2010 OHIO FAMILY HEALTH SURVEY SERIES

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Snapshot of Determinants for an Enhanced Primary Care Home Initiative for Ohio

Final Report

OFHS
Ohio Family Health Survey
Taking the pulse of health in Ohio

Snapshot of Determinants for an Enhanced Primary Care Home Initiative for Ohio: Current Status of Primary Care and Future Policy Considerations

Final Report

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Lisa Raiz
Bill Hayes
Tom Gregoire
Keith Kilty
Christopher Holloman

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Executive Summary

The importance of primary care has been supported through its association with the increased likelihood of receiving preventive services as well as enhanced health outcomes, lower cost and less inequality in health care. Currently, there is increased attention in Ohio on promoting patient-centered medical homes (PCMH) and effectively addressing Medicaid hot spots. The PCMH is conceptualized as a new strategy to organize health care practice that expands traditional primary care goals and is considered requisite for access to effective health care.

This research investigated primary care among Ohioans and its association with health outcomes, health status, and unmet needs. Data from the 2008 and 2010 Ohio Family Health Surveys (OFHS) were analyzed to examine the project's three aims:

1. To estimate the proportion of Ohioans who have or do not have primary care;

2. To examine the association between having or not having primary care and unmet health needs, health status and health outcomes; and

3. To develop an operational definition of Enhanced Primary Care Home specific to Ohio policy, rules and laws.

Because of limitations with the OFHS questions related to primary care it was not possible to measure the extent of primary-care medical homes among Ohioans. This project focused instead on overall access to primary care, using three indicators of primary care in its analysis. The third level of primary care is the best approximation possible to try and capture a more enhanced primary care relationship. These indicators are:

1. Whether one has an usual source of health care;

2. For those having a usual source of health care, the type of place of health care is secured
    a. Doctor's office
    b. Clinic
    c. ER
    d. Other; and

3. For those having a doctor's office or clinic as the primary source of care, the frequency care use
    a. No use in the past year
    b. At least one visit, but did not have a regular check-up
    c. At least one visit and did have a regular check-up.

Whether or not one has a usual source of health care is central to primary care. The majority of Ohioans (more than 90%) had a usual source of health care in 2008 and 2010. However, there were some Ohio subgroups that reported a usual source of health care rate lower than 90%. They included the uninsured, Hispanics, those with incomes between 0-150% Federal Poverty Level (FPL) in 2008 and 2010, and 151-250% FPL in 2008, individuals 18-34 years-old in 2008 and 2010, those 35-44 years-old in 2008, African-Americans in 2008 and Ohioans with chronic, non-mental health conditions in 2008 and 2010.

Having a usual source of health care does matter. Although a higher rate of Ohioans with a usual source of health care are in worse health and report more visits to an ER and hospitalizations, they also experienced greater satisfaction with their health care and had better control of their diabetes. Furthermore, they were less likely to smoke and less likely to have unmet needs, including difficulty seeing a specialist and not getting other needed care.

For the 9% of Ohioans reporting not have a usual source of health care, non-financial issues accounted for 60% of reasons. Seldom, or never getting sick was the primary overall reason identified (43.5%). Cost and lack of insurance were the next two largest reasons for not having a usual source of health care (29.4% overall). Other major non-financial reasons included not knowing where to obtain a doctor and not wanting to use a doctor.

The broad categorization of having, or not having, a usual source of health care obscures important nuances about the care. Place that serves as the usual source of health care is an important distinction. In 2008 and 2010, between 70% and 75% of Ohioans had a doctor's office or HMO as their usual source of health care and between 13% and 14% had a clinic as their usual source of health care. An estimated 5 to 6% of Ohioans had an ER as their usual source of care. Healthier Ohioans, those who were older and those who had higher educational attainment, were less likely to use an ER as their usual source of health care. Males, African-Americans, individuals with Medicaid and those living in Appalachia were more likely to use an ER as their usual source of health care.

As was the case with a lack of a usual source of health care, non-financial barriers comprised the main reasons for using an ER. Thirty-six percent of Ohioans reported using an ER for their usual source of health care because they felt it was the best place to get care. Almost another 30% of Ohioans (28.9%) who utilized an ER as their usual source of health care reported doing so due to its convenience. Financial reasons ranked third (15.8%), while not having a regular doctor or knowing where else to get care ranked fourth (13.2%),

Individuals who use an ER as their primary source of health care have higher rates of poor health, more hospitalizations and more unmet health related needs than do Ohioans with a clinic or doctor's office as their usual source of health care. Although individuals who use a clinic as their usual source of health care have higher rates of poor health and more ER visits than those who use the doctor's office, patients who use both clinics and doctor's offices as their usual source of health care reported fewer unmet needs and better access to specialists than those who used an ER as their usual source of health care. Ohioans who use clinics reported doing at least as well on these measures as those whose usual source of health care was a doctor's office. In 2008, clinic patients reported fewer problems accessing specialists than patients using physicians.

Just having a usual source of health care with a doctor's office or clinic does not translate into an engaged primary care relationship. According to the 2010 OFHS survey, 19.6% of clinic patients and 11.9% of doctor's office patients did not see that provider at any time in the previous twelve months. Another 24.1% of clinic patients and 24.6% of doctor's office patients saw a provider at least once during the previous twelve months but did not get a regular checkup as part of their visit(s). These groups appear to be using their usual source of health care for acute care-related needs primarily or exclusively. Interestingly, privately covered patients had the highest rates of no use and limited used, except for the uninsured. Medicare patients had the highest rate of more enhanced use of a clinic or doctor's office as a usual source of health care. The OFHS surveys did not include a question asking about why these patients used their usual source of health care in the manner that they did.

Ohioans with a more enhanced relationship with their clinic or doctor's office as a usual source of health care had worse health status that those with either limited or no use – they also had a higher rate of ER and hospital admissions. At the same time, they rated their health care higher and reported fewer unmet needs that those with limited or no use in 2008.

Based on the analysis of the 2008 and 2010 OFHS surveys, review of the literature and ongoing activities in Ohio and elsewhere, and discussion with a group of stakeholders this report identifies policy implications in eight areas. These areas are:

1. Emergency rooms as usual source of care
2. Medical home capacity
3. Workforce capacity
4. Community-based clinics as usual sources of care

5. Populations with special challenges
6. Populations without any usual source of care
7. Consumer engagement
8. Data tracking

The major implications identified include:

1. Policy efforts to increase access to a regular, non-ER, usual source of primary care must consider that non-financial preferences and barriers are the primary reasons for Ohioans using an ER as a usual source of health care and for not having a usual source of health care;

2. Emergency rooms appear to possess more of the characteristics that certain people need for their medical home;

3. Ohio needs greater medical home capacity which, in part, requires multi-payer payment reform to increase the incentives for providers to serve as medical homes;

4. While there are certain populations that use clinics to a much greater degree than doctor offices as a usual source of health care, the outcomes related to unmet needs are comparable – therefore , promoting access to clinics does not appear to be associated with inferior outcomes;

5. Efforts to promote greater use of medical homes and seeking primary and preventive care require consumer engagement strategies; and

6. To allow for even better ability to understand access to and utilization of primary care and medical homes, future OFHS surveys should include additional questions on these topic areas.

Limitations to this study include the breadth of measurement that enabled analyses of the concept primary care. The three measures of primary care used were a usual source of health care, location that served as a usual source of health care, and frequency of health care use. Of these measures, the research team acknowledges the proxy approach of frequency of care use – it is not possible to know whether medical visits are to a provider who serves as a usual source of care. This measure does not provide a true reflection of medical visits to a usual source of care. An additional limitation identified is the cell sizes for some variables in the 2010 OFHS are too small to allow statistically significant analyses, when encounter, these cells sizes are noted.

Introduction

Currently, there is increased attention in Ohio on promoting patient-centered medical homes (PCMH) and effectively addressing Medicaid hot spots. Hot spots are groups of individuals who share certain medical and psychosocial characteristics that are associated with dramatically increased use of medical services (Gawande, 2011). The PCMH is conceptualized as a new strategy to organize health care practice (Stange et al., 2010) that expands traditional primary care goals (Crabtree et al., 2011) and is considered requisite for access to effective health care (Davis, Schoenbaum & Audet, 2005). Ohio defines medical home as "an enhanced model of primary care" with seven characteristics that include being:

1. Patient–centered
2. A team-based approach
3. A whole person orientation
4. Care coordination and integration
5. Quality and safety
6. Enhanced access; and
7. Payment reform for enhanced primary care (Ohio Medical Home Definition and Characteristics, 2010).

A central component of medical homes is the provision of primary care (Phillips & Bazemore, 2010; Strange et. al, 2010). The attributes that distinguish primary care are accessible, comprehensive, coordinated, and continuous (Peterson, as cited in Davis, Schoenbaum & Audet). Comprehensive services, within the PCMH, include mental health care as well as care for chronic illnesses (Stange et al.). A number of entities have interpreted and expanded this 25-year-old seminal definition (Davis, Schoenbaum & Audet), but the priorities remain consistent. The importance of primary care has been supported through its association with the increased likelihood of receiving preventive services (as cited in Abrams, Nuzum, Mika and Lawlor, 2011) as well as enhanced health outcomes, lower cost and less inequality in health care (as cited in Stange et al.).

This research investigated primary care among Ohioans and its association with health outcomes, health status and unmet needs. Data from the 2008 and 2010 Ohio Family Health Surveys were analyzed to examine the project's three aims.

1. To estimate the proportion of Ohioans who have, or do not have, primary care;

2. To examine the association between having, or not having, primary care and unmet health needs, health status and health outcomes; and

3. To develop an operational definition of Enhanced Primary Care Home specific to Ohio policy, rules and laws.

The current interest in Ohio regarding patient-centered medical homes prompted expansion of the scope of this research. A variable was constructed that identified populations with chronic conditions, as defined by Section 2703 of the Patient Protection and Affordable Care Act (PPACA). Section 2703 addresses state options for provision of services to eligible individuals with chronic conditions and identify health homes as one such choice. The definition of chronic conditions provided in Section 2703(h) was utilized in this research to create three, mutually exclusive, broad categories related to chronic conditions: not chronic, chronic mental health, other chronic conditions.

Data, in the form of written and verbal comments, obtained during a forum attended by 16 stakeholders from the public and private sectors were examined and incorporated into the discussion section. A brief presentation by the researchers introduced forum participants to key findings from the analyses, after which they worked through a facilitated process to address four questions:

1. What insights do you draw from the data presented?

2. What activities might be undertaken to address findings?

3. What are good type(s) of questions to include in the next OFHS to better capture levels of primary care among Ohioans? and

4. What issues do you want Ohio policymakers to consider when trying to maintain or enhance access to primary care, especially patient-centered medical homes, in Ohio?

Measuring Primary Care

Three different focuses may be utilized to conceptualize primary care (Friedberg, Hussey & Schneider, 2010). One emphasizes the need for a specific category of professional training for the individual medical provider to constitute primary care. Another definition examines macro-level indicators to represent primary care within a system of service delivery. Examples include ratios of primary care physicians to patients or primary care physicians to specialists at local or regional levels (Friedberg, Hussey & Schneider). A third definition of primary care is one in which a usual source of health care provides four necessary functions (Friedberg, Hussey & Schneider, 2010). It is this definition that serves as the conceptual foundation for this research.

The first requirement in Friedberg, Hussey and Schneider's conceptualization of primary care, with the focus on function, is that individuals have a usual source of care. Therefore, whether, or not, one has a usual source of care is the first of three indicators of primary care used in this project (see Appendix A for OFHS items used to represent primary care). The conceptualization of primary care as a "function" is supported by the 1978 and 1996 Institute of Medicine definitions of primary care that identify specific criteria that make primary care unique (Phillips & Bazemore, 2010). The criteria described expected functions of primary care, such as accessibility and comprehensiveness. Additionally, having a regular provider has been used in previous research as one of the necessary elements to represent having a patient-centered medical home (Beal, Hernandez & Doty, 2009; Beal et al., 2007).

The second indicator of primary care in this project examines which place is identified as the usual source of care. Distinctions among places that care is received, with regard to types of individuals who utilize service and outcomes associated with each location, will promote effective workforce and service delivery development. OFHS Survey response options for location for usual care included clinic or health center, doctor's office or HMO, hospital emergency room, or other.

The third indicator representing primary care was constructed specifically for this project. It is identified as "frequency of care use." Three levels of use were created from two items in The Ohio Family Health Survey: the length of time since a routine check-up was received and the length of time since a doctor visit related to one's health. The three levels of use were: enhanced use, basic use, and no use. "Enhanced use" was indicated by receipt of a routine check-up within the previous 12 months. A visit to a doctor within the previous 12 months related to one's health, but no routine check-up, represented "basic use." No routine check-up or visit to a doctor within the previous year indicated "no use." Comprehensive services, that include prevention, was one indicator of primary care as identified in a Canadian study of primary care experts that sought to operationalize primary care (Haggerty, et al., 2007). Additionally, receipt of preventive care is a positive outcome associated with having a usual source of care (as cited in Abrams, Nuzum, Mika & Lawlor, 2011; Beal, Hernandez & Doty, 2009; Friedberg, Hussey & Schneider, 2010; Phillips & Bazemore, 2010). Because this is an important outcome indicator that was available in the 2008 and 2010 OFHS surveys, it was decided to be an acceptable representation of a more desirable level of care.

This project organizes these three indicators of primary care used through the logic model shown in Figure 1. We then analyzed the data in the 2008 and 2010 OFHS by the general population or any specific population group, such as by source of coverage, age, race/ethnic status, region, gender, chronic health status, or income, and by how the people in that group distribute according to each of the three indicators of primary care. We also analyzed how people within a specific group by an indicator of primary care measured in items such as ER visits, hospitalizations, access to specialists, or unmet need. Figure 2 shows the list of population groups and the categories within each group that were analyzed.

Figure 1: Logic model to examine primary care and associated outcomes among Ohioans

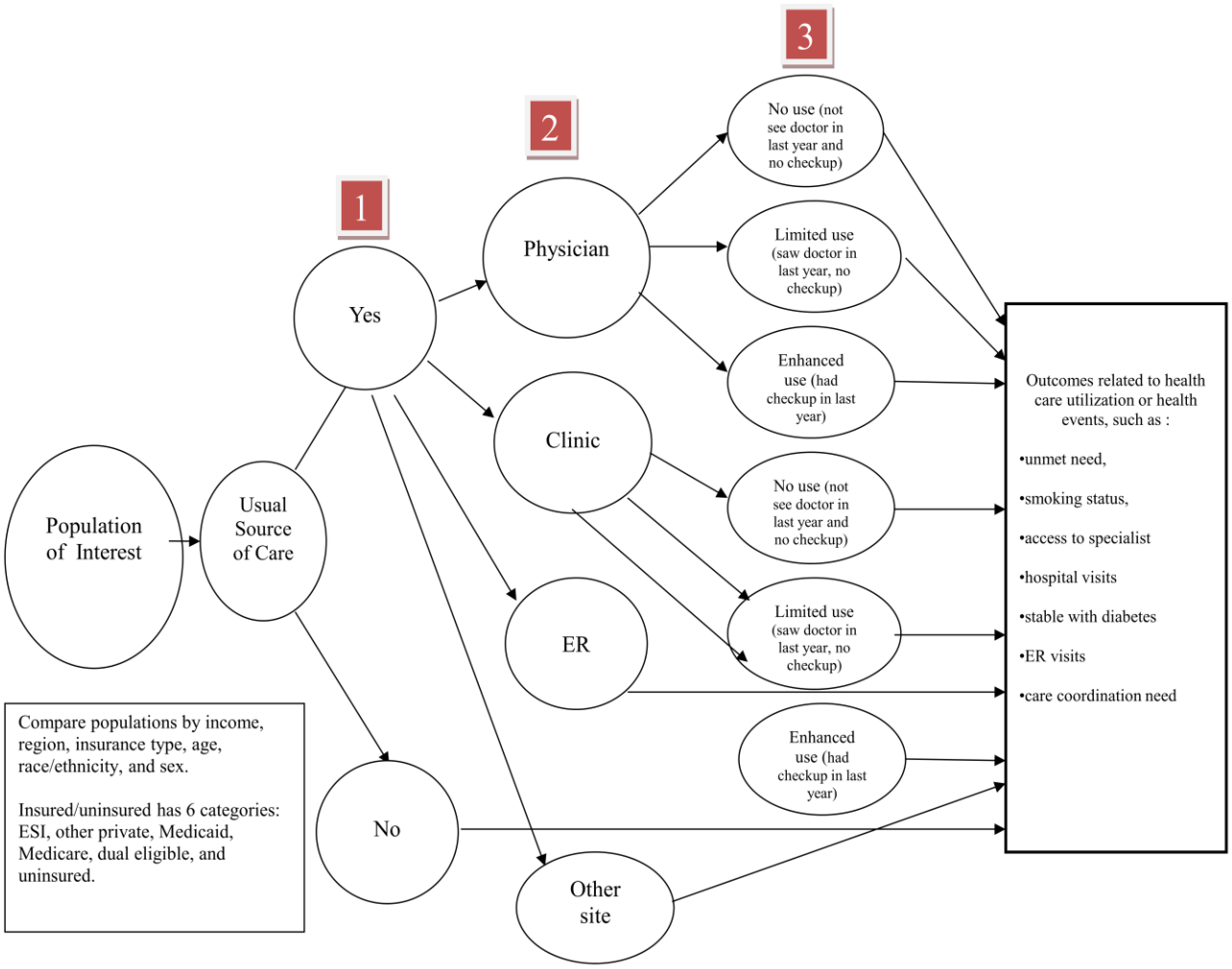
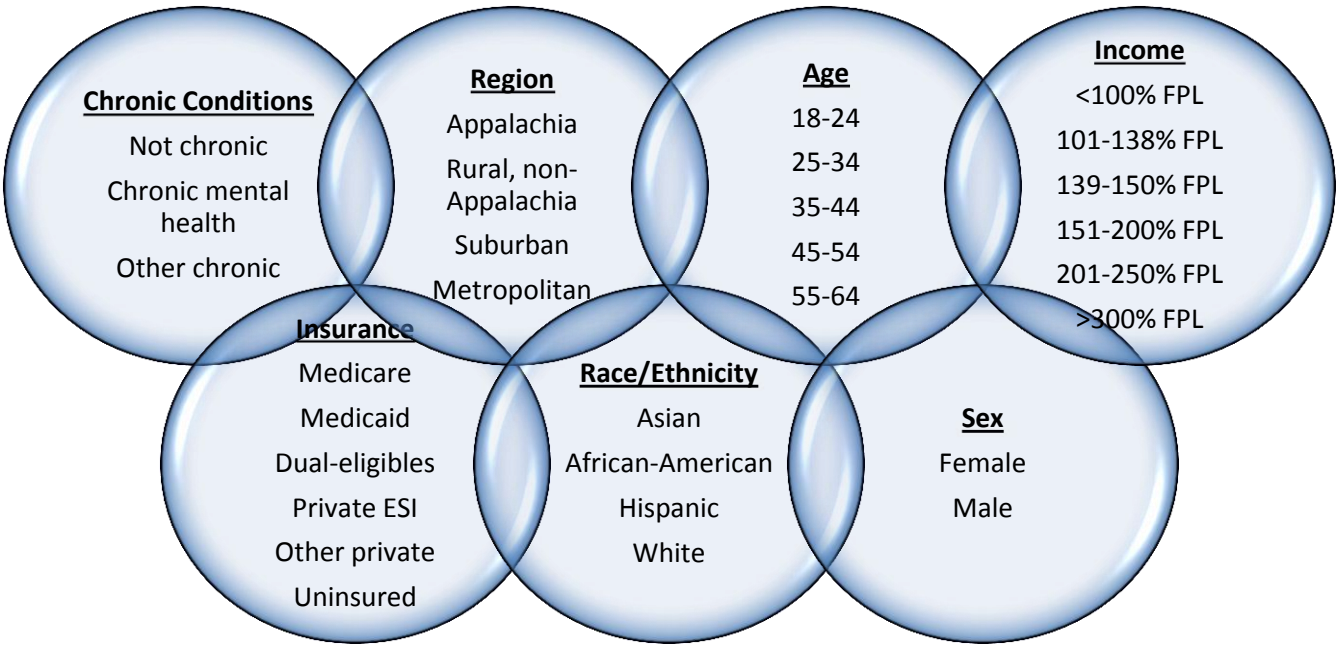


Figure 2: Sociodemographic variables



Measuring a Usual Source of Health Care

Factors Associated with Having a Usual Source of Health Care

Accordingly to the OFHS, more than 90% of Ohioans had a usual source of health care in 2008 and 2010. The overwhelming majority of Ohioans with health insurance had a usual source of health care, regardless of the type of insurance. Only individuals who were uninsured had a lower rate of a usual source of health care (75%) (see Fig. 3).Other factors associated with having a usual source of health care are as follows:

1. The Hispanic population consistently lags behind other racial and ethnic groups in having a usual source of health care. They did experience an increase in the percentage of individuals who have a usual source of health care between 2008 and 2010 (79.5% to 86.5%), although the difference was marginally significant (p=.074) (see Fig. 5).

2. Among Ohioans 55-64 years if age, a significantly higher percentage had a usual source of heath care in 2008 than in 2010 (93.5% to 91.6%, p=.028). The odds of having a usual source of health care were 1.3 times as high in 2008 as the odds of having a usual source of health care in 2010.

Other groups that had a less than 90% rate of having a usual source of health care were:

- <100% FPL (2008, 2010)
- 101-138% FPL (2008, 2010)
- 139-150% FPL (2008, 2010)
- 151-200% FPL (2008)
- 201-250% FPL (2008)
- age 18-24 (2008, 2010)
- age 25-34 (2008, 2010)
- age 35-44 (2008)
- African-American (2008)
- Chronic, non-mental health conditions (2008, 2010)

Figures for Usual Source of Care by Sociodemographic Groups

Figure 3: Usual source of health care among Ohioans by insurance status/type

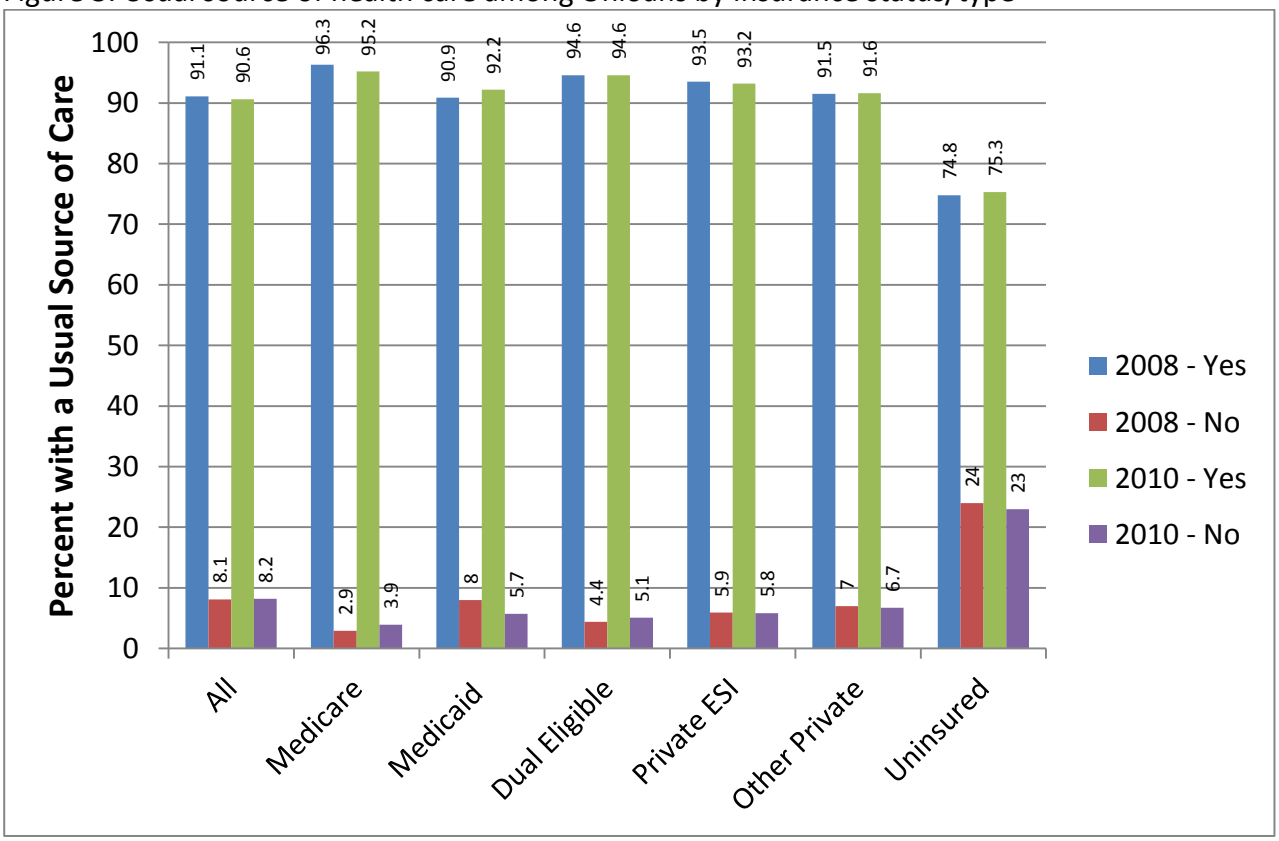


Figure 4: Usual source of health care among Ohioans by income

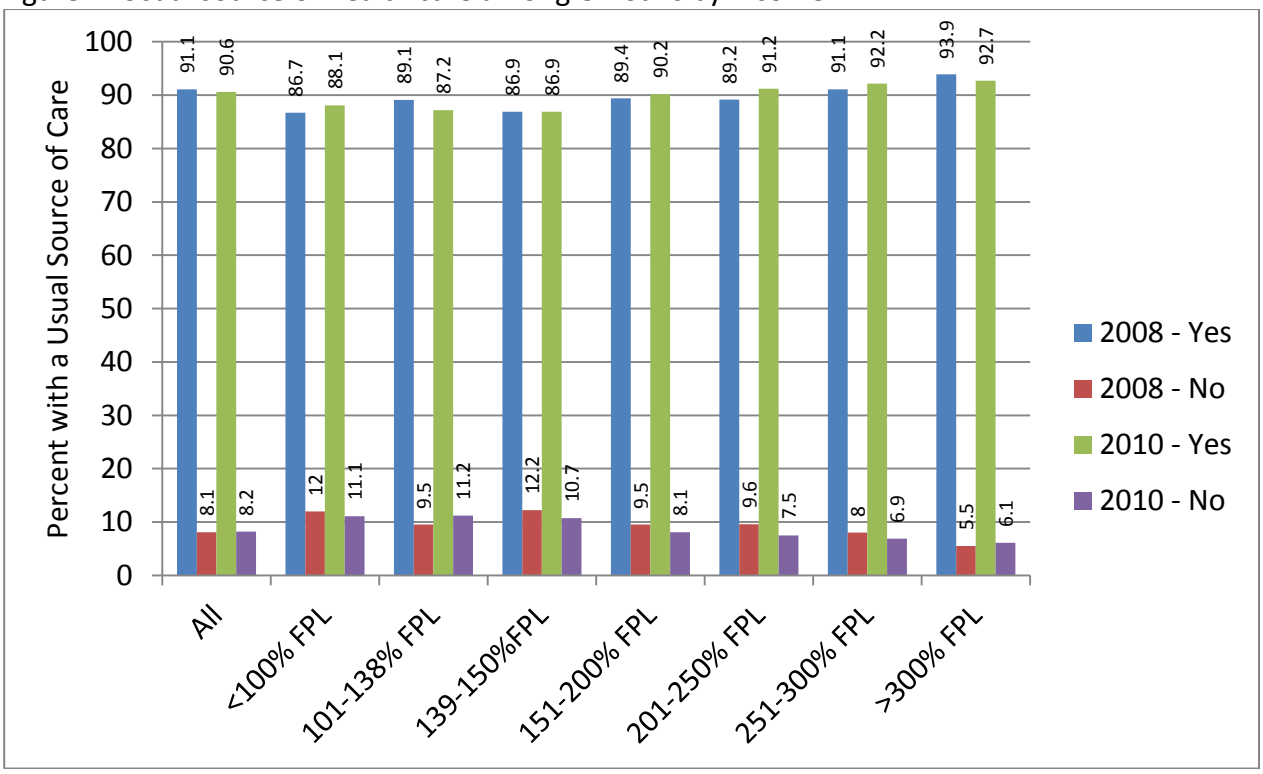
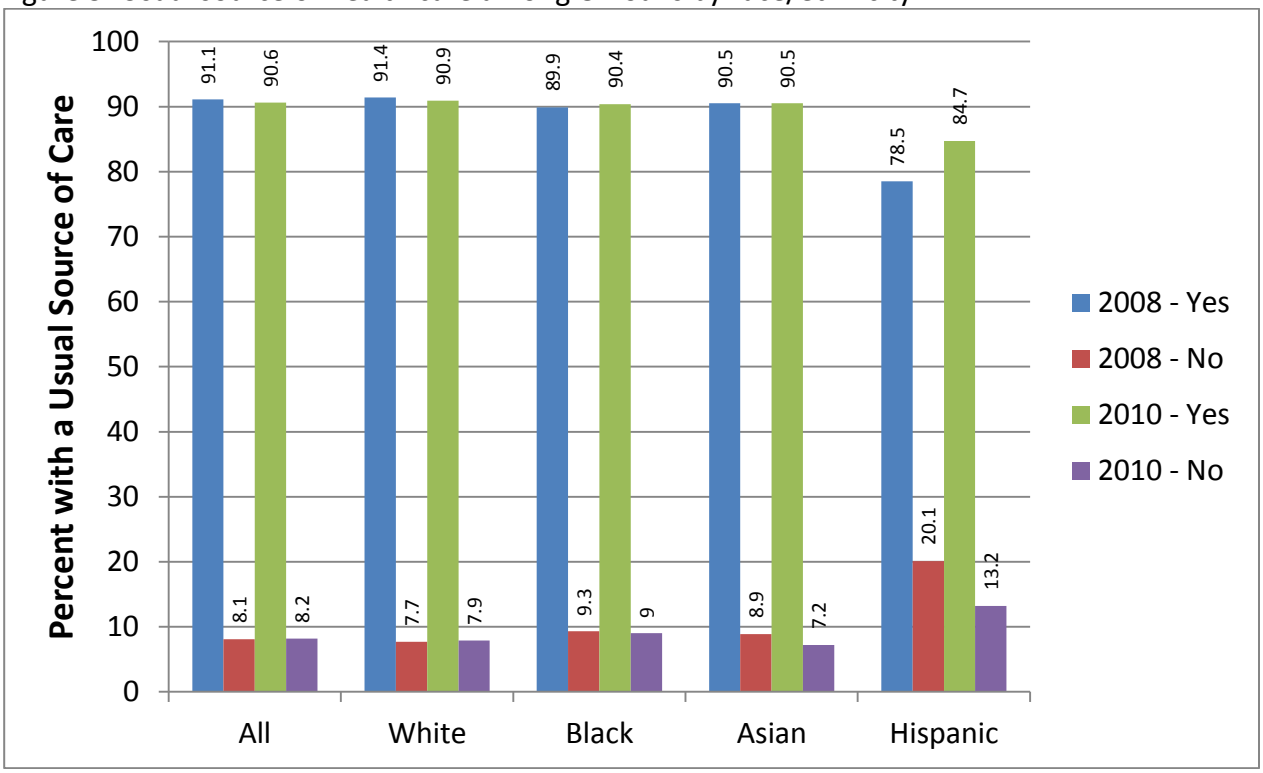


Figure 5: Usual source of health care among Ohioans by race/ethnicity



No Usual Source of Health Care among Ohioans:

Issues and Implications

Approximately 9% of Ohioans did not have a usual source of health care. Cost or lack of health insurance were not the main reasons that Ohioans did not have a usual source of care in 2008 (see Table 1). The primary reasons for not having a usual source of health care were:

1. Seldom or never get sick (43.5%)
2. Cost/no insurance (29.4%)
3. Don't like or want to use doctors (9.5%)
4. Not sure where else to go/lost regular doctor (6.3%)

These concerns suggest that simply providing people with health insurance will not be sufficient to ensure a usual source of health care among all Ohioans. Activities that are developed to address the different types of issues previously identified will be necessary to move people into a regular source of primary care. For example, public education efforts aimed at promoting an understanding of the benefits of having a usual source of health care, coupled with information about primary care providers who are accepting new patients, would address nearly 60% of the reasons that Ohioans do not have a usual source of health care. These efforts would be quite different than those intended to gain a usual source of health care among Ohioans for whom financial and coverage barriers were primary impediments (29.4%).

Table 1: Reason for no usual source of health care

Reason	**%**
Seldom or never get sick	43.5
Don’t know where to go for care	3.5
Previous doctor/source no longer available	2.8
Like different places for different health needs	1.3
Just changed insurance plans	.9
Don’t use or like doctors treat myself	9.5
Cost/too expensive	16.8
No insurance	12.6
Use books/internet/hotline (get needed info from)	.6
Other	4.3
Don’t know	4.1
Refused	.1

Outcomes Associated with Having a Usual Source of Health Care

In 2008, Ohioans with a usual source of health care had 4% more ER visits and more hospital admissions than those without a usual source of care. While having a usual source of care is associated with a higher percent of ER visits, it is also associated with better outcomes on several variables contained in the 2008 and 2010 OFHS surveys, including:

1. In 2008, individuals with a usual source of health care also had better control of their diabetes and more satisfaction with their health care than those without a usual source of care;

2. In 2008 and 2010 Ohioans with a usual source of health care had worse general health, had less difficulty seeing a specialist and were less likely to report not getting other needed care than those without a usual source of health care; and

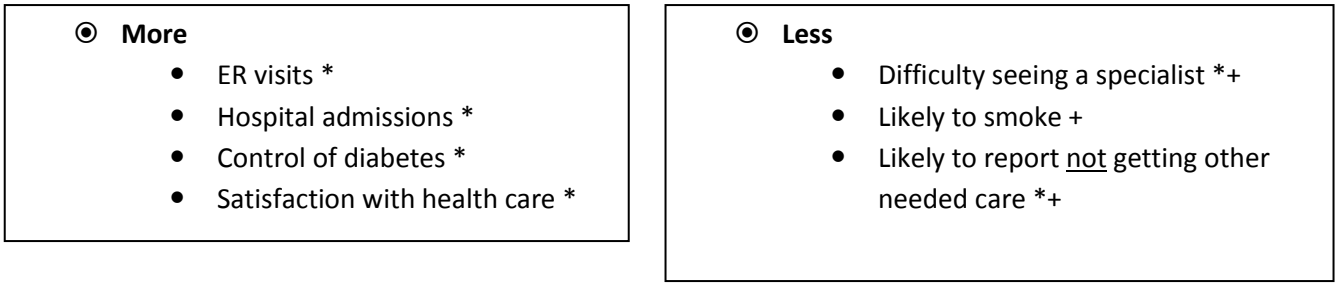
3. Ohioans with a usual source of health care were less likely to smoke in 2010 than those who did not have a usual source of care (see Fig. 6).

(All of the aforementioned differences were statistically significant ((p<.001; except 2010 worse general health, p=.006)).

The finding in this study that Ohioans with a usual source of care have more ER visits than those without a usual source of care is inconsistent with a previous Commonwealth Fund study that found no association between having a usual source of care and having an ER visit during the previous year for individuals under age 64 (Garcia, Bernstein & Bush, 2010). However, this Commonwealth Fund study found that adults over age 65 with a usual source of care had significantly more ER visits than those without a usual source of care (Garcia, Bernstein & Bush, 2010).

Although the findings in this project are not entirely consistent with the Commonwealth Fund report, the stakeholders who attended the research forum were not surprised of about ER visits for those without usual source of care and identified 1) cost worries and 2) better health status/lower need for ER than those with a usual source of health care as potential explanations.

Figure 6: Outcomes associated with having a usual source of health care



Note: Those with a usual source of health care reported a worse general health in 2008 and 2010
*=2008
+=2010

Place Where Care Is Received

In 2008 and 2010, between 70% and 75% of Ohioans reported a doctor's office or HMO as their usual source of health care; between 13% and 14% reported a clinic as their usual source of care; and between 5% and 6% used the emergency room as their usual source of health care.

Factors associated with a using a doctor's office as the usual source of health care includes (see Figures 7 and 8):

1. In 2008 and 2010, those with employer-sponsored health insurance had the highest rates of doctor's offices as their usual source of health care (see Figures 13 and 14);

2. Just above 50% of those living at 0-100% FPL used a doctor's office or HMO as their usual source of health care (see Figures 15 & 16);

3. In 2008, more the 75% of Caucasian Ohioans used a doctor's office as their usual source of health care, while just under half of African-Americans and Hispanics did so (see Figure 17);

4. Healthier Ohioans receive a larger percentage of their health care at doctor's offices or HMOs than do individuals with chronic conditions (see Figures 19 & 20);

5. Individuals with chronic mental health conditions have the lowest percentage of use of the doctor's office or HMO by existence and type of chronic condition (see Figures 19 & 20);

6. Compared to the other regions of residence, Appalachia had the lowest percentage of its residents with the doctor's office as their usual source of health care in 2008 (see Figures 21);

    - The percentage of those living in Appalachia who used the doctor's office as their usual source of care significantly increased (p=.004) from 67% in 2008 to 72% in 2010.

Factors associated with a using or not using a clinic as the usual source of health care include (see Figures 9 and 10):

1. Individuals with chronic mental health conditions have the highest percentage of use of clinics compared to those without a chronic conditions and those with chronic non-mental health conditions (see Figures 19 & 20), and;

2. Compared to the other regions, Appalachia had the largest percentage of residents who used a clinic as their usual source of care (Figures 21 & 22).

Factors associated with a using or not using a doctor's office as the usual source of health care include:

1. In 2008 and 2010, uninsured individuals had the highest rates of ER as their usual source of care compared to Ohioans with any type of insurance (Figures 13 & 14);

2. The emergency room was the primary care provider for 15% and 13% of individuals with incomes at 0-100% FPL and nearly 11% and 8% of individuals with incomes between 101-138% FPL in 2008 and 2010, respectively (see Figures 15 & 16);

3. The use of emergency rooms as a usual source of care was approximately 13% among African-American in 2008 and 2010 – the only racial or ethnic group in double digits (see Figures 17 & 18):

- Individuals with chronic mental health conditions have the highest percentage of use of an ER as their usual source of care compared to those without a chronic condition and individuals with chronic non-mental health conditions (see Figures 19 & 20);

- Compared to the other regions, Appalachia had the largest percentage of residents who used an ER as their usual source of care (see Figures 21 & 22);

- Among people in Appalachia with a usual source of care, a significantly greater percentage of people listed ER as their usual source of care in 2008 than in 2010 (8.8% vs. 4.6%, p<.001) – the odds of listing ER as their usual source of care in 2008 was 2.02 times as high as the odds of listing ER as their usual source of care in 2010 (see Figures 21 & 22);

- In 2010, of the four regions of residence, the area with the largest percentage of its residents using the emergency room as their usual source of care in 2010 was the metropolitan areas (see Figure 22).

Specification of Sociodemographic Groups by Place Serving as Usual Source of Health Care

Figure 7: Place Health Care is received – 2008: Doctor's Office or HMO: 73.6% all Ohioans

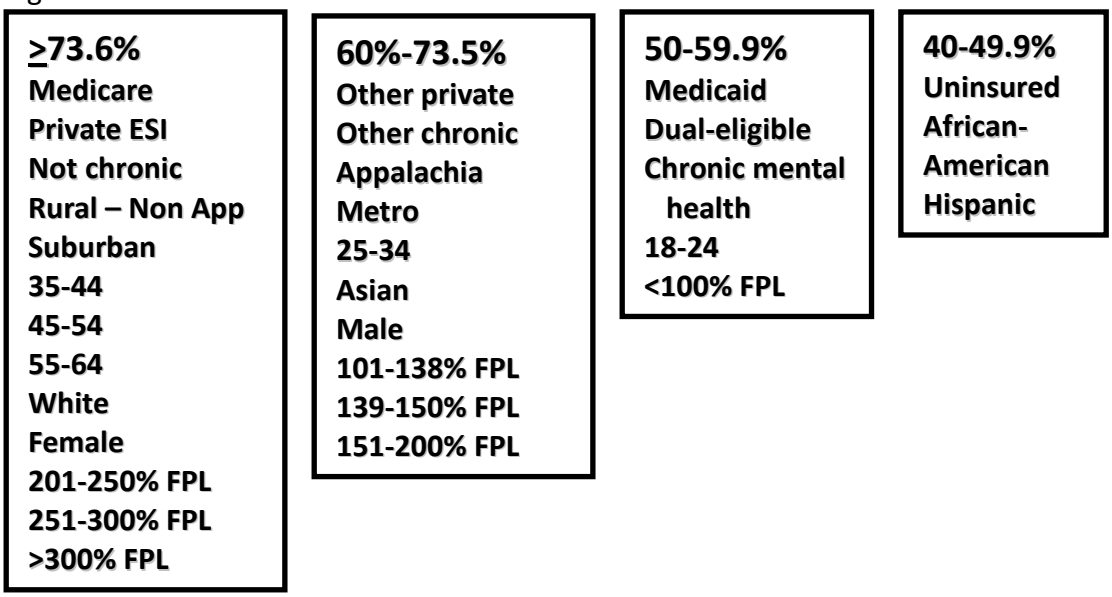


Figure 8: Place Health Care is received – 2010: Doctor's Office or HMO: 72.5% all Ohioans

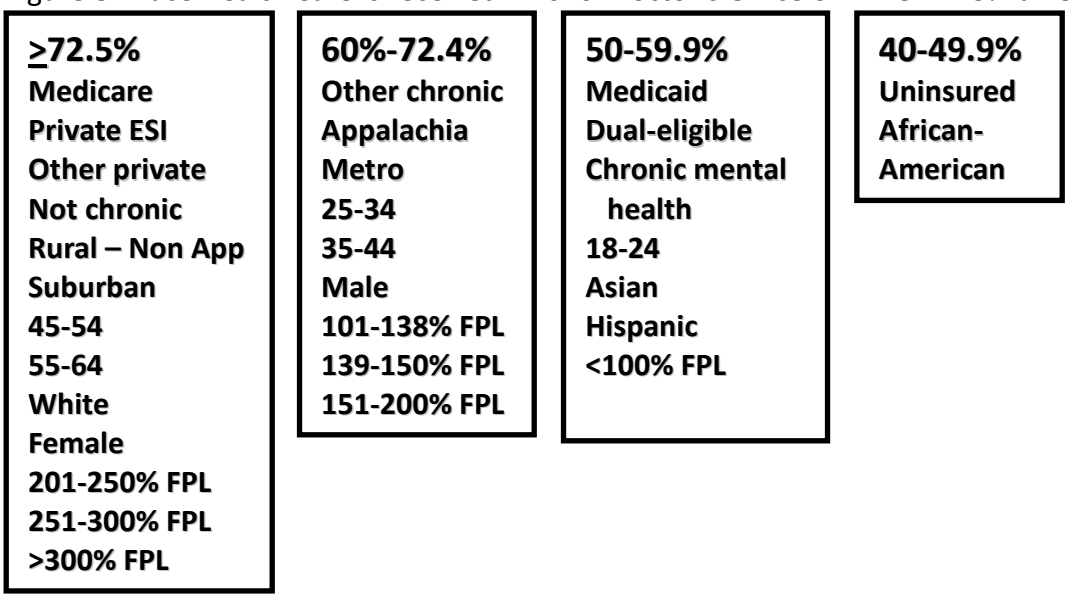


Figure 9: Place Health Care is received – 2008: Clinic or Health Center: 13.1% all Ohioans

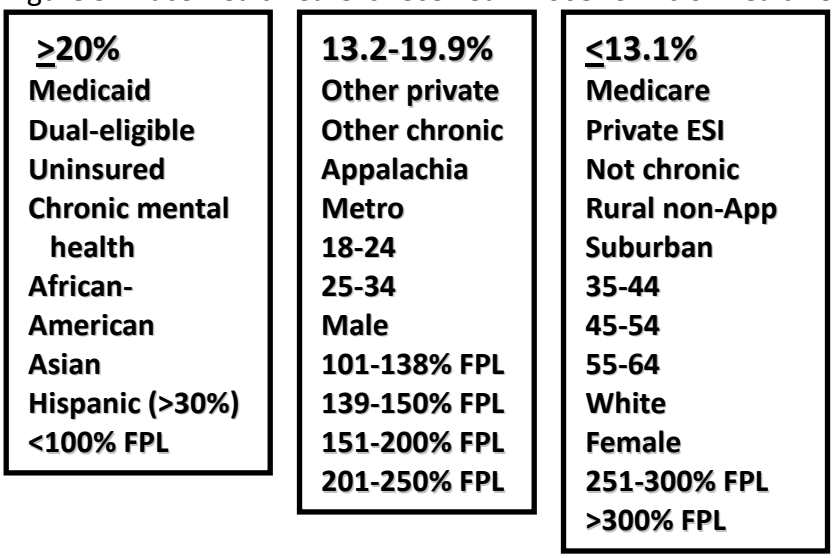


Figure 10: Place Health Care is received – 2010: Clinic or Health Center: 14% all Ohioans

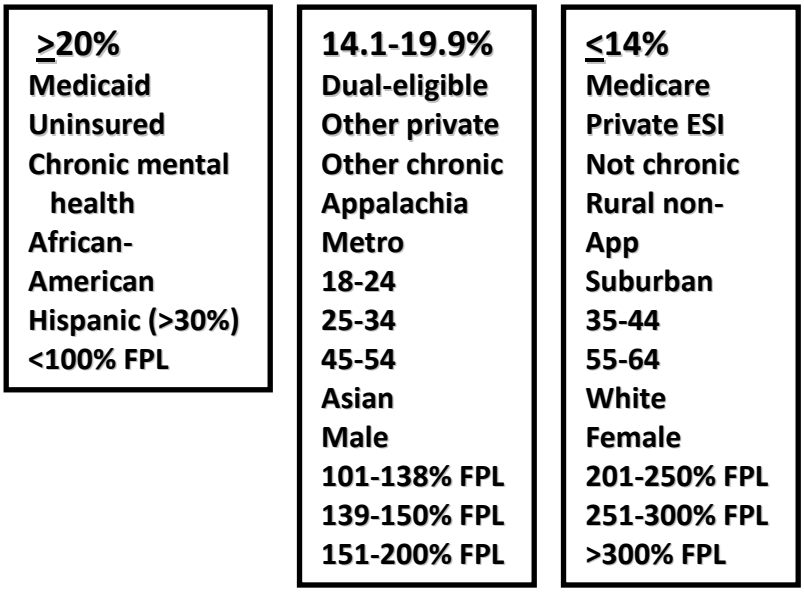


Figure 11: Place Health Care is received – 2008: Hospital Emergency Room: 5.8% all Ohioans

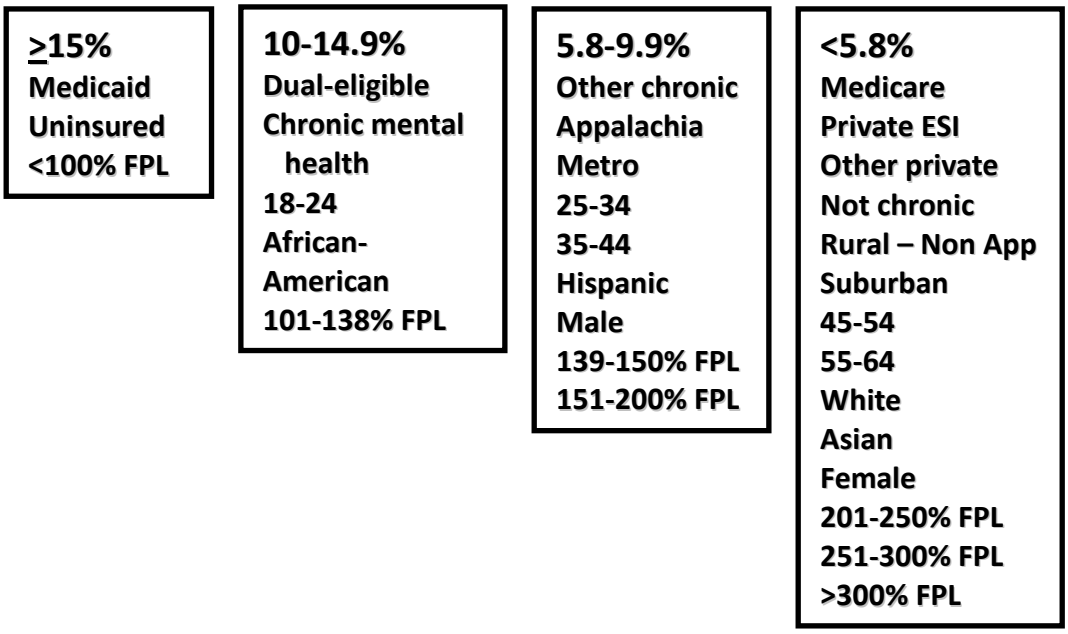


Figure 12: Place Health Care is received – 2010: Hospital Emergency Room: 5.2% all Ohioans

≥15%	10-14.9%	5.2-9.9%	<5.2%
Uninsured	Medicaid	Other chronic	Medicare
	Dual-eligible	Chronic mental health	Private ESI
	African-American	Metro	Other private
	<100% FPL	18-24	Not chronic
	139-150% FPL	25-34	Appalachia
		35-44	Rural – Non App
		Hispanic	Suburban
		Male	45-54
		101-138% FPL	55-64
			White
			Female
			151-200% FPL
			201-250% FPL
			251-300% FPL
			>300% FPL

Examination of Place Serving as Usual Source of Health Care within Socio-demographic Groups

Figure 13: Place Health Care is received by Insurance Type: 2008

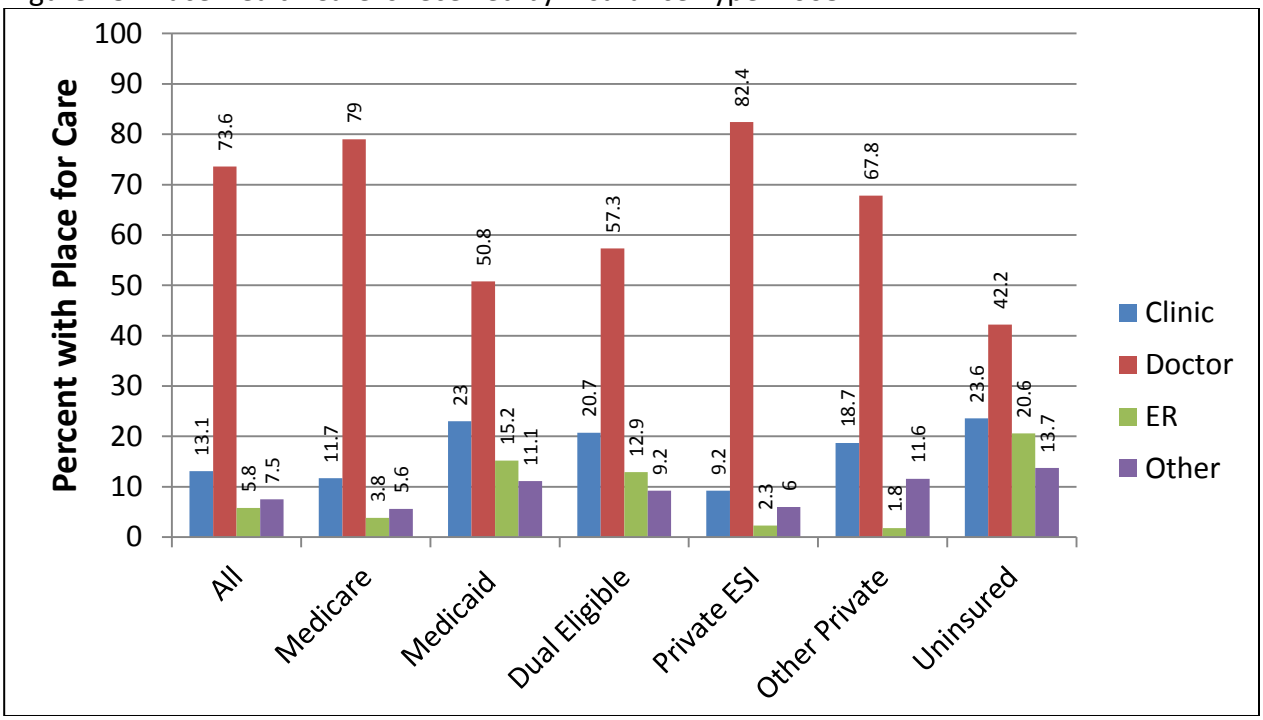


Figure 14: Place Health Care is received by Insurance Type: 2010

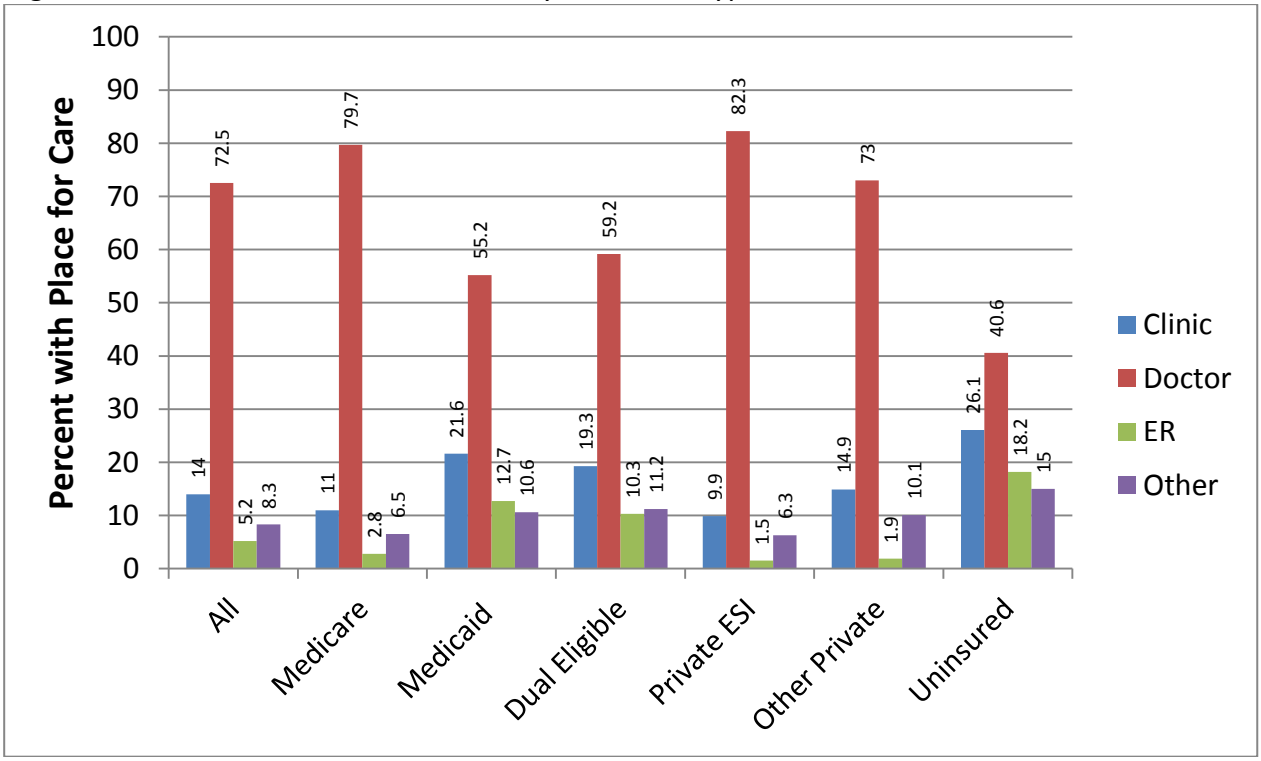


Figure 15: Place Health Care is received by Income: 2008

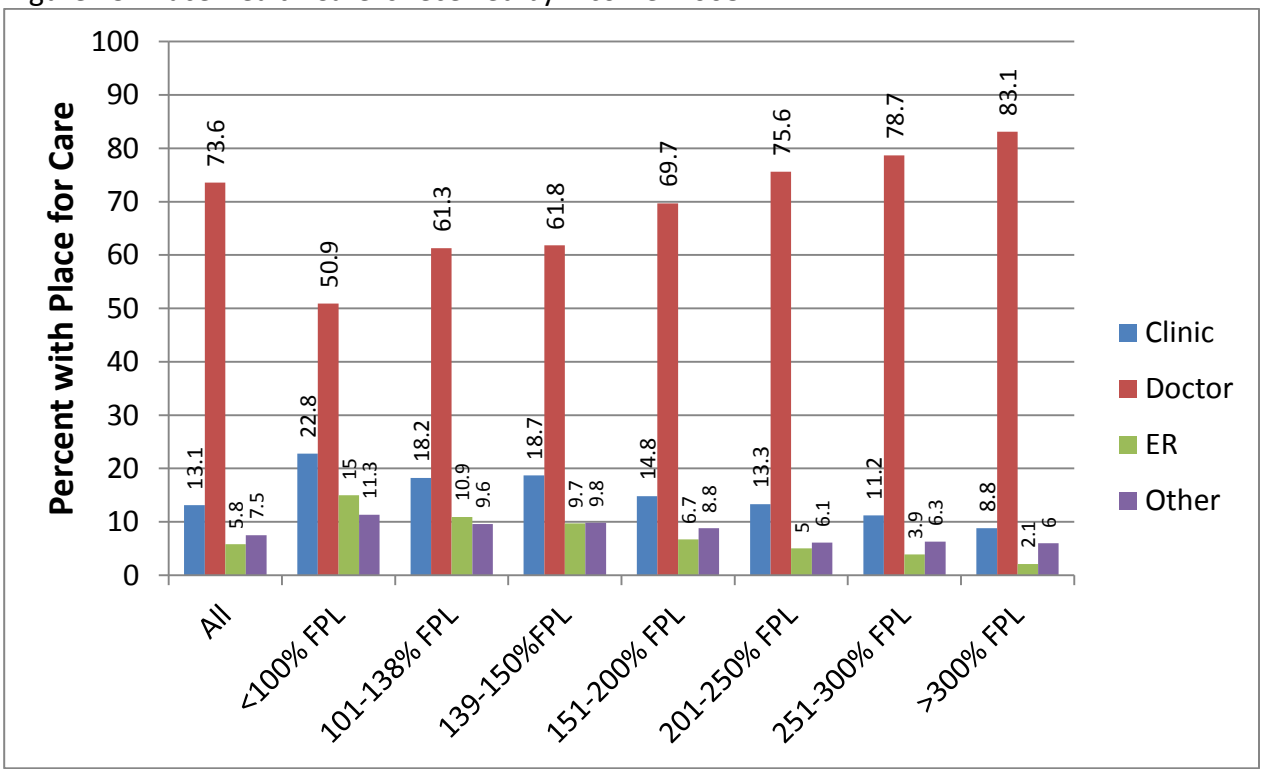


Figure 16: Place Health Care is received by Income: 2010

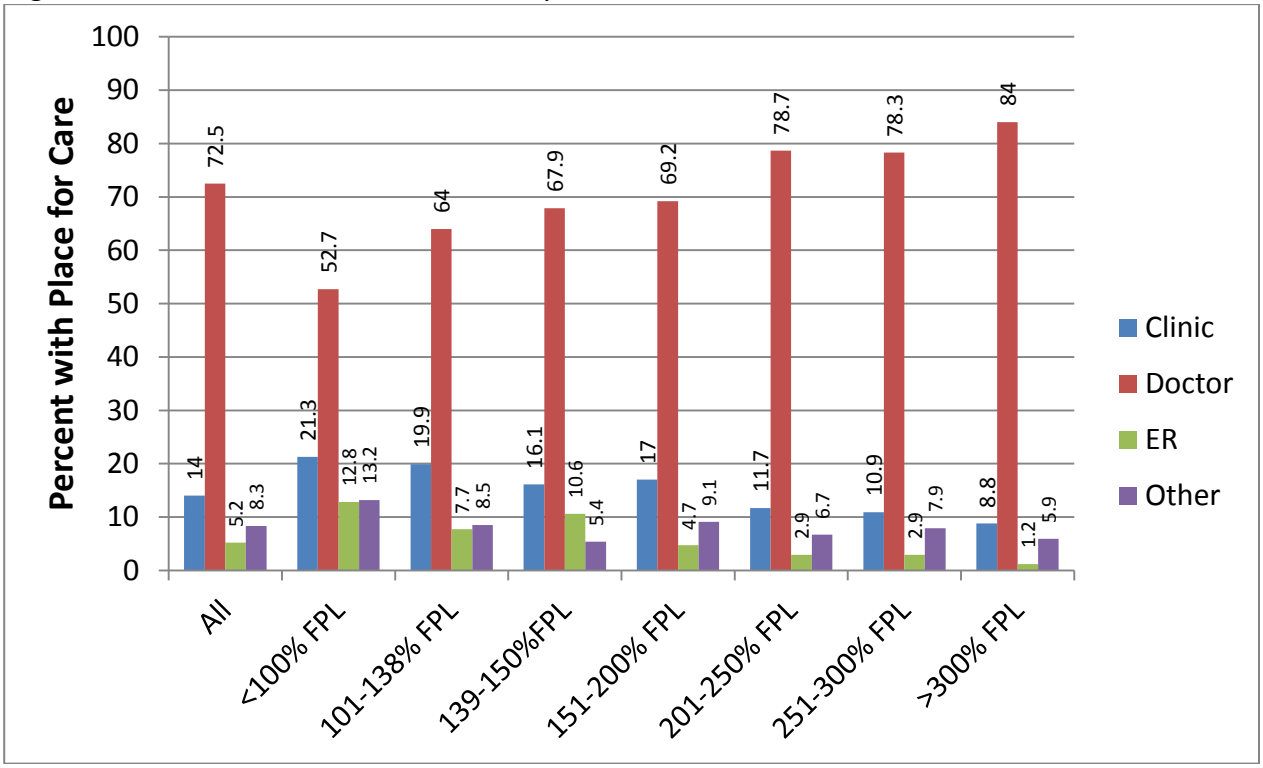


Figure 17: Place Health Care is received by Race/Ethnicity: 2008

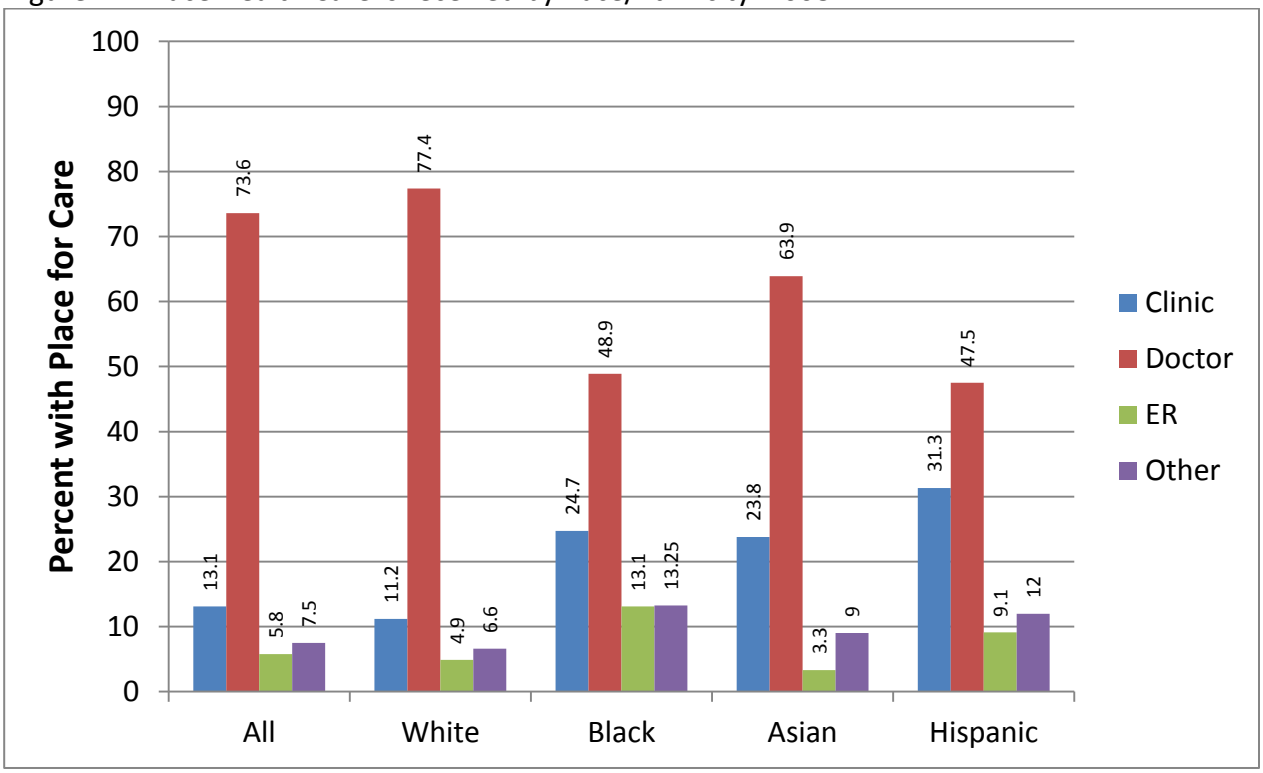


Figure 18: Place Health Care is received by Race/Ethnicity: 2010

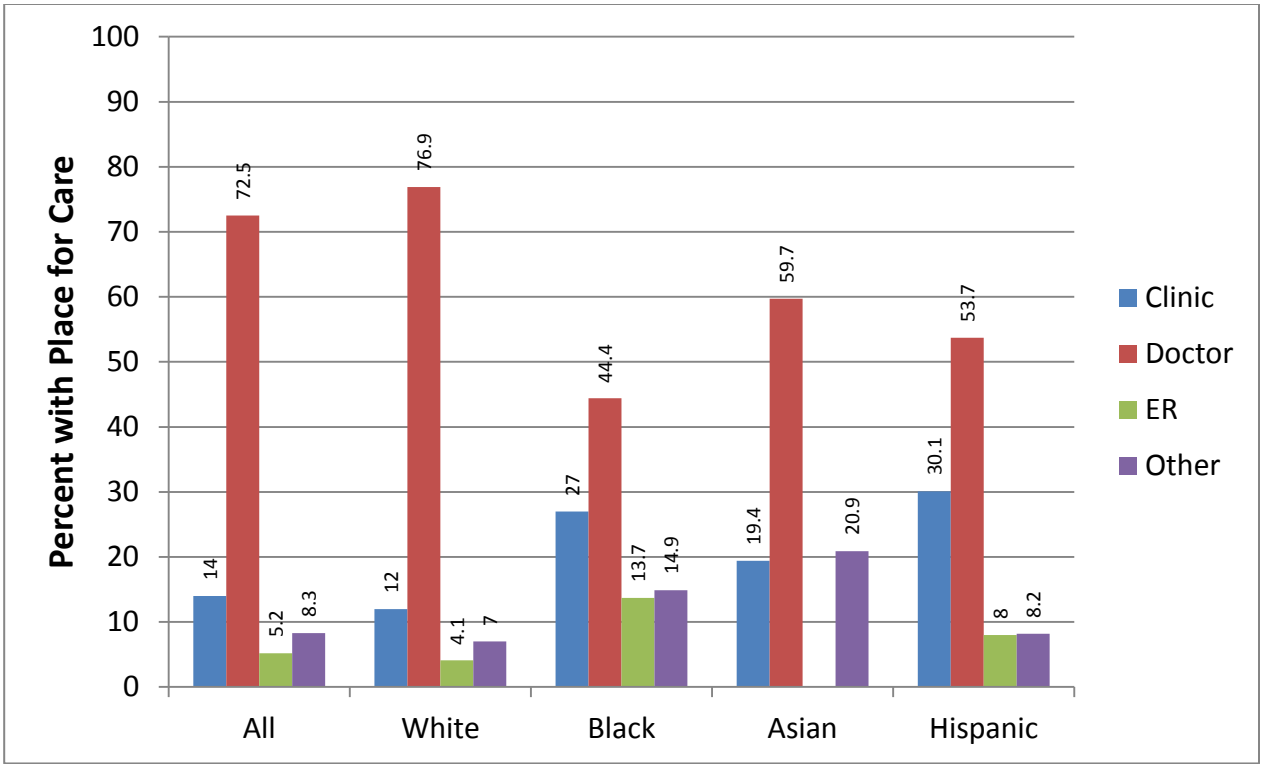


Figure 19: Place Health Care received by Chronic Condition: 2008

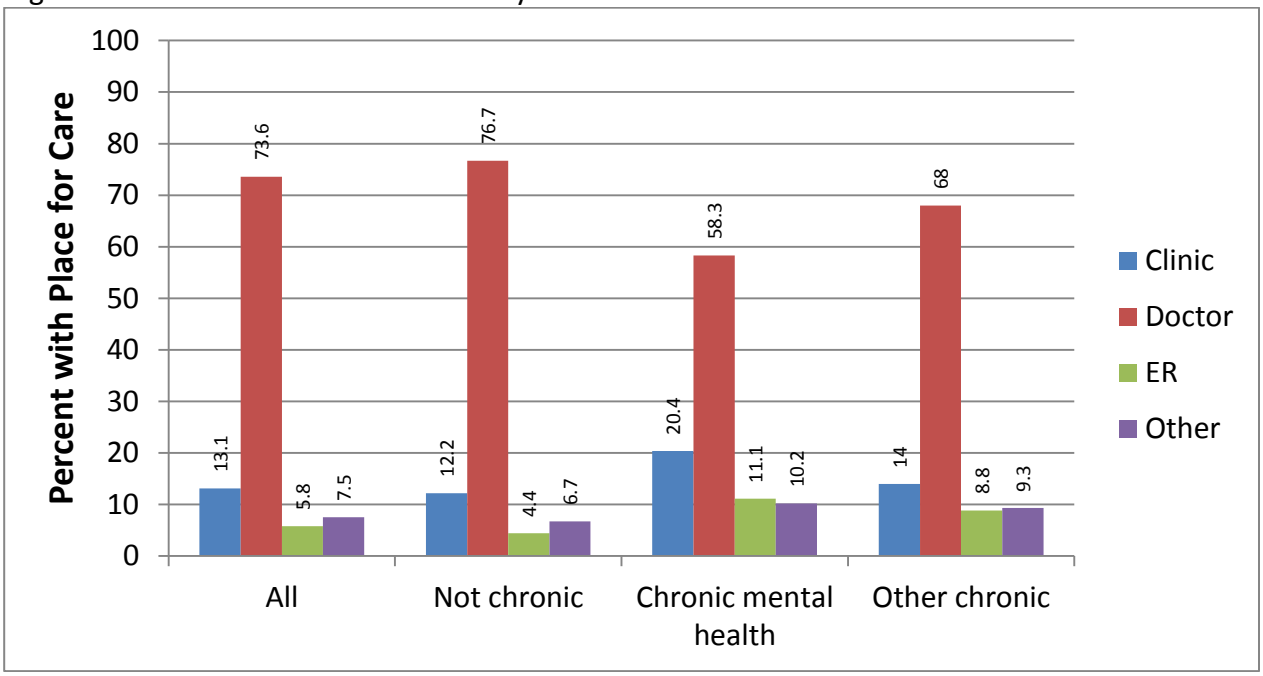


Figure 20: Place Health Care received by Chronic Condition: 2010

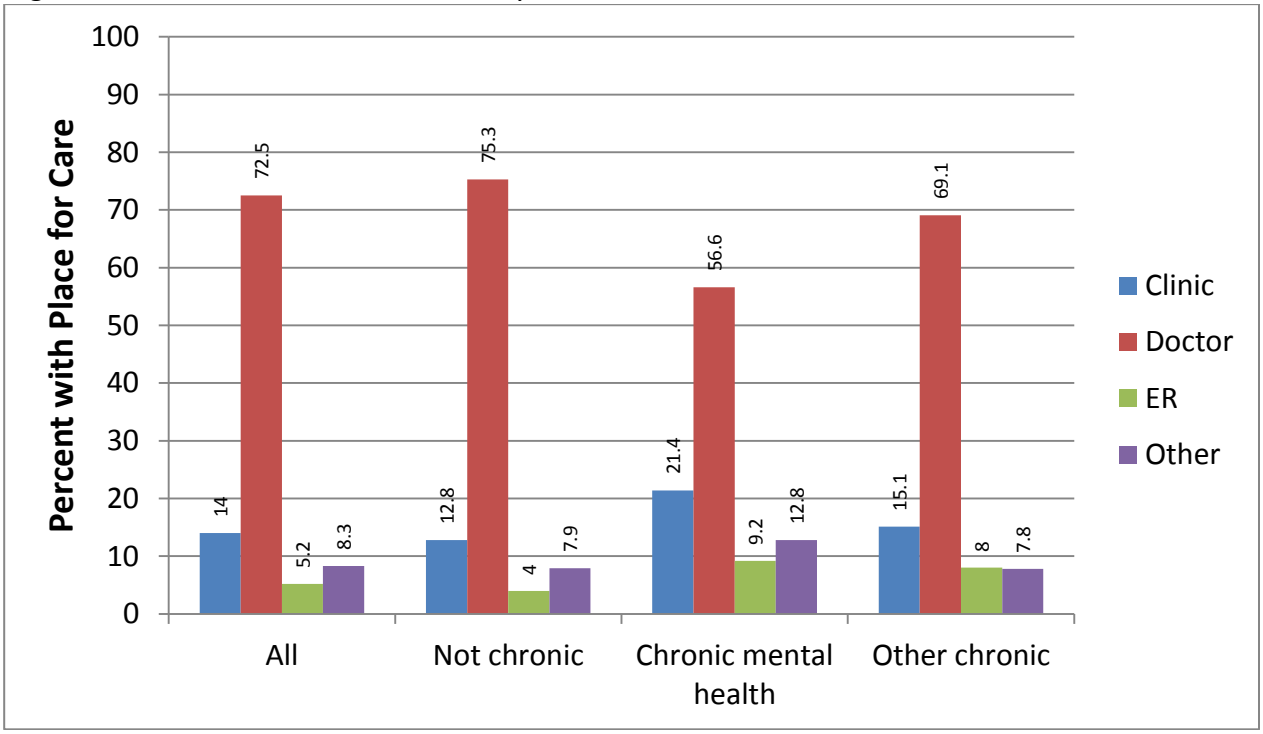


Figure 21: Place where Health Care is received by Region of Residence: 2008

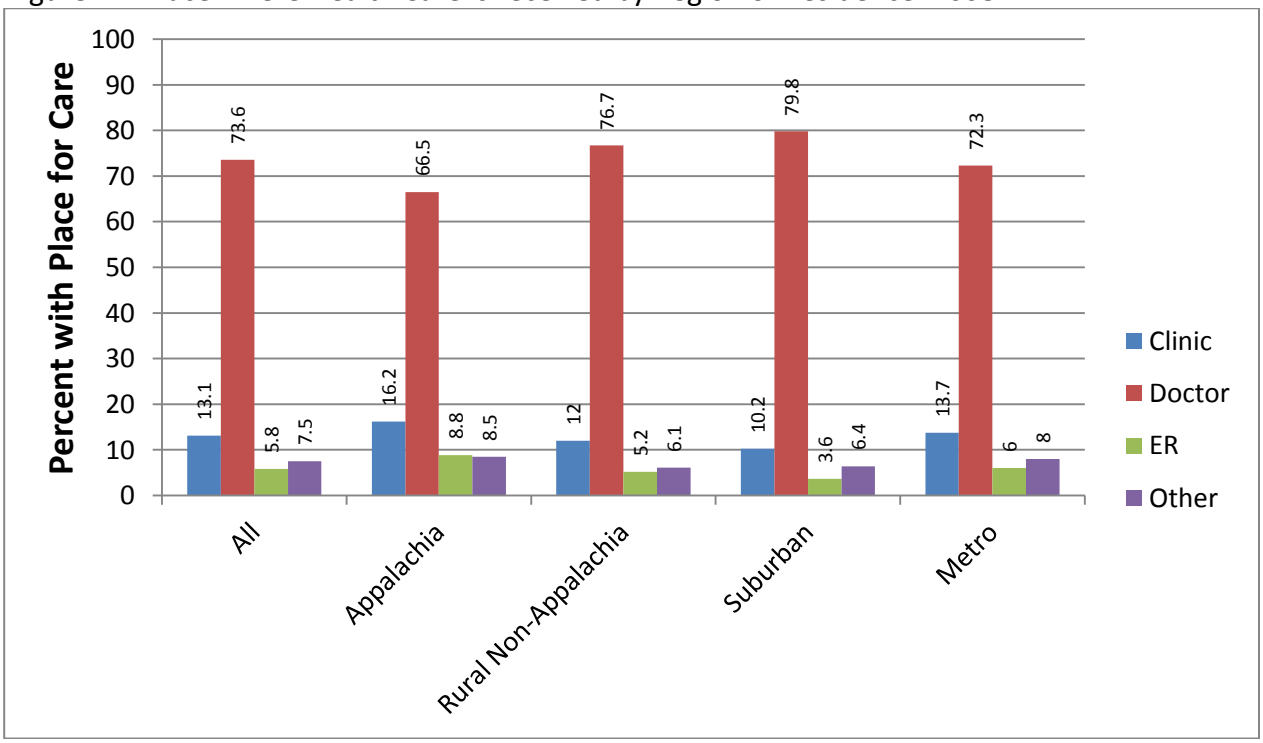
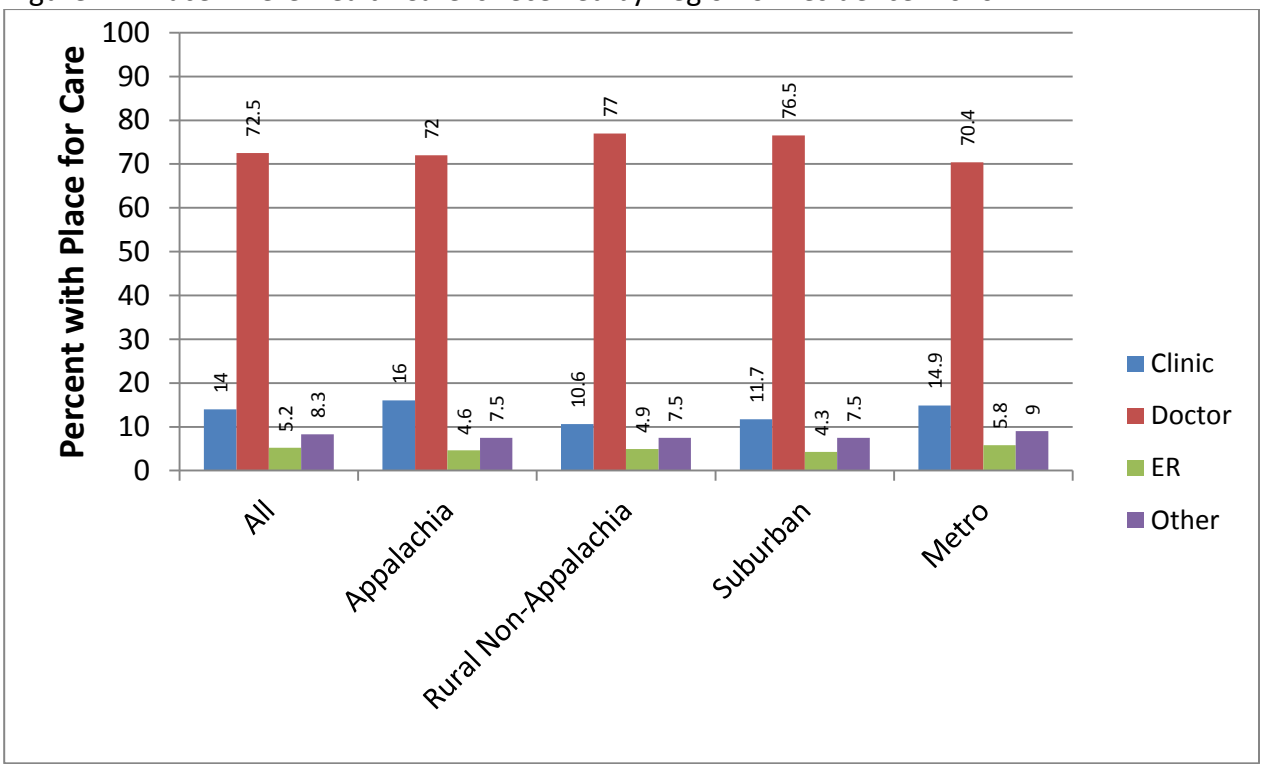


Figure 22: Place where Health Care is received by Region of Residence: 2010



Issues Associated with ER as a Usual Source of Health Care among Ohioans

According to the OFHS surveys, an estimated 5 to 6% of Ohioans reported an ER as their usual source of care. As shown in Table 2, for the people who reported using an ER as their usual source of health care:

1. An estimated 5-6% of Ohioans used the hospital emergency room as their usual source of health care in 2008 and 2010;

2. Nearly one-third of those who used an ER as their usual source of health care believed it to be the location where they could receive optimal care for their health needs;

3. Nearly 29% of Ohioans using an ER as their usual source of health care identified the convenience associated with the opportunity to obtain care without an appointment as the reason; and

4. Financial barriers were not the reason for ER use by the largest percentage of Ohioans, but ranked third, followed by those who do not have a regular provider.

Table 2: Reasons for using the Emergency Room as a Usual Source of Health Care

Reason	**%**
Can't afford elsewhere/ER doesn't turn anyone away	15.8
Didn't know where else to go	2.4
Convenience/don't need an appointment	28.9
Best place to get health care for condition	32.1
Prefers/likes this as usual source of health care	4.0
No regular doctor	10.8
Other	2.9
Don't know	2.9
Refused	.1

Health Status, Outcomes and Unmet Need among Ohioans Associated with Place Serving as Their Usual Source of Health Care

Ohioans who utilized an ER as their usual source of health care had a higher odds of self-rated poor or fair health and unmet needs in 2008 and 2010 (see Table 3). Although individuals with a clinic as their usual source of health care had a higher odds of poor or fair health and a higher odds of ER visits in 2008 and 2010 than those for whom the doctor's office was their usual source of health care (see Tables 3 & 4), they reported lower odds of difficulty seeing a specialist (see Table 4) and no other significant differences/disadvantages with regard to having health care needs met (see Table 5).

Key findings on outcomes associated with people for whom the emergency room is their usual source of health care include:

1. Individuals reporting an ER as their usual source of health care had worse general health than Ohioans with a clinic or doctor's office as their usual source of care in 2008 and 2010 (see Table 3);

2. Individuals reporting an ER as their usual source of care had a higher odds of hospitalizations than those with a clinic or doctor's office as their usual source of health care in 2008. The 2010 did not examine hospitalizations during the previous year (see Table 4);

3. Individuals reporting an ER as their usual source of health care had a higher odds of smoking than Ohioans with a clinic or doctor's office as their usual source of health care in 2008 and 2010 (see Table 3);

4. In 2008 and 2010, those reporting an ER as their usual source of health care had a higher odds of reporting difficulty seeing a specialist than individuals with a clinic or doctor as their usual source of health care (see Table 4);

5. In 2008 and 2010, Ohioans reporting an ER as their usual source of health care had a higher odds of not filling a prescription due to cost than those with a clinic or doctor's office as their usual source of health care (see Table 5); and
6. In 2008 and 2010, Ohioans with an ER as their usual source of health care, had a higher odds of not obtaining other needed care than those with a clinic or doctor's office as their usual source of health care (see Table 5).

Key findings on outcomes associated with people for whom the clinic is their usual source of health care include:

1. Ohioans reporting a clinic as their usual source of health care reported worse general health status than those with a doctor's office as their usual source of health care in 2008 and 2010 (see Table 3);

2. Individuals reporting a clinic as their usual source of health care had lower odds of smoking than those with a doctor's office as their usual source of health care in 2008 and 2010 (see Table 3);

3. Individuals reporting a clinic as their usual source of health care had a higher odds of ER visits in 2008 and 2010 than those with a doctor's office as their usual source of health care (see Table 4);

4. For Ohioans reporting a clinic as their usual source of health care, fewer reported difficulty seeing a specialist compared to those whose usual source of health care was a doctor's office in 2008 (see Table 4); and

5. There was no significant difference regarding unmet needs between those reporting a clinic as their usual source of care compared to individuals for whom a doctor's office was their usual source of health care (see Table 5).

Table 3: Select Variables by Place Health Care is Received

	Clinic v. ED		Clinic v. Doctor		ED v. Doctor	
General Health						
2008	better			better		better
2010	better			better		better
Health care rating						
2008	better			better		better
2010	ns		ns			better
Smoking status						
2008	*lower*		*lower*		greater	
2010	lower		*lower*		greater	

italics: moderate effect: 0.5-0.9 and 1.1-2.0
underline: large effect: 0-0.5 and 2.0 to infinity

Table 4: Outcomes by Place Health Care is Received

	Clinic v. ED		Clinic v. Dr		ED v. Doctor	
ED Visits						
2008	32% fewer		7% more		57% more	
2010	28% fewer		6% more		48% more	
Hospital admissions						
2008		more	ns		more	
Difficulty seeing a specialist						
2008	lower		*lower*		greater	
2010	lower		ns		greater	

italics: moderate effect: 0.5-0.9 and 1.1-2.0
underline: large effect: 0-0.5 and 2.0 to infinity

Table 5: Unmet Needs by Place Health Care is Received

	Clinic v. ED		Clinic v. Doctor		ED v. Doctor	
Not filled a prescription due to cost						
2008	*lower*		ns		greater	
2010	*lower*		ns		greater	
Not get other health care needed						
2008	*lower*		ns		greater	
2010	*lower*		ns		greater	

italics: moderate effect: 0.5-0.9 and 1.1-2.0
underline: large effect: 0-0.5 and 2.0 to infinity

Models for Emergency Room as a Usual Source of Care

The 12 variables utilized in the final models (see Appendices C & D) to predict location serving as the usual source of health care were age, chronic condition, education level, ethnicity, general health, insurance, % FPL, race, region of residence, sex, where work, hours worked per week.

For the analysis of having an ER versus other sources of health care, multinomial logistic regression models were fitted and separate models were created for 2008 and 2010. While these models provide insight into the relationship between demographic characteristics and the odds of having an ER as a source of care, they do not allow us to draw conclusions about differences in these relationships between 2008 and 2010. Effects found to be significant in 2008 may not be significant in 2010 simply because a smaller sample of the population was drawn in 2010. Consequently, observing a significant effect in 2008 and a non-significant effect in 2010 does not indicate that a relationship existed in 2008 and ceased to exist in 2010. In order to determine whether effects changed in size or direction between 2008 and 2010, statistical models would need to be built specifically for that purpose.

Model for Emergency Room as Usual Source of Health Care: 2008

The following details the findings for the 2008 OFHS relating to ER as a usual source of health care:

1. Older age significantly decreases the odds of having an ER as the usual source of health care. A one unit increase in age is associated with a 2.39% decrease in the odds of using an ER for usual care relative to the odds of all other locations as a usual source of care.

2. More education significantly decreases the odds of having an ER as a usual source of health care. A one unit increase in education level is associated with a 27.45% decrease in the odds of using an ER, relative to the odds of all other locations, as a usual source of care.

3. Ohioans who do not have a chronic condition are significantly less likely to use an ER as their usual source of health care than are those with chronic non-mental health conditions.

4. Worse health is associated with increased likelihood of having an ER as the usual source of health care. A one unit increase in self-rated health status (note: higher rating indicates poorer health) is associated with a 10.26% increase in the odds of using an ER as a usual source of care, relative to the odds of all other locations.

5. Insurance:

- Ohioans with Medicaid are significantly more likely to use an ER as their usual source of health care than those with employer-sponsored insurance, other private insurance, or uninsured.

- Ohioans with Medicare insurance (without Medicaid) are significantly more likely to use an ER as their usual source of health care than those with employer-sponsored insurance and other private insurance.

- Individuals with employer-sponsored insurance (ESI) have a significantly greater likelihood of having an ER as their usual source of health care than those with other private insurance and significantly lower odds of ED as a usual source of care than uninsured individuals.

- Those with other private insurance had significantly lower odds than uninsured individuals of having an ER as their usual source of health care.

6. Ohioans with higher incomes (>200% FPL) had significantly lower odds of having an ER as their usual source of health care compared to other locations as a usual source of care than did those with incomes from 0-138% FPL.

7. Race: African-Americans had significantly greater odds of having an ER as their usual source of health care, compared to other locations, than did Caucasians or those of other races.

8. Males were significantly more likely to have an ER as their usual source of health care, compared to the odds of having other locations as the usual source of care, than did females.

9. Region of Residence: Ohioans living in Appalachia had significantly higher odds of using an ER as their usual source of health care, compared to all other locations, than did Ohioans living in every other region: Metropolitan; Rural, non-Appalachia; Suburban.

Model for Emergency Room as Usual Source of Care: 2010

The following details the findings for the 2010 OFHS relating to ER as a usual source of health care:

1. Older age significantly decreases the odds of having an ER as the usual source of health care. A one unit increase in age is associated with a 1.95% decrease in the odds of using an ER for usual care relative to the odds of all other locations as a usual source of care.

2. Ohioans who do not have a chronic condition are significantly less likely to use an ER as their usual source of health care than are those with chronic non-mental health conditions.

3. More education significantly decreases the odds of having an ER as a usual source of health care. A one unit increase in education level is associated with a 26.04% decrease in the odds of using an ER, relative to the odds of all other locations, as a usual source of care.

4. Insurance:
    - Ohioans with Medicaid are significantly more likely to use an ER as their usual source of health care than those with employer-sponsored insurance or other private insurance.

    - Individuals with employer-sponsored insurance have a significantly greater likelihood of having an ER as their usual source of health care than those with other private insurance and significantly lower odds of ED as a usual source of care than uninsured individuals.

5. Ohioans with higher incomes (>200% FPL) had significantly lower odds of having an ER as their usual source of health care compared to other locations as a usual source of care than did those with incomes from 0-100% FPL.

6. African-Americans had significantly greater odds of having an ER as their usual source of health care, compared to other locations, than did Caucasians.

7. Males were significantly more likely to have an ER as their usual source of health care, compared to the odds of having other locations as the usual source of care, than did females.

Frequency of Health Care Use

More than 50% of Ohioans with a clinic as their usual source of health care and more than 60% of Ohioans with a doctor's office as their usual source of health care had an enhanced frequency of care use (see Figures 23-26). Other factors associated with frequency of health care use are as follows:

1. In 2008 and 2010, uninsured Ohioans had the lowest prevalence of enhanced use and the highest prevalence of no use in both clinics and doctor's offices (see Figures 23-26).

2. In 2008, those with employer-sponsored health insurance had the lowest prevalence of enhanced use and the highest prevalence of no use among Ohioans with insurance (see Figures 23 & 25).

3. The highest rate of enhanced use among all Ohioans with health insurance, in 2008, was in individuals with Medicare and Medicaid insurance (dual-eligible) (see Figures 23 & 25).

4. In 2010, Ohioans with all three types of public insurance had higher prevalence of enhanced use and lower prevalence of no use than individuals with either of the private sources of insurance in both the clinics and doctor's offices (see Figures 24 & 26).

5. In 2008 and 2010, there was not a clear relationship between income and frequency of care use in either doctor's offices or clinics (see Figures 27-30).

6. Among Ohioans with a doctor's office as their usual source of health care in 2008 and 2010, and for those with a clinic as their usual source of health care in 2008, individuals with chronic, non-mental health conditions had a lower prevalence of enhanced care use and a higher prevalence of no care use than did Ohioans who did not have any chronic conditions (see Figures 31-34).

It should be noted that the OFHS did not contain items that enabled examination of reasons for a lack of a medical visit or routine check-up during the previous year.

Figure 23: Frequency of Health Care Use in Clinics by Insurance Status: 2008

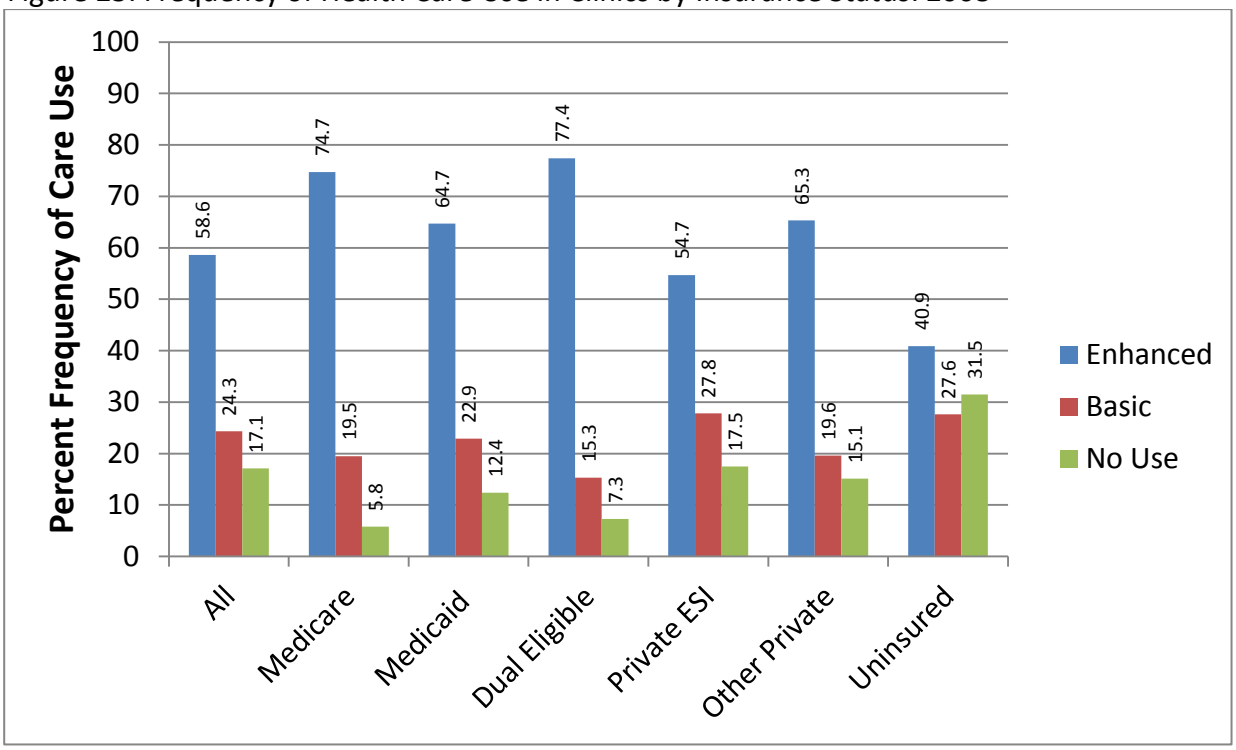


Figure 24: Frequency of Health Care Use in Clinics by Insurance Status: 2010

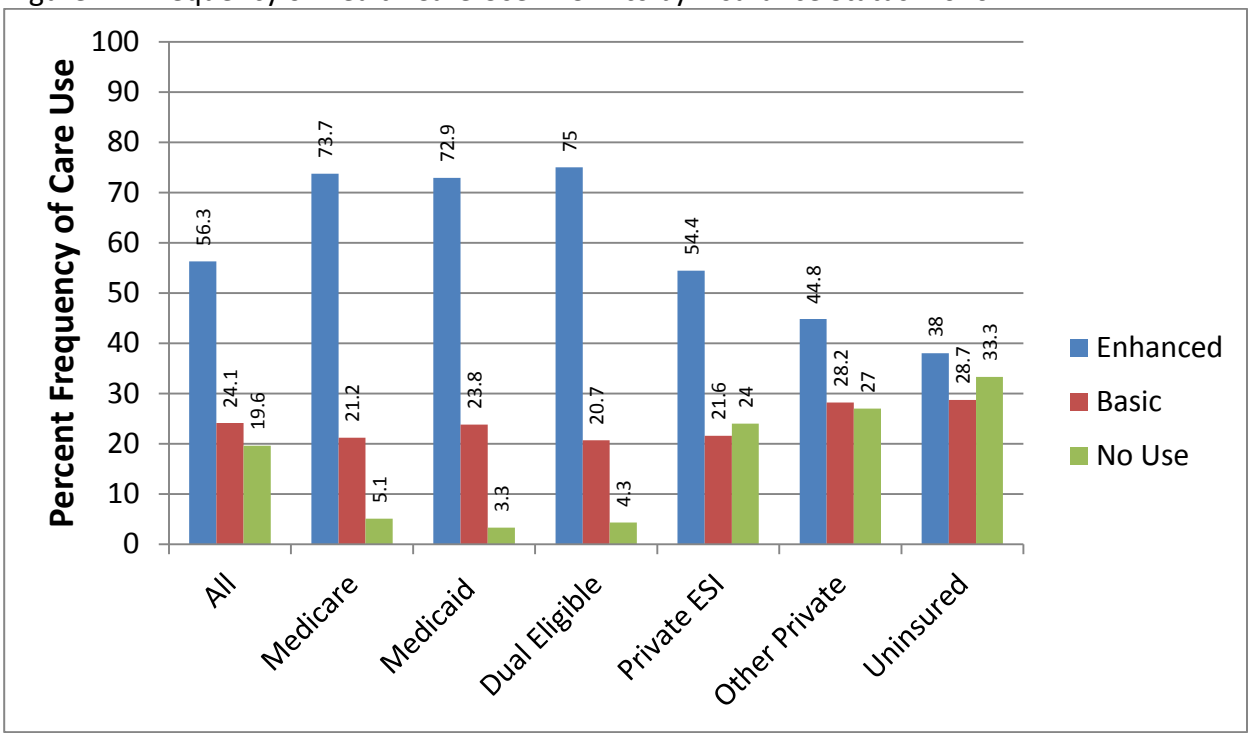


Figure 25: Frequency of Health Care Use in Doctor's Offices by Insurance Status: 2008

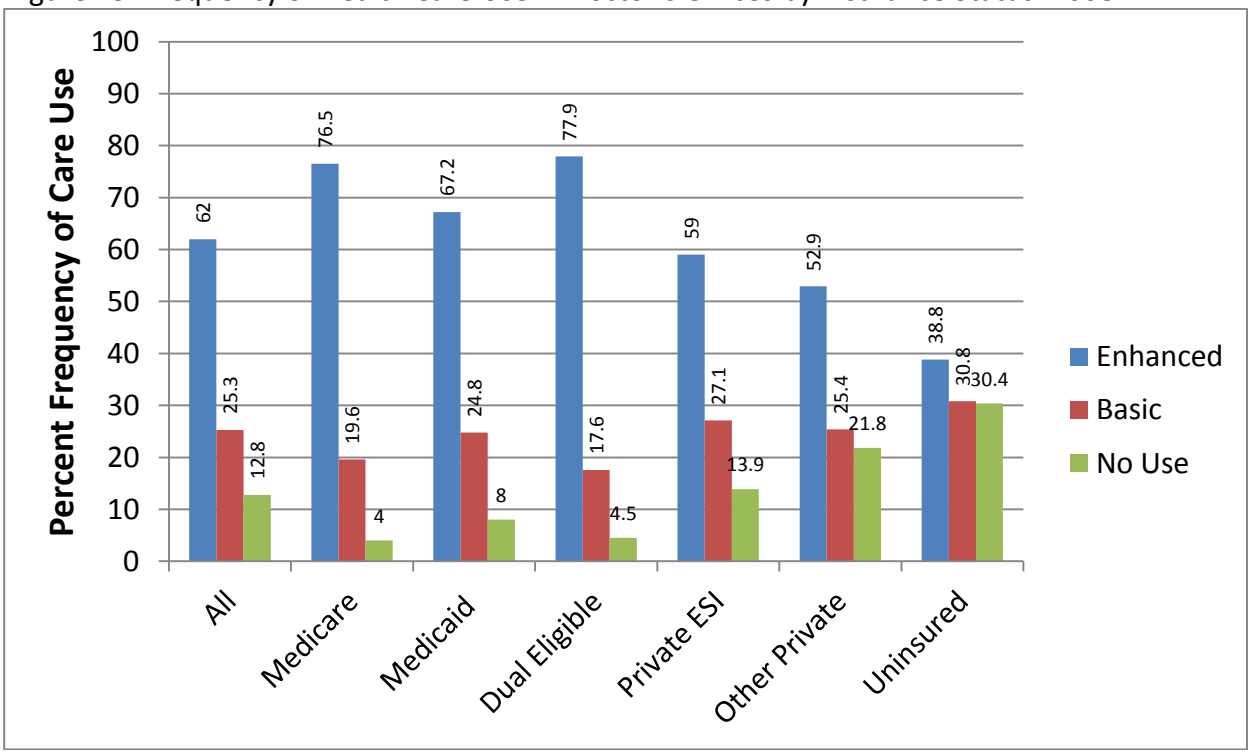


Figure 26: Frequency of Health Care Use in Doctor's Offices by Insurance Status: 2010

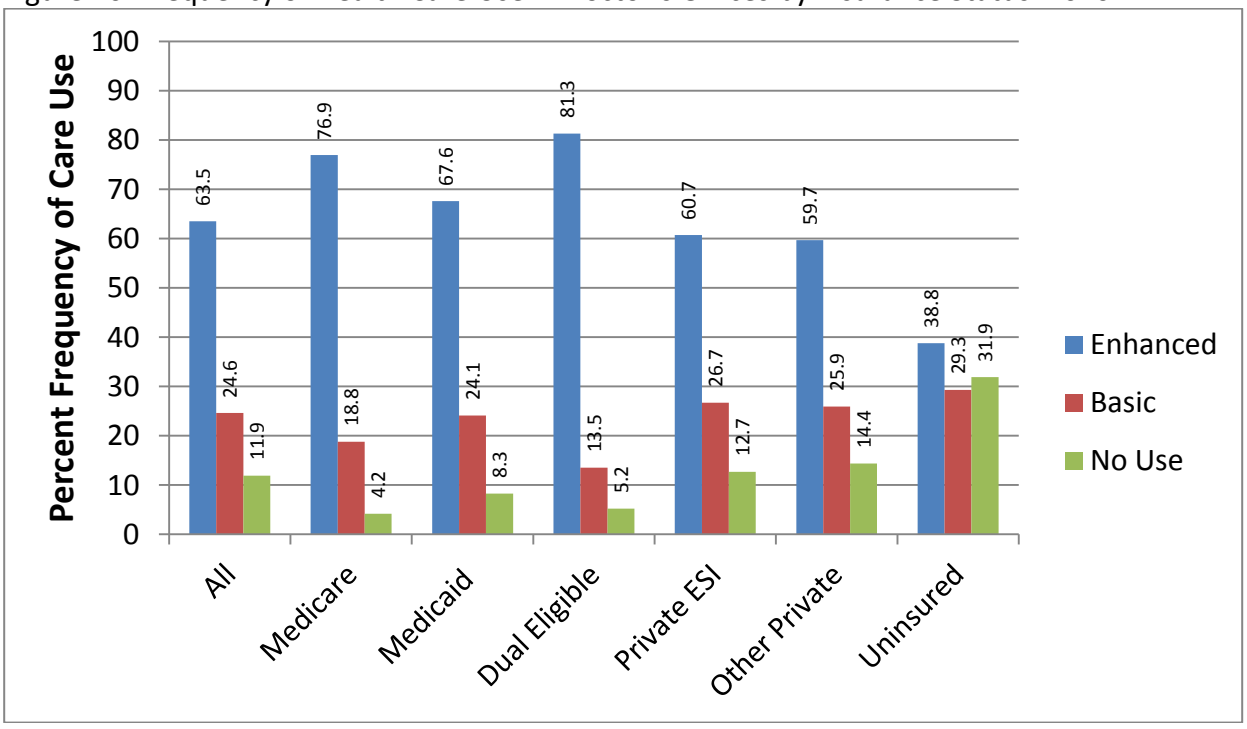


Figure 27: Frequency of Health Care Use in Clinics by Income: 2008

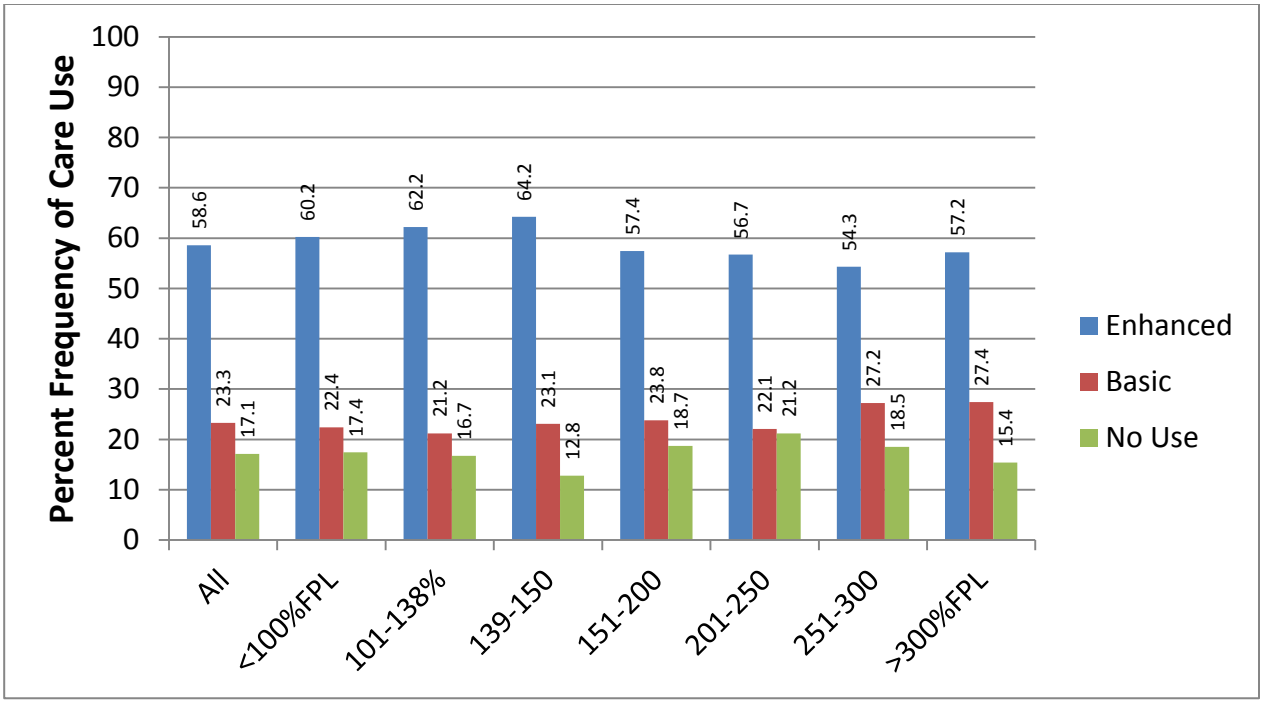


Figure 28: Frequency of Health Care Use in Clinics by Income: 2010

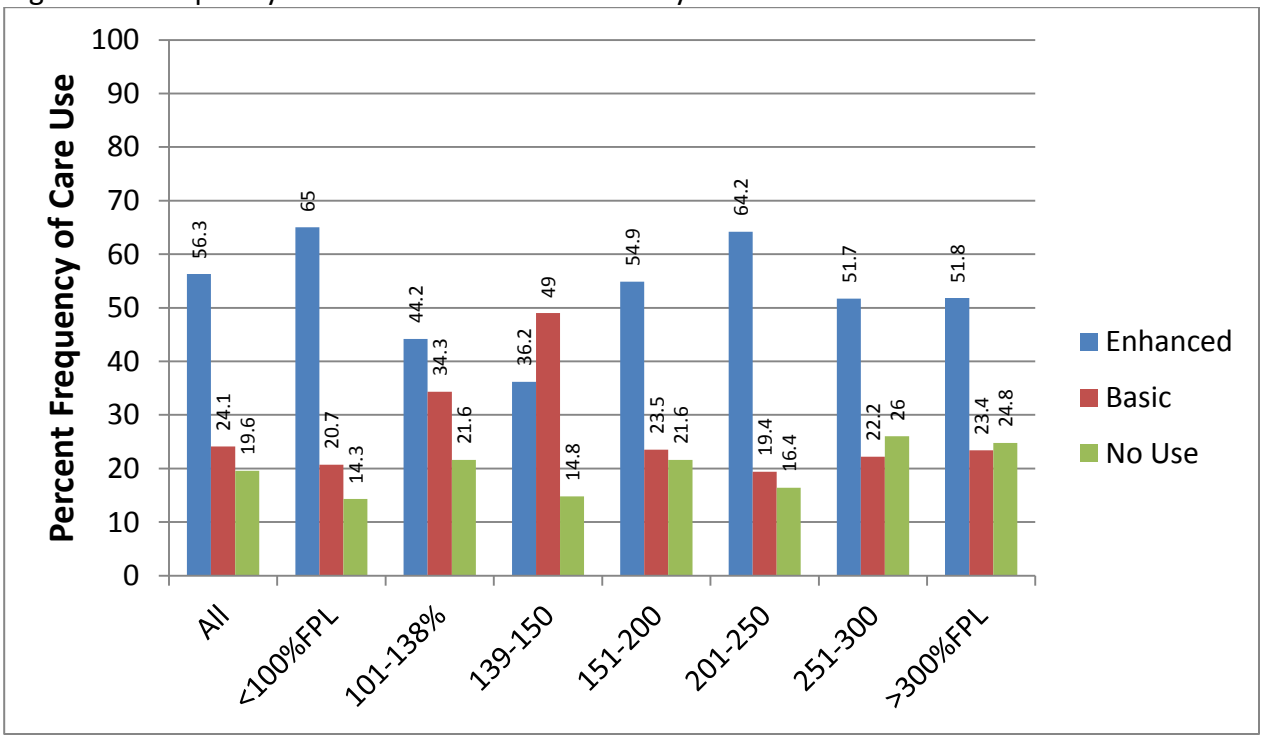


Figure 29: Frequency of Health Care Use in Doctor's Offices by Income: 2008

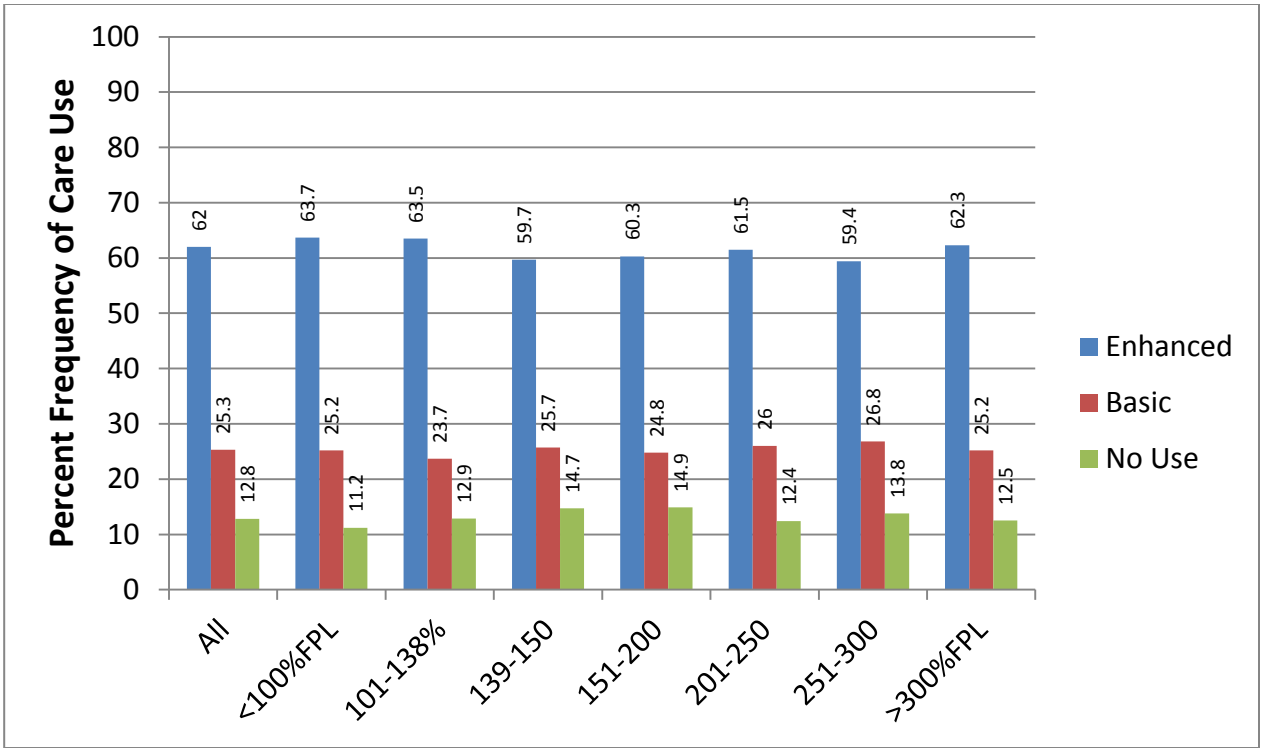


Figure 30: Frequency of Health Care Use in Doctor's Offices by Income: 2010

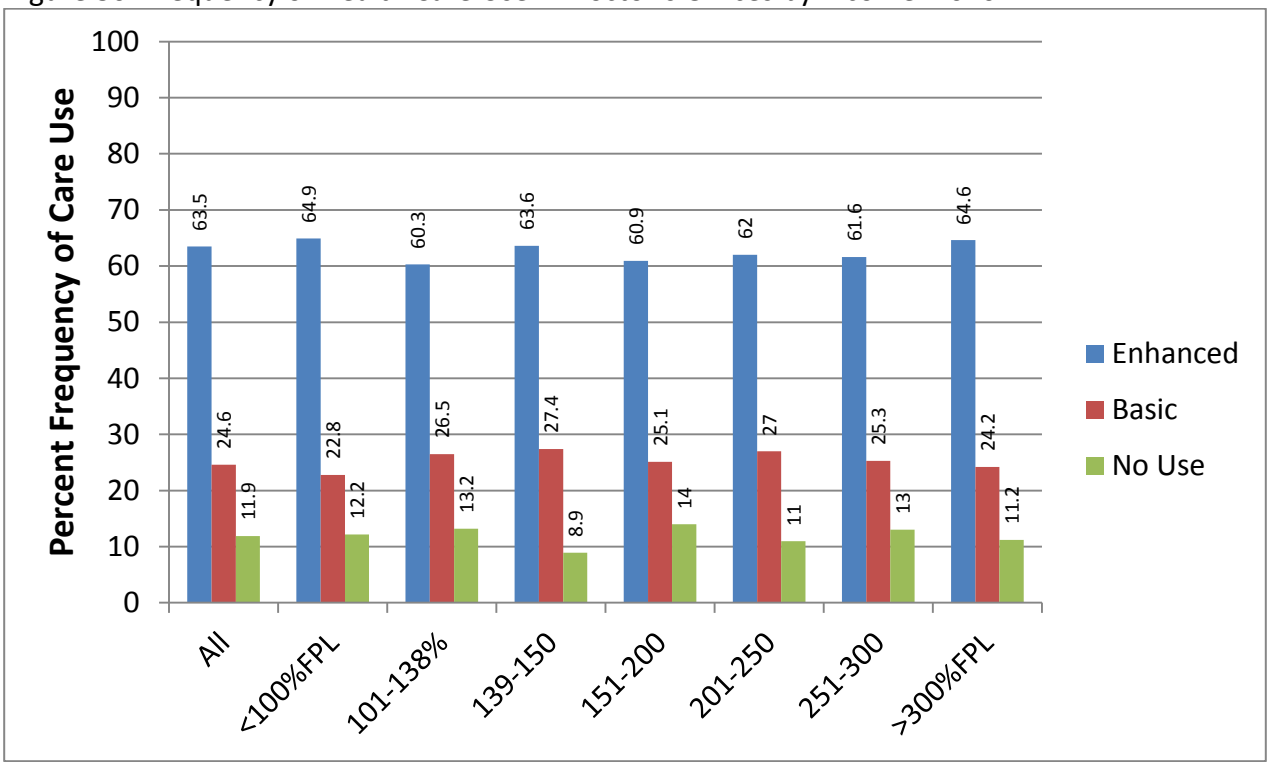


Figure 31: Frequency of Health Care Use in Clinics by Chronic Conditions: 2008

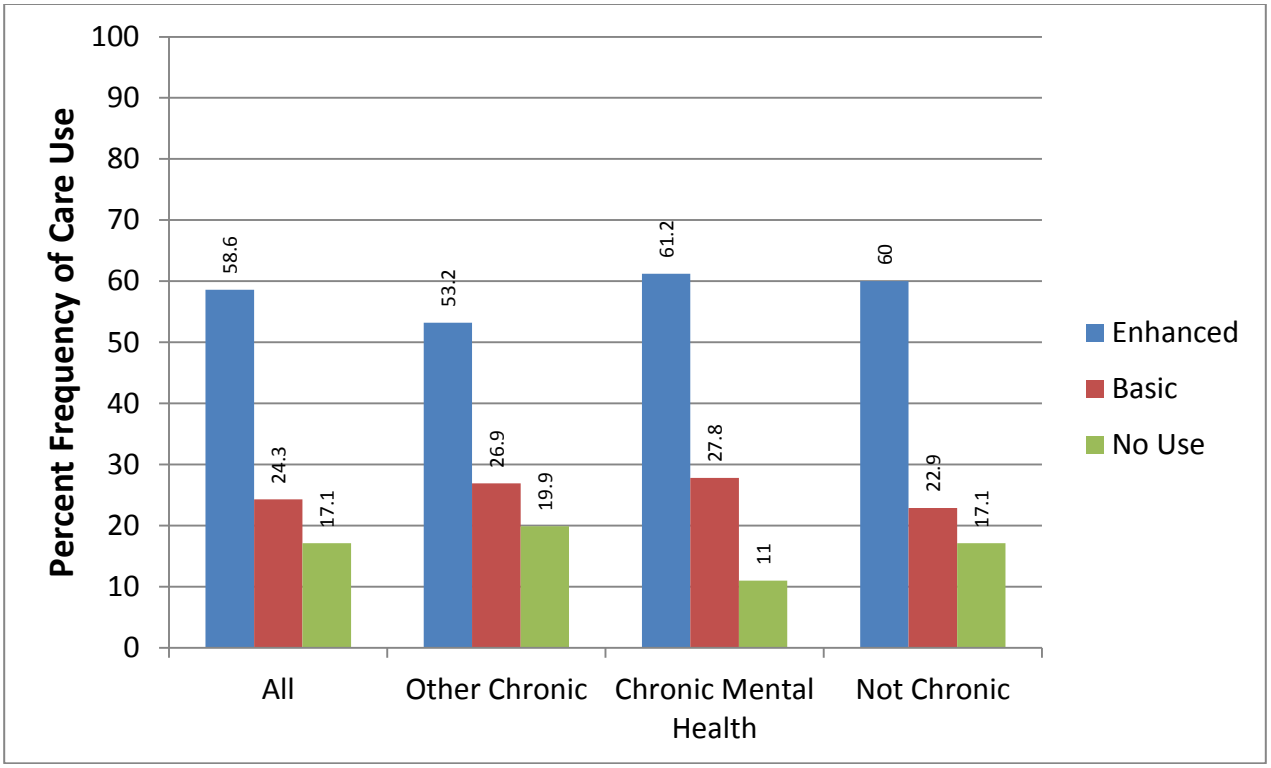


Figure 32: Frequency of Health Care Use in Clinics by Chronic Conditions: 2010

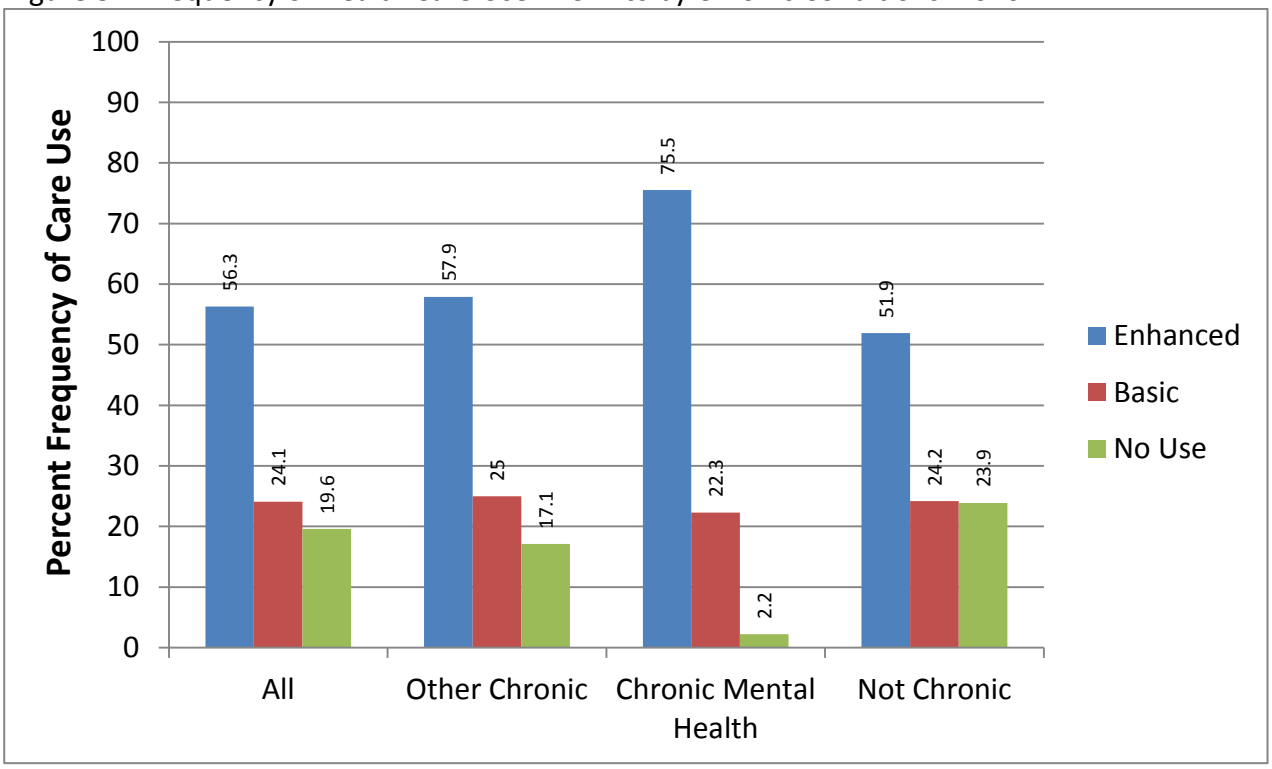


Figure 33: Frequency of Health Care Use in Doctor's Offices by Chronic Conditions: 2008

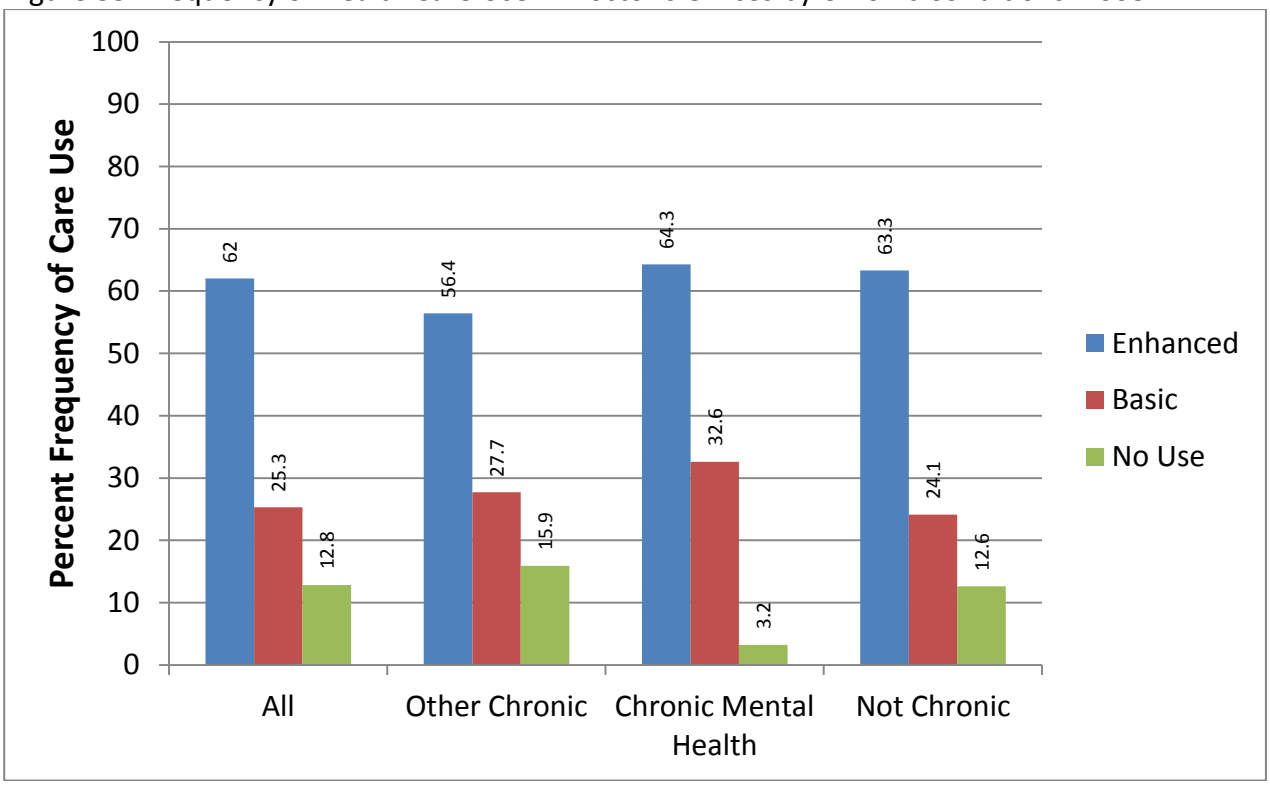
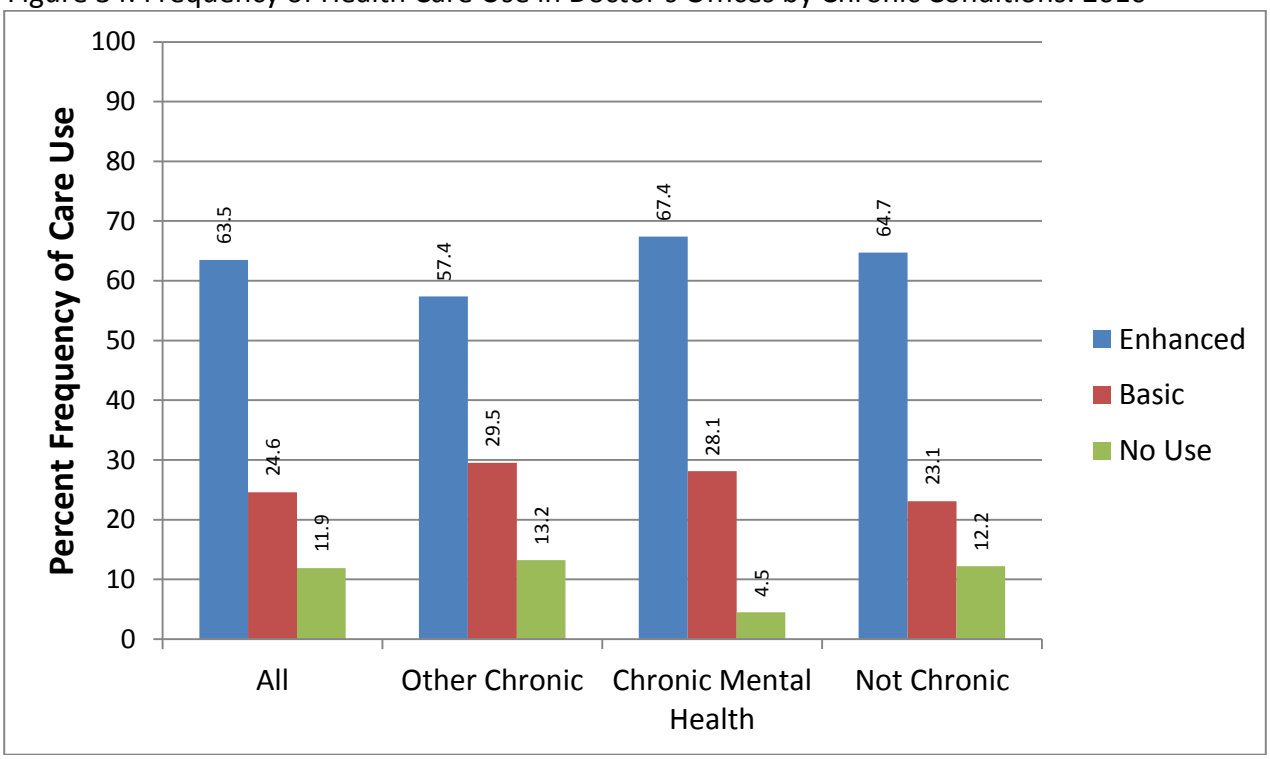


Figure 34: Frequency of Health Care Use in Doctor's Offices by Chronic Conditions: 2010



Health Status, Outcomes and Unmet Need among Ohioans Associated with Frequency of Health Care Use

Key findings associated with frequency of health care use include:

1. Ohioans with enhanced and limited health care use had a higher odds of fair or poor self-rated health status than those not using health care whose usual source of care was a clinic or a doctor's office in 2008 and 2010 (see Tables 6 & 7).

2. Among Ohioans whose usual source of health care was a clinic or a doctor's office in 2008, more individuals with enhanced use perceived their health care was better than those with limited or no use (see Tables 6 & 7).

3. In 2008 and 2010, among Ohioans whose usual source of health care was a doctor's office, those with no use had a significantly lower odds of smoking than did individuals with limited and enhanced use (see Tables 6 & 7).

4. Among Ohioans whose usual source of health care was a clinic or a doctor's office in 2008 and 2010, more individuals with enhanced and limited use had ER visits and hospitalizations than did those with no use (see Tables 8 & 9).

5. In 2008 and 2010, among Ohioans whose usual source of health care was a clinic or a doctor's office, those with an enhanced frequency of care had lower odds of unmet needs than did those with limited care use (see Tables 10 & 11).

Table 6: Select Variables by Frequency of Health Care Use for Ohioans with Clinic as a Usual Source of Health Care

	Enhanced v. No use		Limited v. No Use		Enhanced v. Limited	
General Health						
2008	*worse*		*worse*		ns	
2010	worse		worse		ns	
Health care rating						
2008	*better*		ns		*better*	
2010	ns		ns		ns	
Smoking status						
2008	ns		ns		ns	
2010	ns		greater		ns	

italics: moderate effect: 0.5-0.9 and 1.1-2.0
underline: large effect: 0-0.5 and 2.0 to infinity

Table 7: Select Variables by Frequency of Health Care use for Ohioans with Doctor's Offices as a Usual Source of Health Care

	Enhanced v. No Use	Limited v. No Use	Enhanced v. Limited
General Health			
2008	*worse*	worse	*worse*
2010	worse	worse	ns
Health care rating			
2008	better	ns	better
2010	ns	ns	ns
Smoking status			
2008	*greater*	*greater*	ns
2010	*greater*	*greater*	ns

italics: moderate effect: 0.5-0.9 and 1.1-2.0
underline: large effect: 0-0.5 and 2.0 to infinity

Table 8: Outcomes by Frequency of Health Care Use for Ohioans with a Clinic as a Usual Source of Health Care

	Enhanced v. No Use	Limited v. No use	Enhanced v. Limited
ED Visits			
2008	17% more	17% more	ns
2010	26% more	29% more	ns
Hospital admissions			
2008	more	more	ns

italics: moderate effect: 0.5-0.9 and 1.1-2.0
underline: large effect: 0-0.5 and 2.0 to infinity

Table 9: Outcomes by Frequency of Health Care Use for Ohioans with Doctor's Offices as a Usual Source of Health Care

	Enhanced v. No Use	Limited v. No use	Enhanced v. Limited
ED Visits			
2008	14% more	15% more	ns
2010	14% more	19% more	ns
Hospital admissions			
2008	more	more	more

italics: moderate effect: 0.5-0.9 and 1.1-2.0
underline: large effect: 0-0.5 and 2.0 to infinity

Table 10: Unmet Needs by Frequency of Health Care Use for Ohioans with a Clinic as a Usual Source of Health Care

	Enhanced v. No Use	Limited v. No Use	Enhanced v. Limited
Not filled a prescription due to cost			
2008	ns	*higher*	*lower*
2010	ns	higher	*lower*
Not get other health care needed			
2008	*lower*	ns	*lower*
2010	ns	ns	*lower*
Difficulty seeing a specialist			
2008	less	less	ns
2010	less	ns	ns

italics: moderate effect: 0.5-0.9 and 1.1-2.0
underline: large effect: 0-0.5 and 2.0 to infinity

Table 11: Unmet Needs by Frequency of Health Care Use for Ohioans with a Doctor's Office as Their Usual Source of Health Care

	Enhanced v. No Use	Limited v. No Use	Enhanced v. Limited
Not filled a prescription due to cost			
2008	*higher*	higher	*lower*
2010	*higher*	ns	*lower*
Not get other health care needed			
2008	*lower*	*higher*	*lower*
2010	ns	ns	*lower*
Difficulty seeing a specialist			
2008	ns	ns	*less*
2010	ns	ns	ns

italics: moderate effect: 0.5-0.9 and 1.1-2.0
underline: large effect: 0-0.5 and 2.0 to infinity

Populations of Interest: Medicaid, People with Chronic Conditions, Low Income

Medicaid

Ohioans with Medicaid whose usual source of health care was a clinic had higher prevalence of ER visits than others with a usual source of health care across all types of insurance and compared to individuals who were uninsured in 2008 and 2010 (see Table 12).

1. Among those with a doctor's office as their usual source of health care, only Ohioans with non-employer private insurance did not have ER visits significantly lower than those with Medicaid during both years (see Table 12).

2. In 2008, Ohioans with Medicaid had a higher rate of hospitalizations, across all usual sources of health care, than did individuals with employer-sponsored health insurance or those who were uninsured (see Table 13).

3. Only Medicare beneficiaries, who used a clinic, ER or other location as their usual source of health care had rates of hospitalization that were not significantly different from Medicaid beneficiaries with usual sources of health care in the same locations. However, among those whose usual source of health care was the doctor's office, Medicaid beneficiaries had hospitalization rates that were significantly higher than those with Medicare (see Table 13).

4. In 2008, individuals with Medicaid had higher rates of self-rated poor health than Ohioans with all other types of insurance (with the exception of Medicare), and the uninsured, in all locations that served as a usual source of health care (see Table 14). The same pattern was seen in 2010 among those whose usual source of health care was a clinic or doctor's office.

Table 12: ER visits among Ohioans with Medicaid compared to other insurers by place where usual health care is received

Place for Care Insurance	Clinic	ED	Other	Doctor
2008				
Medicare only	+16%***	+16%*	+22%***	+25%***
Employer-sponsored insurance	+26%***	+41%***	+42%***	+36%***
Other private insurance	+26%***	+44%**	+34%***	ns
Uninsured	+14%***	ns	+29%***	+25%***
2010				
Medicare only	+22%**	ns	ns	+29%***
Employer-sponsored insurance	+39%***	+38%*	+58%***	+39%***
Other private insurance	+44%***	+84%***	+57%***	ns
Uninsured	+24%**	ns	+37%*	+26%***

* <.05
** <.01
*** <.001

Note: Compared to all other types of insurance and those who are uninsured, Medicaid has a higher proportion of: Ohioans living at 0-100% FPL, Ohioans with chronic mental health conditions, and African-Americans. These three variables were associated with increased utilization of an ER in our analyses. However, the nature of the data precludes examination of causality (see Appendices E, F, G).

Table 13: Hospitalizations among Ohioans with Medicaid compared to other insurers by place where usual health care is received

Place for Care Insurance	Clinic	ED	Other	Doctor
2008				
Medicare only	ns	ns	ns	+.16***
Employer-sponsored insurance	+.30***	+.54***	+.4**	+.36***
Other private insurance	+.29***	+.47**	ns	ns
Uninsured	+.29***	+.44***	+.47***	+.34***

* <.05
** <.01
*** <.001

Table 14: Probability of having poor/fair self-rated health status among Ohioans with Medicaid compared to other insurers by place where usual health care is received

Place for Care Insurance	Clinic	ED	Other	Doctor
2008				
Medicare only	ns	-.6***	ns	ns
Employer-sponsored insurance	+5.31***	+3.4***	+5.1***	+5.2***
Other private insurance	+2.5***	+3.1*	+2.5***	+3.4***
Uninsured	+3.3***	+2.2***	+3.5***	+4.0***
2010				
Medicare only	ns	ns	-.5*	ns
Employer-sponsored insurance	+4.6***	ns	ns	+3.2***
Other private insurance	+3.9**		ns	+50.0***
Uninsured	+4.1***		ns	+7.7***

* <.05
** <.01
*** <.001

Note: The cells without data reflect the situation in which the small sample size precluded accurate estimation of odds ratios for these effects, so the significance should be interpreted with caution. The p-values for other effects should not be meaningfully affected by this problem.

Chronic Conditions

In 2008, more than 70% of Ohioans did not have any chronic condition (see Table 15). However, only 62% of those living below 100% FPL were without a chronic condition. Restated, nearly 40% of individuals living in poverty had a chronic condition.

The percentage of Ohioans with a chronic mental health condition was significantly lower in 2008 than 2010 (6.4% vs. 8.2%, p<.001) (see Table 15). The odds of a chronic mental health condition were 1.8 percentage points (22%) lower in 2008 than in 2010. The opposite trend occurred for chronic non-mental health conditions. The percentage of Ohioans with non-mental health chronic conditions was significantly higher in 2008 than in 2010 (22.3% vs. 20.4%, p=.016). The odds of having a chronic non-mental health condition were 1.1 times as high as the odds of having a chronic non-mental health condition in 2010.

Differences in the prevalence of chronic mental health conditions associated with income also merit discussion. Chronic mental health conditions occurred within the populations of individuals living at, or near, poverty in larger

percentages than in the total population (see Table 15). In 2008 and 2010, an estimated 6.4% and 8.2% of Ohioans had chronic mental health conditions -- individuals living at, or near, poverty had chronic mental health conditions at 14% and 14.2% (100% FPL) and 9.3% and 12.0% (101-138% FPL), respectively.

Table 15: Chronic Groups

Group Variable	Total	0-100% FPL	101-138% FPL
Chronic Groups			
2008			
Not chronic	71.3%	62.0%	67.4%
Chronic mental health	6.4%	14.0%	9.3%
Other chronic	22.3%	24.0%	23.3%
2010			
Not chronic	71.4%	63.1%	67.3%
Chronic mental health	8.2%	14.2%	12.0%
Other chronic	20.4%	22.7%	20.7%

Ohioans Living near Poverty

The Patient Protection and Affordable Care Act calls for expanding health insurance coverage, through Medicaid, to all 18-64 year old Ohioans with incomes to 138% (133% of poverty plus a 5 percent income disregard). Therefore, it is important to examine the similarities and differences between this expansion population and people more likely to currently have Medicaid (identified as those with incomes below 100% FPL for this analysis).

Ohioans living between 101%-138% FPL are similar to those living at 0-100% FPL and individuals living at 139%-200% FPL with regard to ER visits associated with location serving as usual source of health care (see Table 16). Only in the doctor's office in 2008 were the rates of ER visits lower for those at 101%-138% than for those at 0-100% FPL. In 2008 and 2010, the rates of ER visits were higher among Ohioans with a doctor's office as their usual source of health care than for those at 139-200% FPL.

Table 16: ER visits among Ohioans living between 101% and 138% of the Federal Poverty Level compared to other income levels by place where usual health care is received

Place for Care % FPL	Clinic	ED	Other	Physician
2008				
0-100% FPL	ns	ns	ns	-6%***
139-200% FPL	ns	ns	ns	+6%***
>200% FPL	+12%***	+15%*	+12%*	ns
2010				
0-100% FPL	ns	ns	ns	ns
139-200% FPL	ns	ns	ns	+10%*
>200% FPL	+17%*	+42%*	+26%*	ns

* <.05
** <.01
*** <.001

Hospitalizations among Ohioans living between 101% and 138% of the Federal Poverty Level Compared to Other Income Levels by Place where Usual Health Care is Received

There were few significant differences in hospitalizations between Ohioans living at 101% and 138% FPL and other incomes.

1. Among those whose usual source of health care was a clinic, individuals with incomes 101-138% FPL had more hospitalizations than those living at 139-200% FPL and >200% FPL, (OR: .12, p<.001; OR: .18, p<.001), respectively.

2. Additionally, among those whose usual source of health care was a doctor's office or HMO, individuals with incomes 101-138% FPL had more hospitalizations (OR: .07, p<.01) than those with incomes 139-200% FPL.

Poor-Fair Self-Rated Health Status among Ohioans Living between 101-138% FPL Compared to Other Income levels by Place where Usual Health Care is Received

In 2008, individuals with incomes 101-138% FPL, whose usual source of health care was a clinic or doctor's office had a significantly lower prevalence of poor-fair self-rated health status compared to individuals who received care at a clinic, with incomes at 0-100% FPL (see Table 17).

1. The same relationship was seen for those who used the clinic as their usual source of care in 2010 (see Table 17).

2. In 2008, those living between 101 and 138% FPL had a significantly higher prevalence of having poor or fair health, regardless of their usual source of care, than those living over 200% FPL (see Table 17).

Table 17: Probability of having poor-fair health self-rated health status among Ohioans living between 101% and 138% FPL compared to other income levels by place where usual health care is received

Place for Care % FPL	Clinic	ED	Other	Physician
2008				
0-100% FPL	-.76*	ns	ns	-.84*
139-200% FPL	ns	+1.78*	ns	+1.45***
>200% FPL	+1.71**	+2.34***	+1.99**	+1.99***
2010				
0-100% FPL	-.52*	ns	ns	ns
139-200% FPL	ns	ns	ns	ns
>200% FPL	ns	ns	ns	ns

* <.05
** <.01
*** <.001

Developing an Operational Definition of Enhanced Primary Care Home for Ohio

Measuring Primary Care

Operationalizing primary care was a critical component of this project for two reasons. First, it was a prerequisite to the first two aims of the research: to estimate the proportion of Ohioans who have or do not have primary care and to examine the association between having or not having primary care and unmet health needs, health status and health outcomes. Second, it sought to contribute to the development of a multidimensional measure of EPCH. Items currently in the Ohio Family Health Survey were analyzed to examine those that best fit together to represent EPCH. Research has conceptualized EPCH, but further operationalization is warranted. Furthermore, investigation of the utility of currently available indicators could contribute to future measurement of EPCH in Ohio.

Consequently, survey items that appeared to represent dimensions of primary care were identified. The decision was made to use factor analysis to investigate whether the items reflected the intended dimensions of primary care. If they did, subscales were constructed that represented different dimensions of primary care. These subscales would be utilized throughout the project.

Although different strategies were employed, the factor analysis did not identify dimensions that were able to effectively distinguish levels of primary care among the sample. Examples of variables included in the analysis are: routine check-up, whether one sees the same physician or nurse, whether one needs to see a specialist, and whether one needs assistance coordinating care. The final analysis produced four factors that did not effectively divide Ohioans into levels of primary care. Additionally, the factors related to specialist care and coordination of care were very important. These issues are not relevant for all Ohioans. Therefore, the factor analysis was abandoned and the decision made to utilize a more intuitive, straightforward operationalization.

Indicators used for this project promoted a comprehensive, introductory understanding of primary care among Ohioans and its association with health status, health outcomes and unmet needs. However, if Ohio intends to move toward a PCMH model of service delivery, items should be prudently added to The Ohio Family Health Survey that will reflect specific desired components.

Discussion of Findings and Implications for Policy and Future Research

Policy Implications from Focus Group

Our analysis, informed by our discussion with a small group of key stakeholders, identifies overall policy implications in the following eight areas:

1. Emergency rooms as usual source of care
2. Medical home capacity
3. Workforce capacity
4. Community-based clinics as usual sources of care
5. Populations with special challenges
6. Populations without any usual source of care
7. Consumer engagement
8. Data tracking

1. Emergency Rooms as Usual Source of Health Care

The analysis found that more than 5% of Ohioans report that the emergency room is their usual source of health care (5.8% in 2008 and 5.2% in 2010). When the 2008 OFHS asked why they used an ER as their usual source of care, 65% of Ohioans reported that they preferred an ER because either they saw it as the best place to get care (36.1%) or because of its convenience (28.9%). Another 10.8% of Ohioans reported that they used an ER because they had no regular doctor. Only 15.8% reported using an ER as their usual source of health care because of cost and an ER won't turn them away.

These responses caught many in the stakeholder meeting by surprise. What these answers reflect is the perception of an ineffective primary care system -- these Ohioans do not see a better option for care. The features of an ER that the stakeholders suggested most resembled the targets for a medical home were: 24/7 hours; same day scheduling; onsite testing; access to clinical and non-clinical services, such as social work, and potentially onsite pharmacy for any prescriptions issued.

However, ERs do not have important features of a medical home. As the stakeholder discussion noted, ERs lack a continuity of care with a single provider and a ready place for follow-up or specialist care for patients without a non-ER regular source of care. This lack of continuity can result in redundant testing and other procedures as each ER visit is treated independently, rather than as an ongoing primary care relationship (Amerigroup Public Policy Institute, 2011). It also reinforces acute care/sick care versus preventive/health-based seeking patient behaviors.

Policy and program strategies to consider for changing an ER as a usual source of care may include:

1. Increasing the number and capacity of medical homes with the features that these Ohioans need and want available to them outside of an ER;

2. Transportation assistance to consumers with limited transportation resources to help them get to different places in a timely manner if all the testing services they need are not located in one place;

3. Consumer education on the value of continuity of health care and having a regular source of primary care outside of an ER;

4. An effective referral system that helps these consumers find a non-ER regular source of health care; and

5. Consideration that the hospital may be the best location for a medical home for certain populations of Ohio, especially those who need to seek their health care at hours outside of even extended evening or weekend hours or who live in primary care resource shortage areas. This consideration would be to create a triage place different than just shifting people to an urgent care setting within the hospital.

2. Medical Home Capacity

These ER findings point to a lack of medical home capacity in Ohio. Our stakeholder discussion, along with reports over the last several years (National Association of Community Health Centers, 2009; Ohio Health Quality Improvement Plan, 2009; Hayes, Ohio Payment Reform Summit, 2010; Grundy, 2010), ongoing work within the Kasich Administration (ODH's Patient Centered Collaborative Initiative, Ohio Medicaid Health Homes Initiative, Ohio Department of Mental Health's Integration of Behavioral and Physical Health Care activities, and Ohio Department of Aging Chronic Care Collaborative Initiative), and the enhanced primary care activities under H.B. 198, emphasize this lack of capacity and the urgency in creating it. Strategies raised out of these various sources to address this need include:

1. Payment reform to encourage the development of medical home capacity and to create incentives to better coordinate care between specialty, hospitals and ERs with primary care practices;

2. Cost sharing reform or other incentives to reward patients for using primary care, especially medical homes;

3. Employer and government contracting demands for medical home capacity for their employees or covered members in any health plan;

4. Practice transformation technical assistance and funding support for at least the H.B. 198 identified practices;

5. Consideration of creating community health teams to provide needed medical home support services, especially to smaller practices or rural practices, similar to those provided under Vermont's Blueprint for Health (Bielaszka-DuVernay, 2011; AHRQ, 2010) or in North Carolina (Steiner et. al., 2008); and

6. HIT/HIE capacity that makes creating accessing information on individual patients and their overall patient population easier and more affordable than exists with current EHR systems.

3. Workforce Capacity

If an Ohio policy goal is to have a regular primary care usual source of health care for all Ohioans there are workforce challenges to address. National and Ohio reports, such as Closing the Health Care Workforce Gap (Dersken and Whelan, 2009) and the Ohio Department of Health's *Draft Ohio Primary Care Workforce Plan*, point to current and future primary care workforce capacity challenges. According to our calculations, based on the 2010 OFHS data, 723,684 Ohio adults reported having no usual source of care and another 415,784 reported an ER as their usual source of care. Also, many of the people reporting a physician or clinic usual source of health care reported not seeing this source of care at all in the 12 months prior to being surveyed or only saw them for acute care needs. These numbers indicate a need to serve more people through primary care practices than are being served today. The expansion of health coverage that is to take place in 2014 should add further demand as more people will have financial support for health care visits (National Association of Community Health Centers, 2009).

Additionally, the current workforce and future providers need training in practicing under the patient-centered medical home model of care. This training is just beginning to materialize in Ohio.

Workforce strategies identified by our stakeholder discussion and other sources include:

1. Cross discipline patient-centered medical home learning collaboratives;

2. Patient-centered medical home curriculum reform and training at Ohio's nursing and medical schools; and

3. Payment reform and other incentives to reward providers serving in primary care, especially in underserved areas of Ohio or for Ohio's most vulnerable citizens.

4. Community-Based Clinics as a Usual Source of Health Care

This analysis finds that Ohioans with a clinic as their usual source of health care showed similar positive results as those with a doctor's office as their usual source of health care. Patients in both of these settings reported having fewer problems in getting needed coordination of care, less unmet need in getting prescription medication, fewer ER visits, and easier access to specialists than those with an ER as their usual source of health care. At the same time, there was no statistically significant difference between patients getting care between clinics and physician offices, except for ER visits. Clinics showed a higher percent of ER visits than physician offices (7% more in 2008 and 6% more in 2010); however physician offices served a population that reported being in better health.

These findings, along with other studies (Rothkopf, Brookler, Wadhwa, & Sajovetz, 2011) that show the effectiveness of health care given in Federally Qualified Health Centers (FQHC) lend support to the ongoing federal and state efforts to increase clinic capacity to meet the primary care needs of Ohioans.

5. Populations with Special Challenges

This analysis identified several groups of people with differences in access to primary care that warrant attention. These differences may well help account for a portion of the health disparities that exist in Ohio.

In the case of ERs, the following groups used an ER as their usual source of health care in 2010 at twice the rate of all Ohioans: the uninsured; Medicaid only; dual-eligibles; African-Americans; and people with incomes from 0% to 150% of poverty (and chronic mental health and age 18-24 in 2008). It will be important to identify specific factors that account for this higher rate of utilization for each group in order to craft strategies that reflect these individual group dynamics.

In the case of physician office use, the following groups had much lower rates of physician office use than all Ohioans in 2010: the uninsured; African-Americans; Medicaid only; dual-eligible; Asians, Hispanics; people with incomes below 100% FPL; the chronically mentally ill; and 18-24 year olds. The policy need is to ascertain the reasons behind this lower use of physician care. It will then be important to determine if that lower use of physician offices creates a health care problem for these populations or if they are able to obtain needed services from an alternative primary care source, most notably clinics.

6. Usual Source of Health Care

The conventional policy preference is for everyone to have a usual source of primary care outside of the emergency room. The expectation is that such a source provides a place for routine preventive and primary care and a ready access for acute care, when needed. Over 90% of Ohioans report they have such a source, though the extent to which they use this source for routine preventive and primary care varies.

However, 8.2% of Ohioans report not having a usual source of health care. The uninsured have the highest rate of not having a usual source of health care at 23.5%. Interestingly, the main reason given for not having a usual source of health care is seldom or never getting sick (43.5%). Financial cost/lack of insurance is the second main reason reported for not having a usual source of care (29.4%). Another 9.5% stated that they don't like using physicians, while 6.3% reported not having or knowing how to find a physician's office or clinic place to go for their usual source of care.

If the policy goal is to for all Ohioans to have a usual source of regular health care, these findings highlight the need for an education campaign and other strategies to encourage the seldom or never sick to obtain such a source of care. Some people also need an easily accessible information source on the availability of health care services close to them that can see them quickly if they have an acute care need. Finally, despite health care options, there is a group of Ohioans whose preference is to avoid physicians and other health care providers on a routine basis.

7. Consumer Engagement

The findings on people without a usual source of health care and those using an ER as their usual source of care highlight the need for consumer engagement strategies. Participants in our small group discussion mentioned a couple of different such engagement needs. One need is to help educate consumers on how to access primary care outside of an ER and why they need a regular source of care, even if they are currently seldom or never sick.

A second engagement strategy is to include consumer input in the design of primary care strategies. The patient-centered medical home model identifies a set of practice characteristics but it can be valuable to ask consumers which of these characteristics strongly affect their health seeking decisions. This information is important for designing and marketing medical homes to Ohioans.

8. Data Tracking

This project reveals the strengths and limits of existing Ohio data to examine the capacity and use of primary care in Ohio. The existing OFHS surveys shed light on primary care issues, but they lack questions needed for more detailed analysis. If the issue of primary care access and use of medical homes has important policy implications, then the 2012 OFHS needs to incorporate additional questions on this subject. Areas for considering additional questions include:

1. Identifying age-appropriate preventive service that people should get or be offered annually;

2. Asking people with a clinic as their usual source of health care the type of clinic frequented -- FQHC, mental health, retail clinic, other;

3. Questions on the usual source of health care to determine if it operates in a medical home style, such as same day scheduling or use of EHR;

4. Asking people if they know the name of the provider they regularly see for primary care; and

5. Ask follow-up questions for the people who report an ER as their usual source of health care and indicate that they find it more convenient or a better place for care in order to understand what makes it more convenient for them or a better place for care.

Even with these additional questions, the OFHS alone cannot provide information on all of the questions that arise. For example, its sample size will never have sufficient data on certain population groups, such as Somalis or different Asian or Hispanic subgroups or individuals with chronic mental illness. Even with groups of larger sample sizes the survey cannot be exhaustive. Therefore, our stakeholder discussion recommended augmenting the OFHS with a set of focus groups targeted at populations of interest.

In addition, Ohio lacks any sufficient source of longitudinal data on specific people to ascertain the outcomes of primary care and other policy changes. Since the OFHS consists of a new sample of Ohioans each time its measures, tracking of outcome trends are imprecise. Therefore, out stakeholder discussion recommended looking into either creating a longitudinal component within future OFHS surveys or creating an alternative mechanism to achieve this end. While such a component will cost additional money, the data collected should prove enormously useful in monitoring future trends and evaluating the effect of policy changes. Given the investment being made for medical

homes and the coming expansion of coverage, establishing a longitudinal base of data in the 2012 OFHS would be prudent.

Policy Implications for the Medicaid Program

This analysis was able to compare primary care access and patient population characteristics between Medicaid and other sources of care. Major findings of this comparison include:

1. A much greater portion of the Medicaid population reported being in poor/fair health status than for other populations, including the uninsured. This finding should not be surprising since most adults on Medicaid, unless they are parents, can only get Medicaid if they meet the Social Security Disability test for poor health or are very low income and over 65;

2. A much greater portion of the Medicaid-only population (12.7%) and Medicaid dual-eligible population (10.3%) reported using an ER as their usual source of care than the general Ohio population (5.2%) in 2010;

3. The majority of findings in this research regarding the relationship between Medicaid and ER visits are consistent with previous findings that individuals with Medicaid were more likely to visit an ER during the previous 12 months than individuals with private insurance or those without insurance (Garcia, Bernstein & Bush, 2010). This research also supports the proposition that a high prevalence of ER visits may be attributable to a sicker population among those with Medicaid (Garcia, Bernstein and Bush). Individuals with Medicaid were significantly more likely to be in poor/fair health status in every location that served as their usual source of health care in 2008 and 2010 than those with employer-sponsored insurance, other private insurance and individuals who were uninsured;

4. In 2010, a much greater portion of the Medicaid population with a physician office or clinic as their usual source of health care reported using an enhanced level of primary care services (69.1% Medicaid only and 79.7% dual-eligibles) than the Ohio general population (62.3%), the private ESI population (60.0%), the other private ESI population (57.2%) and the uninsured (38.5%).

Policy implications of these findings that emerged through our stakeholder discussion, Ohio Medicaid, and national reports include:

1. Medicaid's IMPROVE project is important to test strategies to reduce ER use among the Medicaid population and needs to continue;

2. Medicaid will benefit from greater medical home capacity, primary care access, and chronic care management given the extent of poor/fair health self-rated status in its population (Partnership for Medicaid);

3. Medicaid and its managed care partners should look at payment reform options to support primary care and medical homes;

4. Medicaid and its managed care partners should look at financial support to build medical home capacity in Ohio to ensure enough capacity for their population;

5. The uninsured should be less costly on a per-person basis than the existing Medicaid population given the overall differences in health status; and

6. Integration of physical and mental health is important given the higher rate of ER use by the chronically mentally ill than the other chronic health populations.

Policy Implications Related to People with Chronic Health Conditions

This report also compared primary care access and other characteristics between for people with chronic health conditions. Key findings include:

1. The portion of Ohioans with chronic conditions is higher for lower income populations than the Ohio population overall, especially for people who report having a chronic mental health condition;

2. A higher portion of Ohioans with chronic conditions reported having a usual source of care, especially for those with a chronic mental health condition;

3. Ohioans with chronic conditions report a much lower use of physician offices as their usual source of care and a much greater use of clinics;

4. Ohioans who reported having a chronic mental health condition have the highest rate of using an ER and other sites as their usual source of care;

5. More of the population with a chronic mental health condition who have a physician office or clinic as their usual source of health care reported having a checkup in the past year than the general Ohio population (our measure for enhanced primary care), while those with a non-mental chronic condition reported a much lower rate of having a checkup in the past year than the general Ohio population (69.5% to 62.3% to 57.5%); and

6. A higher portion of Ohioans with non-mental health chronic condition with a physician office or clinic usual source of health care reported not using that source of care in the past year than the general population and especially those with a chronic mental health condition (13.9% to 12.6% to 3.9% in 2010).

Policy and data implications that emerged from our stakeholder discussion include:

1. The integration of behavioral and physical health remains an important activity and existing Ohio efforts on this front need to continue, though more of the population with a chronic mental health condition reports having had a checkup in the past year than those with chronic, non-mental health conditions and those without any chronic conditions;

2. People with a chronic mental health condition also have lower incomes and other challenges to their health situation that health and social policies need to address;

3. Emergency room as a usual source of health care diversion policies need to include a special focus on people with chronic mental health conditions;

4. Future analysis would benefit from more detailed information on the type of physician and clinic that people with a chronic mental health condition report as their usual source of health care to understand if they are referring to a psychological service site or a primary care service site;

5. More information on the type of clinic that all people with chronic conditions use would be helpful to see if it is a specialty clinic focused on their chronic condition or a primary care service site;

6. Challenges associated with chronic conditions include coping with symptoms and disability, altering previous lifestyle, managing medication schedule, emotional issues, and obtaining needed and supportive medical care (Wagner et al., 2001). These multifaceted needs could best be addressed by a team of professionals who contribute their unique expertise;

7. The possibility has been raised that some patient needs warrant the housing of patient-centered medical homes in specialty settings, specifically services for individuals with severe and persistent mental disorders (Alakeson, Frank & Katz, 2010). Reasons supporting this proposal include: building upon established trusting relationships between individuals with mental illness and their providers; delivering care in an environment that understands and supports them; and avoiding potential changes to receipt of care for those with mental illness that may interrupt their patterns of care (Alakeson, Frank & Katz); and

8. Asking people who report having a non-mental health chronic condition with a physician office or clinic usual source of health care and have not seen that provider in the past year why that is the case could be worthwhile.

Appendix A

Ohio Family Health Survey items used to measure primary care

OFHS Item Primary Care Measure	Item Wording	Item Number
Usual source of care	Is there ONE place that //you USUALLY go /Person in S1 USUALLY goes// to when//you are/Person in S1 is// sick or //you need / person in S1 needs// advice about //your/his or her// health?"	F67
Place care received	What kind of place is it? A clinic or health center, a doctor's office or HMO, a hospital emergency room, a hospital outpatient department, or some other place? [IF MORE THAN ONE PLACE: What kind of place //do you/does person in S1// go to most often?]	F67a
Frequency of care use	NOT including overnight hospital stays, visits to hospital emergency rooms, home visits, or telephone calls, about how long has it been since you/person in S1// last visited a doctor for a ROUTINE CHECK-UP? A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.	E59A
	NOT including overnight hospital stays, visits to hospital emergency rooms, home visits, or telephone calls, about how long has it been since //you/person in S1// last saw a doctor or other health care professional about //your/his or her// own health?	E59

Appendix B

Ohio Family Health Survey Items used to Measure Health Status, Health Outcomes and Unmet Needs

OFHS Item Primary Care Measure	Item Wording	Item Number
Health Status		
General Health	In general, would you say //your/Person in S1's// health is excellent, very good, good, fair, or poor	D30
Health Outcomes		
ER visits	DURING THE PAST 12 MONTHS, how many times //were you/was Person in S1// a patient in a hospital EMERGENCY room? Include EMERGENCY room visits where //you were/Person in S1 was// admitted to the hospital.	E 62
Hospitalizations	DURING THE PAST 12 MONTHS, how many times //were you/was Person in S1// admitted to a hospital for a stay that was OVERNIGHT or longer?	E 60
Unmet Needs		
Not filled a prescription due to cost	IN THE PAST 12 MONTHS, //have you/has person in S1// NOT filled a prescription because of the cost?	F 68b
Not get other health care needed	DURING THE PAST 12 MONTHS, was there any time when //you/person in S1// did NOT get any other health care that //you/she/he// needed, such as a medical exam, medical supplies, mental health care, or eyeglasses?	F 68c
Difficulty seeing a specialist	How much problem, if any, was it for //you/person in S1// to see a specialist? Was it a big problem, small problem, or no problem?	F 67e
Health Care Rating	How would you rate the overall quality of ALL of the HEALTH care that //you/person in S1// received DURING THE PAST 12 MONTHS, using any number from 0 to 10 where 0 is the worst HEALTH care possible, and 10 is the best HEALTH care possible:	E 64

Appendix C

Model for Emergency room as a Usual Source of Health Care: 2008

Predictor Variable	Comparison	Level	Baseline Level	p-value	OR
age	ER v. All Other USOC	N/A	N/A	< 0.001	OR = 0.976
chronic condition	ER v. All Other USOC	not chronic	chronic mental health	0.214	
chronic condition	ER v. All Other USOC	not chronic	chronic non-mental health	0.017	OR = 0.769
chronic condition	ER v. All Other USOC	chronic mental health	chronic non-mental health	0.809	
education level	ER v. All Other USOC	N/A	N/A	< 0.001	OR = 0.726
self rating of health	ER v. All Other USOC	N/A	N/A	0.01	OR = 1.103
hours worked per week	ER v. All Other USOC	N/A	N/A	0.04	OR = 1.01
insurance type	ER v. All Other USOC	Medicaid (with or without Medicare)	Medicare (no Medicaid)	0.099	
insurance type	ER v. All Other USOC	Medicaid (with or without Medicare)	ESI	< 0.001	OR = 2.483
insurance type	ER v. All Other USOC	Medicare (no Medicaid)	ESI	< 0.001	OR = 1.895
insurance type	ER v. All Other USOC	Medicaid (with or without Medicare)	private insurance	< 0.001	OR = 4.215
insurance type	ER v. All Other USOC	Medicare (no Medicaid)	private insurance	< 0.001	OR = 3.217
insurance type	ER v. All Other USOC	ESI	private insurance	0.022	OR = 1.698
insurance type	ER v. All Other USOC	Medicaid (with or without Medicare)	no insurance	< 0.001	OR = 2.175
insurance type	ER v. All Other USOC	Medicare (no Medicaid)	no insurance	0.349	
insurance type	ER v. All Other USOC	ESI	no insurance	< 0.001	OR = 0.353
insurance type	ER v. All Other USOC	private insurance	no insurance	< 0.001	OR = 0.122
percent poverty level	ER v. All Other USOC	0 - 100% FPL	101 - 138% FPL	0.68	
percent poverty level	ER v. All Other USOC	0 - 100% FPL	139 - 200% FPL	0.065	
percent poverty level	ER v. All Other USOC	101 - 138% FPL	139 - 200% FPL	0.195	
percent poverty level	ER v. All Other USOC	0 - 100% FPL	above 200% FPL	< 0.001	OR = 1.591
percent poverty level	ER v. All Other USOC	101 - 138% FPL	above 200% FPL	0.029	OR = 1.443
percent poverty level	ER v. All Other USOC	139 - 200% FPL	above 200% FPL	0.929	
race	ER v. All Other USOC	White	black/African-American	< 0.001	OR = 0.578
race	ER v. All Other USOC	White	Asian	0.689	
race	ER v. All Other USOC	black/African-American	Asian	0.159	
race	ER v. All Other USOC	white	Other	0.047	OR = 0.659

race	ER v. All Other USOC	black/African-American	Other	0.004	OR = 1.968
race	ER v. All Other USOC	Asian	Other	0.693	
sex	ER v. All Other USOC	Male	Female	< 0.001	OR = 1.664
where work	ER v. All Other USOC	Government	private industry	0.038	OR = 0.67
where work	ER v. All Other USOC	Government	self-employed	0.705	
where work	ER v. All Other USOC	private industry	self-employed	0.118	
where work	ER v. All Other USOC	Government	unemployed	0.002	OR = 0.459
where work	ER v. All Other USOC	private industry	unemployed	0.048	OR = 0.685
where work	ER v. All Other USOC	self-employed	unemployed	0.012	OR = 0.507
where work	ER v. All Other USOC	Government	Other	< 0.001	OR = 0.261
where work	ER v. All Other USOC	private industry	Other	0.039	OR = 0.582
where work	ER v. All Other USOC	self-employed	Other	0.003	OR = 0.318
where work	ER v. All Other USOC	Unemployed	Other	0.59	
region	ER v. All Other USOC	Appalachian	Metropolitan	0.04	OR = 1.238
region	ER v. All Other USOC	Appalachian	Rural Non-Appalachian	0.038	OR = 1.298
region	ER v. All Other USOC	Metropolitan	Rural Non-Appalachian	0.68	
region	ER v. All Other USOC	Appalachian	Suburban	0.003	OR = 1.554
region	ER v. All Other USOC	Metropolitan	Suburban	0.917	
region	ER v. All Other USOC	Rural Non-Appalachian	Suburban	0.618	
ethnicity	ER v. All Other USOC	Hispanic	not Hispanic	0.093	

Appendix D

Model for Emergency room as a Usual Source of Health Care: 2010

Predictor Variable	Comparison	Level	Baseline Level	p-value	OR
age	ER v. All Other USOC	N/A	N/A	< 0.001	OR = 0.98
chronic condition	ER v. All Other USOC	not chronic	chronic mental health	0.136	
chronic condition	ER v. All Other USOC	not chronic	chronic non-mental health	0.024	OR = 0.61
chronic condition	ER v. All Other USOC	chronic mental health	chronic non-mental health	0.521	
education level	ER v. All Other USOC	N/A	N/A	< 0.001	OR = 0.74
self rating of health	ER v. All Other USOC	N/A	N/A	0.455	
insurance type	ER v. All Other USOC	Medicaid (with or without Medicare)	Medicare (no Medicaid)	0.074	
insurance type	ER v. All Other USOC	Medicaid (with or without Medicare)	ESI	< 0.001	OR = 2.9
insurance type	ER v. All Other USOC	Medicare (no Medicaid)	ESI	0.06	
insurance type	ER v. All Other USOC	Medicaid (with or without Medicare)	private insurance	0.048	OR = 2.711
insurance type	ER v. All Other USOC	Medicare (no Medicaid)	private insurance	0.359	
insurance type	ER v. All Other USOC	ESI	private insurance	0.898	
insurance type	ER v. All Other USOC	Medicaid (with or without Medicare)	no insurance	0.053	
insurance type	ER v. All Other USOC	Medicare (no Medicaid)	no insurance	0.46	
insurance type	ER v. All Other USOC	ESI	no insurance	< 0.001	OR = 0.243
insurance type	ER v. All Other USOC	private insurance	no insurance	0.099	
percent poverty level	ER v. All Other USOC	0 - 100% FPL	101 - 138% FPL	0.357	
percent poverty level	ER v. All Other USOC	0 - 100% FPL	139 - 200% FPL	0.269	
percent poverty level	ER v. All Other USOC	101 - 138% FPL	139 - 200% FPL	0.858	
percent poverty level	ER v. All Other USOC	0 - 100% FPL	above 200% FPL	0.012	OR = 2.031
percent poverty level	ER v. All Other USOC	101 - 138% FPL	above 200% FPL	0.447	
percent poverty level	ER v. All Other USOC	139 - 200% FPL	above 200% FPL	0.636	
race	ER v. All Other USOC	white	black/African-American	< 0.001	OR = 0.526
race	ER v. All Other USOC	white	Asian	< 0.001	
race	ER v. All Other USOC	black/African-American	Asian	< 0.001	
race	ER v. All Other USOC	White	other	< 0.001	
race	ER v. All Other USOC	black/African-American	other	< 0.001	

race	ER v. All Other USOC	Asian	other	< 0.001	
sex	ER v. All Other USOC	Male	female	0.034	OR = 1.385

Appendix E

Interactions of insurance type by poverty level

In each cell, the percentages reported are total percent, row percent, and column percent.

Frequency Table for Insurance Type by Poverty Level - 2008

ofhsyear	Instype	FPL_0_100	FPL_101_138	FPL_139_200	FPL_200plus
2008	Medicaid	5.64%, 64.09%, 35.34%	1.26%, 14.3%, 14.38%	0.8%, 9.14%, 7.13%	1.1%, 12.47%, 1.71%
2008	Medicare	2.68%, 14.05%, 16.78%	2.72%, 14.29%, 31.12%	3.31%, 17.36%, 29.32%	10.34%, 54.31%, 16.16%
2008	ESI	2.14%, 4.18%, 13.4%	1.88%, 3.67%, 21.47%	3.91%, 7.64%, 34.65%	43.24%, 84.51%, 67.53%
2008	Other Private	0.63%, 11.8%, 3.96%	0.46%, 8.63%, 5.28%	0.62%, 11.57%, 5.49%	3.64%, 68%, 5.68%
2008	Uninsured	4.53%, 32.06%, 28.43%	2.27%, 16.03%, 25.93%	2.44%, 17.25%, 21.63%	4.9%, 34.66%, 7.66%
2008	Unknown	0.33%, 22.12%, 2.09%	0.16%, 10.59%, 1.82%	0.2%, 13.43%, 1.79%	0.81%, 53.87%, 1.27%

Frequency Table for Insurance Type by Poverty Level - 2010

ofhsyear	Instype	FPL_0_100	FPL_101_138	FPL_139_200	FPL_200plus
2010	Medicaid	7.61%, 69.13%, 32.45%	1.28%, 11.62%, 14.23%	0.64%, 5.8%, 5.39%	1.48%, 13.46%, 2.66%
2010	Medicare	3.82%, 20.46%, 16.28%	2.3%, 12.3%, 25.55%	3.33%, 17.85%, 28.16%	9.22%, 49.39%, 16.54%
2010	ESI	3.59%, 7.85%, 15.32%	2.06%, 4.5%, 22.91%	4.21%, 9.2%, 35.58%	35.9%, 78.45%, 64.41%
2010	Other Private	1.08%, 16.85%, 4.59%	0.57%, 8.86%, 6.3%	0.97%, 15.13%, 8.17%	3.78%, 59.16%, 6.79%
2010	Uninsured	6.25%, 40.07%, 26.67%	2.56%, 16.43%, 28.54%	2.51%, 16.06%, 21.18%	4.28%, 27.44%, 7.68%
2010	Unknown	1.1%, 42.8%, 4.68%	0.22%, 8.63%, 2.46%	0.18%, 6.98%, 1.51%	1.07%, 41.59%, 1.91%

Appendix F

Interactions of insurance type by chronic conditions

In each cell, the percentages reported are total percent, row percent, and column percent.

Frequency Table for Insurance Type by Chronic Condition Status - 2008

ofhsyear	instype	no_chronic	chronic_mental	chronic_non_mental
2008	Medicaid	4.97%, 56.57%, 6.98%	1.7%, 19.27%, 26.47%	2.12%, 24.16%, 9.51%
2008	Medicare	15.74%, 82.65%, 22.09%	0.96%, 5.05%, 15.03%	2.34%, 12.3%, 10.49%
2008	ESI	37.4%, 73.11%, 52.48%	1.97%, 3.84%, 30.68%	11.79%, 23.05%, 52.8%
2008	Other Pr	3.92%, 73.17%, 5.5%	0.29%, 5.46%, 4.57%	1.14%, 21.37%, 5.12%
2008	Uninsure	8.14%, 57.53%, 11.42%	1.41%, 9.96%, 22%	4.6%, 32.51%, 20.58%
2008	Unknown	1.09%, 72.51%, 1.53%	0.08%, 5.32%, 1.25%	0.33%, 22.17%, 1.49%

Frequency Table for Insurance Type by Chronic Condition Status - 2010

ofhsyear	instype	no_chronic	chronic_mental	chronic_non_mental
2010	Medicaid	6.36%, 57.76%, 8.91%	2.13%, 19.35%, 25.87%	2.52%, 22.89%, 12.36%
2010	Medicare	15.25%, 81.67%, 21.36%	1.26%, 6.77%, 15.35%	2.16%, 11.56%, 10.58%
2010	ESI	33.79%, 73.85%, 47.34%	2.49%, 5.45%, 30.27%	9.48%, 20.71%, 46.48%
2010	Other Pr	4.67%, 73.09%, 6.55%	0.42%, 6.56%, 5.09%	1.3%, 20.35%, 6.38%
2010	Uninsure	9.52%, 60.98%, 13.33%	1.7%, 10.92%, 20.68%	4.39%, 28.1%, 21.52%
2010	Unknown	1.79%, 69.9%, 2.51%	0.23%, 8.81%, 2.74%	0.55%, 21.29%, 2.68%

Appendix G

Interactions of insurance status by race

In each cell, the percentages reported are total percent, row percent, and column percent.

Frequency Table for Insurance Type by Race - 2008

ofhsyear	instype	White	African-American	Asian	Other	DK	Refused
2008	Medicaid	6.09%, 69.46%, 7.15%	2.31%, 26.32%, 21.19%	0.08%, 0.86%, 4.72%	0.2%, 2.25%, 13.79%	0.02%, 0.2%, 12.9%	0.08%, 0.92%, 10.94%
2008	Medicare	16.92%, 88.48%, 19.86%	1.69%, 8.84%, 15.53%	0.15%, 0.77%, 9.3%	0.22%, 1.14%, 15.2%	0.02%, 0.12%, 16.67%	0.12%, 0.65%, 16.94%
2008	ESI	45.55%, 88.81%, 53.45%	3.76%, 7.33%, 34.51%	0.99%, 1.92%, 62.13%	0.57%, 1.12%, 39.97%	0.05%, 0.1%, 39.93%	0.36%, 0.71%, 49.37%
2008	Other Private	4.67%, 87.13%, 5.48%	0.4%, 7.39%, 3.64%	0.15%, 2.86%, 9.67%	0.09%, 1.77%, 6.6%	0.01%, 0.21%, 8.51%	0.03%, 0.64%, 4.63%
2008	Uninsured	10.7%, 76.73%, 12.56%	2.59%, 18.57%, 23.78%	0.18%, 1.3%, 11.37%	0.33%, 2.39%, 23.27%	0.03%, 0.19%, 19.8%	0.11%, 0.82%, 15.5%
2008	Unknown	1.27%, 84.64%, 1.49%	0.15%, 9.8%, 1.35%	0.04%, 2.96%, 2.8%	0.02%, 1.12%, 1.17%	0%, 0.19%, 2.19%	0.02%, 1.28%, 2.62%

Frequency Table for Insurance Type by Race - 2010

ofhsyear	instype	White	African-American	Asian	Other	DK	Refused
2010	Medicaid	7.54%, 68.78%, 8.99%	2.84%, 25.87%, 24.72%	0.04%, 0.37%, 4.21%	0.39%, 3.54%, 18.03%	0.07%, 0.66%, 13.49%	0.09%, 0.78%, 8.56%
2010	Medicare	16.25%, 86.72%, 19.37%	1.92%, 10.23%, 16.69%	0.06%, 0.3%, 5.91%	0.33%, 1.75%, 15.24%	0.06%, 0.35%, 12.14%	0.12%, 0.65%, 12.13%
2010	ESI	40.82%, 89.05%, 48.67%	3.15%, 6.87%, 27.45%	0.43%, 0.94%, 45.22%	0.81%, 1.76%, 37.58%	0.19%, 0.42%, 36.32%	0.43%, 0.95%, 43.09%
2010	Other Private	5.48%, 85.33%, 6.54%	0.48%, 7.53%, 4.21%	0.22%, 3.38%, 22.72%	0.1%, 1.56%, 4.65%	0.05%, 0.73%, 8.84%	0.09%, 1.47%, 9.41%
2010	Uninsured	11.7%, 75.69%, 13.95%	2.74%, 17.72%, 23.87%	0.21%, 1.33%, 21.58%	0.44%, 2.82%, 20.26%	0.14%, 0.93%, 26.79%	0.23%, 1.51%, 23.18%
2010	Unknown	2.08%, 80.84%, 2.48%	0.35%, 13.59%, 3.05%	0%, 0.13%, 0.36%	0.09%, 3.53%, 4.23%	0.01%, 0.5%, 2.42%	0.04%, 1.41%, 3.63%

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