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Barriers to Care and Healthcare Utilization among the Publicly Insured

Elizabeth M Allen, Ph.D., M.P.H.,

Department of Family Medicine & Community Health, 717 Delaware St SE, Ste 166, Minneapolis, MN 55414, Telephone: 612-626-4912, Fax: (612) 626-6782, gasto020@umn.edu

Kathleen T Call, Ph.D.,

Division of Health Policy & Management, 420 Delaware St SE, MMC 729, Minneapolis, MN 55455, Telephone: 612-624-3922, Fax: 612-626-6931, Callx001@umn.edu

Timothy J Beebe, Ph.D.,

Mayo Clinic Department of Health Sciences Research, 200 First Street SW, Rochester, MN 55905, Telephone: 507-284-2511, Fax: 507-284-0161, Beebe.timothy@mayo.edu

Donna D McAlpine, Ph.D., and

University of Minnesota Division of Health Policy & Management, 420 Delaware St SE, 15-232 PWB, Minneapolis, MN 55455, Telephone: 612-625-9919, Fax: 612-626-6931, Mcalp004@umn.edu

Pamela Jo Johnson, Ph.D.

University of Minnesota Center for Spirituality & Healing, 420 Delaware St. SE, MMC 505, Minneapolis MN 55455, Telephone: 612-301-9003, Fax: 612-626-5280, Johns245@umn.edu

Abstract

Background—Though the Affordable Care Act has been successful in expanding Medicaid to more than 17 million people, insurance alone may not translate into access to healthcare. Even among the insured, substantial barriers to accessing services inhibit healthcare utilization.

Objectives—We examined the effect of selected barriers to healthcare access and the magnitude of those barriers on healthcare utilization.

Research Design—Data come from a 2008 survey of adult enrollees in Minnesota's public health care programs. We used multivariate logistic regression to estimate the effects of perceived patient, provider, and system-level barriers on past year delayed, foregone, and lack of preventive care.

Subjects—A total of 2,194 adults enrolled in Minnesota Health Care Programs who were mostly female (66%), high school graduates (76%), unemployed (62%), and living in metro areas (67%) were included in the analysis.

Correspondence to: Elizabeth M Allen.

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Results—Reporting problems across all barriers increased the odds of delayed care from two times for provider-related barriers (OR = 2.0, 95% CI: 1.2–3.3) to more than six times for access barriers (OR = 6.2, 95% CI: 3.8–10.2) and foregone care from 2.6 times for family/work barriers (OR = 2.6, 95% CI: 1.3–5.1) to more than seven times for access barriers (OR = 7.1, 95% CI: 3.9–13.1). Perceived discrimination was the only barrier consistently associated with all three utilization outcomes.

Conclusions—Multiple types of barriers are associated with delayed and foregone care. System-level barriers and discrimination have the greatest effect on healthcare seeking behavior.

Keywords

Medicaid; disparities; barriers; access

INTRODUCTION

Policy efforts to improve healthcare access have focused primarily on expanding health insurance coverage. The Patient Protection and Affordable Care Act (ACA) seeks to improve healthcare quality and expand access to health insurance by expanding Medicaid coverage. As a result of its implementation, 17.6 million uninsured individuals gained health insurance between October 2013 and March 2015.¹ Though the ACA has been widely successful in expanding coverage, insurance alone may not translate into access to quality healthcare for everyone.

Insurance coverage is one component of access to care. However, even among the insured, substantial barriers to accessing services exist.^{2–3} Low levels of trust in physicians,⁴ work/family obligations,⁵ and long wait times⁶ have all been identified as inhibiting healthcare access. Those at greater risk for experiencing barriers to access include those with low incomes, persons in poor health, members of ethnic minority groups and those with public insurance.^{2, 7–9} Further, many clinics do not accept Medicaid payment thus, Medicaid beneficiaries are challenged in finding accessible primary care.^{10–13} In 2013, the average rate of Medicaid acceptance was 45.7% in the U.S.'s largest 15 cities.¹⁴ Medicaid beneficiaries often report experiences of discrimination based on their insurance^{15,16} including provider-patient interactions that felt demeaning.¹⁷ Importantly, people who report experiencing this form of insurance-based discrimination are less likely to receive preventive health services.^{15, 17,18}

The experience of the Medicaid population in Oregon as a result of a 2008 Medicaid expansion in the state may be informative for the rest of the country. While access did improve, approximately 40% of new Medicaid enrollees in Oregon used their insurance rarely or not at all due to confusion about coverage, poor experiences with the healthcare system, and other access barriers.⁶

Previous analysis of these data used for this manuscript found that publicly insured populations experience widespread barriers to getting needed healthcare.¹⁹ However, we did not ascertain whether the magnitude of the perceived problem matters in accessing care. The Institute of Medicine (IOM) suggests that a wide range of patient-level, provider-level, and

system-level factors may contribute to disparities in care. In order to effectively reduce healthcare inequities, it is important to better understand the contribution of patient, provider, and system characteristics on the quality of care for minorities.³

This study fills knowledge gaps surrounding barriers to care among a diverse sample of publicly insured adults in Minnesota Health Care Programs (MHCP). At the time of the study, MHCP included Medicaid, General Assistance Medical Care (GAMC), and MinnesotaCare. Medicaid eligibility was capped at 150% Federal Poverty Guidelines (FPG). GAMC served adults at 75% FPG who are unable to work. Those who do not qualify for Medicaid or GAMC may be eligible for MinnesotaCare where eligibility for is set at 250% FPG for adults without dependents and 275% FPG for parents, children, and pregnant women. MHCPs are relatively generous and highly ranked for access, prevention, treatment, and health outcomes²⁰ with eligibility above the minimum threshold set by the ACA. Thus, Minnesota may be an ideal setting for understanding the experience of public program enrollees in accessing healthcare.

In this paper, we examine the extent to which low-income, ethnically diverse adults enrolled in public healthcare programs report selected barriers to accessing healthcare. We further examine the effect of the magnitude of these barriers on reports of needed medical care being delayed or foregone, as well as not having received preventive care in the past year. Understanding the experience of this population in accessing healthcare may inform targeted interventions aimed to ensure that expanded coverage translates to greater access to care.

METHODS

Data

Data are from a 2008 statewide survey of adults and children MCHP enrollees. The original study was conducted using a community-based participatory research (CBPR) model with community research partners involved in the study design, data collection, interpretation of results, development of study recommendations, and dissemination of study results.²¹ The survey, designed to assess racial and ethnic disparities in the utilization of healthcare services and perceived barriers to care, was developed by the research team that included representatives from all of the cultural groups oversampled in the study and university researchers. The team drew from extant measures where possible. Respondents were selected by drawing a simple random sample of all non-institutionalized enrollees and a stratified random over-sample of African American, American Indian, Latino, Somali, and Hmong adult and child enrollees to ensure adequate sample sizes for analysis. Details of the sampling procedures and survey methodology are available elsewhere.²²

The survey was conducted by mail with a telephone follow-up between July and December 2008. The mail survey was available in English; telephone interviews were conducted in English, Spanish, Hmong, and Somali. English version of the survey can be found in the Supplemental Digital Content. Only one adult or child per household was included to limit respondent burden and reduce clustering. A total of 4,626 adult and child enrollees participated in the original survey corresponding to a 44% response rate. For this analysis,

we selected all adult enrollees who participated in the original survey (n = 2,194). Of those, 132 were excluded for missing data leaving a total study population of 2,062 individuals.

Measures

Our primary independent variables were barriers to care and discrimination. Respondents were asked if they experienced 19 types of problems getting healthcare they needed. Items measuring barriers fall into five domains: 1) Coverage Barriers 2) Financial Barriers 3) Access Barriers 4) Family and work Barriers 5) Provider-related Barriers. Items within each domain can be found in table 1. Respondents were asked if each item was a 'big problem', a 'small problem' or 'not a problem' when trying to get the healthcare they need. One or more reports of a big problem within a domain was classified as a big problem for that domain. Among respondents with no reports of a big problem, any indication of a small problem within a domain was classified as a small problem for that domain. Those reporting no problems for items within each respective domain were used as the referent.

The survey also included measures of reported discrimination. Respondents were asked if they ever felt that providers treated them unfairly because of their 1) gender, 2) ability to pay, 3) being enrolled in a public healthcare program, or 4) race, ethnicity, or nationality. Those indicating they were treated unfairly 'sometimes' were categorized as reporting some discrimination, while those reporting 'usually' or 'always' were categorized as reporting frequent discrimination. Those responding that they were 'never' treated unfairly for all discrimination items were used as the referent. Based on the IOM health disparities framework, the barrier domains and discrimination were grouped into one of three categories: patient-level (work and family barriers), provider-level (provider-level barriers and discrimination), and system-level (coverage, cost, or access barriers) factors.

Outcome

Our outcomes of interest are reports of delayed care, foregone care, and no preventive care in the past year. Respondents were classified as having delayed care if they indicated that in the past year they delayed getting medical care they felt they needed. Respondents were classified as having foregone care if they indicated that there was a time in the past year they needed medical care but did not get it. Respondents who indicated that it had been more than one year since they went to a doctor or clinic for regular or routine care were classified as having no preventive care in the past year. Among the 2,062 adult MCHP enrollees included in the study population, respondents were excluded if data for each of the three outcomes was missing. The final sample sizes were 2,031 observations for examining delayed care, 2,039 observations for examining foregone care, and 2,035 observations for examining lack of preventive care.

Racial/ethnic groups represented are the largest enrolled in MCHP: American Indian, Hispanic/Latino, Hmong, Somali, US-born Black, and non-Hispanic White. Respondents who reported multiple races were classified following the Office of Management and Budget's 'whole assignment, smallest group' method²³ whereby individuals who reported multiple races are assigned to the smallest group. Additional socio-demographic characteristics include: marital status (married or not married), employment status

(employed or not), educational status (high school graduate or not), sex (male or female) and age. Place of residence is classified as either metropolitan (population $\geq 250,000$) or non-metropolitan (population $< 250,000$) based on county or residence. Finally, a measure of self-reported health status was ascertained using a five-point response option from 'excellent' to 'poor.'

Analysis

We used Stata statistical software²⁴ to produce unbiased estimates from data collected through complex sampling designs.²⁵ The survey commands available in Stata account for the unequal probabilities of selection and the stratified sampling design. Variance estimates are produced using Taylor series linearization.

First, we assessed the extent to which the groups differed in background characteristics and health status that are potentially associated with access to care using cross tabulations and design-based F-tests. Then we assessed the distribution of the magnitude of reported barriers to care within each of the six domains by past year delayed care, foregone care, and no preventive care. Finally, we used a series of multivariate logistic regression models to examine the association between each of the barrier domains and the three outcomes: delayed care, foregone care, and no preventive care in the past year. For each barrier domain, the model is adjusted for socio-demographic characteristics and health status. In each model, those reporting no problems within the barrier domain serve as the reference group. All models were weighted to account for unequal probability of selection and account for the stratified sample design.

RESULTS

As shown in Table 2, 29% of the study population delayed seeking needed medical care in the past year, 14% had foregone needed medical care, and 24% had not received any preventive care in the past year. The likelihood of reporting access problems in the past year varies by demographic characteristics. Those who reported having delayed seeking needed medical care are significantly different than those who did not in terms of race/ethnicity, age, education, and self-reported health status. Those who reported having foregone needed medical care differ significantly from those who did not in terms of race/ethnicity, age, and self-reported health status. Those who reported receiving no preventive care differ significantly from those reporting receipt of preventive care in terms of age, sex, employment, and self-reported health.

The distributions of barrier domains by past year delayed care, foregone care, and no preventive care are presented in tables 3 and 4. More than half of the study participants reported system-level barriers. Specifically, 60.9% reported coverage barriers, 64.6% reported financial barriers, and 55.2% reported access barriers. Fewer participants reported provider-level barriers with 30.2% experiencing problems with providers, and 49.2% reporting experiences of discrimination. Finally, patient-level barriers were the least frequently reported with 32.6% of individuals reporting family/work barriers. Generally, past year delayed and foregone care was most prevalent among those who reported barriers across all patient, provider, and system-levels. Among those who reported big problems,

39% to 53% also reported past year delayed care and 25% to 32% reported foregone care. However, among those with no problems, only 16% to 24% reported delayed care and 5% to 14% reported foregone care (Table 4).

Odds ratios and 95% CIs for delayed, foregone, and without preventive visit by barrier domains are presented in table 5. Across all patient, provider, and system level barriers, reports of both small and big problems increased the risk of having delayed care in the past year as compared to those who reported no problems within the barrier domain. The odds of delayed care were greatest among those reporting big problems for all domains with the exception of provider-related barriers in which the odds of delayed care was greatest among those reporting small problems. Reports of big problems across all six barrier domains increased the odds of delayed care from two times for provider-related barriers (OR = 2.0, 95% CI: 1.2–3.3) to more than six times for access barriers (OR = 6.2, 95% CI: 3.8–10.2) compared to those who reported no problems. Frequent discrimination increased the odds of delayed care more than three-fold (OR = 3.3, 95% CI: 2.1–5.3) compared to those who reported no discrimination.

Compared to those who reported no problems, reporting big problems across all six barrier domains increased the risk of foregone care, while reports of small problems with coverage, access, or provider-related barriers also increased the risk of foregone care in the past year. Reports of big problems across all six barrier domains increased the odds of foregone care from 2.6 times for family/work barriers (OR = 2.6, 95% CI: 1.3–5.1) to more than seven times for access barriers (OR = 7.1, 95% CI: 3.9–13.1) compared to those who reported no problems. Frequent discrimination increased the odds of foregone care more than four times (OR = 4.4, 95% CI: 2.6–7.6) compared to those who reported no discrimination. Only frequent discrimination and reports of financial barriers as a small problem increased the risk of being without preventive care in the past year. Frequent discrimination doubled the odds of not receiving preventive care (OR = 2.2, 95% CI: 1.3–3.4) in the past year as compared to those who report no discrimination.

DISCUSSION

This study is the first to examine the magnitude of perceived barriers to care and the association with delayed or foregone care and preventive care use among low-income adults with public healthcare coverage. Reported patient-level factors (family/work barriers), provider-level factors (provider issues and discrimination), and system-level factors (coverage, financial, and access barriers) were all highly prevalent in this population. However, nearly twice as many individuals reported system-level barriers than reported patient-level barriers and provider issues. Many of the previous studies of healthcare access in underserved population have focused on a very limited and specific set of barriers.^{5,7–9} Thus, none of these studies were able to identify the relative impact of types of barriers and their relationship to healthcare access. Moreover, by grouping barriers into patient, provider, and system-level factors, we are able to see at which level of interventions aimed to improve healthcare utilization may have the greatest impact. Our observation highlights the importance of targeting system-level factors to improve access to healthcare.

Importantly, we found that any reported problems (big or small) in patient-level, provider-level, or system-level barriers to care is significantly associated with past year delays in receiving needed medical care in a low-income insured population. We also found big problems in patient-level, provider-level, or system-level barriers to care is significantly associated with past year foregone care. This is generally consistent with previous studies that have identified multiple reasons, beyond financial barriers, for having unmet medical needs in low-income populations.^{5,8,26}

Traditional access barriers (e.g., getting an appointment, transportation, limited office hours) were the most problematic for our study population in terms of delayed and foregone care. Previous studies that have examined each of these barriers individually using national data suggest that Medicaid beneficiaries are disproportionately affected by transportation, wait time in physician's offices, and getting an appointment compared to those with private insurance.⁷ Populations who are socio-economically disadvantaged area also more likely to report multiple access barriers,⁷⁻⁹ and lack of transportation is found to be associated with delayed care.⁵ Our findings connect these access barriers with both delayed and foregone care showing that even small access problems can make it difficult to meet healthcare needs.

Reports of frequent discrimination were consistently associated with both delayed and foregone care as well as preventive care use, while experiencing some discrimination was also associated with delayed care. Similar studies report a relationship between discrimination and unmet health needs^{15,17} where the number of experiences with discrimination is positively associated with a greater odds of delay in seeking medical care.²⁷ Some contrary studies have found that experiences with discrimination are not independently predictive of preventive healthcare utilization.^{18,28} However, these studies looked specifically at racial discrimination or specific preventive services. We included reports of discrimination based on socioeconomic status and gender as well, which may capture the greater breadth of experiences that can contribute to going without needed medical care and general preventive care use.

Though we found little evidence of an association between the reported barriers and past year preventive visits, discrimination had an effect on uptake of preventive care. We identified that among those who reported frequent discrimination, 31% also reported going without preventive care in the past year. The effect of discrimination on preventive care still remained a meaningful predictor of going without preventive care even when holding other important measures constant (race, age, sex, marital status, educational status, employment status, residential location and health status). This speaks to the impact of discrimination in healthcare settings and the effect those experiences have on healthcare utilization. Efforts to reduce potential for discrimination in healthcare settings may improve healthcare utilization.

The magnitude of the reported barriers does appear to matter in whether or not individuals delay and or forego needed healthcare. Though both big and small problems increase the risk of having delayed care across all barrier domains, the odds of delayed care were generally greatest among those who reported big problems. Moreover, only reports of big problems increased the odds of forgone care in all barrier domains. This suggests that simply

reducing the burden of some barriers without removing them entirely may not be sufficient to reduce unmet need for healthcare.

These study findings should be interpreted in light of limitations. First, there is temporal ambiguity due to the cross-sectional nature of the survey. Thus, we do not know whether the reported barrier preceded delaying, foregoing, or not seeking preventive care in the past year. Further, health status in particular could be a result of past year healthcare utilization. Second, barriers to care and outcomes of delayed, foregone, and lack of preventive care are all self-reported measures, which are prone to various sources of bias including recall bias or social desirability bias (might not want to admit that you haven't seen a provider). For example, respondents who had a recent big barrier problem may be more likely to recall it than those who had a big barrier 9 months ago and had a better experience more recently. However, self-reports are the only way to measure these barriers and outcomes and are important indicators of healthcare utilization. Finally, our sample may suffer from selection bias in that those who responded may have been significantly different than non-responders. We used non-response adjustment factors to the sampling weights to account for sociodemographic differences. However, we were not able to assess or account for potential differences in barriers or outcomes.

This study has several strengths. Most notably, the study questionnaire included a comprehensive set of barrier questions. Though many studies have aimed to identify factors that inhibit healthcare access in low-income populations, all have focused on a very narrow set of barriers. This study allowed us to examine a range of experiences in this population that may contribute to low healthcare utilization. Moreover, though much of the literature has identified potential barriers, this analysis showed the relationship between the magnitude of those barriers and healthcare seeking behavior. By grouping barriers into patient, provider, and system level, this study might inform interventions to target specific factors. The diverse study population allowed us to examine the healthcare experiences of several understudied communities.

Policy efforts focused on improving healthcare access to low-income populations have focused largely on expanding public insurance programs. As of October, 2015, the total number of Medicaid/CHIP enrollees is more than 71 million, approximately 20% of the US population.²⁹ Though the ACA has been successful in expanding coverage to the uninsured, additional barriers may limit the effectiveness of the ACA in reducing disparities in access.^{7,9,30} Understanding the perceived barriers and a multilevel approach to improving access to care to healthcare is critical. The findings in this study highlight the importance of addressing patient, provider, and system level factors in reducing barriers to accessing care, all of which are associated with delaying and foregoing needed medical care. However, importantly, our observations suggest that system-level barriers tend to be the most problematic in accessing care. While addressing some access barriers may be complex, others are relatively simple to address on a system, policy, or practice level. Providing clear and comprehensible coverage and cost information at each provider or plan point of contact could mitigate many system-level factors that inhibit healthcare utilization.

Conclusion

This study suggests that barriers to accessing healthcare are multiple and that having insurance may mitigate but not eliminate access problems. It is important to understand the experiences of low-income, publicly insured populations in order to target specific barriers in accessing healthcare. Patient, provider, and system-related barriers, including perceived discrimination are all associated with delaying and foregoing needed medical care. Interventions targeting these barriers, with an emphasis on system barriers, may improve healthcare access and thus improve population health. Reducing disparities in accessing needed healthcare services for underserved populations will likely require multiple-level strategies.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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References

1. U.S. Department of Health & Human Services, Office of the Assistance Secretary for Planning and Evaluation. [Accessed January 4, 2016] Health Insurance Coverage and the Affordable Care Act. 2015. Available at: <https://aspe.hhs.gov/basic-report/health-insurance-coverage-and-affordable-care-act-september-2015>
2. Bashshur RL, Homan RK, Smith DG. Beyond the uninsured: problems in access to care. *Med Care*. 1994; 32(5):409–419. [PubMed: 8182970]
3. Institute of Medicine, Board on Health Sciences Policy. Unequal treatment: Confronting racial and ethnic disparities in health care. Washington, DC: National Academy Press; 2003.
4. Mollborn S, Stepanikova I, Cook KS. Delayed Care and Unmet Needs among Health Care System Users: When Does Fiduciary Trust in a Physician Matter? *Health Serv Res*. 2005; 40(6):1898–1917. [PubMed: 16336555]
5. Diamant AL, Hays RD, Morales LS, et al. Delays and Unmet Need for Health Care among Adult Primary Care Patients in a Restructured Urban Public Health System. *Am J Public Health*. 2004; 94(5):783–789. [PubMed: 15117701]
6. Allen H, Wright BJ, Baicker K. New Medicaid Enrollees in Oregon Report Health Care Successes and Challenges. *Health Aff*. 2014; 33(2):292–299.
7. Cheung PT, Wiler JL, Lowe RA, et al. National Study of Barriers to Timely Primary Care and Emergency Department Utilization among Medicaid Beneficiaries. *Ann Emerg Med*. 2012; 60(1):5–10.

8. Kullgren JT, McLaughlin CG. Beyond Affordability: The Impact of Nonfinancial Barriers on Access for Uninsured Adults in Three Diverse Communities. *J Community Health*. 2010; 35:240–248. [PubMed: 20127505]
9. Kullgren JT, McLaughlin CH, Mitra N, et al. Nonfinancial barriers and Access to Care for U.S. Adults. *Health Serv Res*. 2012; 47(1):462–485. [PubMed: 22092449]
10. Decker SL. In 2011 nearly one-third of physicians said they would not accept new Medicaid patients, but rising fees may help. *Health Aff*. 2012; 31(8):1673–1679.
11. Decker SL. Two-thirds of primary care physicians accepted new Medicaid patients in 2011–12: a baseline to measure future acceptance rates. *Health Aff*. 2013; 32(7):1183–1187.
12. Bindman AB, Coffman JM. Calling all doctors: what type of insurance do you accept? *JAMA Intern Med*. 2014; 174(6):869–870. [PubMed: 24710694]
13. Sommers AS, Paradise J, Miller C. Physician willingness and resources to serve more Medicaid patients: perspectives from primary care physicians. *Medicare Medicaid Res Rev*. 2011; 1(2):1–18.
14. Merritt, Hawkins. 2014 Survey of Physician Appointment Wait Times and Medicaid and Medicare Acceptance Rates. 2014 [Accessed January 4, 2016] Available at <http://www.merrithawkins.com/uploadedFiles/MerrittHawkins/Surveys/mha2014waitsurvPDF.pdf>.
15. Han X, Call KT, Pintor JK, et al. Reports of Insurance-Based Discrimination in Health Care and Its Association with Access to Care. *Am J Public Health*. 2015; 103(3):S517–S525.
16. Weech-Maldonado R, Hall A, Bryant T, et al. The Relationship between Perceived Discrimination and Patient Experiences with Health Care. *Med Care*. 2012; 50(9 Suppl 2):S62–S68. 2012. [PubMed: 22895233]
17. Allen H, Wright BJ, Harding K, et al. The Role of Stigma in Access to Health Care for the Poor. *Milbank Q*. 2014; 92(2):289–318. [PubMed: 24890249]
18. Trivedi AN, Ayanian JZ. Perceived Discrimination and Use of Preventive Health Services. *J Gen Intern Med*. 2006; 21:553–558. [PubMed: 16808735]
19. Call KT, McAlpine DD, Garcia CM, et al. Barriers to Care in an Ethnically Diverse Publicly Insured Population Is Health Care Reform Enough? *Med Care*. 2014; 52(8):720–727. [PubMed: 25023917]
20. McCarthy D, How SKH, Schoen C, et al. Aiming Higher: Results from a State Scorecard on Health System Performance, 2009. [Accessed June 10, 2016] Available at: http://www.commonwealthfund.org/~media/files/publications/fund-report/2009/oct/1326_mccarthy_aiming_higher_state_scorecard_2009_full_report_final_v2.pdf.
21. Call, KT., McAlpine, D., Britt, H., et al. Partnering with Communities in Survey Design and Implementation. In: Cohen, SB., Lepkowski, JM., editors. Eighth Conference on Health Survey Research Methods. Hyattsville, MD: Department of Health and Human Services, National Center for Health Statistics; 2004. p. 61-67.
22. Minnesota Department of Human Services. Disparities and Barriers to Utilization Among Minnesota health Care Program Enrollees. 2009 Jun. [Accessed January 4, 2016] 2009. Available at http://www.shadac.org/sites/default/files/Old_files/shadac/publications/MNDHS_Disparities_Jun2009.pdf.
23. Office of Management and Budget Tabulation Working Group, Interagency Committee for the Review of Standards for Data on Race and Ethnicity. [Accessed January 4, 2016] Appendix C. Bridge Report: Tabulation Options for Trend Analysis. Provisional Guidance on the Implementation of the 1997 Standards for Federal Data on Race and Ethnicity. 2000. Available at: https://www.whitehouse.gov/sites/default/files/omb/assets/information_and_regulatory_affairs/re_guidance2000update.pdf
24. Stata [Statistical Software]. Release 11. College Station, TX: StataCorp LP;
25. StataCorp. Stata Survey Data Reference Manual, Release 13. College Station, TX: Stata Press; 2013.
26. Ahmed SM, Lemkau JP, Nealeigh N, et al. Barriers to Healthcare access in a non-elderly urban poor American population. *Health Soc Care Community*. 2001; 9(6):445–453. [PubMed: 11846824]

27. Casagrande SS, Gary TL, LaVeist TA, et al. Perceived Discrimination and Adherence to Medical Care in a Racially Integrated Community. *J Gen Intern Med*. 2007; 22:389–395. 2007. [PubMed: 17356974]
28. Hausmann LRM, Jeong K, Bost JE, et al. Perceived Discrimination in Health Care and Use of Preventive Health Services. *J Gen Intern Med*. 2008; 23(10):1679–1684. [PubMed: 18649109]
29. Centers for Medicare and Medicaid Services. [Accessed January 4, 2016] Medicaid & CHIP: October 2015 Monthly Applications, Eligibility Determinations and Enrollment Report. 2016. Available at <https://www.medicaid.gov/medicaid-chip-program-information/program-information/downloads/october-2015-enrollment-report.pdf>
30. Hall AG, Lemak CH, Steingraber H, et al. Expanding the Definition of access: It Isn't Just About Health Insurance. *J Health Care Poor Underserved*. 2008; 19:625–638. [PubMed: 18469432]

Table 1

Items within each barrier domain

PATIENT-LEVEL FACTORS	PROVIDER-LEVEL FACTORS	SYSTEM-LEVEL FACTORS
Family/work barriers <ul style="list-style-type: none"> Family or work responsibilities Availability of childcare 	Provider-related barriers <ul style="list-style-type: none"> Providers do not speak language Providers do not understand culture Providers do not understand religious beliefs Providers are not trustworthy Provider office is not welcoming Perceived discrimination <ul style="list-style-type: none"> Unfair treatment due to gender Unfair treatment due to ability to pay Unfair treatment due to being enrolled in MCHP Unfair treatment due to race/ethnicity/nationality 	Coverage barriers <ul style="list-style-type: none"> Not sure if dropped from MHCP program Do not know what health plan covers Do not know where to go for questions Financial barriers <ul style="list-style-type: none"> Worry pay more than expect Worry pay more than can afford Worry insurance won't cover care Worry medication will cost too much Access barriers <ul style="list-style-type: none"> Cannot get appointment Do not know where to go Transportation problems Cannot see preferred provider Inconvenient office hours

Characteristics of adult enrollees in Minnesota Health Care Programs by reports of past year delayed, foregone, no preventive care

Table 2

	Total Sample	Past Year Delayed Care			Past Year Foregone Care			Past Year Without Preventive Visit		
		No	Yes	p-value	No	Yes	p-value	No	Yes	p-value
Sample size, unweighted	N = 2,062	1,495	536		1,743	296		1,554	481	
Population size, weighted	N = 270,818	191,861	78,957		234,471	37,419		207,141	65,501	
Total	Column %	Row %	Row %		Row %	Row %		Row %	Row %	
		71%	29%		86%	14%		76%	24%	
Enrollee race/ethnicity										
American Indian	7%	62%	38%	<0.01	82%	18%	0.05	83%	17%	0.35
Hispanic/Latino	5%	80%	20%		91%	9%		77%	23%	
Hmong	3%	84%	16%		90%	10%		66%	34%	
Somali	3%	78%	22%		83%	17%		81%	19%	
Other foreign-born	7%	88%	12%		86%	14%		78%	22%	
US-born Black	10%	71%	29%		79%	21%		79%	21%	
White, Non-Hispanic	66%	68%	32%		88%	12%		75%	25%	
Enrollee age group										
18–29 years	31%	70%	30%	0.02	87%	13%	0.01	70%	30%	<0.01
30–44 years	25%	38%	32%		85%	15%		71%	29%	
45–64 years	33%	69%	31%		82%	18%		80%	20%	
65 + years	11%	86%	13%		97%	3%		93%	7%	
Sex										
Female	66%	71%	29%	0.87	86%	14%	0.72	68%	32%	<0.01
Male	34%	71%	29%		87%	13%		80%	20%	
Marital status										
Unmarried	60%	71%	29%	0.93	85%	15%	0.35	77%	23%	0.64
Married	40%	71%	29%		88%	12%		75%	25%	
Educational status										
Non-HS graduate	24%	81%	20%	<0.01	88%	12%	0.33	81%	19%	0.07
High school graduate	76%	68%	32%		86%	14%		74%	26%	

	Total Sample	Past Year Delayed Care			Past Year Foregone Care			Past Year Without Preventive Visit		
		No	Yes	p-value	No	Yes	p-value	No	Yes	p-value
Employment status										
Unemployed	62%	69%	31%	0.16	85%	15%	0.12	79%	21%	0.02
Employed	38%	74%	26%		89%	11%		71%	29%	
Residential location										
Non-metro	33%	71%	29%	0.91	87%	13%	0.70	74%	26%	0.47
Metro	67%	71%	29%		86%	14%		77%	23%	
Enrollee health status										
Excellent	9%	82%	18%	<0.01	92%	8%	<0.01	69%	31%	0.01
Very good	29%	72%	28%		90%	10%		70%	30%	
Good	36%	74%	26%		88%	12%		76%	24%	
Fair	19%	66%	34%		85%	15%		83%	17%	
Poor	7%	50%	50%		57%	43%		91%	9%	

Table 3

Total distribution (weighted percent) of the level of perceived barriers to healthcare among adult enrollees in MHCP 2008

	Total	Combined Total
<i>Patient-Level Factors</i>		
Family/work barriers		
No problems	67%	}33%
Small problems	22%	
Big problems	11%	
<i>Provider-Level Factors</i>		
Provider-related barriers		
No problems	70%	}30 %
Small problems	19%	
Big problems	11%	
Perceived discrimination		
No discrimination	51%	}49%
Some discrimination	32%	
Frequent discrimination	17%	
<i>System-Level Factors</i>		
Coverage barriers		
No problems	39%	}61%
Small problems	34%	
Big problems	27%	
Financial barriers		
No problems	35%	}65%
Small problems	33%	
Big problems	32%	
Access barriers		
No problems	45%	}55%
Small problems	35%	
Big problems	20%	

Table 4

Distribution (weighted percent) of the level of perceived barriers to healthcare by past year delayed, foregone, and no preventive care among adult enrollees in MHCP 2008

	Past Year Delayed Care			Past Year Foregone Care			Past Year Without Preventive Visit		
	No	Yes	p-value	No	Yes	p-value	No	Yes	p-value
<i>Patient-Level Factors</i>									
Family/work barriers									
No problems	76%	24%	<.01	88%	12%	<.01	76%	24%	0.91
Small problems	62%	38%		85%	15%		75%	25%	
Big problems	53%	47%		75%	25%		78%	22%	
<i>Provider-Level Factors</i>									
Provider-related barriers									
No problems	76%	24%	<.01	90%	10%	<.01	78%	22%	0.28
Small problems	58%	42%		80%	20%		72%	28%	
Big problems	61%	39%		72%	28%		72%	28%	
Perceived discrimination									
No discrimination	80%	20%	<.01	91%	9%	<.01	81%	19%	<.01
Some discrimination	67%	33%		88%	12%		71%	29%	
Frequent discrimination	52%	48%		68%	32%		69%	31%	
<i>System-Level Factors</i>									
Coverage barriers									
No problems	84%	16%	<.01	95%	5%	<.01	75%	25%	0.62
Small problems	66%	34%		85%	15%		79%	21%	
Big problems	58%	42%		76%	24%		75%	25%	
Financial barriers									
No problems	84%	16%	<.01	93%	7%	<.01	80%	20%	<.05
Small problems	69%	31%		88%	12%		70%	30%	
Big problems	58%	42%		77%	23%		77%	23%	

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	Past Year Delayed Care			Past Year Foregone Care			Past Year Without Preventive Visit		
	No	Yes	p-value	No	Yes	p-value	No	Yes	p-value
Access barriers									
No problems	85%	15%	<.01	95%	5%	<.01	75%	25%	0.88
Small problems	67%	33%		86%	14%		77%	23%	
Big problems	47%	53%		68%	32%		76%	24%	

Table 5

Odds of delayed, foregone, or no preventive care in the past year by level of perceived barriers to care*

	Delayed care		Foregone care		Without preventive visit	
	AOR	95% CI	AOR	95% CI	AOR	95% CI
<i>Patient-Level Factors</i>						
Family/work barriers						
No problems	1.0		1.0		1.0	
Small problems	2.1	1.3, 3.1	1.3	0.8, 2.3	1.0	0.6, 1.5
Big problems	3.0	1.7, 5.3	2.6	1.3, 5.1	0.9	0.5, 1.7
<i>Provider-Level Factors</i>						
Provider-related barriers						
No problems	1.0		1.0		1.0	
Small problems	2.3	1.5, 3.5	2.3	1.4, 3.8	1.5	1.0, 2.4
Big problems	2.0	1.2, 3.3	3.5	2.0, 6.1	1.8	1.0, 3.1
Perceived discrimination						
No discrimination	1.0		1.0		1.0	
Some discrimination	1.7	1.1, 2.6	1.2	0.7, 2.2	1.5	1.0, 2.4
Frequent discrimination	3.3	2.1, 5.3	4.4	2.6, 7.6	2.2	1.3, 3.6
<i>System-Level Factors</i>						
Coverage barriers						
No problems	1.0		1.0		1.0	
Small problems	2.6	1.7, 4.2	3.3	1.7, 6.4	0.7	0.4, 1.1
Big problems	3.6	2.2, 5.7	4.8	2.5, 9.2	1.0	0.7, 1.6
Financial barriers						
No problems	1.0		1.0		1.0	
Small problems	2.2	1.4, 3.6	1.6	0.9, 3.1	1.6	1.0, 2.6
Big problems	3.8	2.4, 6.0	3.5	2.0, 6.3	1.3	0.8, 2.1
Access barriers						
No problems	1.0		1.0		1.0	

	Delayed care		Foregone care		Without preventive visit	
	AOR	95% CI	AOR	95% CI	AOR	95% CI
Small problems	2.6	1.7, 4.0	2.9	1.6, 5.3	0.9	0.6, 1.4
Big problems	6.2	3.8, 10.2	7.1	3.9, 13.1	1.2	0.7, 2.0

* Adjusted for race/ethnicity, age, sex, marital status, educational status, employment status, residential location, and health status