Less than high school degree RR 2.12, CI95 1.42, 2.99; High school degree RR 2.04, CI95 1.46, 2.75; Some college RR 1.91, CI95 1.36, 2.60) compared to advanced degree
- Difficulty paying medical bills (RR 1.28, CI95 1.07, 1.51) compared to no difficulty
- Current smoker (RR 1.36, CI95 1.11, 1.64) compared to never smoked
- Obese (RR 1.20, CI95 1.00, 1.40) compared to normal weight

The following variables were significantly associated with whether females had not used dental services during the past 12 months:

- Uninsured (RR 1.77, CI95 1.35, 2.26) compared to privately insured
- No dental insurance (RR 1.45, CI95 1.22, 1.71) compared to having dental insurance
- Income less than 100% of FPL (RR 2.02, CI95 1.55, 2.59) or 101%-138% of FPL (RR 1.68, CI95 1.24, 2.22) or 139%-200% of FPL (RR 1.50, CI95 1.14, 1.95) or 201%-300% of FPL (RR 1.41, CI95 1.08, 1.82) compared to >300% of FPL
- Less than a high school degree (RR 2.01, CI95 1.32, 2.94) or a High school degree (RR 1.56, CI95 1.07, 2.21) compared to an advanced degree
- Widowed (RR 1.29, CI95 1.01, 1.62) compared to currently married or living with a partner
- Renter (RR 1.29, CI95 1.07, 1.54) compared to owning one's home
- Difficulty paying medical bills (RR 1.38, CI95 1.17, 1.60) compared to no difficulty
- Past smoker (RR 1.31, CI95 1.09, 1.56) or Current smoker (RR 1.44, CI95 1.20, 1.70) compared to never smoked

Three variables were significant in the model with only males that were not significant in the model with only females: usual source of care, family size, and BMI. Marital status and whether respondent owned or rented were significant in the model with only females but not significant in the model with only males.

Gender Differences in Foregone Medical Care

Gender was significantly associated with foregone medical care in the multivariate model. Female respondents were more likely to have foregone needed medical care than male respondents. The following variables were significantly associated with whether males had foregone medical care during the past 12 months:

- Uninsured (RR 2.44, CI95 1.88, 3.05) compared to privately insured
- LGBT (RR 1.72, CI95 1.01, 2.55) compared to heterosexual
- Family size (Four persons RR 1.54, CI95 1.03, 2.12) compared to 1 person in the household
- Income of <100% of FPL (RR 1.64, CI95 1.17, 2.23) or 101%-138% of FPL (RR 1.57, CI95 1.01, 2.34) or 139%-200% of FPL (RR 1.55, CI95 1.04, 2.23) compared to >300% of FPL
- Not working because retired (RR 0.61, CI95 0.40, 0.91) compared to currently employed
- Difficulty paying medical bills (RR 4.65, CI95 4.00, 5.30) compared to no difficulty
- Past smoker (RR 1.64, CI95 1.27, 2.08) compared to never smoked
- Non-drinker (RR 0.74, CI95 0.56, 0.97) compared to drinker but did not binge drink
- Overweight (RR 1.38, CI95 1.08, 1.73) or Obese (RR 1.64, CI95 1.27, 2.04) compared to normal weight

The following variables were significantly associated with whether females had foregone medical care during the past 12 months:

- Uninsured (RR 2.81, CI95 2.40, 3.20) compared to privately insured
- Age 65 and older (RR 0.53, CI95 0.31, 0.86) compared to age 18-34
- Income of 139%-200% of FPL (RR 1.55, CI95 1.17, 2.01) or 201%-300% of FPL (RR 1.37, CI95 1.05, 1.76) compared to >300% of FPL
- High school graduate (RR 0.71, CI95 0.50, 0.98) compared to advanced degree
- Difficulty paying medical bills (RR 4.09, CI95 3.65, 4.53) compared to no difficulty
- Current smoker (RR 1.47, CI95 1.22, 1.74) compared to never smoked

Five variables were significant in the model with only males that were not significant in the model with only females: LGBT status, family size, employment, alcohol use, and BMI. Age and education were significant in the model with only females but not significant in the model with only males.

Gender Differences in Foregone Prescriptions

Gender was significantly associated with foregone prescriptions in the multivariate model. Females were more likely to have foregone purchasing a needed prescription than males. The following variables were significantly associated with whether males had foregone prescriptions during the past 12 months:

- Age 25-34 years (RR 0.62, CI95 0.40, 0.93) or 35-44

- years (RR 0.54, CI95 0.33, 0.88) compared to 18-34 years of age
- Income of <100% of FPL (RR 1.61, CI95 1.02, 2.48) compared to >300% of FPL
- Bachelor's Degree (RR 1.96, CI95 1.02, 3.59) compared to advanced degree
- Not working due to Disability (RR 1.67, CI95 1.02, 2.62) compared to currently employed
- Difficulty paying medical bills (RR 6.44, CI95 5.12, 7.91) compared to no difficulty
- Past smoker (RR 1.67, CI95 1.18, 2.32) or Current smoker (RR 1.49, CI95 1.04, 2.10) compared to never smoked
- Soda consumption of one or more per week (RR 1.42, CI95 1.01, 1.96) compared to no soda consumption

The following variables were significantly associated with whether females had foregone prescriptions during the past 12 months:

- Medicaid insurance (RR 0.61, CI95 0.40, 0.93) compared to private insurance
- No prescription drug coverage (RR 1.59, CI95 1.14, 2.15) compared to coverage
- Income of 100%-138% of FPL (RR 1.46, CI95 1.01, 2.03) compared to >300% of FPL
- Retired (RR 1.58, CI95 1.14, 2.10) compared to currently employed
- Difficulty paying medical bills (RR 5.05, CI95 4.29, 5.85) compared to no difficulty

Four variables were significant in the model with only males that were not significant in the model with only females: age, educational attainment, smoking status, and soda consumption. Two variables were significant in the model with only females but not significant in the model with only males: insurance type and prescription drug coverage.

Race/Ethnicity Differences in Foregone Dental Care

Race/ethnicity was significantly associated with foregone dental care in the multivariate model. African-American and Asian respondents were more likely to forego dental care than White/Other respondents. The number of Asian respondents was not large enough to support running a separate model for foregone dental care, so stratified results for race/ethnicity will only be shown for White/Other and African-American.

The following variables were significantly associated with whether or not White/Other respondents had foregone dental care during the past 12 months:

- Dual Medicaid and Medicare insurance (RR 1.82, CI95 1.04, 3.00) compared to private insurance
- No dental coverage (RR 2.02, CI95 1.59, 2.54) compared to dental coverage
- Age 65 years or older (RR 0.34, CI95 0.18, 0.62) compared to 18-34 years
- Rural region (RR 0.52, CI95 0.36, 0.75) compared to suburban region

- Income of 100% or less of FPL (RR 1.60, CI95 1.12, 2.27) or 101%-138% of FPL (RR 1.72, CI95 1.18, 2.47) or 201%-300% of FPL (RR 1.43, CI95 1.02, 1.99) compared to >300% of FPL
- Renter (RR 1.41, CI95 1.11, 1.78) compared to home owner
- Difficulty paying medical bills (RR 4.29, CI95 3.53, 5.15) compared to no difficulty
- Current smoker (RR 1.58, CI95 1.24, 1.99) compared to never smoked

The following variables were significantly associated with whether African-American respondents had foregone dental care during the past 12 months:

- Dental allied health provider to population ratio below the median (RR 1.88, CI95 1.11, 2.74) compared to above the median
- No dental coverage (RR 2.36, CI95 1.39, 3.63) compared to dental coverage
- LGBT status (RR 2.85, CI95 1.31, 3.79) compared to heterosexual
- Difficulty paying medical bills (RR 3.66, CI95 2.62, 4.76) compared to no difficulty
- Current smoker (RR 1.69, CI95 1.08, 2.45) compared to never smoked

Five variables were significant in the model with White/Other respondents that were not significant in the model with African-American respondents: insurance type, age, region, income, and own or rent. Two variables were significant in the model with African-Americans but not significant in the model with White/Others: dental allied health provider to population ratio and LGBT status.

Regional Differences in Foregone Dental Care

Region was significantly associated with foregone dental care in the multivariate model. Respondents living in a rural county were less likely to forego dental care than respondents living in a suburban county. It should be noted that no suburban counties were given a dental HPSA designation; therefore, this variable was removed from the stratified analysis. The following variables were significantly associated with whether Rural respondents had foregone dental care during the past 12 months:

- No usual source of care (RR 0.32, CI95 0.1, 0.99) compared to usual source of care
- No dental coverage (RR 1.93, CI95 1.02, 3.44) compared to dental coverage
- Females (RR 1.95, CI95 1.16, 3.11) compared to males
- Hispanics (RR 5.24, CI95 2.10, 8.28) compared to whites/others
- Difficulty paying medical bills (RR 8.57, CI95 5.34, 12.62) compared to no difficulty
- Current smoker (RR 3.74, CI95 1.99, 6.47) compared to never smoked
- Drinker with at least 1 binge episode (RR 2.21, CI95 1.11, 3.94) compared to drinker with no binge episodes

The following variables were significantly associated with whether Suburban respondents had foregone dental care

during the past 12 months:

- Dentists to population ratio below the median (RR 2.14, CI95 1.24, 3.25) compared to above the median
- Dental allied health provider to population ratio below the median (RR 0.37, CI95 0.17, 0.81) compared to above the median
- No dental coverage (RR 2.63, CI95 1.38, 4.55) compared to dental coverage
- Age 45-54 years (RR 0.39, CI95 0.19, 0.77)- or 65 years and older (RR 0.06, CI95 0.01, 0.32) compared to 18-34 years
- Difficulty paying medical bills (RR 4.58, CI95 2.93, 6.68) compared to no difficulty
- Non-drinker (RR 1.79, CI95 1.02, 2.99) compared to drinker with no binge episodes
- Underweight (RR 3.52, CI95 1.13, 5.57) compared to normal weight

Four variables were significant in the model with rural respondents only that were not significant in the model with suburban respondents: usual source of care, gender, race/ethnicity, and smoking status. Four variables were significant in the model with suburban respondents but not significant in the model with rural respondents: dentists to population ratio, dental allied health provider to population ratio, age, and BMI.

Specific Aim #3: County Rankings and Trends, 2008 - 2010

Comparisons between the 2008 and 2010 OFHS data were made in terms of the outcome variables. In 2010, sampling strategies did not permit analysis at the county level, so a regional analysis of outcomes for each of the dependent variables was completed. Trends in each of the dependent variables over time were assessed as well.

The time span for this analysis is significant, as it represents the period of time that spans the onset of the “great recession” of 2007-2009, and some analysis of trends in access to health care over that period of time may be useful. It should be noted that no direct causal link between these outcomes and the economic downturn may be inferred from this data, nor are they implied. However, the associations found in this cross-sectional survey are reflective of the changes in access that are temporally associated with the current economic challenges. It should also be noted that the sampling frames for the 2008 and the 2010 surveys were different, and may result in some artificial differences over time in the same region due to oversampling rates in that region over the two surveys.

Trends in Medical Care Utilization

Tables 12 and 21 and Figure 2 depict trends in medical care utilization. Of note is that, for the state of Ohio overall in 2008, 90.1% of respondents indicated that they had either seen a physician or been to an emergency room at least once during the previous 12 months. The range across all counties at that time was 77.7% - 95.4%. In 2010, the overall rate was 92.3%, reflecting an **increase in medical**

care utilization across the state of 2.2% during the period 2008 - 2010.

Counties experiencing the lowest rates of medical care utilization in 2008 included Carroll (85.9%), Darke (85.1%), Fulton (83.9%), Holmes (77.7%), Mercer (83.9%), Monroe (85.8%), Morgan (84.5%), and Seneca (85.3%) Van Wert (82.4%) and Wyandot (85.1%). Over the period from 2008 - 2010, regions experiencing the greatest increase in medical care utilization include Hamilton County (greater Cincinnati area, 3.4% increase) and Lucas County (greater Toledo area, 3.4% increase). No region experienced a decrease in medical care utilization over the 2-year period.

Trends in Foregone Medical Care

Tables 13 and 22, and Figure 3, depict trends in foregone medical care. For the state of Ohio overall in 2008, 23.4% of respondents indicated that they had foregone medical care at least once during the previous 12 months (delayed or avoided care, had problems getting medical care, or medical care was needed but not received, including a doctor visit, checkup, or exam; mental health care; medical supplies or equipment). The range across all counties at that time was 15.4% - 41.7%. In 2010, the overall rate was 25.4%, reflecting an **increase in foregone medical care across the state of 2.0% during the period 2008 - 2010.**

Counties experiencing the highest rates of foregone medical care in 2008 included Adams (41.5%), Highland (34.4%), Hocking (31.1%), Huron (32.6%), Lawrence (35.3%), Monroe (41.7%), Morrow (29.7%), Noble (31.1%), Pike (34.2%) and Scioto (32.3%). Over the period between 2008-2010, regions experiencing the greatest increase in foregone medical care include suburban counties in aggregate (5.8%) and Hamilton County (3.1%). Appalachian counties experienced a decrease in foregone medical care (-2.5%) over the analyzed period. This result may be due to sampling differences between the two years, and the 2010 estimate of foregone medical care may be artificially lower due to these differences.

Trends in Dental Care Utilization

Tables 14 and 23 and Figure 4 depict trends in dental care utilization. For the state of Ohio overall in 2008, 71.1% of respondents indicated that they had either seen a dentist, dental hygienist or other dental health professional at least once during the previous 12 months. The range across all counties at that time was 33.2% - 83.2%. In 2010, the overall rate was 70.8%, reflecting a **very slight decrease in dental care utilization across the state of 0.2% during the period 2008 - 2010.**

Counties experiencing the lowest rates of dental care utilization in 2008 included Adams (55.1%), Gallia (56.2%), Guernsey (53.7%), Harrison (58.1%), Highland (49.3%), Hocking (33.2%), Holmes (56.3%), Jackson (53.3%), Meigs (52.9%) and Vinton (55.1%). Between 2008 and 2010, regions experiencing the greatest decrease in dental care utilization included suburban counties (7.5%)

decrease) and Cuyahoga County (greater Cleveland area, 4.7% decrease). Appalachian Counties (7.7% increase), rural counties (3.0% increase) and Hamilton County (2.8% increase) exhibited increased dental care utilization over that period of time.

Trends in Foregone Dental Care

Tables 15 and 24 and Figure 5 depict trends in foregone dental care. For the state of Ohio overall in 2008, 13.9% of respondents indicated that they had foregone dental care at least once during the previous 12 months (needed dental care but did not get it). The range across all counties at that time was 6.2% - 31.1%. In 2010, the overall rate was 14.8%, reflecting an **increase in foregone dental care across the state of 0.9% during the period 2008 - 2010**.

Counties experiencing the highest rates of foregone dental care in 2008 included Adams (31.1%), Gallia (23.7%), Guernsey (22.5%), Highland (22.3%), Hocking (23.6%), Huron (21.1%), Muskingum (21.7%), Noble (28.0%), Pike (24.2%) and Scioto (23.9%). Between 2008 and 2010, regions experiencing the greatest increase in foregone dental care include suburban counties in aggregate (5.2%) and Montgomery County (greater Dayton, 2.8%). Appalachian counties (-5.4%), Lucas County (-1.8%) and Summit County (greater Akron, -0.7%) experienced a decrease in foregone dental care over the analyzed period. For the Appalachian counties in particular, this result may be due to sampling differences between the two years.

Trends in Foregone Prescriptions

Tables 16 and 25 and Figure 6 depict trends in foregone prescriptions. For the state of Ohio overall in 2008, 15.4% of respondents indicated that they had foregone prescriptions at least once during the previous 12 months (needed prescriptions but did not get them, or medical care needed but not received was prescriptions). The range across all counties at that time was 7.1% - 26.3%. In 2010, the overall rate was 16.8%, reflecting an **increase in foregone prescriptions across the state of 1.4% during the period 2008 - 2010**.

Counties experiencing the highest rates of foregone prescriptions in 2008 included Adams (22.1%), Brown (22.9%), Clinton (24.2%), Gallia (22.7%), Guernsey (24.0%), Harrison (22.8%), Hocking (20.9%), Lawrence (22.3%), Paulding (23.1%) and Pike (26.3%). Between 2008 and 2010, regions experiencing the greatest increase in foregone prescriptions include suburban counties in aggregate (5.3%) and metropolitan counties in aggregate (excluding major metropolitan counties, 2.9%). Appalachian counties (-3.3%), Lucas County (-2.8%) and Montgomery County (-2.8%) experienced the greatest decrease in foregone prescriptions over the analyzed period. For the Appalachian counties in particular, this result may be due to sampling differences between the two years.

Trends in Self-Reported Health Status

Tables 17 and 26, and Figure 7 depict trends in self-

reported health status. For the state of Ohio overall in 2008, 81.6% of respondents reported their health status as good, very good or excellent. The range across all counties at that time was 60.8% - 90.9%. In 2010, the overall rate was 78.1%, reflecting a **decrease in rates of good or better self-reported health status of 3.5% during the period 2008 - 2010**.

Counties experiencing the lowest rates of good or better self-reported health status in 2008 included Adams (60.8%), Gallia (73.9%), Hocking (70.3%), Jackson (65.2%), Knox (73.6%), Lawrence (65.1%), Perry (71.3%), Pike (73.5%), Scioto (67.8%) and Vinton (73.8%). Between 2008 and 2010, the only regions experiencing an increase in the rates of good or better self-reported health status was the Appalachian region (3.8%). However, this result may be due to sampling differences between the two years. Suburban counties (-9.1%), Summit County (8.4%) and Lucas County (-8.3%) experienced the greatest decrease in rates of good or better self-reported health status over the analyzed period.

Trends in Physically Unhealthy Days

Tables 18 and 27 and Figure 8 depict trends in physically unhealthy days. For the state of Ohio overall in 2008, 86.2% of respondents reported that they experienced fewer than 14 physically unhealthy days within the past 30 days. The range across all counties at that time was 71.1% - 96.8%. In 2010, the overall rate was 84.9%, reflecting an **increase in rates of physically unhealthy days of 1.3% during the period 2008 - 2010**.

Counties experiencing the highest rates of physically unhealthy days in 2008 included Adams (72.9%), Belmont (80.6%), Clark (79.5%), Crawford (80.4%), Gallia (76.8%), Jackson (71.1%), Lawrence (74.3%), Morgan (79.4%), Perry (79.6%) and Scioto (78.2%). Between 2008 and 2010, regions experiencing the greatest increase in rates of physically unhealthy days included metropolitan counties (-4.1%) and suburban counties (-4.0%). Appalachian counties (2.6%), rural counties (0.6%), and Hamilton County (0.6%) experienced decreases in their rates of physically unhealthy days over the analyzed period. For Appalachian counties in particular, this result may be due to sampling differences between the two years.

Trends in Mentally Unhealthy Days (CDC Cutoff of <14 Mentally Unhealthy Days)

Tables 19 and 28, and Figure 9 depict trends in mentally unhealthy days. For the state of Ohio overall in 2008, 84.8% of respondents reported that they experienced fewer than 14 mentally unhealthy days within the past 30 days. The range across all counties at that time was 70.3% - 94.0%. In 2010, the overall rate was 91.1%, reflecting an **improvement (or decrease) in rates of mentally unhealthy days of 6.3% during the period 2008 - 2010**.

Counties experiencing the highest rates of mentally unhealthy days in 2008 included Adams (70.3%), Clinton (75.9%), Gallia (75.9%), Jackson (78.6%), Lawrence

(80.2%), Mahoning (79.4%), Monroe (70.6%), Paulding (78.0%), Ross (78.1%) and Scioto (78.7%). Between 2008 and 2010, regions experiencing the greatest decrease in rates of mentally unhealthy days included Lucas County (11.5%), Appalachian counties (11.4%) and Franklin County (9.2%). No region experienced an increase in rates of mentally unhealthy days using the CDC definition.

Trends in Mentally Unhealthy Days (ODMH Cutoff of <20 Mentally Unhealthy Days)

Tables 20 and 29 and Figure 10 depict trends in mentally unhealthy days. For the state of Ohio overall in 2008, 93.7% of respondents reported that they experienced fewer than 20 mentally unhealthy days within the past 30 days. The range across all counties at that time was 81.0 – 98.3%. In 2010, the overall rate was 93.1%, reflecting an **increase in rates of mentally unhealthy days of 0.7% during the period 2008 – 2010.**

Counties experiencing the highest rates of mentally unhealthy days in 2008 included Adams (81.0%), Clinton (85.7%), Jackson (86.7%), Meigs (88.1%), Monroe (88.9%), Muskingum (88.1%), Paulding (87.4%), Pike (88.7%), Scioto (88.6%) and Vinton (89.7%). Between 2008 and 2010, regions experiencing the greatest decrease in rates of mentally unhealthy days included Appalachian counties (3.9%) and Lucas County (2.5%). For Appalachian counties in particular, this result may be due to sampling differences between the two years. Regions experiencing the greatest increase in rates of mentally unhealthy days included suburban counties (-3.6%), Cuyahoga County (-3.4%) and Montgomery County (-2.9%).

Discussion and Policy Implications

Medical Care Utilization

Between 2008 and 2010, statewide rates of medical care utilization rose from 90.1% to 92.3%. All regions showed an increase over that period of time, with the greatest rate increase (4.2%) in rural counties, and the lowest rate increase (0.5%) in Cuyahoga County.

Higher rates of medical care utilization found in smokers and the overweight and obese are of particular policy significance. These utilization rates are associated with modifiable health risk behaviors and continued or enhanced funding for programs that target efforts to reduce smoking, increase exercise and promote healthy eating may result in lowered health care costs for the state of Ohio.

Significant equity issues regarding access to health care have historically revolved around access for unmarried males with children (though this was not specifically addressed in this study), who are typically not covered in public health insurance programs to the same extent that women are. Racial and ethnic differences are not present when educational attainment and income are adjusted for in the models, suggesting that the opportunity for utilization of medical care is linked to education and income.

This does not imply that there are not racial and ethnic differences in utilization, but points to the more complex relationships among many social determinants of health. Trends in medical care utilization over time, and in the geographic distribution of lowest utilization rates, suggest that the economic challenges in the state have had an impact, or are at least temporally associated with, an increased rate of utilization (2.0% increase from 2008 to 2010).

Foregone Medical Care

Between 2008 and 2010, statewide rates of foregone medical care rose from 23.4% to 25.4%. Most regions showed an increase over that period of time, with the greatest rate increase (5.8%) in suburban counties, and the greatest rate decrease (-2.5%) in Appalachian counties. This Appalachian trend may be due to enhanced efforts to enroll participants in Medicaid and targeted efforts to increase access to care in this region.

Strikingly, those who had experienced difficulty paying their medical bills were 4.5 times more likely to have foregone needed medical care in the past year. This finding supports the idea that individuals, and not just the business community, are struggling with high health care costs, particularly in the face of catastrophic illness.

Policies that mitigate the risk to individuals from such catastrophic illnesses, paired with incentivization of individual behaviors that help to prevent such illnesses, will be important in addressing this issue. In addition, current smokers and obese individuals were more likely to have foregone needed medical care within the past year. Again, these associations with modifiable health risk behaviors argue in favor of targeted programs aimed at health risk behavior modification.

Equity issues regarding foregone medical care reveal significant differences for gay, bisexual or transgendered men, who were more likely than heterosexual men to have foregone care. Differences also exist for men in larger households, those who are not working because they are disabled, and those who are overweight, all of whom are more likely to have foregone care. Men who are non-drinkers are less likely to have foregone care. The issues raised here speak, once again, to the place of adult males in relation to safety-net programs, and in particular to rising unemployment.

Trends regarding foregone medical care reveal that the rate of foregoing medical care rose by 2.0% between 2008 and 2010. Suburban counties seem particularly hard-hit, and all of these trends support a significant impact on access to health care over the period of the Great Recession. Perceptions of unemployment and employment availability, population shift, and housing market changes over this period of time may be impacting suburban areas differentially compared with other regions; all of these issues would have an impact on medical care utilization over the same period of time. It is particularly important to

pay attention to the effect of the long-term changes in the state's economy and its impact on the health of individuals.

Dental Care Utilization

Between 2008 and 2010, statewide rates of dental care utilization dropped from 71.1% to 70.8%, an admittedly modest but potentially important shift. The greatest rate increase was found in Appalachian counties (7.7%), and the greatest rate decrease was found in suburban counties (-7.5%). The Appalachian trend in particular, is likely related to targeted efforts to increase dental access to care in that region over the time period of this study.

It is clear that access to dental care is a major issue in the state of Ohio, with 29.2% reporting no dental care within the past year. Lack of dental care utilization is associated with not having a usual source of medical care, not having dental insurance, being on Medicaid, lower educational attainment, lower income and being female.

Equity issues are noted for men with regard to dental utilization, with more likely utilization among those living in a partial-county dental HPSA, those having no usual source of medical care and those who are overweight. Lower utilization is noted among men with 5 or more persons living in the household. For women, those who are widowed and those who rent their home are more likely to have had dental utilization.

Trend analysis reveals that Ohio rates of dental care utilization have declined in the past two years, and some counties have as few as one third of their population having received dental care within the past 12 months. Suburban counties have been hit particularly hard with decreases in dental utilization, again potentially reflecting economic downturns.

Foregone Dental Care

Between 2008 and 2010, statewide rates of foregone dental care rose from 13.9% to 14.8%. The greatest rate increase was found in suburban counties (5.2%) and the greatest rate decrease was seen in Appalachian counties (-5.4%). Again, the Appalachian trend is consistent with efforts to increase dental access to care during the time period of this study. Medicaid and Medicare recipients, those without dental insurance, Asians, African-Americans, those with incomes below 138% of FPL, those who rent their home, have had difficulty paying medical bills and those who currently smoke are each more likely to have foregone dental care within the past 12 months. Targeting smokers to be more vigilant about their oral health would seem to be warranted. For whites, insurance type (dual-eligibles), lower income and renting a home are associated with increased likelihood of foregoing dental care; age over 65 years and living in an Appalachian, Metropolitan or Rural region were associated with a lower likelihood of foregoing dental care. For African-Americans, LGBT status and living in an area with a dental allied health provider to population ratio below the state median were associated with increased likelihood of foregoing dental care. Of particular note is that members

of the African-American community who are lesbian, gay, bisexual or transgendered are nearly 3 times more likely to have foregone dental care than African-Americans who are not part of the LGBT community.

For residents of rural regions, being female, Hispanic (over 5 times more likely) or a current smoker (over three times more likely) significantly increased the likelihood of having foregone dental care; having no usual source of medical care was associated with a lower likelihood of foregoing dental care. For residents of suburban regions, living in an area with a dentist-to-population ratio below the state median, living in an area with a dental allied health provider-to-population ratio below the state median and being underweight were associated with higher likelihood of having foregone dental care.

Foregone Prescriptions

Between 2008 and 2010, statewide rates of foregone prescriptions rose from 15.4% to 16.8%. The greatest rate increase was found in suburban counties (5.3%) and the greatest rate decrease was found in Appalachian counties (-3.3%).

Females, those with incomes below 100% of FPL, those not working due to disability and those who have had difficulty paying for medical bills all had higher likelihood of foregoing a needed prescription. Notably, those who used to smoke and those who drink one or more sodas per day were also more likely to have foregone purchasing a needed prescription in the previous 12 months. Perhaps the most salient policy issue may be to enhance education of pharmacists, nurses and physicians across the state about the relationship of these issues to patients' ability to adhere to medication regimens.

Equity issues with regard to foregone prescriptions reveal that, for males, age, having a bachelor's degree, being a past or current smoker and consumption of one or more sodas per week were associated with an increased likelihood of having foregone prescriptions. Younger age was associated with a decreased likelihood of having foregone prescription care for males. For females, being on Medicaid was associated with a decreased likelihood of having foregone prescriptions, while having no prescription drug coverage was associated with an increased likelihood of having foregone prescriptions.

Trends across the state over the previous two years reflect a rise in prevalence of 1.4% during that time. Suburban counties particularly seem hard-hit, as well as metropolitan counties. There were some regions that noted improvement over the same time period.

Self-Reported Health Status

The uninsured, older individuals, those with lower educational attainment, those who are retired and those who have experienced difficulty paying medical bills are all more likely to have reported fair or poor health status. Of interest is that smokers, non-drinkers and those who are

underweight are also more likely to have reported worse health status. No equity issues were found with regard to this variable in the adjusted regression models, though it is likely that educational attainment and difficulty paying medical bills reflect differences in income and opportunity that may account for differences seen among racial and ethnic groups.

Trends with regard to self-reported health status reflect a worsening across the state of 3.5% over 2008-2010. Hardest-hit areas include suburban counties and Appalachian counties. These trends, if followed over time, may turn out to reflect effects of the economic downturn if they do not persist. They may also, if persistent over time, reflect long-term challenges in access to health care and may necessitate structured efforts to address the social determinants of health in these regions.

Physically Unhealthy Days

Being on Medicare, older age, lower income, not working because of retirement or disability, divorced and having difficulty paying medical bills were all associated with a higher likelihood of having >14 physically unhealthy days within the past 30 days. Health behaviors related to a high frequency of physically unhealthy days include current use of smokeless tobacco or cigarettes, being a non-drinker and being underweight or obese.

No equity issues related to physically unhealthy days were found in this analysis.

Trend analysis reveals an increasing statewide rate (1.3% increase 2008-2010) of those who report >14 physically unhealthy days within the past 30 days. Metropolitan (4.1% increase) and suburban (4.0% increase) counties reported the greatest increases in physically unhealthy days.

Mentally Unhealthy Days

Being uninsured, having lower income, not working for any reason and experiencing difficulty paying medical bills were associated with a higher likelihood of reporting >14 mentally unhealthy days within the past 30 days. Current smokers, binge drinkers, the obese (CDC cutoff) and the underweight (ODMH cutoff) had a higher likelihood of reporting >14 mentally unhealthy days.

No equity issues related to mentally unhealthy days were found in this analysis.

Trend analysis reveals an increase in reported rates of mentally unhealthy days by 0.7% between 2008 and 2010. Suburban counties, Cuyahoga County and Montgomery County experienced the greatest increase.

Psychological Distress (K6 Score)

Living in a county with a mental health provider-to-population ratio below the mean, having Medicare or Medicare/Medicaid (dual-eligibles) insurance, not working due to disability or due to reasons other than disability or retirement, experiencing difficulty paying medical bills,

being a current smoker and consuming one or more sodas per day were related to having a K6 score that indicates a very high risk for distress.

No equity issues related to the K6 score were found in this analysis.

The K6 scale was not included in the 2008 OFHS Survey, so no trend analysis was possible.

Geographic Issues

There is a significant diminishment of access to care across multiple measures, both intermediate and proximate, as described above, in the suburban regions of the state. Several factors may be contributing to this. Employment shifts, population migration and aging demographic shifts all are related. It is possible that this study reflects a truly significant impact of the economic downturn in the suburban region, and these findings should be compared with employment and population trends over the same period of time.

It is also important to note that there is a cluster of counties which have the highest frequency of unfavorable outcomes with regard to this study. These counties were among the ten least-favorably-ranked counties for at least four of the outcome variables studied here. (Table 30) They include Adams, Gallia, Scioto, Pike, Hocking, Lawrence and Jackson Counties. These counties are disproportionately from the Appalachian region and public policy approaches to improving the status of health access will need to be multifactorial and long-term, since the variety of issues pointed out in this study for these counties will require complex and sustained focus.

Several outcome variables seemed, over time, to be least favorable for suburban counties. This may reflect economic considerations due to the economic downturn, and it may reflect a previously unrecognized measure of the impact of the recession on these communities.

Provider-to-Population Ratios

It is important to note that, when we compared counties above and below the median ranges for provider-to-population ratios for the state, none of the regression models tested revealed any significant association between this variable and the outcomes of interest. We followed our initial analysis with a separate, detailed analysis to determine if provider-to-population ratios used in this study were associated with any of our outcome measures across the entire spectrum of ratios, rather than just using the median as a cutoff. To accomplish this, scatterplots of provider-to-population ratios compared to each individual outcome measure were created. For each, a linear regression trend line was fit. For each such trend line, the delta, or change, in that line was calculated. For those outcome variables with a delta of greater than 10% over the entire range of provider-to-population ratio for that outcome, a cut point was determined based on visual examination of the scatterplot for the most logical cut point.

Using that cut point, a separate multivariate logistic regression model was completed. Three outcome variables exhibited a delta of greater than 10%. Multivariate regression models were completed for:

- Dental care utilization (using the dentist-to-population ratio)
- Health status (using the pharmacist-to-population ratio)
- Healthy days (physical) (using the pharmacist-to-population ratio)

None of these multivariate models exhibited a statistically significant change. From this, we infer that a simple provider-to-population ratio may not be the best way to evaluate the impact of provider distribution on health. For future studies, utilization of measures of geographic access that adjust provider-to-population ratios for such variations as number of full-time-equivalent providers, expected number of patients in a geographic region, and travel time to providers using zip code centroids paired with provider addresses may yield a better picture of the true relationship between provider distribution and access measures, both intermediate and proximate. This approach to measuring geographic distribution of physicians has been described by Rosenthal and colleagues, and the methodology described is beyond the scope of this study.¹⁷

Policy Implications: What Can We Do to Improve Effective Access to Health Care?

- Targeted efforts to reduce smoking, increase exercise, and promote healthy eating may result in lower health care costs for the state of Ohio. Continued funding for existing programs, and additional programmatic development should be considered.
- Targeted efforts to enhance services to individuals living in Appalachian communities, who seem to have the worst overall access to health care may decrease regional disparities in health outcomes.
- Targeted efforts to enhance services to individuals living in suburban communities, who seem to have seen the greatest decrease in access during the Great Recession, while recognizing the connection between health and other issues such as jobs, food security and safe housing, are needed.
- Dental care utilization and unrealized dental care are a significant issue. A statewide assessment of the dental workforce and its distribution and availability to those most in need would help define the problem and point toward potential solutions. Enhancement of Medicaid coverage for dental care would improve access to care for some of those most in need.

Appendix 1: Data Tables

Please note: Statistically significant findings are presented in bold type.

Data tables for Specific Aim #1

Table 1: Univariate Summary Data

TABLE 1: UNIVARIATE SUMMARY DATA	Unweighted		Weighted	
Variable	N	%	N	%
<i>Environmental Characteristics</i>				
Primary Care provider ratio for adults				
Above Median for State of Ohio ^r	5929	71.8	6399293	72.7
Below Median for State of Ohio	2329	28.2	2405936	27.3
Pharmacists ratio				
Above Median for State of Ohio ^r	6087	73.7	6676879	75.6
Below Median for State of Ohio	2171	26.3	2151587	24.4
Dentists ratio				
Above Median for State of Ohio ^r	6501	78.7	7075671	80.4
Below Median for State of Ohio	1757	21.3	1729558	19.6
Dentist Allied Health ratio				
Above Median for State of Ohio ^r	5992	72.6	6399081	72.7
Below Median for State of Ohio	2266	27.4	2406148	27.3
Mental Health ratio				
Above Median for State of Ohio ^r	6745	81.7	7314760	83.0
Below Median for State of Ohio	1513	18.3	1490469	17.0
Primary Care HPSA				
Whole County	4624	56.0	5219187	59.3
Part of County	600	7.3	602856	6.8
None ^r	3034	36.7	2983186	33.9
Dental HPSA				
Whole County	4693	56.8	5252871	59.7
Part of County	1064	12.9	1136107	12.9
None ^r	2501	30.3	2416251	27.4
Mental Health HPSA				
Whole County	873	10.6	998964	11.3
Part of County	2522	30.5	2583377	29.3
None ^r	4863	58.9	5222888	59.3
Hospital beds in region				
Above Median for State of Ohio ^r	6589	79.8	7259634	82.4
Below Median for State of Ohio	1669	20.2	1545596	17.6
<i>Population Characteristics</i>				

Table 1: Univariate Summary Data (cont.)

TABLE 1: UNIVARIATE SUMMARY DATA	Unweighted		Weighted	
Variable	N	%	N	%
Has usual source of care				
Yes ^r	7652	93.4	7996629	91.7
No	540	6.6	722421	8.3
Type of health insurance (Individuals under 65)				
Private ^r	3953	67.9	4767071	65.7
Medicare only	279	4.8	303092	4.2
Dual eligible -(Medicare/Medicaid)	181	3.1	151012	2.1
Medicaid only	525	9.0	673177	9.3
Uninsured	886	15.2	1364604	18.8
Type of health insurance				
Private ^r	4051	49.0	4830697	54.7
Medicare only	2368	28.6	1648049	18.7
Dual eligible -(Medicare/Medicaid)	413	5.0	292167	3.3
Medicaid only	536	6.5	679775	7.7
Uninsured	908	11.0	1377777	15.6
Has prescription drug coverage				
Yes ^r	6648	81.3	6723115	77.2
No	1532	18.7	1986264	22.8
Has dental coverage				
Yes ^r	4480	55.5	4860976	56.3
No	3591	44.5	3766389	46.7
Has car or truck available				
Yes ^r	7457	90.3	8057222	91.4
No	799	9.7	755797	8.6
Gender				
Male ^r	3234	39.1	4238192	48.0
Female	5042	60.9	4590273	52.0
Age				
18-34 ^r	1203	14.5	2565947	29.1
35-44	1068	12.9	1083746	12.3
45-54	1679	20.3	1768523	20.0
55-64	1874	22.6	1840739	20.9
65+	2452	29.6	1569510	17.8
Race				
White/Other ^r	7024	84.9	7480379	84.7
Black/African American	1007	12.2	995164	11.3
Hispanic	189	2.3	275629	3.1
Asian	56	0.7	77293	0.9

Table 1: Univariate Summary Data (cont.)

TABLE 1: UNIVARIATE SUMMARY DATA Variable	Unweighted		Weighted	
	N	%	N	%
LGBT status				
Heterosexual/straight ^f	7673	97.9	8206598	97.5
Gay/lesbian	93	1.2	102523	1.2
Bisexual	69	0.9	106727	1.3
Region				
Appalachian	1332	16.1	1385385	15.7
Metropolitan	4206	50.8	4831714	54.7
Rural	1292	15.6	1170152	13.3
Suburban ^f	1446	17.5	1441215	16.3
# of persons in household				
1 ^r	2787	33.7	1995774	22.6
2	2786	33.7	2939504	33.3
3	1114	13.5	1538298	17.4
4	875	10.6	1253426	14.2
5 or More	714	8.6	1101464	12.5
Children in household				
Yes ^f	5961	72.2	5775998	65.6
No	2293	27.8	3030227	34.4
Income as percent of poverty				
<100%	1756	21.2	2070271	23.4
100%-138%	746	9.0	793319	9.0
139%-200%	972	11.7	1044676	11.8
201%-300%	1342	16.2	1424527	16.1
>300% ^f	3460	41.8	3495673	39.6
Educational attainment				
<High school	799	9.7	1180475	13.4
High school	2813	34.0	3178985	36.0
Some college	2258	27.3	2183909	24.7
Bachelor's degree	1275	15.4	1247391	14.1
Advanced degree ^f	1131	13.7	1037705	11.8
Employment status				
Employed ^f	3979	48.1	4807143	54.5
Retired	2202	26.6	1537358	17.4
Disabled	776	9.4	766853	8.7
Not working	1319	15.9	1717112	19.4

Table 1: Univariate Summary Data (cont.)

TABLE 1: UNIVARIATE SUMMARY DATA	Unweighted		Weighted	
Variable	N	%	N	%
Marital status				
Married /unmarried couple ^f	4409	53.3	5118884	58.0
Divorced	1410	17.0	1215745	13.8
Widowed	1161	14.0	679938	7.7
Never married	1296	15.7	1813899	20.5
Owens home (tenure)				
Owns ^f	6103	73.7	6203919	70.3
Rents	2173	26.3	2624547	29.7
Difficulty paying medical bills				
Yes	2070	25.1	2480716	28.2
No ^f	6174	74.9	6317116	71.8
Health Behaviors				
Smokeless Tobacco use				
Never user ^f	7619	92.1	7923804	89.8
Past user	493	6.0	650691	7.4
Current user	164	2.0	253971	2.9
Cigarette use				
Never user ^f	4327	52.3	4558433	51.6
Past user	2200	26.6	2085499	23.6
Current user	1749	21.1	2184534	24.7
Alcohol use				
Non-drinker	4272	51.6	4308803	48.8
Drinker without binge in past 30 days ^f	2909	35.2	2974890	33.7
Drinker with binge in past 30 days	1095	13.2	1544772	17.5
Soda consumption				
None ^f	4281	51.7	4121630	46.7
<1 per day	2643	31.9	2954409	33.5
1 or more per day	1352	16.3	1752426	19.8
BMI				
Underweight (<18.5)	117	1.5	130808	1.5
Normal weight ^f (18.5-24.9)	2544	32.0	2804571	33.0
Overweight (25-29.9)	2738	34.5	2892056	34.0
Obese (>29.9)	2548	32.1	2675513	31.5
Intermediate Outcomes of Effective Access to Health Care				
Foregone Medical Care				
Yes	1842	22.3	2236847	25.4
No	6406	77.7	6566048	74.6

Table 1: Univariate Summary Data (cont.)

TABLE 1: UNIVARIATE SUMMARY DATA	Unweighted		Weighted	
Variable	N	%	N	%
Medical Care Utilization				
Yes	7779	94.0	8148803	92.3
No	496	6.0	679362	7.7
Foregone Dental Care				
Yes	1059	12.8	1306535	14.8
No	7197	87.2	7506226	85.2
Dental Care Utilization				
Yes	5866	72.4	6144479	70.8
No	2238	27.6	2531029	29.2
Foregone Prescriptions				
Yes	1238	15.0	1476594	16.8
No	7025	85.0	7338196	83.2
<i>Proximate Outcomes of Effective Access to Health Care</i>				
Health Status				
Excellent/Very Good/Good	6384	77.4	6872717	78.1
Fair/Poor	1862	22.6	1927060	21.9
Healthy Days- Physical				
Less than 14 non-healthy days	6838	84.6	7350454	84.9
14 or more non-health days	1249	15.4	1305467	15.1
Healthy Days- Mental				
Less than 14 non-healthy days	7503	91.6	7957399	91.1
14 or more non-health days	684	8.4	778783	8.9
Healthy Days- Mental				
Less than 20 non-healthy days	7661	93.6	8129588	93.1
20 or more non-health days	526	6.4	606594	6.9
Psychological Distress (K6 Score)				
Not Very High Risk for Distress	7729	93.4	8174852	92.6
Very High Risk for Distress	547	6.6	653614	7.4

^r Referent value

Table 2: Lack of Medicare Care Utilization

(Relative Risk of No Physician or Emergency Room Visit within Past 12 Months)

(Note: All significant findings, $p < .05$, are in bold)

TABLE 2: MEDICAL CARE UTILIZATION	Medical Care Utilization - Unadjusted			Medical Care Utilization Adjusted		
	CI₉₅			CI₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
<i>Environmental Characteristics</i>						
Primary Care provider ratio for adults						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	0.87	0.69	1.08	0.93	0.67	1.28
Hospital beds in region						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.14	0.89	1.45	1.41	0.95	2.07
Primary Care HPSA						
Whole County	0.85	0.55	1.29	0.60	0.34	1.05
Part of County	1.07	0.87	1.32	1.15	0.75	1.72
None ^r						
<i>Population Characteristics</i>						
Has usual source of care						
Yes ^r						
No	4.90	3.98	5.96	3.52	2.65	4.61
Type of health insurance						
Private ^r						
Medicare only	0.33	0.24	0.47	1.16	0.62	2.10
Dual eligible (Medicare/Medicaid)	0.13	0.04	0.42	0.47	0.13	1.62
Medicaid only	0.45	0.25	0.81	0.63	0.31	1.26
Uninsured	3.19	2.61	3.85	3.37	2.49	4.48
Has car or truck available						
Yes ^r						
No	0.76	0.50	1.14	0.97	0.56	1.63
Gender						
Male ^r						
Female	0.42	0.34	0.52	0.44	0.34	0.58

Table 2: Lack of Medicare Care Utilization (cont.)

TABLE 2: MEDICAL CARE UTILIZATION	Medical Care Utilization - Unadjusted			Medical Care Utilization Adjusted		
	CI₉₅			CI₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Age						
18-34 ^r						
35-44	0.97	0.73	1.28	1.46	1.04	2.03
45-54	0.78	0.60	1.01	1.15	0.80	1.63
55-64	0.56	0.42	0.75	1.06	0.70	1.57
65+	0.19	0.13	0.28	0.33	0.16	0.70
Race						
White/Other ^r						
Black/African American	0.81	0.57	1.15	0.70	0.45	1.07
Hispanic	1.05	0.55	1.94	0.75	0.33	1.65
Asian	1.69	0.71	3.72	1.33	0.56	3.00
LGBT status						
Heterosexual/straight ^r						
Gay/lesbian	1.22	0.51	2.74	1.21	0.45	3.00
Bisexual	0.97	0.31	2.75	0.96	0.27	3.03
Region						
Appalachian	1.31	0.93	1.84	1.20	0.78	1.83
Metropolitan	1.24	0.93	1.65	1.27	0.81	1.95
Rural	1.37	0.97	1.92	1.25	0.80	1.93
Suburban ^r						
# of persons in household						
1 ^r						
2	0.83	0.63	1.08	0.85	0.59	1.21
3	0.96	0.70	1.32	0.72	0.46	1.13
4	0.91	0.64	1.28	0.56	0.32	0.98
5 or More	0.90	0.63	1.27	0.50	0.29	0.87
Children in household						
Yes ^r						
No	0.73	0.60	0.90	0.71	0.50	0.99
Income as percent of poverty						
<100%	1.21	0.91	1.59	1.43	0.95	2.12
100%-138%	1.67	1.19	2.33	1.78	1.14	2.74
139%-200%	1.59	1.17	2.15	1.65	1.11	2.41
201%-300%	1.42	1.07	1.89	1.48	1.07	2.04
>300% ^r						

Table 2: Lack of Medicare Care Utilization (cont.)

TABLE 2: MEDICAL CARE UTILIZATION	Medical Care Utilization - Unadjusted			Medical Care Utilization Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Educational attainment						
<High school	1.06	0.67	1.65	1.46	0.82	2.54
High school	1.35	0.95	1.90	1.32	0.87	1.98
Some college	1.22	0.85	1.76	1.26	0.83	1.89
Bachelor's degree	1.24	0.83	1.85	1.16	0.74	1.81
Advanced degree ^f						
Employment status						
Employed ^f						
Retired	0.28	0.20	0.40	0.60	0.36	0.98
Disabled	0.10	0.04	0.24	0.13	0.05	0.34
Not working	0.87	0.68	1.11	0.61	0.43	0.87
Marital status						
Married /unmarried couple ^f						
Divorced	0.99	0.74	1.33	0.79	0.54	1.15
Widowed	0.61	0.40	0.93	1.45	0.84	2.43
Never married	1.39	1.09	1.76	0.76	0.53	1.07
Owns home (tenure)						
Owns ^f						
Rents	1.36	1.10	1.67	0.95	0.69	1.32
Difficulty paying medical bills						
Yes	0.89	0.71	1.13	0.53	0.39	0.72
No ^f						
Health Behaviors						
Smokeless Tobacco use						
Never user ^f						
Past user	1.38	0.97	1.94	0.84	0.54	1.29
Current user	1.36	0.75	2.38	0.97	0.49	1.87
Cigarette use						
Never user ^f						
Past user	0.73	0.55	0.96	0.67	0.48	0.94
Current user	1.38	1.10	1.72	0.84	0.60	1.15
Alcohol use						
Non-drinker	0.84	0.67	1.06	1.00	0.77	1.31
Drinker without binge in past 30 days ^f						
Drinker with binge in past 30 days	1.46	1.12	1.89	1.15	0.83	1.58

Table 2: Lack of Medicare Care Utilization (cont.)

TABLE 2: MEDICAL CARE UTILIZATION	Medical Care Utilization - Unadjusted			Medical Care Utilization Adjusted		
	CI₉₅			CI₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Soda consumption						
None ^r						
<1 per day	1.02	0.80	1.29	0.87	0.66	1.13
1 or more per day	1.55	1.21	1.98	1.14	0.82	1.56
BMI						
Underweight (<18.5)	0.43	0.19	0.98	0.40	0.14	1.09
Normal weight ^r (18.5-24.9)						
Overweight (25-29.9)	0.71	0.56	0.89	0.68	0.51	0.90
Obese (>29.9)	0.53	0.41	0.70	0.53	0.41	0.70

^r Referent value

Table 3: Foregone Medical Care

(Relative Risk of Not Getting Needed Medical Care in Past 12 Months)

(Note: All significant findings, $p < .05$, are in bold)

TABLE 3: FOREGONE MEDICAL CARE	Foregone Medical Care Unadjusted			Foregone Medical Care Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
<i>Environmental Characteristics</i>						
Primary Care provider ratio for adults						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	0.98	0.87	1.09	0.99	0.83	1.18
Hospital beds in region						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	0.89	0.78	1.01	0.97	0.77	1.20
Primary Care HPSA						
Whole County	0.89	0.71	1.10	0.75	0.54	1.02
Part of County	1.06	0.96	1.18	0.89	0.70	1.11
None ^r						
<i>Population Characteristics</i>						
Has usual source of care						
Yes ^r						
No	1.68	1.45	1.92	1.13	0.88	1.42
Type of health insurance						
Private ^r						
Medicare only	0.78	0.67	0.91	0.98	0.73	1.31
Dual eligible -(Medicare/Medicaid)	1.30	1.02	1.62	1.07	0.71	1.54
Medicaid only	1.24	1.02	1.50	0.79	0.58	1.06
Uninsured	3.46	3.23	3.69	2.65	2.31	3.00
Has car or truck available						
Yes ^r						
No	1.54	1.35	1.76	0.89	0.69	1.13
Gender						
Male ^r						
Female	1.27	1.15	1.40	1.27	1.11	1.45

Table 3: Foregone Medical Care (cont.)

TABLE 3: FOREGONE MEDICAL CARE	Foregone Medical Care Unadjusted			Foregone Medical Care Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Age						
18-34 ^r						
35-44	1.05	0.90	1.21	1.10	0.90	1.33
45-54	0.97	0.85	1.11	1.07	0.88	1.29
55-64	0.91	0.80	1.04	1.08	0.88	1.31
65+	0.35	0.29	0.43	0.73	0.50	1.04
Race						
White/Other ^r						
Black/African American	1.33	1.16	1.51	0.98	0.79	1.20
Hispanic	1.39	1.06	1.78	1.25	0.81	1.81
Asian	0.82	0.41	1.51	1.19	0.51	2.28
LGBT status						
Heterosexual/straight ^r						
Gay/lesbian	0.96	0.61	1.45	1.27	0.76	1.93
Bisexual	2.11	1.51	2.73	1.41	0.83	2.15
Region						
Appalachian	1.15	0.97	1.36	0.96	0.75	1.22
Metropolitan	1.15	1.00	1.32	1.10	0.85	1.39
Rural	1.04	0.87	1.24	1.06	0.85	1.39
Suburban ^r						
# of persons in household						
1 ^r						
2	0.85	0.75	0.97	1.07	0.88	1.29
3	0.99	0.84	1.14	1.01	0.78	1.28
4	0.99	0.84	1.17	1.14	0.84	1.50
5 or More	0.96	0.80	1.14	0.97	0.70	1.31
Children in household						
Yes ^r						
No	0.91	0.82	1.00	1.24	1.02	1.48
Income as percent of poverty						
<100%	2.61	2.32	2.92	1.46	1.15	1.82
100%-138%	2.86	2.47	3.27	1.44	1.10	1.86
139%-200%	2.43	2.09	2.79	1.54	1.22	1.93
201%-300%	1.80	1.54	2.09	1.34	1.08	1.64
>300% ^r						

Table 3: Foregone Medical Care (cont.)

Variable	Foregone Medical Care Unadjusted			Foregone Medical Care Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Educational attainment						
<High school	2.27	1.87	2.71	0.96	0.68	1.33
High school	1.89	1.58	2.23	0.88	0.67	1.16
Some college	1.94	1.62	2.29	0.93	0.71	1.22
Bachelor's degree	1.29	1.02	1.61	1.01	0.75	1.34
Advanced degree ^r						
Employment status						
Employed ^r						
Retired	0.43	0.36	0.51	0.71	0.54	0.92
Disabled	1.66	1.45	1.88	1.25	0.98	1.57
Not working	1.62	1.46	1.79	1.10	0.93	1.30
Marital status						
Married /unmarried couple ^r						
Divorced	1.77	1.58	1.97	1.12	0.91	1.36
Widowed	0.89	0.74	1.07	1.04	0.80	1.34
Never married	1.43	1.26	1.61	0.97	0.78	1.21
Owns home (tenure)						
Owns ^r						
Rents	1.86	1.70	2.03	1.09	0.91	1.29
Difficulty paying medical bills						
Yes	5.40	5.06	5.73	4.47	4.07	4.88
No ^r						
Health Behaviors						
Cigarette use						
Never user ^r						
Past user	1.17	1.03	1.33	1.15	0.97	1.35
Current user	2.31	2.10	2.52	1.55	1.34	1.80
Alcohol use						
Non-drinker	1.17	1.04	1.30	0.82	0.70	0.97
Drinker without binge in past 30 days ^r						
Drinker with binge in past 30 days	1.51	1.32	1.72	1.09	0.89	1.32
Soda consumption						
None ^r						
<1 per day	1.15	1.03	1.28	1.02	0.87	1.18
1 or more per day	1.40	1.24	1.58	1.04	0.87	1.24

Table 3: Foregone Medical Care (cont.)

TABLE 3: FOREGONE MEDICAL CARE	Foregone Medical Care Unadjusted			Foregone Medical Care Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
BMI						
Underweight (<18.5)	1.42	0.97	1.98	1.42	0.88	2.11
Normal weight ^r (18.5-24.9)						
Overweight (25-29.9)	0.97	0.85	1.10	1.09	0.92	1.27
Obese (>29.9)	1.30	1.15	1.46	1.27	1.08	1.48

^r Referent value

Table 4: Dental Care Utilization

(Relative Risk of Not Getting Needed Dental Care [i.e., no visit to a dentist, orthodontist, oral surgeon, dental hygienist, or other dental care provider]in Past 12 Months)

(Note: All significant findings, p < .05, are in bold)

TABLE 4: DENTAL CARE UTILIZATION	Dental Utilization Unadjusted			Dental Utilization Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
<i>Environmental Characteristics</i>						
Dental Care provider ratio						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.09	0.98	1.21	1.14	0.93	1.29
Allied Dental Care provider ratio						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.04	0.94	1.14	0.95	0.82	1.08
Dental Care HPSA						
Whole County	1.24	1.08	1.41	0.95	0.74	1.18
Part of County	1.05	0.95	1.16	1.00	0.79	1.24
None ^r						
<i>Population Characteristics</i>						
Has usual source of care						
Yes ^r						
No	1.75	1.55	1.95	1.41	1.17	1.66
Type of health insurance						
Private ^r						
Medicare only	1.75	1.58	1.94	1.02	0.78	1.31
Dual eligible (Medicare/Medicaid)	2.49	2.13	2.87	1.23	0.87	1.67
Medicaid only	1.52	1.27	1.81	0.86	0.65	1.12
Uninsured	2.97	2.72	3.22	1.47	1.21	1.77
Dental Insurance						
Yes ^r						
No	2.11	1.95	2.27	1.51	1.34	1.70
Has car or truck available						
Yes ^r						
No	1.90	1.71	2.09	1.10	0.90	1.33

Table 4: Dental Care Utilization (cont.)

TABLE 4: DENTAL CARE UTILIZATION	Dental Utilization Unadjusted			Dental Utilization Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Gender						
Male ^r						
Female	0.83	0.76	0.91	0.78	0.70	0.88
Age						
18-34 ^r						
35-44	0.97	0.83	1.12	1.05	0.86	1.26
45-54	0.93	0.80	1.06	1.00	0.83	1.19
55-64	0.95	0.83	1.08	1.08	0.89	1.29
65+	1.15	1.03	1.29	1.21	0.91	1.55
Race						
White/Other ^r						
Black/African American	1.25	1.10	1.40	0.87	0.72	1.04
Hispanic	1.04	0.78	1.34	0.91	0.63	1.26
Asian	0.54	0.27	1.00	0.72	0.29	1.50
LGBT status						
Heterosexual/straight ^r						
Gay/lesbian	0.86	0.54	1.29	1.04	0.60	1.63
Bisexual	1.65	1.17	2.15	1.34	0.84	1.93
Region						
Appalachian	1.29	1.12	1.48	1.04	0.82	1.30
Metropolitan	1.06	0.93	1.20	0.97	0.75	1.23
Rural	1.08	0.92	1.26	0.98	0.79	1.19
Suburban ^r						
# of persons in household						
1 ^r						
2	0.72	0.65	0.81	0.93	0.80	1.07
3	0.69	0.60	0.79	0.82	0.67	0.99
4	0.58	0.49	0.68	0.80	0.62	1.01
5 or More	0.67	0.56	0.78	0.79	0.60	1.01
Children in household						
Yes ^r						
No	1.12	1.02	1.23	0.96	0.79	1.14

Table 4: Dental Care Utilization (cont.)

TABLE 4: DENTAL CARE UTILIZATION	Dental Utilization Unadjusted			Dental Utilization Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Income as percent of poverty						
<100%	2.88	2.61	3.15	1.84	1.54	2.18
100%-138%	2.76	2.41	3.12	1.55	1.25	1.89
139%-200%	2.28	1.99	2.60	1.37	1.12	1.66
201%-300%	1.73	1.50	1.99	1.27	1.06	1.51
>300% ^f						
Educational attainment						
<High school	4.42	3.74	5.12	2.11	1.59	2.75
High school	3.16	2.64	3.73	1.90	1.48	2.40
Some college	2.48	2.03	3.00	1.62	1.25	2.08
Bachelor's degree	1.55	1.20	1.99	1.28	0.94	1.71
Advanced degree ^f						
Employment status						
Employed ^f						
Retired	1.26	1.13	1.39	0.89	0.73	1.07
Disabled	1.94	1.72	2.17	1.04	0.82	1.29
Not working	1.52	1.36	1.69	1.00	0.84	1.17
Marital status						
Married /unmarried couple ^f						
Divorced	1.65	1.48	1.82	1.00	0.84	1.18
Widowed	1.81	1.62	2.01	1.27	1.04	1.53
Never married	1.33	1.18	1.49	0.92	0.75	1.11
Owns home (tenure)						
Owns ^f						
Rents	1.78	1.65	1.92	1.25	1.08	1.42
Difficulty paying medical bills						
Yes	1.87	1.73	2.01	1.34	1.19	1.50
No ^f						
	Health Behaviors					
Smokeless Tobacco use						
Never user ^f						
Past user	1.17	0.99	1.36	0.91	0.73	1.13
Current user	1.36	1.05	1.69	1.16	0.83	1.56

Table 4: Dental Care Utilization (cont.)

TABLE 4: DENTAL CARE UTILIZATION	Dental Utilization Unadjusted			Dental Utilization Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Cigarette use						
Never user ^r						
Past user	1.40	1.26	1.55	1.18	1.03	1.34
Current user	2.01	1.84	2.18	1.40	1.23	1.59
Alcohol use						
Non-drinker	1.45	1.32	1.59	1.14	1.00	1.29
Drinker without binge in past 30 days ^r						
Drinker with binge in past 30 days	1.36	1.18	1.55	1.08	0.90	1.28
Soda consumption						
None ^r						
<1 per day	1.20	1.08	1.31	1.11	0.98	1.25
1 or more per day	1.47	1.32	1.62	1.16	0.99	1.33
BMI						
Underweight (<18.5)	0.86	0.57	1.25	0.62	0.34	1.07
Normal weight ^r (18.5-24.9)						
Overweight (25-29.9)	0.97	0.86	1.08	1.01	0.89	1.15
Obese (>29.9)	1.17	1.05	1.30	1.13	0.99	1.28

^r Referent value

Table 5: Foregone Dental Care

(Relative Risk of Not Getting Needed Dental Care in Past 12 Months)

(Note: All significant findings, $p < .05$, are in bold)

TABLE 5: FOREGONE DENTAL CARE	Foregone Dental Care Unadjusted			Foregone Dental Care Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
<i>Environmental Characteristics</i>						
Dental Care provider ratio for adults						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	0.93	0.78	1.10	1.15	0.88	1.50
Allied Dental Care provider ratio for adults						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	0.91	0.78	1.07	1.01	0.81	1.26
Dental Care HPSA						
Whole County	1.04	0.81	1.31	0.67	0.45	1.01
Part of County	1.14	0.97	1.34	0.86	0.58	1.25
None ^r						
<i>Population Characteristics</i>						
Has usual source of care						
Yes ^r						
No	1.51	1.21	1.86	0.94	0.68	1.28
Type of health insurance						
Private ^r						
Medicare only	0.91	0.74	1.13	1.04	0.69	1.54
Dual eligible (Medicare/Medicaid)	2.10	1.60	2.72	1.62	1.02	2.49
Medicaid only	2.24	1.77	2.80	1.16	0.80	1.67
Uninsured	4.23	3.70	4.80	1.29	0.98	1.70
Dental Insurance						
Yes ^r						
No	2.65	2.34	3.00	1.93	1.57	2.35
Has car or truck available						
Yes ^r						
No	2.33	1.98	2.72	1.23	0.91	1.64
Gender						
Male ^r						
Female	1.27	1.11	1.46	1.14	0.95	1.37

Table 5: Foregone Dental Care (cont.)

Variable	Foregone Dental Care Unadjusted			Foregone Dental Care Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Age						
18-34 ^r						
35-44	0.94	0.76	1.14	0.91	0.70	1.18
45-54	0.76	0.62	0.91	0.76	0.58	0.97
55-64	0.71	0.59	0.86	0.78	0.57	1.03
65+	0.27	0.21	0.35	0.40	0.24	0.66
Race						
White/Other ^r						
Black/African American	1.82	1.54	2.14	1.31	1.01	1.68
Hispanic	1.63	1.14	2.29	1.31	0.80	2.07
Asian	1.75	0.92	3.03	2.48	1.16	4.41
LGBT status						
Heterosexual/straight ^r						
Gay/lesbian	1.21	0.68	2.02	1.59	0.82	2.79
Bisexual	2.45	1.56	3.56	1.14	0.49	2.38
Region						
Appalachian	1.08	0.85	1.36	0.91	0.61	1.34
Metropolitan	1.02	0.84	1.24	0.82	0.54	1.23
Rural	0.71	0.54	0.93	0.58	0.41	0.83
Suburban ^r						
# of persons in household						
1 ^r						
2	0.63	0.52	0.75	0.85	0.66	1.09
3	0.80	0.65	0.99	0.85	0.62	1.16
4	0.76	0.60	0.96	0.80	0.53	1.17
5 or More	0.97	0.77	1.21	0.93	0.63	1.34
Children in household						
Yes ^r						
No	0.83	0.72	0.96	1.14	0.88	1.45
Income as percent of poverty						
<100%	4.47	3.73	5.30	1.75	1.27	2.39
100%-138%	4.42	3.54	5.46	1.65	1.16	2.31
139%-200%	3.17	2.50	3.97	1.37	0.97	1.92
201%-300%	2.11	1.64	2.70	1.33	0.97	1.82
>300% ^r						

Table 5: Foregone Dental Care (cont.)

TABLE 5: FOREGONE DENTAL CARE	Foregone Dental Care Unadjusted			Foregone Dental Care Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Educational attainment						
<High school	3.28	2.43	4.35	1.02	0.62	1.64
High school	2.61	1.96	3.42	1.15	0.76	1.72
Some college	2.52	1.88	3.32	1.18	0.79	1.75
Bachelor's degree	1.30	0.90	1.87	0.96	0.61	1.49
Advanced degree ^r						
Employment status						
Employed ^r						
Retired	0.40	0.30	0.51	0.78	0.53	1.13
Disabled	2.28	1.91	2.69	1.26	0.92	1.71
Not working	1.97	1.69	2.28	1.21	0.97	1.49
Marital status						
Married /unmarried couple ^r						
Divorced	2.33	1.95	2.77	1.09	0.82	1.44
Widowed	1.03	0.78	1.35	0.95	0.64	1.40
Never married	1.93	1.60	2.32	0.99	0.74	1.33
Owns home (tenure)						
Owns ^r						
Rents	2.72	2.40	3.07	1.37	1.11	1.70
Difficulty paying medical bills						
Yes	6.16	5.46	6.91	4.35	3.67	5.12
No ^r						
Health Behaviors						
Cigarette use						
Never user ^r						
Past user	1.09	0.90	1.32	1.07	0.84	1.35
Current user	2.84	2.47	3.24	1.58	1.28	1.93
Alcohol use						
Non-drinker	1.34	1.14	1.57	0.94	0.76	1.16
Drinker without binge in past 30 days ^r						
Drinker with binge in past 30 days	1.65	1.35	2.00	1.05	0.80	1.36
Soda consumption						
None ^r						
<1 per day	1.15	0.98	1.34	0.91	0.74	1.12
1 or more per day	1.58	1.34	1.86	0.92	0.72	1.16

Table 5: Foregone Dental Care (cont.)

TABLE 5: FOREGONE DENTAL CARE	Foregone Dental Care Unadjusted			Foregone Dental Care Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
BMI						
Underweight (<18.5)	0.91	0.47	1.66	0.76	0.35	1.57
Normal weight ^r (18.5-24.9)						
Overweight (25-29.9)	0.83	0.69	0.99	0.94	0.75	1.18
Obese (>29.9)	1.15	0.97	1.36	1.01	0.81	1.27

^r Referent value

Table 6: Foregone Prescriptions

(Relative Risk of Not Getting Prescriptions in Past 12 Months)

(Note: All significant findings, $p < .05$, are in bold)

TABLE 6: FOREGONE PRESCRIPTIONS	Foregone Prescriptions Unadjusted			Foregone Prescriptions Adjusted		
	CI₉₅			CI₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
<i>Environmental Characteristics</i>						
Pharmacists ratio						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.02	0.88	1.17	0.95	0.77	1.15
<i>Population Characteristics</i>						
Has usual source of care						
Yes ^r						
No	1.18	0.95	1.44	0.79	0.58	1.06
Type of health insurance						
Private ^r						
Medicare only	0.90	0.75	1.07	0.94	0.64	1.35
Dual eligible (Medicare/Medicaid)	1.34	0.99	1.79	0.95	0.57	1.55
Medicaid only	1.34	1.05	1.69	0.71	0.50	1.01
Uninsured	2.89	2.55	3.26	1.10	0.77	1.56
Prescription drug coverage						
Yes ^r						
No	2.55	2.27	2.85	1.51	1.12	2.00
Has car or truck available						
Yes ^r						
No	1.69	1.42	1.99	1.10	0.84	1.42
Gender						
Male ^r						
Female	1.54	1.35	1.74	1.50	1.28	1.76
Age						
18-34 ^r						
35-44	1.24	1.03	1.47	1.12	0.88	1.41
45-54	0.95	0.80	1.13	0.82	0.64	1.03
55-64	0.84	0.69	1.00	0.79	0.60	1.03
65+	0.47	0.38	0.59	0.68	0.43	1.05

Table 6: Foregone Prescriptions (cont.)

Variable	Foregone Prescriptions Unadjusted			Foregone Prescriptions Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Race						
White/Other ^r						
Black/African American	1.24	1.04	1.46	0.89	0.70	1.13
Hispanic	1.39	0.98	1.92	1.01	0.62	1.59
Asian	0.79	0.33	1.75	1.19	0.42	2.80
LGBT status						
Heterosexual/straight ^r						
Gay/lesbian	1.22	0.70	1.99	1.77	0.98	2.87
Bisexual	1.87	1.14	2.81	0.91	0.46	1.70
Region						
Appalachian	1.24	1.01	1.52	0.98	0.75	1.27
Metropolitan	1.07	0.90	1.28	0.93	0.75	1.16
Rural	0.92	0.73	1.16	0.90	0.67	1.20
Suburban ^r						
# of persons in household						
1 ^r						
2	0.84	0.71	0.99	1.06	0.85	1.33
3	1.03	0.85	1.24	1.15	0.87	1.49
4	1.07	0.87	1.30	1.31	0.95	1.77
5 or More	1.05	0.84	1.30	1.07	0.75	1.51
Children in household						
Yes ^r						
No	0.84	0.74	0.96	1.23	0.99	1.52
Income as percent of poverty						
<100%	2.69	2.31	3.13	1.46	1.11	1.90
100%-138%	2.84	2.33	3.42	1.29	0.95	1.74
139%-200%	2.02	1.64	2.47	1.04	0.77	1.38
201%-300%	1.69	1.37	2.06	1.16	0.90	1.49
>300% ^r						
Educational attainment						
<High school	2.68	2.05	3.44	1.03	0.69	1.52
High school	2.18	1.71	2.76	1.04	0.75	1.43
Some college	2.35	1.83	2.97	1.20	0.87	1.63
Bachelor's degree	1.68	1.24	2.24	1.32	0.94	1.85
Advanced degree ^r						

Table 6: Foregone Prescriptions (cont.)

Variable	Foregone Prescriptions Unadjusted			Foregone Prescriptions Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Employment status						
Employed ^r						
Retired	0.56	0.45	0.69	1.03	0.75	1.39
Disabled	2.07	1.76	2.41	1.56	1.18	2.02
Not working	1.63	1.41	1.87	1.15	0.94	1.40
Marital status						
Married /unmarried couple ^r						
Divorced	1.85	1.60	2.13	1.22	0.97	1.52
Widowed	1.01	0.81	1.26	1.00	0.73	1.35
Never married	1.25	1.05	1.48	0.93	0.72	1.19
Owns home (tenure)						
Owns ^r						
Rents	1.87	1.66	2.10	1.10	0.90	1.33
Difficulty paying medical bills						
Yes	6.94	6.28	7.62	5.63	4.92	6.37
No ^r						
<i>Health Behaviors</i>						
Cigarette use						
Never user ^r						
Past user	1.25	1.06	1.46	1.27	1.04	1.55
Current user	2.15	1.88	2.44	1.22	1.01	1.48
Alcohol use						
Non-drinker	1.23	1.06	1.41	0.86	0.71	1.03
Drinker without binge in past 30 days ^r						
Drinker with binge in past 30 days	1.43	1.19	1.71	1.06	0.83	1.33
Soda consumption						
None ^r						
<1 per day	1.13	0.98	1.31	1.00	0.83	1.20
1 or more per day	1.60	1.37	1.85	1.26	1.03	1.53
BMI						
Underweight (<18.5)	1.15	0.64	1.95	0.81	0.42	1.49
Normal weight ^r (18.5-24.9)						
Overweight (25-29.9)	1.04	0.87	1.22	1.12	0.92	1.37
Obese (>29.9)	1.35	1.15	1.57	1.16	0.95	1.40

^r Referent value

Table 7: Self-Reported Fair or Poor Health Status

(Relative Risk of Self-Reported Health Status Being Fair or Poor)

(Note: All significant findings, $p < .05$, are in bold)

TABLE 7 – SELF-REPORTED FAIR OR POOR HEALTH STATUS	Self-Reported Health Status Fair or Poor Unadjusted			Self-Reported Health Status Fair or Poor Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
<i>Environment</i>						
Primary Care provider ratio for adults						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.08	0.97	1.20	0.97	0.81	1.15
Pharmacists ratio						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.11	0.99	1.23	0.98	0.82	1.17
Dentists ratio						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.01	0.89	1.13	1.01	0.80	1.25
Primary Care HPSA						
Whole County	1.50	1.25	1.77	1.15	0.84	1.53
Part of County	1.16	1.04	1.29	1.04	0.83	1.30
None ^r						
Hospital beds in region						
Above Median ^r						
Below Median	1.01	0.89	1.14	1.19	0.96	1.45
<i>Population Characteristics</i>						
Has usual source of care						
Yes ^r						
No	0.93	0.75	1.13	0.84	0.64	1.08
Type of health insurance						
Private ^r						
Medicare only	2.97	2.67	3.28	1.74	1.29	2.30
Dual eligible (Medicare/Medicaid)	4.07	3.50	4.65	1.59	1.05	2.33
Medicaid only	2.85	2.42	3.32	1.51	1.11	2.02
Uninsured	2.69	2.34	3.06	1.59	1.13	2.18
Has prescription drug coverage						
Yes ^r						
No	1.50	1.35	1.66	1.06	0.82	1.34
Has dental coverage						
Yes ^r						
No	1.58	1.44	1.73	1.03	0.87	1.21

Table 7: Self-Reported Fair or Poor Health Status (cont.)

TABLE 7 – SELF-REPORTED FAIR OR POOR HEALTH STATUS	Self-Reported Health Status Fair or Poor Unadjusted			Self-Reported Health Status Fair or Poor Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Has car or truck available						
Yes ^f						
No	2.33	2.09	2.57	0.98	0.77	1.23
Gender						
Male ^f						
Female	1.04	0.94	1.14	0.97	0.84	1.12
Age						
18-34 ^f						
35-44	1.63	1.32	1.98	1.66	1.26	2.14
45-54	1.74	1.46	2.06	1.79	1.38	2.27
55-64	2.03	1.73	2.37	1.84	1.39	2.38
65+	2.28	1.96	2.63	1.52	1.01	2.20
Race						
White/Other ^f						
Black/African American	1.45	1.27	1.64	1.00	0.81	1.23
Hispanic	1.42	1.08	1.81	1.16	0.75	1.70
Asian	0.53	0.20	1.25	1.03	0.39	2.18
LGBT status						
Heterosexual/straight ^f						
Gay/lesbian	0.87	0.49	1.43	1.04	0.53	1.83
Bisexual	1.35	0.85	1.99	1.20	0.70	1.88
Region						
Appalachian	1.30	1.09	1.53	0.94	0.70	1.23
Metropolitan	1.16	1.01	1.34	1.01	0.72	1.29
Rural	1.00	0.82	1.20	0.81	0.60	1.07
Suburban ^f						
# of persons in household						
1 ^f						
2	0.79	0.70	0.88	1.12	0.95	1.31
3	0.69	0.59	0.81	1.07	0.85	1.31
4	0.53	0.43	0.65	1.05	0.77	1.38
5 or More	0.69	0.56	0.83	1.17	0.88	1.50
Children in household						
Yes ^f						
No	1.40	1.25	1.56	1.21	0.95	1.50
Income as percent of poverty						
<100%	3.34	3.00	3.70	1.24	0.97	1.56
100%-138%	2.67	2.27	3.11	1.04	0.80	1.35
139%-200%	2.35	2.00	2.73	1.09	0.85	1.38
201%-300%	1.53	1.28	1.82	0.95	0.76	1.19
>300% ^f						

Table 7: Self-Reported Fair or Poor Health Status (cont.)

Variable	Self-Reported Health Status Fair or Poor Unadjusted			Self-Reported Health Status Fair or Poor Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Educational attainment						
<High school	4.94	4.26	5.61	1.91	1.40	2.54
High school	2.76	2.28	3.28	1.43	1.10	1.84
Some college	1.84	1.47	2.27	1.07	0.81	1.41
Bachelor's degree	0.98	0.73	1.29	0.89	0.64	1.23
Advanced degree ^r						
Employment status						
Employed ^r						
Retired	2.45	2.16	2.77	1.84	1.47	2.27
Disabled	6.43	5.97	6.85	4.10	3.38	4.84
Not working	2.21	1.91	2.54	1.37	1.11	1.67
Marital status						
Married /unmarried couple ^r						
Divorced	2.04	1.83	2.27	1.22	0.99	1.48
Widowed	2.05	1.81	2.31	1.14	0.89	1.44
Never married	1.12	0.97	1.30	1.15	0.91	1.45
Owns home (tenure)						
Owns ^r						
Rents	1.73	1.57	1.89	1.14	0.95	1.35
Difficulty paying medical bills						
Yes	2.27	2.08	2.45	1.96	1.72	2.21
No ^r						
Health behaviors						
Smokeless Tobacco use						
Never user ^r						
Past user	1.13	0.94	1.35	1.15	0.89	1.46
Current user	1.29	0.95	1.69	1.34	0.89	1.90
Cigarette use						
Never user ^r						
Past user	1.74	1.55	1.93	1.40	1.20	1.62
Current user	2.24	2.03	2.47	1.62	1.37	1.90
Alcohol use						
Non-drinker	2.04	1.83	2.27	1.29	1.10	1.50
Drinker without binge in past 30 days ^r						
Drinker with binge in past 30 days	1.16	0.96	1.40	0.99	0.77	1.26
Soda consumption						
None ^r						
<1 per day	1.06	0.94	1.18	1.01	0.86	1.16
1 or more per day	1.33	1.17	1.49	1.14	0.95	1.35

Table 7: Self-Reported Fair or Poor Health Status (cont.)

TABLE 7 – SELF-REPORTED FAIR OR POOR HEALTH STATUS	Self-Reported Health Status Fair or Poor Unadjusted			Self-Reported Health Status Fair or Poor Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
BMI						
Underweight (<18.5)	1.98	1.40	2.66	1.55	1.01	2.24
Normal weight ^r (18.5-24.9)						
Overweight (25-29.9)	1.02	0.88	1.17	0.96	0.81	1.15
Obese (>29.9)	1.79	1.60	2.00	1.60	1.37	1.85

Table 8: Unhealthy Days (Physical)

(Relative Risk of 14 or More Physically Unhealthy Days in Past Month)

(Note: All significant findings, $p < .05$, are in bold)

TABLE 8: UNHEALTHY DAYS (PHYSICAL)	14 or More Physically Unhealthy Days Unadjusted			14 or More Physically Unhealthy Days Adjusted		
	CI₉₅			CI₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
<i>Environmental Characteristics</i>						
Primary Care provider ratio for adults						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.10	0.96	1.26	1.02	0.82	1.25
Pharmacists ratio						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.02	0.89	1.18	0.88	0.71	1.09
Dentists ratio						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	0.99	0.85	1.15	1.13	0.87	1.46
Primary Care HPSA						
Whole County	1.43	1.13	1.79	1.25	0.76	1.30
Part of County	1.14	0.99	1.30	1.00	0.65	1.11
None ^r						
Hospital beds in region						
Above Median ^r						
Below Median	0.89	0.75	1.05	0.86	0.65	1.11
<i>Population Characteristics</i>						
Has usual source of care						
Yes ^r						
No	0.86	0.65	1.13	0.78	0.55	1.10
Type of health insurance						
Private ^r						
Medicare only	2.71	2.35	3.11	1.48	1.05	2.06
Dual eligible (Medicare/Medicaid)	3.87	3.15	4.65	1.18	0.75	1.82
Medicaid only	2.72	2.20	3.32	1.41	0.99	1.97
Uninsured	2.39	1.99	2.86	1.42	0.92	2.14

Table 8: Unhealthy Days (Physical) (cont.)

TABLE 8: UNHEALTHY DAYS (PHYSICAL)	14 or More Physically Unhealthy Days Unadjusted			14 or More Physically Unhealthy Days Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Has prescription drug coverage						
Yes ^f						
No	1.44	1.25	1.65	0.90	0.64	1.26
Has dental coverage						
Yes ^f						
No	1.54	1.36	1.74	1.04	0.86	1.27
Has car or truck available						
Yes ^f						
No	2.30	1.98	2.64	0.99	0.76	1.29
Gender						
Male ^f						
Female	1.21	1.06	1.37	1.09	0.91	1.29
Age						
18-34 ^f						
35-44	1.42	1.09	1.82	1.27	0.92	1.74
45-54	1.66	1.33	2.06	1.48	1.09	1.98
55-64	1.99	1.62	2.42	1.60	1.16	2.17
65+	2.07	1.70	2.51	1.52	0.97	2.31
Race						
White/Other ^f						
Black/African American	1.34	1.13	1.58	1.04	0.80	1.33
Hispanic	0.87	0.56	1.32	1.00	0.58	1.64
Asian	0.11	0.01	0.70	0.27	0.04	1.42
LGBT status						
Heterosexual/straight ^f						
Gay/lesbian	0.66	0.31	1.33	0.86	0.32	2.01
Bisexual	1.49	0.85	2.41	1.28	0.57	2.48
Region						
Appalachian	1.33	1.07	1.64	0.94	0.68	1.37
Metropolitan	1.23	1.02	1.47	1.02	0.75	1.47
Rural	1.09	0.86	1.37	1.08	0.78	1.50
Suburban ^f						

Table 8: Unhealthy Days (Physical) (cont.)

TABLE 8: UNHEALTHY DAYS (PHYSICAL)	14 or More Physically Unhealthy Days Unadjusted			14 or More Physically Unhealthy Days Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
# of persons in household						
1 ^r						
2	0.83	0.71	0.95	1.24	1.01	1.50
3	0.71	0.57	0.86	1.04	0.78	1.35
4	0.50	0.38	0.65	0.86	0.59	1.24
5 or More	0.71	0.55	0.89	1.17	0.81	1.62
Children in household						
Yes ^f						
No	1.41	1.22	1.62	1.17	0.89	1.52
Income as percent of poverty						
<100%	3.05	2.61	3.54	1.23	0.91	1.65
100%-138%	3.08	2.53	3.71	1.46	1.07	1.95
139%-200%	2.51	2.05	3.04	1.35	1.01	1.78
201%-300%	1.54	1.23	1.91	1.08	0.83	1.41
>300% ^r						
Educational attainment						
<High school	3.97	3.22	4.80	1.38	0.96	1.95
High school	2.22	1.77	2.76	1.10	0.81	1.50
Some college	1.82	1.42	2.30	1.06	0.77	1.44
Bachelor's degree	1.02	0.73	1.40	0.95	0.65	1.39
Advanced degree ^r						
Employment status						
Employed ^f						
Retired	2.11	1.77	2.51	1.38	1.04	1.83
Disabled	7.36	6.55	8.17	4.35	3.43	5.40
Not working	2.40	1.99	2.87	1.62	1.28	2.04
Marital status						
Married /unmarried couple ^f						
Divorced	2.16	1.87	2.48	1.29	1.02	1.61
Widowed	1.95	1.64	2.30	1.08	0.81	1.41
Never married	1.02	0.84	1.23	1.01	0.75	1.33
Owns home (tenure)						
Owns ^r						
Rents	1.75	1.54	1.97	1.10	0.89	1.34

Table 8: Unhealthy Days (Physical) (cont.)

TABLE 8: UNHEALTHY DAYS (PHYSICAL)	14 or More Physically Unhealthy Days Unadjusted			14 or More Physically Unhealthy Days Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Difficulty paying medical bills						
Yes	2.57	2.30	2.86	2.18	1.86	2.53
No ^r						
<i>Health Behaviors</i>						
Smokeless Tobacco use						
Never user ^r						
Past user	0.97	0.75	1.25	0.93	0.66	1.28
Current user	1.64	1.16	2.22	1.93	1.27	2.74
Cigarette use						
Never user ^r						
Past user	1.52	1.31	1.77	1.18	0.98	1.43
Current user	2.05	1.78	2.35	1.36	1.10	1.66
Alcohol use						
Non-drinker	1.97	1.71	2.27	1.32	1.09	1.58
Drinker without binge in past 30 days ^r						
Drinker with binge in past 30 days	1.18	0.93	1.48	1.16	0.89	1.58
Soda consumption						
None ^r						
<1 per day	0.91	0.79	1.06	0.83	0.69	0.99
1 or more per day	1.14	0.97	1.34	1.02	0.82	1.25
BMI						
Underweight (<18.5)	2.23	1.47	3.18	1.90	1.18	2.86
Normal weight ^r (18.5-24.9)						
Overweight (25-29.9)	1.02	0.86	1.22	0.98	0.79	1.20
Obese (>29.9)	1.61	1.38	1.86	1.22	1.00	1.48

^r Referent value

Table 9: Unhealthy Days (Mental – CDC Cutoff)

(Relative Risk of 14 or More Mentally Unhealthy Days in Past Month – CDC Cutoff)

(Note: All significant findings, $p < .05$, are in bold)

TABLE 9: UNHEALTHY DAYS (MENTAL) – CDC Cutoff	14 or More Mentally Unhealthy Days (CDC) Unadjusted			14 or More Mentally Unhealthy Days (CDC) Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
<i>Environmental Characteristics</i>						
Primary Care provider ratio for adults						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	0.99	0.81	1.20	0.85	0.62	1.15
Mental Health provider ratio						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.08	0.86	1.35	1.13	0.78	1.61
Mental Health HPSA						
Whole County	1.11	0.91	1.35	1.06	0.73	1.53
Part of County	1.28	0.97	1.69	1.17	0.78	1.73
None ^r						
<i>Population Characteristics</i>						
Has usual source of care						
Yes ^r						
No	1.05	0.75	1.46	0.69	0.46	1.03
Type of health insurance						
Private ^r						
Medicare only	2.23	1.73	2.87	1.42	0.90	2.22
Dual eligible (Medicare/Medicaid)	5.29	3.93	6.98	1.52	0.87	2.59
Medicaid only	5.01	3.85	6.41	1.79	1.14	2.77
Uninsured	4.63	3.67	5.77	1.77	1.02	3.00
Has prescription drug coverage						
Yes ^r						
No	2.41	2.03	2.86	1.17	0.73	1.83
Has car or truck available						
Yes ^r						
No	3.22	2.66	3.86	1.20	0.85	1.68
Gender						
Male ^r						
Female	1.37	1.14	1.64	1.27	0.98	1.63

Table 9: Unhealthy Days (Mental – CDC Cutoff) (cont.)

TABLE 9: UNHEALTHY DAYS (MENTAL) – CDC Cutoff	14 or More Mentally Unhealthy Days (CDC) Unadjusted			14 or More Mentally Unhealthy Days (CDC) Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Age						
18-34 ^r						
35-44	1.29	0.96	1.70	1.15	0.78	1.66
45-54	1.27	0.98	1.64	1.02	0.70	1.47
55-64	1.16	0.89	1.50	0.86	0.57	1.29
65+	0.64	0.47	0.86	0.53	0.29	0.96
Race						
White/Other ^r						
Black/African American	1.46	1.16	1.84	0.82	0.57	1.17
Hispanic	0.99	0.54	1.76	0.91	0.44	1.82
Asian	0.40	0.06	2.44	1.07	0.17	4.91
LGBT status						
Heterosexual/straight ^r						
Gay/lesbian	1.61	0.79	3.06	2.28	0.98	4.61
Bisexual	2.65	1.48	4.37	1.39	0.64	2.83
Region						
Appalachian	1.64	1.21	2.21	1.19	0.78	1.78
Metropolitan	1.37	1.04	1.78	1.17	0.79	1.71
Rural	0.87	0.60	1.25	0.70	0.43	1.13
Suburban ^r						
# of persons in household						
1 ^r						
2	0.72	0.57	0.89	1.16	0.86	1.54
3	0.70	0.53	0.92	0.95	0.65	1.38
4	0.72	0.53	0.97	1.13	0.70	1.77
5 or More	0.87	0.64	1.18	1.12	0.70	1.74
Children in household						
Yes ^r						
No	0.99	0.82	1.19	1.18	0.83	1.65
Income as percent of poverty						
<100%	5.95	4.68	7.48	1.67	1.12	2.45
100%-138%	4.42	3.23	5.95	1.34	0.86	2.08
139%-200%	2.98	2.13	4.14	1.14	0.72	1.79
201%-300%	1.52	1.03	2.22	0.96	0.62	1.47
>300% ^r						

Table 9: Unhealthy Days (Mental – CDC Cutoff) (cont.)

TABLE 9: UNHEALTHY DAYS (MENTAL) – CDC Cutoff	14 or More Mentally Unhealthy Days (CDC) Unadjusted			14 or More Mentally Unhealthy Days (CDC) Adjusted		
	CI ₉₅			CI ₉₅		
	Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit
Educational attainment						
<High school	6.17	4.13	8.88	1.04	0.57	1.88
High school	3.48	2.30	5.16	1.09	0.64	1.85
Some college	2.86	1.85	4.32	1.02	0.59	1.73
Bachelor’s degree	1.37	0.79	2.33	0.93	0.49	1.74
Advanced degree ^f						
Employment status						
Employed ^f						
Retired	1.08	0.78	1.50	1.82	1.13	2.88
Disabled	10.65	8.91	12.52	7.10	5.10	9.55
Not working	3.66	2.86	4.64	2.22	1.62	3.01
Marital status						
Married /unmarried couple ^f						
Divorced	2.72	2.21	3.32	1.17	0.84	1.61
Widowed	2.01	1.52	2.63	1.30	0.85	1.96
Never married	1.46	1.13	1.87	0.82	0.57	1.18
Owns home (tenure)						
Owns ^f						
Rents	2.53	2.13	2.98	0.91	0.69	1.18
Difficulty paying medical bills						
Yes	4.36	3.71	5.09	2.94	2.33	3.67
No ^f						
Health Behaviors						
Smokeless Tobacco use						
Never user ^f						
Past user	1.36	0.99	1.85	1.35	0.88	2.04
Current user	1.40	0.82	2.31	1.65	0.89	2.87
Cigarette use						
Never user ^f						
Past user	1.41	1.10	1.80	1.12	0.82	1.53
Current user	3.70	3.06	4.43	1.82	1.39	2.37
Alcohol use						
Non-drinker	2.04	1.63	2.54	1.17	0.87	1.56
Drinker without binge in past 30 days ^f						
Drinker with binge in past 30 days	1.91	1.43	2.54	1.52	1.06	2.15

Table 9: Unhealthy Days (Mental – CDC Cutoff) (cont.)

TABLE 9: UNHEALTHY DAYS (MENTAL) – CDC Cutoff	14 or More Mentally Unhealthy Days (CDC) Unadjusted			14 or More Mentally Unhealthy Days (CDC) Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Soda consumption						
None ^f						
<1 per day	1.01	0.82	1.24	0.82	0.62	1.08
1 or more per day	1.68	1.36	2.07	1.17	0.87	1.56
BMI						
Underweight (<18.5)	2.35	1.34	3.91	1.89	0.89	3.71
Normal weight ^f (18.5-24.9)						
Overweight (25-29.9)	0.89	0.69	1.14	1.07	0.80	1.44
Obese (>29.9)	1.61	1.30	2.00	1.52	1.14	2.02

^f Referent value

Table 10: Unhealthy Days (Mental – ODMH Cutoff)
 (Relative Risk of 20 or More Mentally Unhealthy Days in Past Month – ODMH Cutoff)
 (Note: All significant findings, $p < .05$, are in bold)

Variable	20 or More Mentally Unhealthy Days Unadjusted			20 or More Mentally Unhealthy Days Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
<i>Environmental Characteristics</i>						
Primary Care provider ratio for adults						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	0.99	0.79	1.24	0.82	0.58	1.15
Mental Health provider ratio						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.08	0.84	1.40	1.21	0.80	1.80
Mental Health HPSA						
Whole County	1.07	0.85	1.35	0.94	0.61	1.43
Part of County	1.37	1.01	1.86	1.36	0.87	2.08
None ^r						
<i>Population Characteristics</i>						
Has usual source of care						
Yes ^r						
No	1.15	0.79	1.65	0.77	0.49	1.18
Type of health insurance						
Private ^r						
Medicare only	2.33	1.75	3.08	1.41	0.85	2.29
Dual eligible -(Medicare/Medicaid)	4.57	3.22	6.36	1.07	0.57	1.95
Medicaid only	4.02	2.92	5.46	1.17	0.69	1.95
Uninsured	4.67	3.59	6.00	1.65	0.87	3.07
Has prescription drug coverage						
Yes ^r						
No	2.56	2.09	3.12	1.12	0.64	1.91
Has car or truck available						
Yes ^r						
No	3.41	2.74	4.19	1.25	0.85	1.83

Table 10: Unhealthy Days (Mental – ODMH Cutoff) (cont.)

TABLE 10: UNHEALTHY DAYS (MENTAL) – ODMH Cutoff	20 or More Mentally Unhealthy Days Unadjusted			20 or More Mentally Unhealthy Days Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Gender						
Male ^r						
Female	1.25	1.02	1.54	1.17	0.88	1.56
Age						
18-34 ^r						
35-44	1.39	1.00	1.92	1.24	0.81	1.86
45-54	1.32	0.98	1.77	1.05	0.68	1.58
55-64	1.14	0.84	1.54	0.84	0.52	1.34
65+	0.67	0.47	0.94	0.66	0.34	1.26
Race						
White/Other ^r						
Black/African American	1.52	1.17	1.97	0.95	0.63	1.41
Hispanic	1.06	0.54	2.01	0.93	0.41	2.03
Asian	*	*	*	*	*	*
LGBT status						
Heterosexual/straight ^r						
Gay/lesbian	1.46	0.64	3.13	1.90	0.77	4.22
Bisexual	3.40	1.91	5.56	2.02	0.94	3.98
Region						
Appalachian	1.47	1.04	2.06	1.03	0.66	1.60
Metropolitan	1.25	0.93	1.68	0.94	0.62	1.41
Rural	0.75	0.49	1.14	0.62	0.36	1.06
Suburban ^r						
# of persons in household						
1 ^r						
2	0.75	0.58	0.96	1.28	0.92	1.76
3	0.76	0.55	1.03	1.13	0.74	1.68
4	0.69	0.48	0.98	1.22	0.70	2.06
5 or More	0.85	0.59	1.21	1.19	0.68	2.00
Children in household						
Yes ^r						
No	1.04	0.83	1.29	1.22	0.82	1.79

Table 10: Unhealthy Days (Mental – ODMH Cutoff) (cont.)

TABLE 10: UNHEALTHY DAYS (MENTAL) – ODMH Cutoff	20 or More Mentally Unhealthy Days Unadjusted			20 or More Mentally Unhealthy Days Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Income as percent of poverty						
<100%	6.15	4.63	8.07	1.73	1.10	2.70
100%-138%	4.97	3.46	7.00	1.49	0.90	2.44
139%-200%	3.25	2.21	4.71	1.22	0.74	2.01
201%-300%	1.66	1.07	2.55	1.00	0.61	1.62
>300% ^r						
Educational attainment						
<High school	6.08	3.72	9.56	0.91	0.45	1.83
High school	3.38	2.06	5.44	0.97	0.53	1.79
Some college	2.73	1.63	4.50	0.93	0.50	1.72
Bachelor's degree	1.29	0.68	2.42	1.01	0.48	2.09
Advanced degree ^r						
Employment status						
Employed ^r						
Retired	0.89	0.60	1.31	1.23	0.72	2.08
Disabled	11.09	8.95	13.47	7.06	4.81	10.00
Not working	3.72	2.79	4.90	2.19	1.53	3.10
Marital status						
Married /unmarried couple ^r						
Divorced	2.68	2.11	3.36	1.13	0.78	1.62
Widowed	2.03	1.48	2.74	1.30	0.83	2.01
Never married	1.50	1.13	1.98	0.88	0.59	1.30
Owens home (tenure)						
Owens ^r						
Rents	2.66	2.19	3.21	1.06	0.78	1.43
Difficulty paying medical bills						
Yes	4.78	3.94	5.76	2.82	2.15	3.68
No ^r						
	Health Behaviors					
Smokeless Tobacco use						
Never user ^r						
Past user	1.39	0.96	2.00	1.41	0.88	2.22
Current user	1.58	0.89	2.71	1.85	0.94	3.42

Table 10: Unhealthy Days (Mental – ODMH Cutoff) (cont.)

Variable	20 or More Mentally Unhealthy Days Unadjusted			20 or More Mentally Unhealthy Days Adjusted		
	CI ₉₅			CI ₉₅		
	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Cigarette use						
Never user ^r						
Past user	1.59	1.20	2.10	1.34	0.94	1.89
Current user	4.14	3.31	5.14	2.04	1.49	2.78
Alcohol use						
Non-drinker	2.09	1.61	2.70	1.23	0.88	1.72
Drinker without binge in past 30 days ^r						
Drinker with binge in past 30 days	2.09	1.50	2.88	1.60	1.07	2.37
Soda consumption						
None ^r						
<1 per day	0.95	0.75	1.21	0.72	0.53	0.98
1 or more per day	1.61	1.26	2.05	1.05	0.76	1.44
BMI						
Underweight (<18.5)	2.85	1.58	4.82	2.41	1.13	4.72
Normal weight ^r (18.5-24.9)						
Overweight (25-29.9)	0.93	0.70	1.23	1.11	0.79	1.53
Obese (>29.9)	1.60	1.24	2.05	1.42	1.01	1.98

^r Referent value

*Cell size too small to evaluate

Table 11: Psychological Distress

(Relative Risk of K6 Score \geq 13, indicating a Very High Risk for Distress)

(Note: All significant findings, $p < .05$, are in bold)

TABLE 11: PSYCHOLOGICAL DISTRESS	K6 Very High Risk for Distress - Unadjusted			K6 Very High Risk for Distress - Adjusted		
	CI₉₅			CI₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
<i>Environmental Characteristics</i>						
Primary Care provider ratio for adults						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.02	0.82	1.27	0.69	0.50	0.95
Mental Health provider ratio						
Above Median for State of Ohio ^r						
Below Median for State of Ohio	1.38	1.10	1.73	1.54	1.06	2.19
Mental Health HPSA						
Whole County	1.27	1.02	1.56	1.04	0.72	1.50
Part of County	0.99	0.71	1.38	0.84	0.51	1.38
None ^r						
<i>Population Characteristics</i>						
Has usual source of care						
Yes ^r						
No	1.39	1.00	1.91	1.11	0.74	1.62
Type of health insurance						
Private ^r						
Medicare only	2.61	1.97	3.42	2.17	1.29	3.59
Dual eligible (Medicare/Medicaid)	5.15	3.63	7.15	2.07	1.13	3.68
Medicaid only	4.94	3.67	6.55	1.52	0.95	2.42
Uninsured	4.91	3.79	6.29	1.49	0.82	2.66
Has prescription drug coverage						
Yes ^r						
No	2.44	2.01	2.96	1.20	0.73	1.94
Has car or truck available						
Yes ^r						
No	2.95	2.37	3.62	1.05	0.71	1.53
Gender						
Male ^r						
Female	1.27	1.04	1.55	1.14	0.87	1.49

Table 11: Psychological Distress (cont.)

TABLE 11: PSYCHOLOGICAL DISTRESS	K6 Very High Risk for Distress - Unadjusted			K6 Very High Risk for Distress - Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Age						
18-34 ^r						
35-44	1.27	0.91	1.75	1.13	0.74	1.70
45-54	1.55	1.17	2.04	1.43	0.97	2.09
55-64	1.17	0.87	1.57	0.92	0.58	1.44
65+	0.66	0.46	0.93	0.61	0.30	1.22
Race						
White/Other ^r						
Black/African American	1.19	0.90	1.55	0.68	0.44	1.03
Hispanic	0.95	0.49	1.79	0.79	0.36	1.66
Asian	*	*	*	*	*	*
LGBT status						
Heterosexual/straight ^r						
Gay/lesbian	1.27	0.58	2.59	1.73	0.72	3.75
Bisexual	2.03	1.00	3.78	0.75	0.28	1.93
Region						
Appalachian	1.41	1.02	1.94	0.83	0.54	1.27
Metropolitan	1.06	0.79	1.41	0.92	0.62	1.37
Rural	0.90	0.61	1.30	0.66	0.41	1.04
Suburban ^r						
# of persons in household						
1 ^r						
2	0.58	0.45	0.75	1.01	0.71	1.42
3	0.74	0.55	0.99	1.02	0.66	1.54
4	0.64	0.45	0.90	1.10	0.65	1.80
5 or More	0.98	0.71	1.34	1.38	0.81	2.24
Children in household						
Yes ^r						
No	0.97	0.79	1.20	1.16	0.80	1.67
Income as percent of poverty						
<100%	7.55	5.68	9.88	1.82	1.18	2.79
100%-138%	5.68	3.98	7.96	1.43	0.86	2.34
139%-200%	3.59	2.43	5.26	1.25	0.75	2.07
201%-300%	2.09	1.38	3.14	1.14	0.71	1.82
>300% ^r						

Table 11: Psychological Distress (cont.)

TABLE 11: PSYCHOLOGICAL DISTRESS	K6 Very High Risk for Distress - Unadjusted			K6 Very High Risk for Distress - Adjusted		
	CI₉₅			CI₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Educational attainment						
<High school	11.00	6.17	18.46	1.70	0.79	3.61
High school	5.60	3.06	9.92	1.38	0.67	2.80
Some college	4.78	2.57	8.63	1.49	0.72	3.03
Bachelor's degree	1.46	0.67	3.16	0.95	0.39	2.31
Advanced degree ^r						
Employment status						
Employed ^r						
Retired	0.91	0.60	1.37	1.42	0.79	2.52
Disabled	10.73	8.72	12.95	6.27	4.29	8.87
Not working	3.97	3.04	5.14	2.55	1.81	3.55
Marital status						
Married /unmarried couple ^r						
Divorced	2.96	2.36	3.68	1.17	0.81	1.68
Widowed	2.13	1.58	2.86	1.39	0.88	2.16
Never married	1.59	1.21	2.07	1.04	0.70	1.53
Owns home (tenure)						
Owns ^r						
Rents	2.53	2.10	3.03	0.95	0.70	1.28
Difficulty paying medical bills						
Yes	5.25	4.36	6.28	3.28	2.53	4.21
No ^r						
Health Behaviors						
Smokeless Tobacco use						
Never user ^r						
Past user	1.35	0.95	1.90	1.16	0.72	1.83
Current user	1.40	0.79	2.40	1.41	0.78	2.47
Cigarette use						
Never user ^r						
Past user	1.47	1.10	1.95	1.11	0.77	1.57
Current user	4.47	3.62	5.47	2.13	1.58	2.84
Alcohol use						
Non-drinker	1.86	1.46	2.35	0.98	0.71	1.33
Drinker without binge in past 30 days ^r						
Drinker with binge in past 30 days	1.60	1.16	2.19	1.17	0.79	1.70

Table 11: Psychological Distress (cont.)

TABLE 11: PSYCHOLOGICAL DISTRESS	K6 Very High Risk for Distress - Unadjusted			K6 Very High Risk for Distress - Adjusted		
	CI ₉₅			CI ₉₅		
Variable	RR	Lower Limit	Upper Limit	RR	Lower Limit	Upper Limit
Soda consumption						
None ^r						
<1 per day	1.09	0.86	1.39	0.96	0.71	1.28
1 or more per day	2.20	1.76	2.74	1.57	1.16	2.10
BMI						
Underweight (<18.5)	2.59	1.42	4.42	2.16	1.01	4.27
Normal weight ^r (18.5-24.9)						
Overweight (25-29.9)	1.07	0.81	1.39	1.25	0.90	1.71
Obese (>29.9)	1.50	1.17	1.90	1.27	0.92	1.76

^r Referent value

*Cell size too small to evaluate

Data tables for Specific Aim #3

Table 12: 2008-2010 Regional Rankings – Medical Care Utilization

Region	2008 Weighted Percent with Medical Care Utilization	2008 Region Ranking	2010 Weighted Percent with Medical Care Utilization	2010 Region Ranking	Percent Difference
Cuyahoga County	91.1%	3	91.5%	8	0.5%
Franklin County	90.0%	5	90.9%	10	0.9%
Hamilton County	91.2%	2	94.5%	1	3.4%
Lucas County	89.0%	10	92.4%	4	3.4%
Montgomery County	91.5%	1	92.3%	5	0.8%
Summit County	90.0%	5	92.9%	3	2.9%
Remaining					
Metropolitan Counties	89.5%	7	92.2%	6	2.6%
Suburban Counties	90.5%	4	91.8%	7	1.4%
Appalachian Counties	89.3%	9	91.4%	9	2.1%
Rural Counties	89.5%	7	93.7%	2	4.2%
Overall	90.1%	N/A	92.3%	N/A	2.2%

Table 13: 2008-2010 Regional Rankings – Forgone Medical Care

Region	2008 Weighted Percent with Foregone Medical Care	2008 Region Ranking	2010 Weighted Percent with Foregone Medical Care	2010 Region Ranking	Percent Difference
Cuyahoga County	22.7%	4	25.0%	3	2.4%
Franklin County	25.2%	7	28.3%	9	3.0%
Hamilton County	22.3%	2	25.4%	4	3.1%
Lucas County	26.6%	10	26.6%	8	0.1%
Montgomery County	25.5%	8	29.3%	10	3.8%
Summit County	24.4%	6	25.6%	5	1.2%
Remaining					
Metropolitan Counties	23.5%	5	25.6%	5	2.0%
Suburban Counties	20.5%	1	26.3%	7	5.8%
Appalachian Counties	26.3%	9	23.8%	2	-2.5%
Rural Counties	22.6%	3	22.9%	1	0.3%
Overall	23.4%	N/A	25.4%	N/A	2.0%

Table 14: 2008-2010 Regional Rankings – Dental Care Utilization

Region	2008 Weighted Percent with Dental Care Utilization	2008 Region Ranking	2010 Weighted Percent with Dental Care Utilization	2010 Region Ranking	Percent Difference
Cuyahoga County	76.8%	1	72.0%	4	-4.7%
Franklin County	72.6%	3	72.4%	3	-0.2%
Hamilton County	71.3%	5	74.1%	1	2.8%
Lucas County	71.4%	6	72.0%	4	0.6%
Montgomery County	70.2%	7	68.7%	9	-1.5%
Summit County	69.5%	9	70.6%	7	1.1%
Remaining Metropolitan Counties	71.5%	4	70.6%	7	-0.9%
Suburban Counties	73.0%	2	65.5%	10	-7.5%
Appalachian Counties	63.3%	10	71.0%	6	7.7%
Rural Counties	70.1%	8	73.2%	2	3.0%
Overall	71.1%	N/A	70.8%	N/A	-0.2%

Table 15: 2008-2010 Regional Rankings – Foregone Dental Care

Region	2008 Weighted Percent with Foregone Dental Care	2008 Region Ranking	2010 Weighted Percent with Foregone Dental Care	2010 Region Ranking	Percent Difference
Cuyahoga County	14.4%	5	15.8%	7	1.4%
Franklin County	16.7%	10	17.6%	9	0.9%
Hamilton County	13.1%	3	13.7%	2	0.5%
Lucas County	16.3%	9	14.6%	5	-1.8%
Montgomery County	15.2%	7	18.0%	10	2.8%
Summit County	15.1%	6	14.4%	4	-0.7%
Remaining Metropolitan Counties	13.3%	4	14.0%	3	0.8%
Suburban Counties	11.0%	1	16.2%	8	5.2%
Appalachian Counties	16.2%	8	10.8%	1	-5.4%
Rural Counties	12.7%	2	15.0%	6	2.3%
Overall	13.9%	N/A	14.8%	N/A	0.9%

Table 16: 2008-2010 Regional Rankings – Foregone Prescriptions

Region	2008 Weighted Percent with Foregone Prescriptions	2008 Region Ranking	2010 Weighted Percent with Foregone Prescriptions	2010 Region Ranking	Percent Difference
Cuyahoga County	14.2%	4	17.0%	5	2.9%
Franklin County	18.6%	8	17.5%	7	-1.1%
Hamilton County	13.5%	2	13.2%	1	-0.4%
Lucas County	18.7%	9	16.0%	4	-2.8%
Montgomery County	18.8%	10	17.2%	6	-1.6%
Summit County	15.7%	6	17.9%	8	2.1%
Remaining					
Metropolitan Counties	14.7%	5	18.0%	9	3.3%
Suburban Counties	14.1%	3	19.4%	10	5.3%
Appalachian Counties	17.9%	7	14.5%	2	-3.3%
Rural Counties	13.2%	1	15.7%	3	2.5%
Overall	15.4%	N/A	16.8%	N/A	1.4%

Table 17: 2008-2010 Regional Rankings – Health Status

Region	2008 Weighted Percent with Good/Very good/Excellent Health Status	2008 Region Ranking	2010 Weighted Percent with Good/Very good/Excellent Health Status	2010 Region Ranking	Percent Difference
Cuyahoga County	81.2%	7	79.7%	3	-1.4%
Franklin County	80.8%	8	78.3%	5	-2.5%
Hamilton County	82.5%	4	76.1%	7	-6.4%
Lucas County	81.5%	6	73.2%	10	-8.3%
Montgomery County	80.0%	9	77.1%	6	-2.9%
Summit County	82.8%	2	74.4%	9	-8.4%
Remaining					
Metropolitan Counties	82.6%	3	78.6%	4	-4.0%
Suburban Counties	84.0%	1	75.0%	8	-9.1%
Appalachian Counties	77.0%	10	80.7%	1	3.8%
Rural Counties	82.4%	5	80.7%	1	-1.6%
Overall	81.6%	N/A	78.1%	N/A	-3.5%

Table 18: 2008-2010 Regional Rankings – Physically Unhealthy Days

Region	2008 Weighted Percent with <14 Physically Unhealthy Days	2008 Region Ranking	2010 Weighted Percent with <14 Physically Unhealthy Days	2010 Region Ranking	Percent Difference
Cuyahoga County	87.4%	1	84.3%	7	-3.1%
Franklin County	86.1%	7	85.0%	4	-1.1%
Hamilton County	86.3%	5	86.9%	2	0.6%
Lucas County	85.8%	8	85.0%	4	-0.9%
Montgomery County	84.2%	9	83.7%	8	-0.5%
Summit County	86.3%	5	84.9%	6	-1.4%
Remaining Metropolitan Counties	86.7%	3	82.6%	10	-4.1%
Suburban Counties	87.2%	2	83.2%	9	-4.0%
Appalachian Counties	83.6%	10	86.2%	3	2.6%
Rural Counties	86.7%	3	87.3%	1	0.6%
Overall	86.2%	N/A	84.9%	N/A	-1.3%

Table 19: 2008-2010 Regional Rankings – Mentally Unhealthy Days (CDC Cutoff)

Region	2008 Weighted Percent with <14 Mental Unhealthy Days (CDC Cut Point)	2008 Region Ranking	2010 Weighted Percent with <14 Mental Unhealthy Days (CDC Cut Point)	2010 Region Ranking	Percent Difference
Cuyahoga County	84.8%	4	89.3%	8	4.4%
Franklin County	82.4%	9	91.6%	5	9.2%
Hamilton County	84.5%	5	92.9%	4	8.4%
Lucas County	82.9%	7	94.4%	1	11.5%
Montgomery County	81.4%	10	87.1%	10	5.7%
Summit County	84.5%	5	90.6%	6	6.0%
Remaining Metropolitan Counties	84.9%	3	89.6%	7	4.7%
Suburban Counties	87.8%	1	88.6%	9	0.8%
Appalachian Counties	82.5%	8	94.0%	2	11.4%
Rural Counties	86.2%	2	93.0%	3	6.8%
Overall	84.8%	N/A	91.1%	N/A	6.3%

Table 20: 2008-2010 Regional Rankings – Mentally Unhealthy Days (ODMH Cutoff)

Region	2008 Weighted Percent with <20 Mental Unhealthy Days (ODMH Cut Point)	2008 Region Ranking	2010 Weighted Percent with <20 Mental Unhealthy Days (ODMH Cut Point)	2010 Region Ranking	Percent Difference
Cuyahoga County	94.4%	2	91.0%	9	-3.4%
Franklin County	93.2%	7	93.9%	5	0.8%
Hamilton County	93.8%	6	94.6%	3	0.9%
Lucas County	92.6%	9	95.1%	2	2.5%
Montgomery County	93.1%	8	90.2%	10	-2.9%
Summit County	94.2%	3	93.4%	6	-0.8%
Remaining Metropolitan Counties	93.9%	5	91.8%	7	-2.1%
Suburban Counties	95.0%	1	91.3%	8	-3.6%
Appalachian Counties	91.7%	10	95.6%	1	3.9%
Rural Counties	94.1%	4	94.1%	4	0.0%
Overall	93.7%	N/A	93.1%	N/A	-0.7%

Table 21: 2008 County Rankings – Medical Care Utilization

TABLE 21: 2008 COUNTY RANKINGS – MEDICAL CARE UTILIZATION		
County	Unadjusted Weighted Percent with Medical Care Utilization	County Ranking
Adams	88.6%	57
Allen	89.7%	44
Ashland	89.5%	46
Ashtabula	87.8%	60
Athens	87.7%	61
Auglaize	93.5%	3
Belmont	92.6%	8
Brown	90.1%	36
Butler	90.6%	33
Carroll	85.9%	79
Champaign	91.9%	14
Clark	86.7%	73
Clermont	89.8%	42
Clinton	87.0%	69
Columbiana	90.1%	37
Coshocton	87.6%	63
Crawford	91.4%	21
Cuyahoga	91.1%	26
Darke	85.1%	82
Defiance	91.9%	15
Delaware	94.4%	2
Erie	92.0%	13
Fairfield	93.2%	5
Fayette	89.2%	49
Franklin	90.0%	40
Fulton	83.9%	85
Gallia	95.4%	1
Geauga	90.8%	31
Greene	93.0%	6
Guernsey	87.1%	68
Hamilton	91.2%	24
Hancock	92.5%	10
Hardin	92.9%	7

Table 21: 2008 County Rankings – Medical Care Utilization (cont.)

TABLE 21: 2008 COUNTY RANKINGS – MEDICAL CARE UTILIZATION		
County	Unadjusted Weighted Percent with Medical Care Utilization	County Ranking
Harrison	86.7%	74
Henry	92.2%	11
Highland	86.5%	76
Hocking	87.6%	64
Holmes	77.7%	88
Huron	89.3%	47
Jackson	90.1%	38
Jefferson	91.6%	17
Knox	91.2%	25
Lake	90.8%	32
Lawrence	90.9%	27
Licking	91.5%	19
Logan	90.5%	34
Lorain	89.0%	54
Lucas	89.0%	55
Madison	91.3%	22
Mahoning	91.9%	16
Marion	93.5%	4
Medina	90.9%	28
Meigs	88.3%	58
Mercer	83.9%	86
Miami	86.8%	71
Monroe	85.8%	80
Montgomery	91.5%	20
Morgan	84.5%	84
Morrow	89.7%	45
Muskingum	90.1%	39
Noble	86.0%	78
Ottawa	86.7%	75
Paulding	87.6%	65
Perry	91.3%	23
Pickaway	86.3%	77
Pike	89.2%	50
Portage	90.2%	35
Preble	90.9%	29
Putnam	89.3%	48
Richland	87.7%	62

Table 21: 2008 County Rankings – Medical Care Utilization (cont.)

TABLE 21: 2008 COUNTY RANKINGS – MEDICAL CARE UTILIZATION		
County	Unadjusted Weighted Percent with Medical Care Utilization	County Ranking
Ross	92.6%	9
Sandusky	91.6%	18
Scioto	89.2%	51
<i>Seneca</i>	85.3%	81
Shelby	86.8%	72
Stark	88.9%	56
Summit	90.0%	41
Trumbull	92.1%	12
Tuscarawas	87.9%	59
Union	86.9%	70
<i>Van Wert</i>	82.4%	87
Vinton	89.2%	52
Warren	90.9%	30
Washington	89.8%	43
Wayne	89.2%	53
Williams	87.2%	67
Wood	87.3%	66
<i>Wyandot</i>	85.1%	83
Overall	90.1%	N/A

Table 22: 2008 County Rankings – Foregone Medical Care

TABLE 22: 2008 COUNTY RANKINGS – FOREGONE MEDICAL CARE		
County	Weighted Percent with Foregone Medical Care	County Ranking
<i>Adams</i>	41.5%	87
Allen	23.6%	49
Ashland	22.0%	32
Ashtabula	29.1%	77
Athens	18.0%	10
Auglaize	19.0%	12
Belmont	23.0%	45
Brown	29.3%	78
Butler	24.0%	52
Carroll	22.4%	38
Champaign	25.2%	60
Clark	24.8%	57
Clermont	26.1%	66
Clinton	28.6%	74
Columbiana	23.3%	46
Coshocton	22.3%	35
Crawford	24.9%	58
Cuyahoga	22.7%	42
Darke	26.3%	67
Defiance	22.9%	44
Delaware	23.3%	47
Erie	21.9%	30
Fairfield	19.3%	14
Fayette	21.1%	22
Franklin	25.2%	61
Fulton	15.4%	1
Gallia	28.8%	75
Geauga	21.7%	28
Greene	15.9%	2
Guernsey	27.8%	72
Hamilton	22.3%	36
Hancock	22.2%	34
Hardin	20.8%	21
Harrison	27.7%	71

Table 22: 2008 County Rankings – Foregone Medical Care (cont.)

TABLE 22: 2008 COUNTY RANKINGS – FOREGONE MEDICAL CARE		
County	Weighted Percent with Foregone Medical Care	County Ranking
Henry	17.6%	8
Highland	34.4%	85
Hocking	31.1%	80
Holmes	20.3%	19
Huron	32.6%	83
Jackson	22.6%	41
Jefferson	19.8%	16
Knox	23.4%	48
Lake	20.5%	20
Lawrence	35.3%	86
Licking	16.9%	6
Logan	25.1%	59
Lorain	24.1%	53
Lucas	26.6%	68
Madison	27.9%	73
Mahoning	24.2%	54
Marion	21.9%	31
Medina	17.6%	9
Meigs	25.9%	64
Mercer	17.1%	7
Miami	21.5%	24
Monroe	41.7%	88
Montgomery	25.5%	62
Morgan	28.9%	76
Morrow	29.7%	79
Muskingum	24.7%	56
Noble	31.1%	81
Ottawa	21.5%	25
Paulding	23.6%	50
Perry	27.4%	69
Pickaway	22.5%	39
Pike	34.2%	84
Portage	21.5%	26
Preble	26.0%	65
Putnam	15.9%	3
Richland	22.1%	33
Ross	25.7%	63

Table 22: 2008 County Rankings – Foregone Medical Care (cont.)

TABLE 22: 2008 COUNTY RANKINGS – FOREGONE MEDICAL CARE		
County	Weighted Percent with Foregone Medical Care	County Ranking
Sandusky	18.6%	11
<i>Scioto</i>	32.3%	82
Seneca	20.0%	17
Shelby	21.6%	27
Stark	22.3%	37
Summit	24.4%	55
Trumbull	22.8%	43
Tuscarawas	22.5%	40
Union	23.6%	51
Van Wert	19.2%	13
Vinton	27.5%	70
Warren	21.2%	23
Washington	21.7%	29
Wayne	20.0%	18
Williams	16.7%	5
Wood	19.6%	15
Wyandot	16.2%	4
Overall	23.4%	N/A

Table 23: 2008 County Rankings – Dental Care Utilization

TABLE 23 – 2008 COUNTY RANKINGS – DENTAL CARE UTILIZATION		
County	Weighted Percent with Dental Care Utilization	County Ranking
Adams	55.10%	82
Allen	68.10%	47
Ashland	68.60%	45
Ashtabula	66.60%	55
Athens	61.10%	72
Auglaize	74.40%	16
Belmont	64.90%	62
Brown	58.30%	77
Butler	73.30%	22
Carroll	62.60%	69
Champaign	68.70%	44
Clark	66.10%	58
Clermont	68.80%	43
Clinton	60.40%	73
Columbiana	67.80%	50
Coshocton	59.50%	75
Crawford	64.60%	65
Cuyahoga	76.80%	5
Darke	68.30%	46
Defiance	76.60%	6
Delaware	78.60%	4
Erie	70.80%	32
Fairfield	67.60%	53
Fayette	67.70%	52
Franklin	72.60%	24
Fulton	76.50%	7
Gallia	56.20%	81
Geauga	76.10%	10
Greene	80.90%	2
Guernsey	53.70%	84
Hamilton	71.30%	29
Hancock	72.40%	26
Hardin	59.10%	76

Table 23: 2008 County Rankings – Dental Care Utilization (cont.)

TABLE 23 – 2008 COUNTY RANKINGS – DENTAL CARE UTILIZATION		
County	Weighted Percent with Dental Care Utilization	County Ranking
<i>Harrison</i>	58.10%	79
Henry	75.80%	11
<i>Highland</i>	49.30%	87
<i>Hocking</i>	33.20%	88
<i>Holmes</i>	56.30%	80
Huron	63.10%	67
<i>Jackson</i>	53.30%	85
Jefferson	67.00%	54
Knox	65.00%	60
Lake	73.30%	21
Lawrence	63.60%	66
Licking	74.50%	15
Logan	70.00%	38
Lorain	72.50%	25
Lucas	71.40%	28
Madison	62.90%	68
Mahoning	70.70%	33
Marion	67.80%	49
Medina	74.20%	18
<i>Meigs</i>	52.90%	86
Mercer	71.00%	31
Miami	66.00%	59
Monroe	75.40%	13
Montgomery	70.20%	37
Morgan	61.60%	71
Morrow	64.90%	61
Muskingum	67.70%	51
Noble	72.70%	23
Ottawa	74.40%	17
Paulding	66.20%	57
Perry	62.30%	70
Pickaway	75.10%	14
Pike	71.10%	30
Portage	73.60%	20
Preble	64.80%	63
Putnam	83.20%	1
Richland	70.40%	35

Table 23: 2008 County Rankings – Dental Care Utilization (cont.)

TABLE 23 – 2008 COUNTY RANKINGS – DENTAL CARE UTILIZATION		
County	Weighted Percent with Dental Care Utilization	County Ranking
Ross	73.80%	19
Sandusky	69.40%	41
Scioto	58.30%	78
Seneca	76.40%	8
Shelby	68.00%	48
Stark	72.00%	27
Summit	69.50%	40
Trumbull	69.70%	39
Tuscarawas	70.20%	36
Union	76.30%	9
Van Wert	64.60%	64
Vinton	55.10%	83
Warren	80.70%	3
Washington	66.40%	56
Wayne	69.10%	42
Williams	59.50%	74
Wood	75.60%	12
Overall	71.0%	N/A

Table 24: 2008 County Rankings – Foregone Dental Care

TABLE 24: 2008 COUNTY RANKINGS – FOREGONE DENTAL CARE		
County	Weighted Percent with Foregone Dental Care	County Ranking
<i>Adams</i>	31.1%	88
Allen	11.1%	23
Ashland	10.3%	17
Ashtabula	18.8%	74
Athens	13.3%	48
Auglaize	9.7%	14
Belmont	11.6%	33
Brown	14.9%	60
Butler	13.9%	52
Carroll	14.1%	54
Champaign	11.7%	36
Clark	14.7%	59
Clermont	14.6%	58
Clinton	17.7%	72
Columbiana	10.7%	19
Coshocton	10.9%	21
Crawford	17.6%	71
Cuyahoga	14.4%	57
Darke	12.6%	42
Defiance	11.5%	31
Delaware	9.4%	12
Erie	15.0%	61
Fairfield	15.3%	64
Fayette	11.9%	39
Franklin	16.7%	69
Fulton	9.6%	13
<i>Gallia</i>	23.7%	84
Geauga	8.9%	9
Greene	12.9%	45
<i>Guernsey</i>	22.5%	82
Hamilton	13.1%	47
Hancock	11.2%	25

Table 24: 2008 County Rankings – Foregone Dental Care (cont.)

TABLE 24: 2008 COUNTY RANKINGS – FOREGONE DENTAL CARE		
County	Weighted Percent with Foregone Dental Care	County Ranking
Hardin	16.1%	65
Harrison	19.6%	75
Henry	13.9%	53
Highland	22.3%	81
Hocking	23.6%	83
Holmes	7.3%	3
Huron	21.1%	79
Jackson	17.1%	70
Jefferson	11.7%	37
Knox	11.6%	34
Lake	10.0%	15
Lawrence	19.7%	77
Licking	10.3%	18
Logan	16.4%	67
Lorain	13.5%	49
Lucas	16.3%	66
Madison	12.5%	41
Mahoning	12.8%	44
Marion	8.5%	7
Medina	8.5%	8
Meigs	11.3%	29
Mercer	9.0%	10
Miami	8.3%	6
Monroe	20.8%	78
Montgomery	15.2%	63
Morgan	11.4%	30
Morrow	10.8%	20
Muskingum	21.7%	80
Noble	28.0%	87
Ottawa	11.1%	24
Paulding	13.6%	50
Perry	19.6%	76
Pickaway	7.6%	5
Pike	24.2%	86
Portage	11.2%	26
Preble	14.2%	56
Putnam	6.3%	2

Table 24: 2008 County Rankings – Foregone Dental Care (cont.)

TABLE 24: 2008 COUNTY RANKINGS – FOREGONE DENTAL CARE		
County	Weighted Percent with Foregone Dental Care	County Ranking
Richland	11.2%	27
Ross	11.2%	28
Sandusky	12.1%	40
Scioto	23.9%	85
Seneca	7.3%	4
Shelby	16.5%	68
Stark	13.6%	51
Summit	15.1%	62
Trumbull	14.1%	55
Tuscarawas	12.7%	43
Union	11.7%	38
Van Wert	10.9%	22
Vinton	18.3%	73
Warren	10.2%	16
Washington	11.6%	35
Wayne	11.5%	32
Williams	13.0%	46
Wood	9.2%	11
Wyandot	6.2%	1
Overall	13.9%	N/A

Table 25: 2008 County Rankings – Foregone Prescriptions

TABLE 25: 2008 COUNTY RANKINGS – FOREGONE PRESCRIPTIONS		
County	Weighted Percent with Foregone Prescriptions	County Ranking
<i>Adams</i>	22.1%	80
Allen	15.0%	47
Ashland	14.8%	44
Ashtabula	12.9%	25
Athens	15.9%	56
Auglaize	13.9%	37
Belmont	14.8%	45
<i>Brown</i>	22.9%	84
Butler	14.7%	43
Carroll	16.5%	60
Champaign	14.5%	42
Clark	20.7%	77
Clermont	18.3%	65
<i>Clinton</i>	24.2%	87
Columbiana	17.4%	63
Coshocton	12.5%	22
Crawford	13.9%	38
Cuyahoga	14.2%	39
Darke	12.1%	13
Defiance	12.1%	14
Delaware	16.4%	59
Erie	11.3%	10
Fairfield	14.3%	40
Fayette	9.0%	4
Franklin	18.6%	67
Fulton	10.3%	7
<i>Gallia</i>	22.7%	82
Geauga	12.3%	17
Greene	12.2%	15
<i>Guernsey</i>	24.0%	86
Hamilton	13.5%	31
Hancock	14.4%	41
Hardin	13.5%	32
<i>Harrison</i>	22.8%	83

Table 25: 2008 County Rankings – Foregone Prescriptions (cont.)

TABLE 25: 2008 COUNTY RANKINGS – FOREGONE PRESCRIPTIONS		
County	Weighted Percent with Foregone Prescriptions	County Ranking
Henry	11.0%	9
Highland	19.2%	74
Hocking	20.9%	79
Holmes	12.2%	16
Huron	19.1%	73
Jackson	18.7%	68
Jefferson	13.6%	33
Knox	15.4%	50
Lake	13.8%	36
Lawrence	22.3%	81
Licking	13.0%	27
Logan	12.4%	18
Lorain	13.7%	35
Lucas	18.7%	69
Madison	17.3%	62
Mahoning	15.8%	54
Marion	15.6%	51
Medina	11.8%	11
Meigs	18.1%	64
Mercer	7.1%	1
Miami	15.2%	49
Monroe	19.5%	75
Montgomery	18.8%	70
Morgan	20.8%	78
Morrow	12.4%	19
Muskingum	15.6%	52
Noble	16.0%	57
Ottawa	14.9%	46
Paulding	23.1%	85
Perry	19.0%	72
Pickaway	16.0%	58
Pike	26.3%	88
Portage	15.8%	55
Preble	10.8%	8
Putnam	7.2%	2
Richland	13.0%	28
Ross	18.4%	66

Table 25: 2008 County Rankings – Foregone Prescriptions (cont.)

TABLE 25: 2008 COUNTY RANKINGS – FOREGONE PRESCRIPTIONS		
County	Weighted Percent with Foregone Prescriptions	County Ranking
Sandusky	13.6%	34
Scioto	20.6%	76
Seneca	8.7%	3
Shelby	12.4%	20
Stark	15.0%	48
Summit	15.7%	53
Trumbull	12.9%	26
Tuscarawas	11.9%	12
Union	12.8%	24
Van Wert	9.1%	5
Vinton	18.9%	71
Warren	12.5%	23
Washington	13.4%	30
Wayne	13.1%	29
Williams	16.9%	61
Wood	12.4%	21
Wyandot	9.1%	6
Overall	15.4%	N/A

Table 26: 2008 County Rankings – Self-Reported Health Status

TABLE 26: 2008 COUNTY RANKINGS – SELF-REPORTED HEALTH STATUS		
County	Weighted Percent with Good/Very good/Excellent Health Status	County Ranking
<i>Adams</i>	60.8%	88
Allen	86.5%	10
Ashland	82.0%	38
Ashtabula	81.7%	39
Athens	82.3%	37
Auglaize	84.7%	16
Belmont	79.2%	59
Brown	78.0%	64
Butler	84.6%	19
Carroll	79.6%	56
Champaign	79.2%	60
Clark	79.3%	58
Clermont	81.1%	47
Clinton	79.7%	55
Columbiana	77.5%	67
Coshocton	75.7%	71
Crawford	75.2%	74
Cuyahoga	81.2%	45
Darke	84.0%	23
Defiance	84.7%	17
Delaware	89.2%	5
Erie	82.6%	34
Fairfield	81.5%	42
Fayette	81.3%	44
Franklin	80.8%	49
Fulton	84.5%	21
<i>Gallia</i>	73.9%	79
Geauga	83.3%	27
Greene	86.2%	11
Guernsey	76.3%	70
Hamilton	82.5%	35
Hancock	84.4%	22
Hardin	75.6%	72

Table 26: 2008 County Rankings – Self-Reported Health Status (cont.)

TABLE 26: 2008 COUNTY RANKINGS – SELF-REPORTED HEALTH STATUS		
County	Weighted Percent with Good/Very good/Excellent Health Status	County Ranking
Harrison	75.1%	75
Henry	87.9%	6
Highland	78.5%	62
Hocking	70.3%	84
Holmes	90.7%	2
Huron	79.1%	61
Jackson	65.2%	86
Jefferson	77.1%	68
Knox	73.6%	81
Lake	84.6%	20
Lawrence	65.1%	87
Licking	87.2%	8
Logan	85.3%	14
Lorain	84.7%	18
Lucas	81.5%	43
Madison	75.3%	73
Mahoning	81.2%	46
Marion	80.2%	52
Medina	87.6%	7
Meigs	74.0%	78
Mercer	90.9%	1
Miami	81.1%	48
Monroe	75.0%	76
Montgomery	80.0%	54
Morgan	78.2%	63
Morrow	84.9%	15
Muskingum	76.7%	69
Noble	80.1%	53
Ottawa	82.9%	31
Paulding	74.4%	77
Perry	71.3%	83
Pickaway	83.9%	24
Pike	73.5%	82
Portage	83.3%	28
Preble	77.6%	65
Putnam	89.8%	4
Richland	77.6%	66

Table 26: 2008 County Rankings – Self-Reported Health Status (cont.)

TABLE 26: 2008 COUNTY RANKINGS – SELF-REPORTED HEALTH STATUS		
County	Weighted Percent with Good/Very good/Excellent Health Status	County Ranking
Ross	79.5%	57
Sandusky	81.7%	40
Scioto	67.8%	85
Seneca	86.7%	9
Shelby	80.6%	51
Stark	82.9%	32
Summit	82.8%	33
Trumbull	80.8%	50
Tuscarawas	82.5%	36
Union	90.6%	3
Van Wert	83.8%	25
Vinton	73.8%	80
Warren	85.4%	13
Washington	83.1%	30
Wayne	81.7%	41
Williams	85.9%	12
Wood	83.6%	26
Wyandot	83.2%	29
Overall	81.6%	N/A

Table 27: 2008 County Rankings – Physically Unhealthy Days

TABLE 27: 2008 COUNTY RANKINGS – PHYSICALLY UNHEALTHY DAYS		
County	Weighted Percent with <14 Physically Unhealthy Days	County Ranking
<i>Adams</i>	72.9%	87
Allen	87.2%	35
Ashland	87.4%	31
Ashtabula	84.7%	64
Athens	88.0%	25
Auglaize	91.0%	4
<i>Belmont</i>	80.6%	79
Brown	81.9%	73
Butler	87.5%	29
Carroll	85.6%	52
Champaign	88.3%	16
<i>Clark</i>	79.5%	82
Clermont	86.3%	44
Clinton	81.1%	77
Columbiana	85.4%	54
Coshocton	86.5%	41
<i>Crawford</i>	80.4%	80
Cuyahoga	87.4%	32
Darke	88.4%	14
Defiance	87.4%	33
Delaware	90.9%	5
Erie	89.0%	11
Fairfield	86.2%	47
Fayette	84.9%	61
Franklin	86.1%	48
Fulton	89.5%	10
<i>Gallia</i>	76.8%	85
Geauga	87.8%	28
Greene	86.8%	38
Guernsey	85.7%	51
Hamilton	86.3%	45
Hancock	88.3%	17

Table 27: 2008 County Rankings – Physically Unhealthy Days (cont.)

TABLE 27: 2008 COUNTY RANKINGS – PHYSICALLY UNHEALTHY DAYS		
County	Weighted Percent with <14 Physically Unhealthy Days	County Ranking
Hardin	87.5%	30
Harrison	90.0%	8
Henry	88.8%	12
Highland	84.3%	66
Hocking	88.3%	18
Holmes	96.8%	1
Huron	83.7%	69
Jackson	71.1%	88
Jefferson	84.8%	62
Knox	82.7%	71
Lake	86.4%	42
Lawrence	74.3%	86
Licking	88.2%	20
Logan	85.4%	55
Lorain	88.3%	19
Lucas	85.8%	50
Madison	81.9%	74
Mahoning	85.1%	58
Marion	84.8%	63
Medina	90.1%	7
Meigs	86.4%	43
Mercer	90.8%	6
Miami	88.2%	21
Monroe	85.3%	56
Montgomery	84.2%	67
Morgan	79.4%	83
Morrow	85.0%	59
Muskingum	81.0%	78
Noble	85.6%	53
Ottawa	86.6%	40
Paulding	84.4%	65
Perry	79.6%	81
Pickaway	85.0%	60
Pike	83.3%	70
Portage	88.2%	22
Preble	81.7%	75
Putnam	85.3%	57

Table 27: 2008 County Rankings – Physically Unhealthy Days (cont.)

TABLE 27: 2008 COUNTY RANKINGS – PHYSICALLY UNHEALTHY DAYS		
County	Weighted Percent with <14 Physically Unhealthy Days	County Ranking
Richland	81.6%	76
Ross	82.4%	72
Sandusky	88.1%	23
Scioto	78.2%	84
Seneca	89.7%	9
Shelby	87.1%	36
Stark	87.4%	34
Summit	86.3%	46
Trumbull	86.1%	49
Tuscarawas	86.8%	39
Union	91.2%	3
Van Wert	93.3%	2
Vinton	83.8%	68
Warren	88.7%	13
Washington	87.9%	26
Wayne	87.9%	27
Williams	88.4%	15
Wood	87.1%	37
Wyandot	88.1%	24
Overall	86.2%	N/A

Table 28: 2008 County Rankings – Mentally Unhealthy Days (CDC Cutoff)

TABLE 28: 2008 COUNTY RANKINGS – MENTALLY UNHEALTHY DAYS (CDC CUTOFF)		
County	Weighted Percent with <14 Mentally Unhealthy Days	County Ranking
<i>Adams</i>	70.3%	88
Allen	86.1%	36
Ashland	89.5%	10
Ashtabula	84.1%	52
Athens	80.5%	78
Auglaize	86.5%	35
Belmont	81.2%	75
Brown	85.6%	41
Butler	85.8%	37
Carroll	91.4%	4
Champaign	89.0%	13
Clark	80.8%	77
Clermont	83.4%	57
<i>Clinton</i>	75.9%	85
Columbiana	84.9%	44
Coshocton	89.0%	14
Crawford	84.6%	48
Cuyahoga	84.8%	45
Darke	83.8%	53
Defiance	88.4%	19
Delaware	88.6%	18
Erie	82.8%	63
Fairfield	88.2%	22
Fayette	84.5%	49
Franklin	82.4%	67
Fulton	88.8%	17
<i>Gallia</i>	75.9%	86
Geauga	90.3%	7
Greene	88.2%	23
Guernsey	82.7%	64
Hamilton	84.5%	50

Table 28: 2008 County Rankings – Mentally Unhealthy Days (CDC Cutoff) (cont.)

TABLE 28: 2008 COUNTY RANKINGS – MENTALLY UNHEALTHY DAYS (CDC CUTOFF)		
County	Weighted Percent with <14 Mentally Unhealthy Days	County Ranking
Hancock	88.1%	25
Hardin	83.0%	61
Harrison	83.6%	54
Henry	81.6%	70
Highland	81.3%	73
Hocking	82.7%	65
Holmes	87.6%	29
Huron	82.6%	66
Jackson	78.6%	82
Jefferson	83.2%	59
Knox	83.5%	55
Lake	88.2%	24
Lawrence	80.2%	79
Licking	88.9%	16
Logan	81.3%	74
Lorain	84.7%	47
Lucas	82.9%	62
Madison	87.0%	33
Mahoning	79.4%	80
Marion	87.9%	27
Medina	87.6%	30
Meigs	81.6%	71
Mercer	94.0%	1
Miami	85.8%	38
Monroe	70.6%	87
Montgomery	81.4%	72
Morgan	85.1%	43
Morrow	84.8%	46
Muskingum	82.0%	68
Noble	83.3%	58
Ottawa	90.7%	6
Paulding	78.0%	84
Perry	82.0%	69
Pickaway	85.7%	39
Pike	81.2%	76
Portage	90.0%	9
Preble	83.2%	60

Table 28: 2008 County Rankings – Mentally Unhealthy Days (CDC Cutoff) (cont.)

TABLE 28: 2008 COUNTY RANKINGS – MENTALLY UNHEALTHY DAYS (CDC CUTOFF)		
County	Weighted Percent with <14 Mentally Unhealthy Days	County Ranking
Putnam	91.6%	3
Richland	85.6%	42
Ross	78.1%	83
Sandusky	88.3%	20
Scioto	78.7%	81
Seneca	89.5%	11
Shelby	93.3%	2
Stark	87.9%	28
Summit	84.5%	51
Trumbull	87.3%	32
Tuscarawas	89.0%	15
Union	90.8%	5
Van Wert	88.3%	21
Vinton	83.5%	56
Warren	87.4%	31
Washington	86.9%	34
Wayne	85.7%	40
Williams	88.0%	26
Wood	89.1%	12
Wyandot	90.3%	8
Overall	84.8%	N/A

Table 29: 2008 County Rankings – Mentally Unhealthy Days (ODMH Cutoff)

TABLE 29: 2008 COUNTY RANKINGS – MENTALLY UNHEALTHY DAYS (ODMH CUTOFF)		
County	Weighted Percent with <20 Mentally Unhealthy Days	County Ranking
<i>Adams</i>	<i>81.0%</i>	<i>88</i>
Allen	93.2%	54
Ashland	93.4%	49
Ashtabula	92.7%	60
Athens	94.5%	31
Auglaize	96.4%	9
Belmont	91.0%	72
Brown	94.0%	39
Butler	95.1%	23
Carroll	94.5%	32
Champaign	96.9%	6
Clark	92.6%	61
Clermont	93.1%	56
<i>Clinton</i>	<i>85.7%</i>	<i>87</i>
Columbiana	92.6%	62
Coshocton	95.2%	22
Crawford	89.9%	78
Cuyahoga	94.4%	35
Darke	93.9%	42
Defiance	94.0%	40
Delaware	96.4%	10
Erie	93.4%	50
Fairfield	94.7%	28
Fayette	95.8%	16
Franklin	93.2%	55
Fulton	96.9%	7
Gallia	91.8%	67
Geauga	93.4%	51
Greene	95.0%	26
Guernsey	91.2%	71
Hamilton	93.8%	45
Hancock	95.5%	20
Hardin	94.0%	41

Table 29: 2008 County Rankings – Mentally Unhealthy Days (ODMH Cutoff) (cont.)

TABLE 29: 2008 COUNTY RANKINGS – MENTALLY UNHEALTHY DAYS (ODMH CUTOFF)		
County	Weighted Percent with <20 Mentally Unhealthy Days	County Ranking
Harrison	93.4%	52
Henry	94.5%	33
Highland	90.2%	75
Hocking	96.3%	11
Holmes	97.3%	4
Huron	93.4%	53
Jackson	86.7%	86
Jefferson	91.3%	70
Knox	95.3%	21
Lake	96.1%	13
Lawrence	90.3%	74
Licking	93.5%	48
Logan	91.5%	69
Lorain	94.3%	36
Lucas	92.6%	63
Madison	94.2%	37
Mahoning	92.3%	65
Marion	92.3%	66
Medina	93.7%	46
Meigs	88.1%	83
Mercer	97.3%	5
Miami	93.7%	47
Monroe	88.9%	80
Montgomery	93.1%	57
Morgan	94.8%	27
Morrow	90.6%	73
Muskingum	88.1%	84
Noble	92.6%	64
Ottawa	94.5%	34
Paulding	87.4%	85
Perry	90.2%	76
Pickaway	94.6%	29
Pike	88.7%	81
Portage	96.2%	12
Preble	91.7%	68
Putnam	98.3%	1
Richland	92.9%	58

Table 29: 2008 County Rankings – Mentally Unhealthy Days (ODMH Cutoff) (cont.)

TABLE 29: 2008 COUNTY RANKINGS – MENTALLY UNHEALTHY DAYS (ODMH CUTOFF)		
County	Weighted Percent with <20 Mentally Unhealthy Days	County Ranking
Ross	90.2%	77
Sandusky	95.1%	24
Scioto	88.6%	82
Seneca	96.0%	14
Shelby	96.7%	8
Stark	94.6%	30
Summit	94.2%	38
Trumbull	95.1%	25
Tuscarawas	95.7%	19
Union	97.7%	3
Van Wert	97.8%	2
Vinton	89.7%	79
Warren	96.0%	15
Washington	92.8%	59
Wayne	93.9%	43
Williams	93.9%	44
Wood	95.8%	17
Wyandot	95.8%	18
Overall	93.7%	N/A

Table 30: Counties with Lowest Overall Access to Health Care, 2008

Counties Most Frequently Ranked Among Ten Least Favorable Health Care Access Outcomes in 2008 OFHS Survey, By Dependent Variable										
County	Medical Care Utilization	Dental Care Utilization	Foregone Medical Care	Foregone Dental Care	Foregone Prescriptions	Self-Reported Health Status	Physically Healthy Days	Mentally Healthy Days (ODMH)		
Adams		X	X	X	X	X	X	X		
Gallia		X		X	X	X	X			
Pike			X	X	X	X		X		
Scioto			X	X		X	X	X		
Hocking		X	X	X		X				
Jackson		X				X	X	X		
Lawrence			X		X	X	X			

Appendix 2: Definition of Dependent Variables, including Descriptions, Derivations and Transformations

Variable	Description	Definition	Derivation or Transformation	Missing Values
<i>Health Care Utilization</i>				
Medical Care Utilization	Any medical care utilization during the last 12 months	1=health care utilization, 2=no health care utilization	Composite measure based on three health care utilization variables in the OFHS: emergency department utilization, visited provider about respondent's health (non-routine check-up) and visited provider for a routine check-up. Health care utilization = 1 if: Number of ER visits ≥ 1 OR Time since last office visit ≤ 1 year OR Time since routine checkup ≤ 1 year	Missing if: 1. All three original variables missing; 2. One original variable missing and the values for the other variables classified the respondent as "no health care utilization." 3. Two original variables missing and the value for the other variable classified the respondent as "no health care utilization."
Dental Care Utilization	Any dental care utilization during the last 12 months	1= dental care utilization, 2=no dental care utilization	Dichotomous variable calculated based on the continuous measure of time since last dental visit. Dental visit includes all types of dentists such as orthodontists, oral surgeons and all other dental specialists as well as dental hygienists. Dental care utilization = 1 if: Time since last dental visit ≤ 1 year	Missing if time since last dental visit was missing.
Foregone Medical Care	An unmet medical need or a delay/problem in getting treatment in the last 12 months	0=no foregone medical care, 1=foregone medical care	Composite measure based on three unmet need variables in the OFHS: delayed or avoided care, medical care needed but did not get and problems getting medical care. Foregone medical care = 1 if: Delayed or avoided care = Yes OR Problems getting medical care = Yes	Missing if either "delayed or avoided care" or "problems getting medical care" were missing.

Variable	Description	Definition	Derivation or Transformation	Missing Values
Foregone Dental Care	An unmet dental need during the last 12 months	0=no foregone dental care, 1=foregone dental care	OR Medical care that was needed but not received was a doctor visit, checkup, or exam; mental health care; medical supplies or equipment appointment or referral to a specialist; other medical treatment; care for other ailment or body part Composite measure based on two questions in the OFHS that addressed unmet dental need. Foregone dental care = 1 if: Needed dental care but did not get it = Yes OR Medical care that was needed but not received was dental care	Missing if “needed dental care but did not get it” was missing.
Foregone Prescriptions	An unmet need in obtaining medications during the last 12 months	0=no foregone prescriptions, 1=foregone prescriptions	Composite measure based on two questions in the OFHS that addressed unmet need in obtaining medications. Foregone prescriptions = 1 if: Needed a prescription but did not get it = Yes OR Medical care that was needed but not received was medications/prescriptions	Missing if “needed a prescription but did not get it” was missing.
<i>Health Outcomes</i>				
Health Status	General self-perceived health	1=Excellent/Very Good/Good, 2=Fair/Poor	Dichotomous variable calculated based on the original five responses in OFHS (Excellent, Very Good, Good, Fair, Poor).	Missing if original variable was missing.
Psychological Distress (K6)	The Kessler 6 scale intended to measure non-specific psychological distress in the past 30 days	1=not a very high risk for distress, 2=very high risk for distress	The K6 score was calculated from the results of six questions on the OFHS: <i>During the past 30 days, how often did you feel...so sad that nothing could cheer you up?...nervous?...restless or fidgety?...hopeless?...that everything was an effort?...worthless?</i> Scores can range from 4 – 24. The presence of a very high risk of distress was determined based on a cut point of 13 or higher.	Missing if an answer for any of the six original questions was missing.
Number of Healthy Days (Physical)	A measure of the number of days out of the last 30 that the	1=Less than 14 non-healthy days, 2=14 or more non-healthy days	Dichotomous variable calculated based on the ordinal variable of number of days in the last 30. Respondent was asked to name a number from 0 – 30 representing the number of days their physical health was not good. The cut point of 14 days was recommended by	Missing if original variable was missing.

Variable	Description	Definition	Derivation or Transformation	Missing Values
Number of Healthy Days (Mental) [1]	<p>respondent's physical health was not good</p> <p>A measure of the number of days out of the last 30 that the respondent's mental health was not good</p>	<p>1=Less than 14 non-healthy days, 2=14 or more non-healthy days</p>	<p>the CDC.</p> <p>Dichotomous variable calculated based on the ordinal variable of number of days in the last 30. Respondent was asked to name a number from 0 – 30 representing the number of days their mental health was not good. The cut point of 14 days was recommended by the CDC.</p>	Missing if original variable was missing.
Number of Healthy Days (Mental) [2]	<p>A measure of the number of days out of the last 30 that the respondent's mental health was not good</p>	<p>1=Less than 20 non-healthy days, 2=20 or more non-healthy days</p>	<p>Dichotomous variable calculated based on the ordinal variable of number of days in the last 30. Respondent was asked to name a number from 0 – 30 representing the number of days their mental health was not good. The cut point of 20 days was recommended by the Ohio Department of Mental Health.</p>	Missing if original variable was missing.

Appendix 3: Definition of Independent Variables, including Descriptions, Derivations and Transformations

Variable	Description	Definition	Derivation or Transformation	Missing Values
<i>Environment – Provider to Population Ratios</i>				
Primary Care Providers	The number of primary care providers per 100,000 population	0=Respondent lives in a county below the median ratio for Ohio, 1=Respondent lives in a county at or above the median ratio for Ohio	The number of primary care providers per county was derived from the Area Resource File, where primary care provider includes MDs (2008 data) for which “Patient Care” is their primary Professional Activity and DOs (2007 data). Specialty classification included was: General Practice (includes General Practice, General Family Medicine and Family Medicine Subspecialties), General Internal Medicine and General Obstetrics/Gynecology. Population numbers were gathered from the 2009 American Community Survey estimates by the US Census Bureau. ¹⁸ Ratios were calculated for each county, using the number of providers in the county as the numerator and the population size as the denominator. The ratios were standardized to the number of providers per 100,000 population. The variable was dichotomized with the median value as the cut point.	None
Dental Providers	The number of dentists per 100,000 population	0=Respondent lives in a county below the median ratio for Ohio, 1=Respondent lives in a county at or above the median ratio for Ohio	The number of dentists per county was gathered from the Area Resource File. Population numbers were gathered from the 2009 American Community Survey estimates by the US Census Bureau. ¹⁸ Ratios were calculated for each county, using the number of dentists in the county as the numerator and the population size as the denominator. The ratios are standardized to the number of dentists per 100,000 population. The variable was dichotomized with the median value as the cut point.	None
Dental Allied Health Providers	The number of dental allied health providers per 100,000	0=Respondent lives in a county below the median ratio for Ohio, 1=Respondent lives in	The number of dental allied health providers per county was derived from the Area Resource File, where dental allied health provider includes: dental hygienists and dental assistants. Population numbers were gathered from the 2009 American	Missing if number of providers in county from ARF was missing.

Variable	Description	Definition	Derivation or Transformation	Missing Values
	population	a county at or above the median ratio for Ohio	Community Survey estimates by the US Census Bureau. ¹⁸ Ratios were calculated for each county, using the number of dental allied health providers in the county as the numerator and the population size as the denominator. The ratios are standardized to the number of dental allied health providers per 100,000 population. The variable was dichotomized with the median value as the cut point.	
Mental Health Providers	The number of mental health providers per 100,000 population	0=Respondent lives in a county below the median ratio for Ohio, 1=Respondent lives in a county at or above the median ratio for Ohio	The number of mental health providers per county was derived from the Area Resource File, where mental health provider includes: psychologists, social workers and psychiatrists. Population numbers were gathered from the 2009 American Community Survey estimates by the US Census Bureau. ¹⁸ Ratios were calculated for each county, using the number of mental health providers in the county as the numerator and the population size as the denominator. The ratios are standardized to the number of mental health providers per 100,000 population. The variable was dichotomized with the median value as the cut point.	None
Pharmacists	The number of pharmacists per 100,000 population	0=Respondent lives in a county below the median ratio for Ohio, 1=Respondent lives in a county at or above the median ratio for Ohio	The number of pharmacists per county was derived from the Area Resource File. Population numbers were gathered from the 2009 American Community Survey estimates by the US Census Bureau. ¹⁸ Ratios were calculated for each county, using the number of pharmacists in the county as the numerator and the population size as the denominator. The ratios are standardized to the number of pharmacists per 100,000 population. The variable was dichotomized with the median value as the cut point.	None
<i>Environment – Other</i>				
Number of Hospital Beds	Number of hospital beds	0=Respondent lives in a county below the median number for Ohio, 1=Respondent lives in a county at or above	The number of short-term acute care hospital beds was derived from the Area Resource File. The variable was dichotomized with the median value as the cut point.	None

Variable	Description	Definition	Derivation or Transformation	Missing Values
Health Professional Shortage Area (HPSA) Designation – Primary Medical Care	Whether any parts of the respondent's county are considered a HPSA-Primary Medical Care	the median number for Ohio 0=None of the county designated as a shortage area, 1=The whole county designated as a shortage area, 2=One or more parts of the county designated as a shortage area	<p>HPSA designation was gathered from the Health Resources and Services Administration, http://hpsafinda.hrsa.gov/HPSASearch, accessed 5/26/2011.</p> <p>Whole county classification was defined as: counties with designations covering the full county which include “single county” geographical areas, “single county” population group designations, and counties with geographical and/or population group service areas that are composed of census tracts (CTs) or Minor Civil Divisions (MCDs) that cover the full county.</p> <p>Partial county classification was defined as: geographical area HPSAs composed of census tracts, geographical area HPSAs composed of Minor Civil Divisions, population group HPSAs composed of census tracts, and population group HPSAs composed of Minor Civil Divisions.</p> <p>Those counties with only a facility designation were not counted as HPSA-designated counties.</p>	None
Health Professional Shortage Area (HPSA) Designation – Dentists	Whether any parts of the respondent's county are considered a HPSA-Dentists	0=None of the county designated as a shortage area, 1=The whole county designated as a shortage area, 2=One or more parts of the county designated as a shortage area	<p>HPSA designation was gathered from the Health Resources and Services Administration, http://hpsafinda.hrsa.gov/HPSASearch, accessed 5/26/2011.</p> <p>Whole county classification was defined as: counties with designations covering the full county which include “single county” geographical areas, “single county” population group designations, and counties with geographical and/or population group service areas that are composed of census tracts (CTs) or Minor Civil Divisions (MCDs) that cover the full county.</p> <p>Partial county classification was defined as: geographical area HPSAs composed of census tracts, geographical area HPSAs composed of Minor Civil Divisions, population group HPSAs</p>	None

Variable	Description	Definition	Derivation or Transformation	Missing Values
Health Professional Shortage Area (HPSA)	Whether any parts of the respondent's county are considered a HPSA-Mental Health	0=None of the county designated as a shortage area, 1=The whole county designated as a shortage area, 2=One or more parts of the county designated as a shortage area	<p>composed of census tracts, and population group HPSAs composed of Minor Civil Divisions.</p> <p>Those counties with only a facility designation were not counted as HPSA-designated counties.</p> <p>HPSA designation was gathered from the Health Resources and Services Administration, http://hpsafinda.hrsa.gov/HPSASearch, accessed 5/26/2011.</p> <p>Whole county classification was defined as: counties with designations covering the full county which include "single county" geographical areas, "single county" population group designations, and counties with geographical and/or population group service areas that are composed of census tracts (CTs) or Minor Civil Divisions (MCDs) that cover the full county.</p> <p>Partial county classification was defined as: geographical area HPSAs composed of census tracts, geographical area HPSAs composed of Minor Civil Divisions, population group HPSAs composed of census tracts, and population group HPSAs composed of Minor Civil Divisions.</p> <p>Those counties with only a facility designation were not counted as HPSA-designated counties.</p>	None
<i>Population Characteristics</i>				
Usual Source of Care	Whether the respondent has a usual source of care	1=Usual source of care, 2=No usual source of care	Dichotomous variable from OFHS question: <i>Is there ONE place that you USUALLY go to when you are sick or you need advice about your health?</i>	Missing if original variable was missing.
Health Insurance Status	Current insurance type	1=Private, 2=Medicare, 3=Dual (Medicare and Medicaid), 4=Medicaid, 5=Uninsured	Categorical variable derived from OFHS series of questions to ascertain current insurance type. Classification derived from OFHS classification, collapsing job-based coverage, directly purchased, other and insured type unknown into category 1 (Private).	None
Prescription	Whether	1=Prescription drug	Dichotomous variable from OFHS question:	Missing if original variable

Variable	Description	Definition	Derivation or Transformation	Missing Values
Drug Coverage	respondent has prescription drug coverage	coverage, 2=No prescription drug coverage	<i>Do any of your current insurance plans cover prescription medications?</i>	was missing.
Dental Coverage	Whether respondent has dental coverage	1=Dental coverage, 2=No dental coverage	Dichotomous variable from OFHS question: <i>Do any of your current insurance plans cover dental care other than emergency care?</i>	Missing if original variable was missing.
Availability of Car/Truck	Presence of a car or truck in the household	1=Respondent has car/truck, 2=Respondent does not have car/truck	Dichotomous variable from OFHS question: <i>Which of these items does your household now have? A CAR OR TRUCK</i>	Missing if original variable was missing.
Gender	Gender of respondent	1=Male, 2=Female	Dichotomous variable from OFHS question: <i>What is your gender?</i>	None: all missing values were imputed using "hot deck" imputation method.
Age	Age of respondent	1=18-34 years, 2=35-44 years, 3=45-54 years, 4=55-64 years, 5=65+ years	Categorical variable from OFHS question: <i>Please tell me how old you were on your last birthday.</i> Classification derived from OFHS classification, collapsing 18-24 years and 25-34 years into category 1 (18-34 years).	None: all missing values were imputed using "hot deck" imputation method.
Race/Ethnicity	Race/ethnicity of respondent	1=White/Other, 2=Black/African-American, 3=Hispanic, 4=Asian	Categorical variable derived from OFHS question: <i>Which one or more of the following would you say is your race.</i> Classification done by OFHS.	None: all missing values were imputed using "hot deck" imputation method.
LGBT Status	Lesbian, gay, bisexual status of the respondent	1=Heterosexual or straight, 2=Gay or lesbian, 3=Bisexual	Categorical variable from OFHS question: <i>Do you consider yourself to be: heterosexual or straight, gay or lesbian, or bisexual?</i>	Missing if original variable was missing.
Region	Region category of respondent's county of residence	1=Appalachian, 2=Metropolitan, 3=Rural Non-Appalachian, 4=Suburban	Categorical variable derived from county of residence. The counties were grouped into four categories by OFHS.	None
Family size	Number of persons in	1=1 person, 2=2 persons,	Categorical variable derived from OFHS questions to ascertain the number of adults and the number of children in the	None: all missing values were imputed using "hot

Variable	Description	Definition	Derivation or Transformation	Missing Values
	household	3=3 persons, 4=4 persons, 5=5 or more persons	household: <i>Including yourself, how many adult members of your family, age 18 and over, live in this household?</i> <i>How many children, persons 17 years of age or younger, in your family live in this household?</i> Family size was calculated by adding the responses to these two questions.	deck" imputation method.
Children in Household	The presence of children in the household	0=No children, 1=At least one child	Dichotomous variable derived from OFHS question: <i>How many children, persons 17 years of age or younger, live in this household whether they are family members or not?</i>	Missing if original variable was missing.
Income	Gross income as a percent of the Federal Poverty Level	1=100% or less, 2=101-138%, 3=139-200%, 4=201-300%, 5=301% or more	Categorical variable derived from OFHS question: <i>Please tell me your total gross income during the calendar year 2009. This includes money from jobs, net income from business, farm or rent, pensions, dividends, interest, social security payments and other money income received.</i>	None: all missing values were imputed using "hot deck" imputation method.
Education	Educational attainment	1=Less than high school, 2=High school graduate or equivalent, 3=Less than Bachelor's Degree, 4=Bachelor's Degree, 5=Advanced degree	Income as a percent of FPL was calculated by OFHS. Categorical variable derived from OFHS question: <i>What is the highest level of school you have completed or the highest degree received?</i>	None: all missing values were imputed using "hot deck" imputation method.
Employment	Employment status	1=Employed, 2=Retired, 3=Disabled, 4=Not working	Categorical variable derived from OFHS questions: <i>LAST WEEK did you have a job either full or part-time? Include any job from which you were temporarily absent.</i> <i>What is the main reason you did not work/have a job or business last week?</i>	Missing values were recoded into category 1.
Marital Status	Respondent's marital status	1=Married/Coupled, 2=Divorced/Separated, 3=Widowed, 4=Never married	Categorical variable derived from OFHS question: <i>Are you...married, divorced, widowed, separated, never married, or a member of an unmarried couple?</i>	Missing values were recoded into category 1.

Variable	Description	Definition	Derivation or Transformation	Missing Values
Tenure	Whether or not the respondent owns or rents their residence	1=Own, 2=Rent	Married and member of an unmarried couple were combined into category 1. Divorced and separated were combined into category 2. Dichotomous variable from OFHS question: <i>Are your living quarters: Owned or being bought by you or someone in your household, Rented for cash, OR Occupied without payment of cash rent?</i>	None: all missing values were imputed using "hot deck" imputation method.
Economic Burden of Health Care	Difficulty paying medical bills during the past 12 months	1=Unable to pay for medical bills, 2=Able to pay for medical bills	Dichotomous variable from OFHS question: <i>During the last 12 months, were there times when you had problems paying or you were unable to pay for medical bills for yourself or anyone else in the family or household?</i>	Missing if original variable was missing.
<i>Health Behavior</i>				
Cigarette Use	Current smoking status	1=Never smoked, 2=Past smoker, 3=Current smoker	Categorical variable derived from OFHS questions to ascertain current and past smoking status: <i>Have you smoked at least 100 cigarettes in your entire life?</i> If no -> Never Smoker <i>Do you smoke cigarettes every day, some days, or not at all?</i> If every day or some days -> Current smoker If not at all -> Past smoker	If first question is missing then recoded into category 1. If second question is missing then recoded into category 2.
Other Tobacco Use	Current other tobacco use status	1=Never used, 2=Past user, 3=Current user	Categorical variable derived from OFHS questions to ascertain current and past snuff/chewing tobacco status: <i>Have you used snuff or chewing tobacco at least 20 times in your life?</i> If no -> Never used <i>Do you now use snuff or chewing tobacco?</i> If yes -> Current user If no -> Past user	If first question is missing then recoded into category 1. If second question is missing then recoded into category 2.
Alcohol Use	Alcohol use status during the past 30 days	1=Non-drinker, 2=Drinker, non-binge, 3=Drinker, at least 1 binge episode a month	Categorical variable derived from OFHS questions to ascertain current alcohol use and binge drinking status: <i>During the past 30 days, on how many days did you have at least one drink of alcoholic beverage such as beer, wine, a malt beverage or liquor?</i> If 0 -> Non-drinker <i>During the past 30 days, considering all types of alcoholic</i>	If first question is missing then recoded into category 1. If second question is missing then recoded into category 2.

Variable	Description	Definition	Derivation or Transformation	Missing Values
Soda Consumption	Amount of soda consumed during the last 7 days	1=None, 2=Less than 1 per day, 3=1 or more per day	<i>beverages, on how many days, if any, did you have [5][4] or more drinks on an occasion? [Five for male respondents; four for female respondents]</i> If 0 ->Drinker, non-binge If >0 ->Binge drinker Categorical variable derived from OFHS question: <i>During the past 7 days, how many times did you drink a can, bottle, or glass of soda or pop, such as Coke, Pepsi, or Sprite? (Do not include diet soda or diet pop.)</i>	Missing values were recoded into category 1.
BMI	Body Mass Index	1=Underweight, 2=Normal or healthy weight, 3=Overweight, 4=Obese	Categorical variable derived from OFHS questions to ascertain height and weight: <i>About how much do you weigh without shoes?</i> <i>About how tall are you without shoes?</i> BMI categories were calculated by OFHS.	Missing if original variable was missing.

Appendix 4: Independent Variables Considered for Inclusion in Each Multivariate Regression Model

Independent Variables	Dependent Variables								
	Foregone medical care	Foregone prescriptions	Foregone dental care	Health care utilization	Dental care utilization	Health status	# of healthy days - physical	# of healthy days - mental	Psych. Distress (K6)
ARF Primary Care Provider - Adult with OB/GYN	X			X					
ARF - Pharmacists		X				X	X		
ARF - Dentists			X		X	X	X		
ARF - Dental Allied Health			X						
ARF mental health providers								X	
Primary Medical HPSA	X		X						
Dental HPSA			X						
Mental Health HPSA				X				X	
Number of hospital beds	X			X		X	X	X	X
Usual source of care	X			X		X	X	X	X
Insurance type				X		X	X	X	X
Prescription drug coverage									
Dental coverage			X		X	X	X	X	X
Availability of car/truck	X		X		X	X	X	X	X
Gender	X		X		X	X	X	X	X
Age	X		X		X	X	X	X	X
Race/ethnicity	X		X		X	X	X	X	X
LGBT status	X		X		X	X	X	X	X
Region	X		X		X	X	X	X	X

Independent Variables	Dependent Variables									
	Foregone medical care	Foregone prescriptions	Foregone dental care	Health care utilization	Dental care utilization	Health status	# of healthy days - physical	# of healthy days - mental	Psych. Distress (K6)	
Number in household	X	X	X	X	X	X	X	X	X	X
Presence of children in household	X	X	X	X	X	X	X	X	X	X
Income as % of FPL	X	X	X	X	X	X	X	X	X	X
Educational attainment	X	X	X	X	X	X	X	X	X	X
Employment	X	X	X	X	X	X	X	X	X	X
Marital status	X	X	X	X	X	X	X	X	X	X
Own/rent home	X	X	X	X	X	X	X	X	X	X
Difficulty paying medical bills	X	X	X	X	X	X	X	X	X	X
Tobacco use	X	X	X	X	X	X	X	X	X	X
Alcohol use	X	X	X	X	X	X	X	X	X	X
Soda consumption	X	X	X	X	X	X	X	X	X	X
BMI	X	X	X	X	X	X	X	X	X	X

Appendix 5: List of Counties by Region

Appalachian

Adams	Harrison	Noble
Ashtabula	Highland	Perry
Athens	Hocking	Pike
Belmont	Holmes	Ross
Brown	Jackson	Scioto
Carroll	Jefferson	Trumbull
Clermont	Lawrence	Tuscarawas
Columbiana	Meigs	Vinton
Coshocton	Monroe	Washington
Gallia	Morgan	
Guernsey	Muskingum	

Rural

Ashland	Henry	Putnam
Champaign	Huron	Sandusky
Clinton	Knox	Seneca
Crawford	Logan	Shelby
Darke	Marion	Van Wert
Defiance	Mercer	Warren
Erie	Morrow	Wayne
Fayette	Ottawa	Williams
Hancock	Paulding	Wyandot
Hardin	Preble	

Suburban

Auglaize	Greene	Pickaway
Clark	Lake	Portage
Delaware	Licking	Union
Fairfield	Madison	Wood
Fulton	Medina	
Geauga	Miami	

Metropolitan

Allen	Lorain	Montgomery
Butler	Mahoning	Richland

The following counties are separate regions based on highly populated urban areas:

Cuyahoga	Hamilton	Stark
Franklin	Lucas	Summit

Appendix 6: Environmental Characteristics by County

County	Hospital Beds (Raw Count)	Primary Care Adult with OB		Dentist		Dental Allied Health		Pharmacist		Mental Health		Mental Health HPSA Designation ¹	
		Provider-to-Population Ratio (per 100,000)	Population	Provider-to-Population Ratio (per 100,000)	Population	Provider-to-Population Ratio (per 100,000)	Population	Provider-to-Population Ratio (per 100,000)	Population	Provider-to-Population Ratio (per 100,000)	Population	Primary Care HPSA Designation ¹	Dental HPSA Designation ¹
STATE OF OHIO	112.0	74.0	34.1	0.0	72.7	24.1	NA	NA	NA	NA	NA	NA	NA
Adams	25	51.87	10.70	0.00	60.62	7.13	No	Whole County	Whole County	Whole County	Whole County	Whole County	
Allen	763	91.25	37.37	0.00	107.32	29.71	Partial County	Whole County	Whole County	Whole County	Whole County	Whole County	
Ashland	55	62.23	30.88	109.00	50.87	174.41	Whole County	Whole County	Whole County	No	Whole County	Whole County	
Ashtabula	336	53.28	34.73	138.93	62.52	216.34	Partial County	Whole County	Whole County	Whole County	Whole County	Whole County	
Athens	147	115.57	28.56	0.00	28.56	98.37	No	Whole County	Whole County	Whole County	Whole County	Whole County	
Auglaize	90	88.13	36.40	0.00	111.35	4.28	No	No	No	Whole County	Whole County	Whole County	
Belmont	269	73.22	48.48	88.15	89.62	402.55	No	No	Whole County	Whole County	Whole County	Whole County	
Brown	59	48.14	15.91	0.00	52.27	0.00	No	Whole County	Whole County	Whole County	Whole County	Whole County	
Butler	653	65.46	41.03	93.62	133.82	181.73	No	Partial County	Partial County	No	Partial County	No	
Carroll	0	31.73	28.03	0.00	49.06	10.51	Whole County	No	No	Whole County	Whole County	Whole County	
Champaign	25	33.56	15.11	0.00	57.92	10.07	No	No	No	Whole County	Whole County	Whole County	
Clark	369	63.58	35.08	93.08	59.43	413.11	Partial	Partial County	Partial County	Whole County	Whole County	Whole County	
Clermont	114	90.85	25.97	86.57	126.81	208.80	No	No	No	No	No	No	
Clinton	93	144.63	30.19	0.00	48.77	13.93	No	Partial County	Partial County	No	Partial County	No	
Columbiana	298	82.80	24.14	78.91	62.20	172.67	Partial County	Whole County	Whole County	Whole County	Whole County	Whole County	
Coshocton	135	65.98	22.37	0.00	50.33	5.59	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	
Crawford	93	47.87	29.95	0.00	46.08	4.61	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	
Cuyahoga	6763	185.18	100.26	110.53	94.54	419.92	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	

County	Hospital Beds (Raw Count)	Primary Care Adult with OB		Dental Allied Health		Pharmacist		Mental Health		Primary Care		Dental HPSA		Mental Health HPSA		
		Population	Ratio (per 100,000)	Population	Ratio (per 100,000)	Population	Ratio (per 100,000)	Population	Ratio (per 100,000)	Population	Ratio (per 100,000)	Designation ¹	Designation ¹	Designation ¹	Designation ¹	
STATE OF OHIO																
MEDIAN	112.0	74.0	34.1	0.0	72.7	24.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Darke	73	73.96	17.37	0.00	44.39	3.86	Whole County	No	Whole County	No	Whole County	No	Whole County	No	Whole County	
Defiance	83	99.36	39.03	0.00	57.24	13.01	No	No	Whole County	No	Whole County	No	Whole County	No	Whole County	
Delaware	61	148.44	74.69	53.35	282.14	192.05	No	No	Whole County	No	Whole County	No	Whole County	No	Whole County	
Erie	219	101.61	55.87	110.44	96.15	261.16	No	No	Whole County	No	Whole County	No	Whole County	No	Whole County	
Fairfield	222	94.38	41.05	45.23	128.03	186.48	No	No	Whole County	No	Whole County	No	Whole County	No	Whole County	
Fayette	25	42.37	46.24	0.00	49.79	17.78	No	No	Partial County	Partial County	Whole County	Partial County	Whole County	No	Whole County	
Franklin	4479	146.51	105.55	103.03	140.85	365.27	Partial County	Partial County	Whole County	Partial County	Whole County	Partial County	Whole County	No	Whole County	
Fulton	121	75.75	21.23	0.00	54.24	7.08	No	No	Whole County	No	Whole County	No	Whole County	No	Whole County	
Gallia	181	156.20	42.35	0.00	81.45	29.32	No	No	Whole County	Whole County	Whole County	Whole County	Whole County	No	Whole County	
Geauga	351	109.26	52.49	111.04	114.07	228.14	No	No	Whole County	No	Whole County	No	Whole County	No	Whole County	
Greene	274	136.54	57.56	93.85	103.86	292.20	No	No	Whole County	No	Whole County	No	Whole County	No	Whole County	
Guernsey	344	82.08	42.44	0.00	39.95	19.97	Partial County	Partial County	Whole County	Whole County	Whole County	Whole County	Whole County	No	Whole County	
Hamilton	4016	143.43	62.33	109.93	116.25	354.59	Partial County	Partial County	Whole County	Partial County	Whole County	Partial County	Whole County	No	Whole County	
Hancock	174	69.89	45.61	114.04	105.99	207.95	No	No	Whole County	No	Whole County	No	Whole County	No	Whole County	
Hardin	25	40.39	15.71	0.00	176.00	6.29	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	
Harrison	25	66.71	6.55	0.00	58.95	6.55	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	
Henry	25	74.72	24.43	0.00	69.81	3.49	No	No	Whole County	No	Whole County	No	Whole County	No	Whole County	
Highland	50	79.13	35.56	0.00	66.39	2.37	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	
Hocking	65	67.73	27.67	0.00	65.72	13.84	No	No	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	
Holmes	40	67.86	21.50	0.00	35.84	7.17	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	
Huron	219	81.88	33.42	73.52	55.14	133.67	Partial County	Partial County	Whole County	No	Whole County	No	Whole County	No	Whole County	
Jackson	24	59.05	17.94	0.00	53.83	5.98	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	
Jefferson	308	74.06	45.80	81.25	82.73	195.00	Partial County	Partial County	Whole County	Whole County	Whole County	Whole County	Whole County	No	Whole County	
Knox	96	83.64	46.95	0.00	70.43	20.12	No	No	Whole County	Partial County	Partial County	Partial County	Whole County	No	Whole County	

County	Hospital Beds (Raw Count)	Primary Care Adult with OB		Dentist		Dental Allied Health		Pharmacist		Mental Health		Mental Health HPSA Designation ¹
		Provider-to-Population Ratio (per 100,000 Population)	74.0	34.1	0.0	72.7	24.1	NA	NA	NA	NA	
STATE OF OHIO	112.0	74.0	34.1	0.0	72.7	24.1	NA	NA	NA	NA	NA	NA
MEDIAN												
Lake	520	58.54	64.20	181.61	78.56	203.57	No	No	No	No	No	No
Lawrence	0	53.61	27.09	55.78	62.16	267.75	Whole County	Whole County	No	Whole County	No	Whole County
Licking	197	69.39	37.23	104.11	94.64	180.46	No	No	No	No	No	No
Logan	110	77.02	25.76	0.00	62.26	6.44	No	No	No	Whole County	No	Whole County
Lorain	665	70.08	40.23	81.78	88.32	203.46	Partial County	Partial County	Partial County	Partial County	No	No
Lucas	2237	137.50	51.78	0.00	115.64	46.82	Partial County	Partial County	Partial County	Partial County	No	No
Madison	75	66.71	28.21	0.00	103.43	9.40	No	No	No	No	No	Whole County
Mahoning	942	166.25	56.60	133.06	120.81	296.96	Partial County	Partial County	Partial County	Partial County	No	No
Marion	204	76.36	39.60	91.39	60.92	275.68	No	No	Partial County	Partial County	No	No
Medina	210	82.17	52.86	169.51	137.90	156.86	Partial County	Partial County	No	No	No	No
Meigs	0	22.49	13.14	0.00	61.30	13.14	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County
Mercer	60	70.14	34.43	0.00	86.07	2.46	No	No	No	No	No	Whole County
Miami	168	64.62	39.50	118.51	122.46	215.30	No	No	No	Whole County	No	Whole County
Monroe	0	53.92	14.23	0.00	49.79	0.00	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County
Montgomery	2805	147.44	53.14	114.54	66.85	281.47	Partial County	Partial County	Partial County	Partial County	No	No
Morgan	0	9.11	21.00	0.00	34.99	0.00	Whole County	Whole County	No	Whole County	No	Whole County
Morrow	53	30.69	11.55	0.00	75.05	2.89	Whole County	Whole County	No	No	No	No
Muskingum	430	82.96	47.12	0.00	94.25	10.60	No	Whole County	Whole County	Whole County	Whole County	Whole County
Noble	0	17.24	0.00	0.00	62.89	0.00	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County
Ottawa	25	83.46	39.08	0.00	95.25	17.10	No	No	No	No	No	Whole County
Paulding	25	62.40	21.06	0.00	63.18	10.53	No	No	Whole County	Whole County	Whole County	Whole County
Perry	0	37.95	28.28	0.00	33.94	16.97	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County
Pickaway	80	61.65	40.19	0.00	51.16	12.79	No	No	Partial County	Partial County	Whole County	Whole County
Pike	25	43.01	21.64	0.00	54.11	0.00	No	No	Whole County	Whole County	Whole County	Whole County

County	Hospital Beds (Raw Count)	Primary Care Adult with OB			Dental Allied Health			Pharmacist			Mental Health			Primary Care			Mental Health		
		Provider-to-Population			Provider-to-Population			Provider-to-Population			Provider-to-Population			HPSA			HPSA		
		Ratio (per 100,000 Population)	Designation ¹																
STATE OF OHIO																			
MEDIAN	112.0	74.0	34.1	0.0	72.7	24.1	NA	NA	NA	NA	NA	NA	NA						
Portage	134	70.77	29.20	82.52	65.38	241.22	No	No	No	No	No	No	No						
Preble	0	44.16	14.49	0.00	65.18	4.83	Whole County	No	No	No	No	No	No	No	No	No	No	No	No
Putnam	0	67.69	23.27	0.00	151.26	5.82	No	No	No	No	No	No	No						
Richland	350	63.35	47.39	0.00	82.74	20.08	Whole County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County
Ross	467	109.73	43.44	111.88	81.61	236.93	No	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County					
Sandusky	288	79.14	28.30	133.18	66.59	209.75	No	No	No	No	No	No	No						
Scioto	230	84.84	32.75	58.95	107.42	317.03	No	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County					
Seneca	95	62.84	33.84	87.26	81.92	279.60	No	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County					
Shelby	71	78.37	28.58	0.00	87.77	4.08	No	No	No	No	No	No	No						
Stark	1624	119.80	49.54	0.00	96.71	29.78	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County						
Summit	2195	140.89	53.47	120.76	105.09	352.14	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County						
Trumbull	501	78.62	57.10	121.34	87.08	238.39	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County						
Tuscarawas	169	71.76	32.92	0.00	93.27	9.88	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County						
Union	66	69.80	26.58	0.00	130.87	8.18	No	No	No	No	No	No	No						
Van Wert	79	78.51	49.13	0.00	63.17	28.07	No	No	No	No	No	No	No						
Vinton	0	10.01	0.00	0.00	30.24	0.00	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County	Whole County						
Warren	0	112.98	50.78	130.51	190.31	168.00	No	No	No	No	No	No	No						
Washington	185	93.25	32.76	139.23	90.09	273.56	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County	Partial County						
Wayne	175	86.78	32.39	0.00	66.54	33.27	No	No	No	No	No	No	No						
Williams	148	61.85	44.95	0.00	60.82	13.22	No	No	No	No	No	No	No						
Wood	92	105.56	34.30	131.60	118.04	288.72	No	No	No	No	No	No	No						
Wyandot	25	82.13	22.33	0.00	147.36	0.00	No	No	No	No	No	No	No						

¹ Source: Health Resources and Services Administration, <http://hpsafinda.hrsa.gov/HPSASearch>, accessed 5/26/2011. Note: Only counties with a “Geographical Area” or a “Population Group” HPSA designation are counted as “HPSA-designated” counties. Counties with designations covering the full county are included as “whole county” HPSAs. These include “single county” geographical areas, “single county” population group designations, and counties with geographical and/or population group service areas that are composed of census tracts (CTs) or Minor Civil Divisions (MCDs) that cover the full county. Those with Partial county service areas, which include geographical area HPSAs composed of census tracts, geographical area HPSAs composed of Minor Civil Divisions, population group HPSAs composed of census tracts, and population group HPSAs composed of Minor Civil Divisions are designated as “partial county” HPSAs. Those counties with only a facility designation are not counted as HPSA-designated counties.

Figures

Figure 1: Logic Model for Effective Access to Health Care

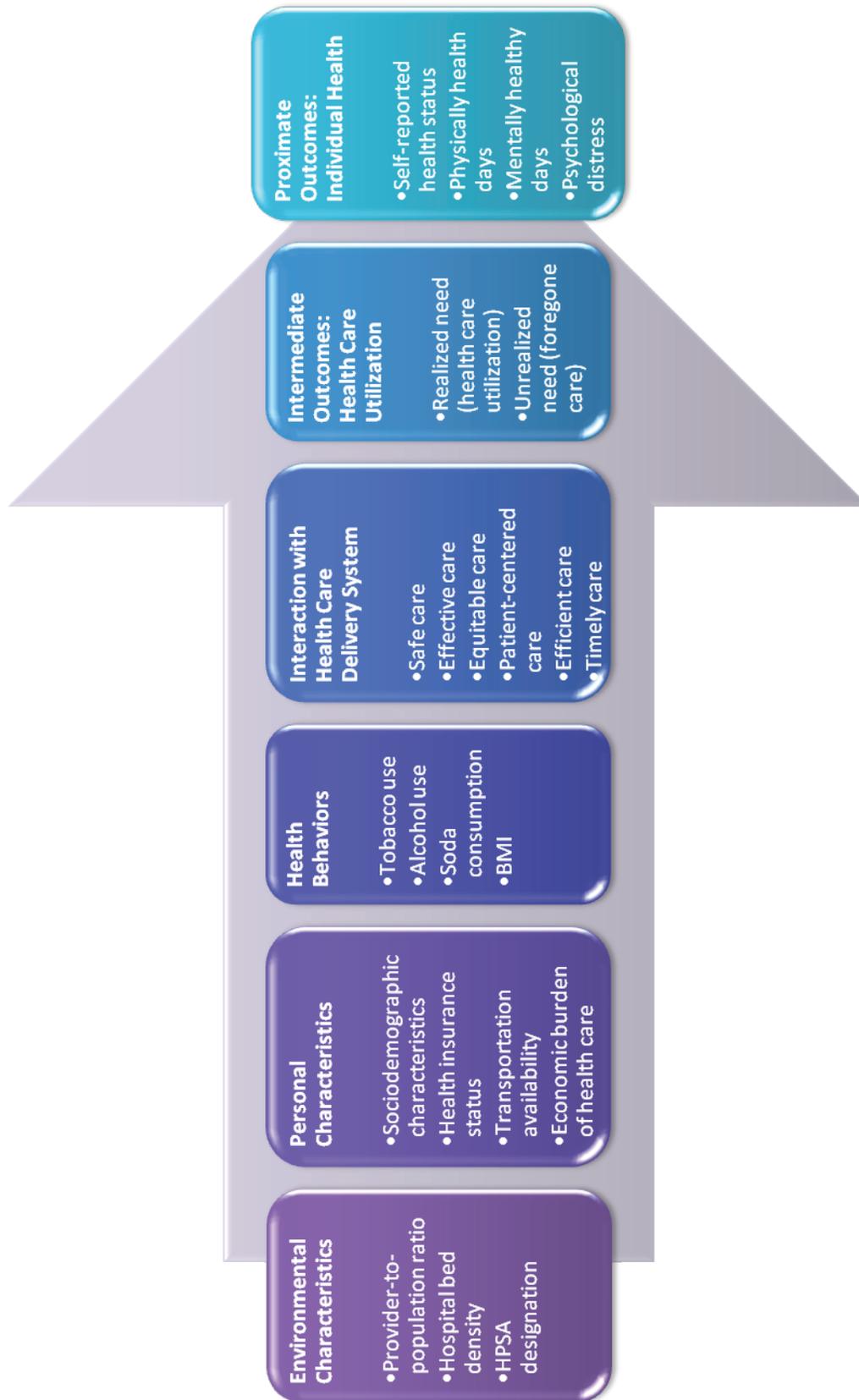


Figure 2: Trends in Medical Care Utilization, 2008 – 2010

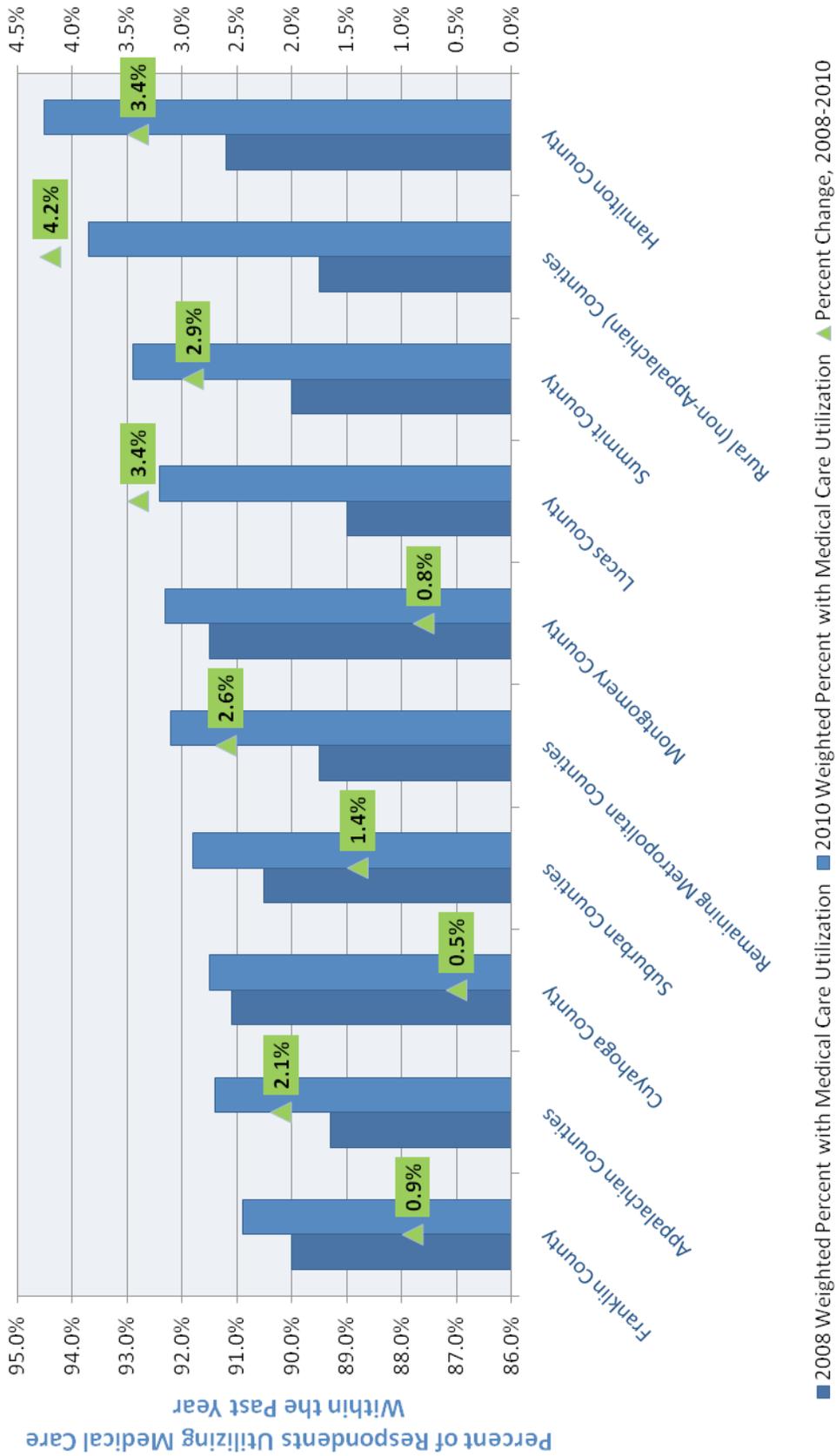


Figure 3: Trends in Foregone Medical Care, 2008 – 2010



Figure 4: Trends in Dental Care Utilization, 2008 – 2010



Figure 5: Trends in Foregone Dental Care, 2008 – 2010

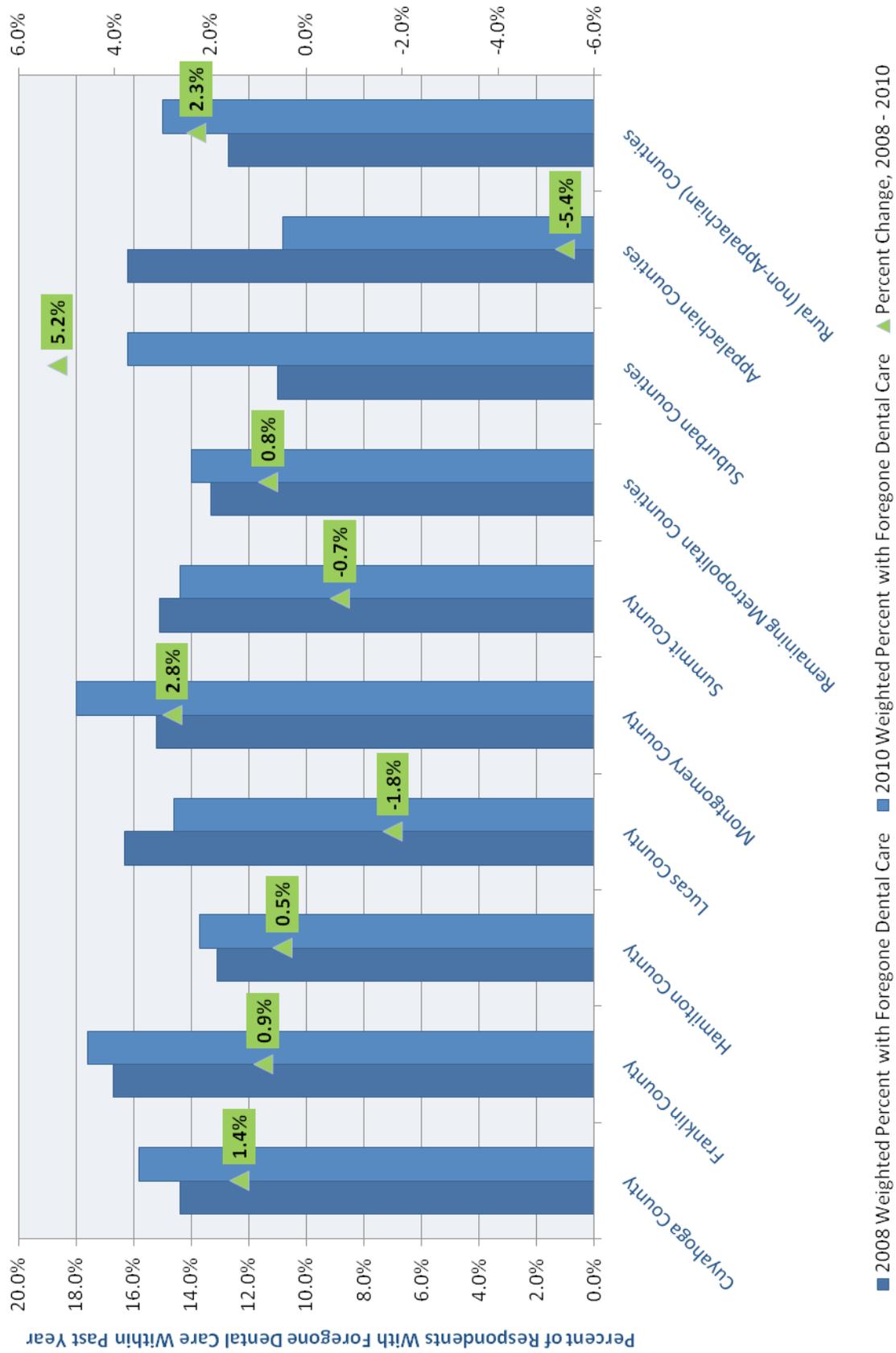


Figure 6: Trends in Foregone Prescriptions, 2008 – 2010

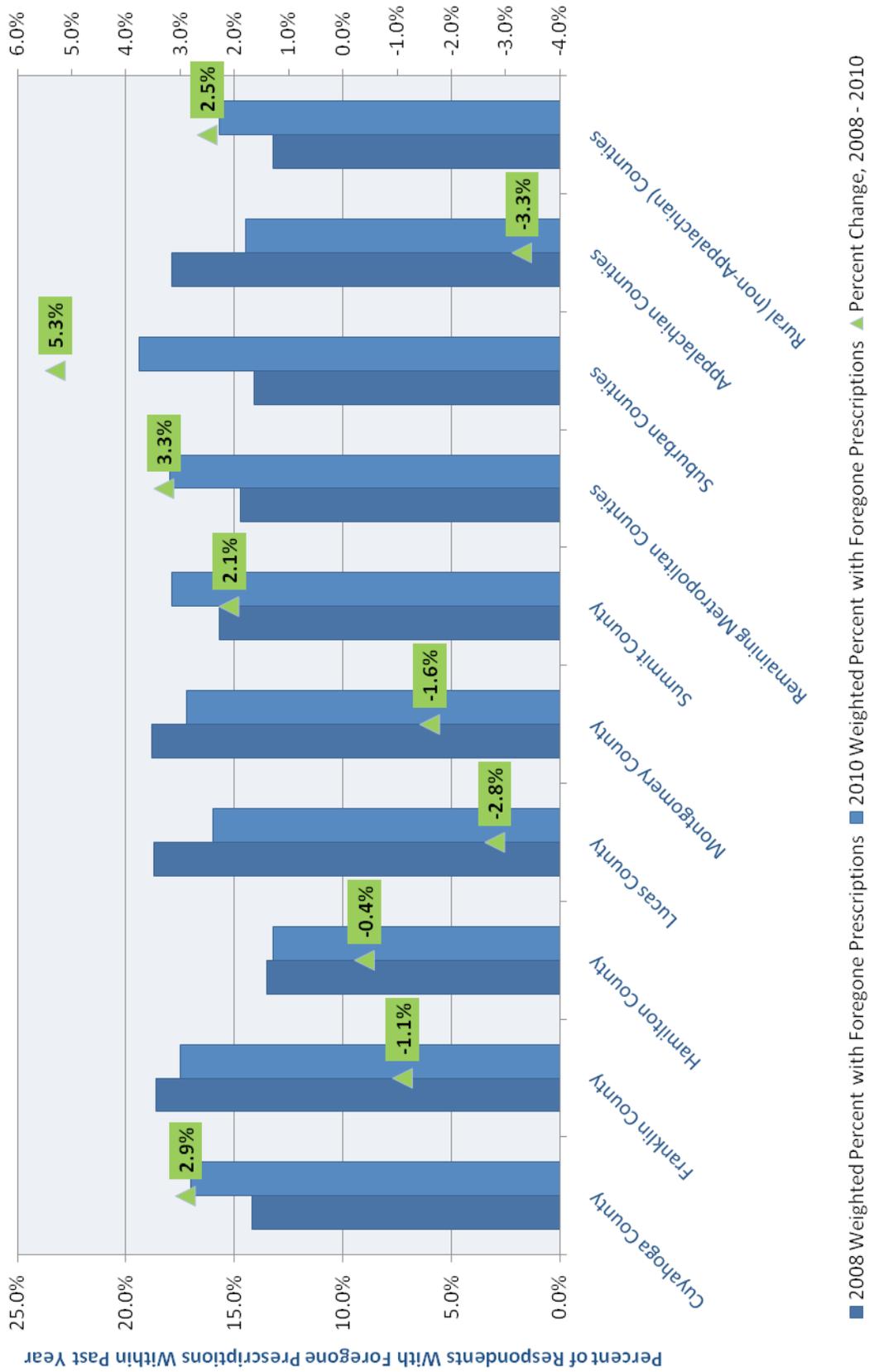


Figure 7: Trends in Self-Reported Health Status, 2008 – 2010

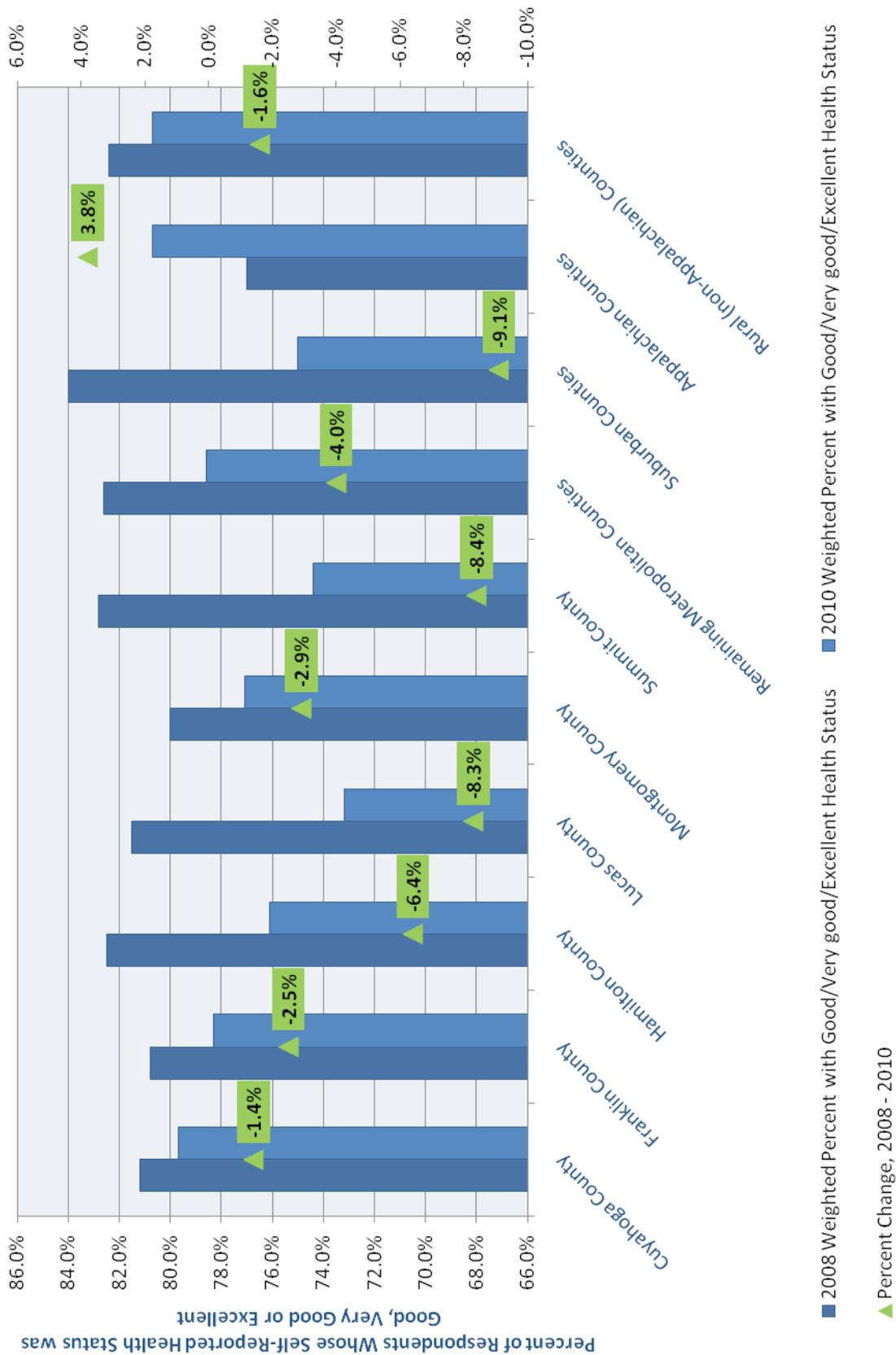


Figure 8: Trends in Physically Unhealthy Days, 2008 – 2010



Figure 9: Trends in Mentally Unhealthy Days, CDC Cut Point, 2008 – 2010

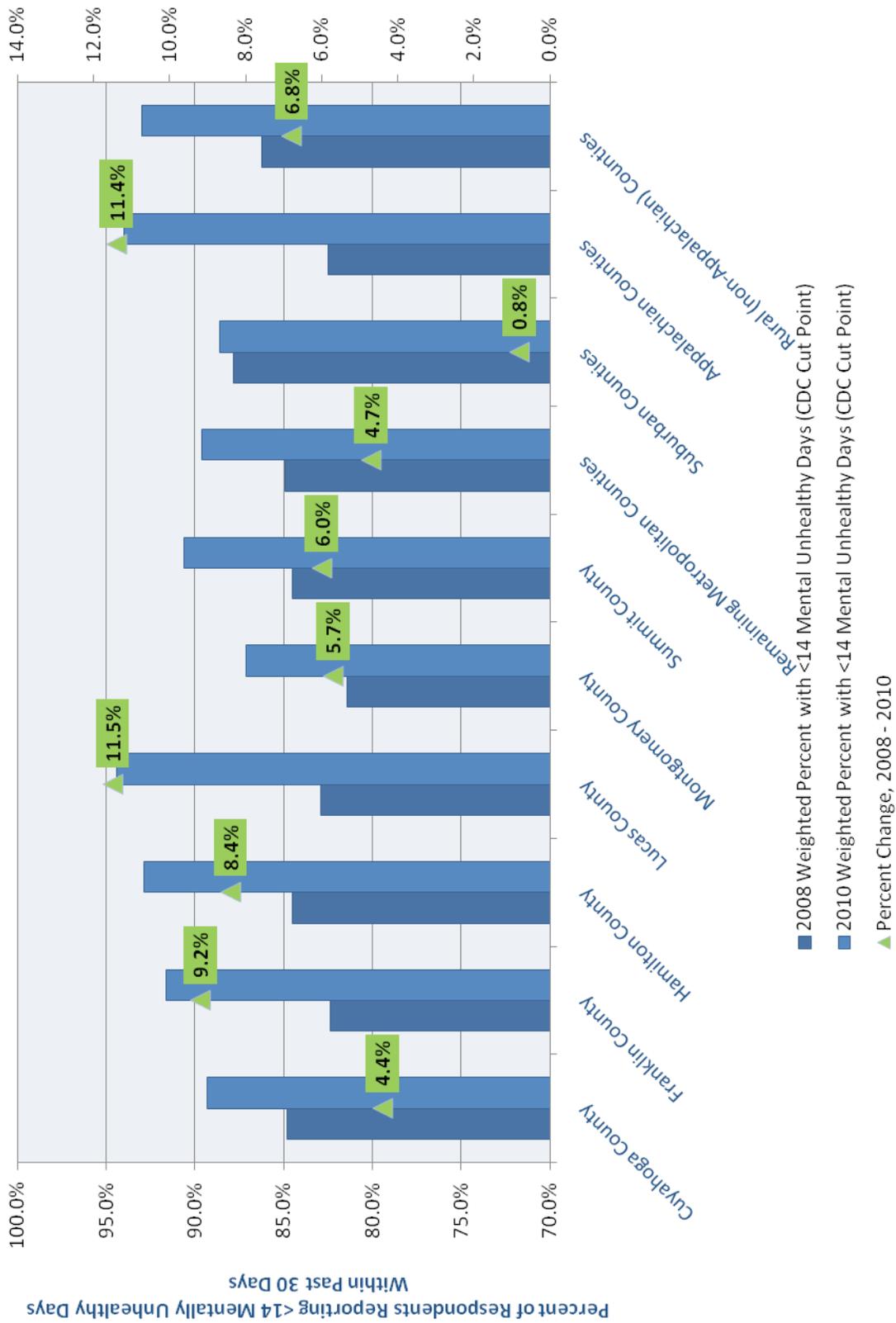
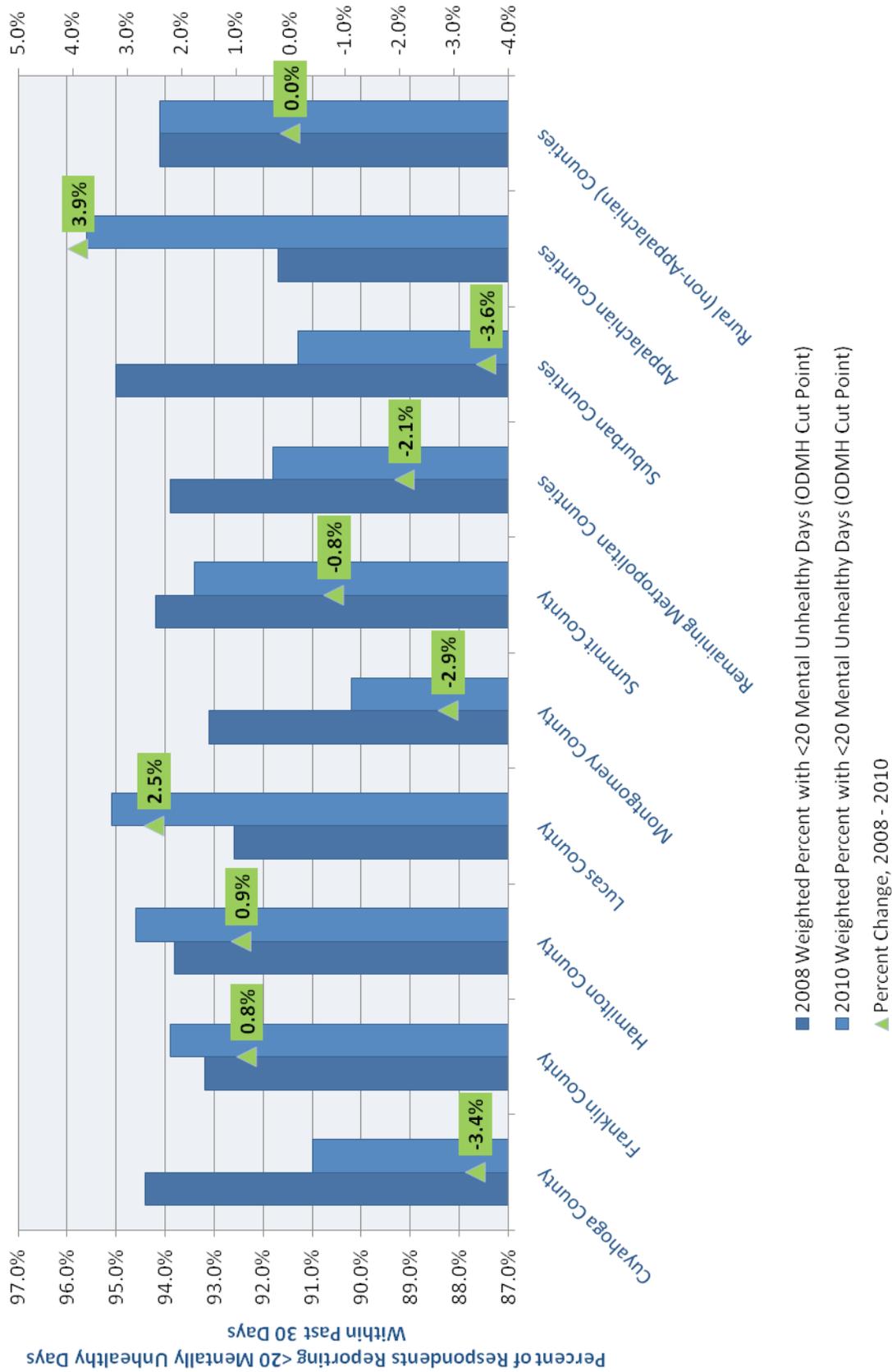


Figure 10: Trends in Mentally Unhealthy Days, ODMH Cut Point, 2008 – 2010



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