Usual Source of Care as a Health Insurance Substitute for U.S. Adults With Diabetes?

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OBJECTIVE — The purpose of this study was to examine the effects of health insurance and/or a usual source of care (USC) on receipt of diabetic-specific services and health care barriers for U.S. adults with diabetes.

RESEARCH DESIGN AND METHODS — Secondary analyses of data from 6,562 diabetic individuals aged ≥18 years from the nationally representative Medical Expenditure Panel Survey from 2002 to 2005 were performed. Outcome measures included receipt of seven diabetic services plus five barriers to care.

RESULTS — More than 84% of diabetic individuals in the U.S. had full-year coverage and a USC; 2.3% had neither one. In multivariate analyses, the uninsured with no USC had one-fifth the odds of receiving A1C screening (odds ratio 0.23 [95% CI 0.14–0.38]) and one-tenth the odds of a blood pressure check (0.08 [0.05–0.15]), compared with insured diabetic individuals with a USC. Similarly, being uninsured without a USC was associated with 5.5 times the likelihood of unmet medical needs (5.51 [3.49–8.70]) and three times more delayed urgent care (3.13 [1.53–6.38]) compared with being insured with a USC. Among the two groups with either insurance or a USC, diabetic individuals with only a USC had rates of diabetes-specific care more similar to those of insured individuals with a USC. In contrast, those with only insurance were closer to the reference group with fewer barriers to care.

CONCLUSIONS — Insured diabetic individuals with a USC were better off than those with only a USC, only insurance, or neither one. Policy reforms must target both the financing and the delivery systems to achieve increased receipt of diabetes services and decreased barriers to care.

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Millions of Americans currently have diabetes, with minority groups disproportionately affected (1–3). In 2007 alone, the cost of diabetes in the U.S. was in excess of $174 billion (1). The incidence of diabetes is on the rise, and the prevalence of type 2 diabetes is expected to increase even more than projected previously (4). As researchers continue to make significant progress in the development of new diabetes screening methods and recommendations for optimal diabetic care, not all diabetic individuals receive the current minimum standards of recommended care (5,6). Furthermore, there are vast disparities in the distribution of who is most likely to receive services, with minority groups less likely to receive routine diabetic-related screenings and, thus, more likely to have higher rates of diabetes-related health complications and worse overall outcomes (5,6). Independent of patient demographic characteristics, being uninsured or without stable health insurance is associated with a higher likelihood of undetected diabetes (7). Once diabetes is diagnosed, individuals with stable health insurance have higher rates of receipt of diabetes-specific health care services (8,9).

Despite widespread evidence to support the benefits of having health insurance, millions of people in the U.S. have no stable health insurance coverage and little hope of obtaining it under the current health insurance structures (9,10). Amid stymied attempts to expand health insurance (11), some health policy makers have proposed building "medical homes" for everyone, especially patients with chronic diseases such as diabetes (12,13). Although not synonymous with the strict definitions of a medical home, having an ongoing relationship with either a primary care facility or an individual provider, a "usual source of care" (USC), is associated with better access to health care and reports of increased preventive services, decreased use of emergency services, and shorter hospital stays (14–17). For diabetic individuals, having a USC has been shown to improve the quality of their diabetes-related care (18,19). In more general analyses, a USC has proven to be more important than health insurance for receipt of timely care and regular physician visits (20). And, in some policy discussions, a USC has been proposed as an alternative to insurance coverage (21). Less is known, however, regarding whether a USC is an adequate substitute for being uninsured among diabetic patients.

The independent influences of both health insurance coverage and a USC on receipt of preventive care among diabetic individuals have been explored separately, and many previous studies of one have controlled for the other. However, to our knowledge, no studies have examined the effects of both key elements simultaneously. This gap in the literature is important to explore as medical home rhetoric has again moved the importance of a USC into the health policy reform spotlight, perhaps shifting the focus away from health insurance coverage expansion.

The primary objectives of this study were to ascertain whether having health insurance and/or a USC was associated with improved access and utilization of

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recommended health care services among U.S. diabetic individuals compared with having neither one and to determine whether having both insurance and a USC was the most beneficial. Secondarily, we aimed to discover whether one factor was consistently superior to the other in overcoming barriers to care.

RESEARCH DESIGN AND METHODS

— This study was a secondary analysis of data obtained from the Medical Expenditure Panel Survey (MEPS)-Household Component (HC) files, sponsored and made available to the public by the Agency for Health Care Research and Quality (22). The MEPS-HC survey collects data from a subsample of the National Health Interview Survey and uses a stratified and clustered random sample with weights that produce nationally representative estimates for insurance coverage and a wide range of health-related demographic and socioeconomic characteristics for the civilian, noninstitutionalized U.S. population (22). The MEPS-HC household respondents are interviewed five times over a 2-year period, and certain groups (e.g., low income, racial minorities) are oversampled.

We combined 4 years of data from the MEPS-HC (2002–2005) and weighted results according to Agency for Health Care Research and Quality guidelines for pooling data years. These 4 years were chosen because 2005 was the most current year for which data were available at the time of our study, and the 4 years spanning 2002–2005 all have a common variance structure, making it easier to ensure compatibility and comparability of our specific variables of interest within the complex sample design of the MEPS. Our analysis included all respondents aged ≥18 years who reported a diagnosis of diabetes, had positive full-year weights, reported their USC status, and had full-year insurance data (total unweighted number = 6,562; weighted average yearly population of >15 million). The MEPS 2-year overlapping panel design facilitates the combination of data from two panels to obtain data from each year (e.g., data for 2002 combine the overlapping panels of 2001–2002 and 2002–2003). Although many respondents would have been reported in 2 consecutive years, it is legitimate to pool data for individuals in consecutive years because each year of MEPS data constitutes a nationally representative sample; pooling the data produces average annual estimates.

Variables and analyses: outcome variables

We constructed several variables to assess self-reported receipt of seven recommended diabetes-specific preventative services within the past year, including A1C, lipid (LDL) screening, influenza vaccination, blood pressure check, diabetic foot examination, dilated diabetic eye examination, and a routine medical check-up. These particular items were selected because of their inclusion in the MEPS and recommendations by national organizations (2,3). Although the recommended frequency for each of these seven services varies, we selected a yearly assessment for all of them because it is recommended that diabetic patients receive each of these services at least annually. We also examined five dependent variables pertaining to compromised health care access and barriers to receiving care, including unmet medical need, unmet prescription need, unmet dental need, problems obtaining necessary specialty care, and delayed urgent care.

Primary independent variables: insurance status and usual source of care

The independent variables of primary interest were insurance coverage and usual source of care (USC). To determine USC, respondents were asked: "Is there a particular doctor's office, clinic, health center, or other place that you go to if you are sick or need advice about your health?" For health insurance coverage, respondents were asked specific questions about insurance status information month by month. Because of the importance of having stable, continuous health insurance, we created a full-year insurance variable: those with coverage during all months were considered fully insured, and all others were not fully insured. For comparative analysis, responses about USC and full-year health insurance (INS) were divided into four categories: *1*) Yes USC/Yes INS; *2*) Yes USC/No INS; *3*) No USC/Yes INS; and *4*) No USC/No INS.

Other independent variables

The conceptual model for predicting access to health care designed by Aday and Andersen (23) was adapted to identify covariables in the MEPS-HC dataset that might influence access to care. In two-tailed, χ^2 bivariate analyses to test for significant association between potential covariates and the outcomes, we found the following covariates to be significantly associated with at least one of the outcomes ($P < 0.10$): age, race/ethnicity, employment, geographic region, residence location, education, household income, primary language, health insurance type, and health status. We found strong correlations between language at home and race/ethnicity, so we excluded language. We also excluded health insurance type as not all respondents had insurance. Thus, we included the combined USC/INS as the primary independent variable plus eight other covariates in the final models.

Race/ethnicity was self determined by respondents based on standard options provided by MEPS interviewers, and we used one combined race/ethnicity variable. The household income groups were based on the MEPS-HC constructed variable that divides families into five income groups based on earnings as a percentage of the federal poverty level (FPL), which takes into account income as well as household size and composition. The five groups included poor (<100% FPL), near poor (100–<125% FPL), low income (125–<200% FPL), middle income (200–<400% FPL), and high income (≥400% FPL). We condensed age and health status into three categories to better equalize numbers between the groups. We then conducted a series of multiple logistic regression analyses to assess the adjusted associations between all independent variables and receipt of health care services among MEPS-HC respondents with diabetes.

Analytical strategy

We first examined the overall prevalence of the four USC and INS categories and the distribution among different sociodemographic subgroups (Table 1). We then conducted further bivariate analyses to determine the different rates of receipt of diabetes care and unmet health care needs among the four USC and INS groups (table not shown, available from the corresponding author upon request). Finally, we constructed a series of logistic regression models to assess associations between USC and insurance status and the utilization of preventative services (Table 2) and reports of unmet health care need (Table 3), while simultaneously controlling for potential confounders. We used SUDAAN (version 9.0.1; Research Triangle Institute, Research Triangle Park, NC) for all statistical analyses to ac-

Table 1—*Demographic characteristics of subjects with diabetes, by health insurance status and/or a USC*

	Yes INS/Yes USC	Yes INS/No USC	No INS/Yes USC	No INS /No USC
Total U.S. population*	68.0	9.6	12.8	9.6
Diabetic population (unweighted n = 6,562)	84.2	2.7	10.8	2.3
Age-group†				
≥65 years	97.1	2.1	0.5	0.3
45–64 years	78.7	2.9	16.2	2.3
18–44 years	65.3	3.9	22.5	8.3
Race/ethnicity†				
White not Hispanic	87.9	2.3	8.4	1.3
Hispanic, any race	69.5	3.1	19.7	7.6
Non-white, non-Hispanic	82.0	3.5	12.3	2.2
Employment†				
Employed	79.9	2.6	14.4	3.2
Not employed	87.0	2.8	8.5	1.8
Geographic residence†				
Northeast	89.5	0.9	8.8	0.8
Midwest	84.5	3.4	11.0	1.2
South	82.5	2.9	11.7	2.9
West	82.8	3.2	10.4	3.5
Residence location†				
MSA	85.0	3.0	9.8	2.3
Non-MSA	81.5	1.8	14.2	2.5
Education†				
Not a high school graduate	85.4	2.7	9.9	2.0
High school graduate	81.9	2.6	12.6	2.9
Household Income†‡				
High income	90.5	2.6	6.0	0.9
Middle income	84.7	2.2	11.0	2.2
Low income	80.0	3.6	13.1	3.4
Near poor	80.9	2.4	13.4	3.3
Poor	75.2	3.1	17.6	4.1
Health status†				
Excellent/very good	85.3	2.9	9.2	2.6
Good	84.4	2.8	10.6	2.2
Fair/poor	83.4	2.5	11.9	2.2
Health insurance†				
Any private	90.9	2.6	5.5	1.0
Public only	89.9	3.6	5.9	0.6
Uninsured	NA	NA	78.8	21.3

Data are weighted %. *Total in U.S. adult population from 4-year pooled sample (2002–2005) with known USC and insurance status information = 132,534 (weighted average annual population n = 286.44 million). Total in U.S. diabetic population from 4-year pooled sample (2002–2005) with known USC and insurance status information = 6,562 (weighted average annual population n = 15.20 million). To derive population estimates, each record from the MEPS was weighted according to person-level weights provided by the data collection agency. Row percentages equal 100% (approximate, owing to rounding). †$P < 0.05$ in the χ^2 analyses for overall differences between subcategories of each demographic characteristic. ‡As a percentage of the FPL. MSA, Metropolitan Statistical Area.

count for the complex sampling design of the MEPS; the α level was set at 0.05 for all multivariable analyses. In all tables provided, results have been weighted to produce estimates for the entire civilian, noninstitutionalized U.S. population of adult diabetic individuals. This study protocol was reviewed by the Oregon Health and Science University Institutional Review Board and deemed exempt.

RESULTS

Demographics

Nearly 87% of adult diabetic individuals in the U.S. reported full-year health insurance, compared with a lower percentage (77.6%) of the entire U.S. adult population. Of U.S. diabetic individuals, 95% reported having a USC compared with only 80.8% of the U.S. adult population (table not shown, available from author upon request). Among diabetic individuals, >84% reported having both a USC and insurance, whereas only 2.3% reported having neither one. In comparison, 68% of the U.S. population had both, and 9.6% had neither one. Only 13.5% of U.S. diabetic individuals fell into one of the "half-way" groups with either insurance or a USC; >22% of the overall U.S. population was in one of these two groups (Table 1).

Demographic characteristics varied among U.S. adult diabetic individuals in the four INS and/or USC groups (Table 1). For example, almost 8% of the Hispanic population reported no insurance and no USC (No INS/No USC), compared with 1.3% of white non-Hispanics ($P < 0.05$). Current employment was associated with being more likely to be uninsured and without a USC (3.2% of the employed vs. 1.8% of the unemployed; $P < 0.05$). Those at the high end of the income spectrum were more likely to have insurance and a USC (90.5%) compared with the poorest diabetic individuals (75.2%) ($P < 0.05$). Those falling into one of the half-way groups with either insurance or a USC were disproportionately younger, Hispanic, employed, living in a non-Metropolitan Statistical Area, without a high school education, and/or earnings below or near the FPL.

Receipt of health care services among U.S. diabetic individuals by insurance and USC status

Among U.S. adults with diabetes, having both health insurance and a USC was associated with the highest likelihood of receiving all seven recommended diabetic preventive services (Table 2). Those with no insurance and no USC had received the fewest services in all seven categories. After we controlled for the effects of all other sociodemographic covariates, the group of diabetic individuals with both health insurance and a USC (Yes INS/Yes USC as the reference group; odds ratio [OR] 1.00) had significantly better access to most of the diabetes-specific care services, compared with those in the three other groups without insurance and/or a USC. The uninsured group without a USC (No INS/No USC) had the lowest odds of having received services in all cases. For example, those without insur-

Table 2—*Adjusted ORs with 95% CI for predictors of diabetes preventive care among U.S. adults*

	A1C screening*	LDL screening†	Flu vaccination‡	Blood pressure check§	Foot examination‖	Dilated eye examination¶	Routine check-up#
Health insurance/USC							
Yes INS/Yes USC	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes INS/No USC	0.22 (0.12–0.40)**	0.27 (0.16–0.46)**	0.47 (0.30–0.74)**	0.17 (0.08–0.38)**	0.41 (0.28–0.61)**	0.96 (0.65–1.43)	0.34 (0.21–0.55)**
No INS/Yes USC	0.48 (0.36–0.64)**	0.41 (0.31–0.56)**	0.73 (0.58–0.91)**	0.42 (0.25–0.72)**	0.83 (0.68–1.02)	0.84 (0.67–1.07)	0.43 (0.33–0.56)**
No INS/No USC	0.23 (0.14–0.38)**	0.15 (0.10–0.24)**	0.27 (0.15–0.46)**	0.08 (0.05–0.15)**	0.25 (0.17–0.37)**	0.61 (0.40–0.92)**	0.17 (0.11–0.25)**
Age-group (years)							
≥65	1.00	1.00	1.00	1.00	1.00	1.00	1.00
45–64	1.25 (0.95–1.65)	0.69 (0.53–0.91)**	0.46 (0.38–0.55)**	1.01 (0.60–1.70)	0.99 (0.82–1.20)	0.85 (0.74–0.98)**	0.93 (0.73–1.19)
18–44	0.80 (0.56–1.16)	0.23 (0.16–0.33)**	0.27 (0.20–0.35)**	0.70 (0.39–1.26)	0.73 (0.57–0.92)**	0.66 (0.52–0.83)**	0.49 (0.36–0.68)**
Race/ethnicity							
White not Hispanic	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hispanic, any race	0.89 (0.67–1.17)	1.05 (0.75–1.47)	0.77 (0.59–0.99)**	0.93 (0.52–1.67)	0.95 (0.76–1.19)	1.16 (0.96–1.40)	1.32 (0.99–1.75)
Non-white, non-Hispanic	0.78 (0.60–1.02)	0.98 (0.76–1.27)	0.58 (0.48–0.71)**	0.81 (0.50–1.31)	0.96 (0.80–1.14)	1.24 (1.05–1.47)	1.17 (0.91–1.51)
Employment							
Employed	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Not employed	1.12 (0.86–1.44)	0.95 (0.75–1.21)	1.39 (1.16–1.68)**	1.18 (0.77–1.83)	0.97 (0.81–1.16)	1.15 (0.97–1.35)	0.94 (0.76–1.17)
Geographic residence							
Northeast	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Midwest	1.25 (0.86–1.80)	0.61 (0.42–0.89)**	0.82 (0.66–1.02)	0.66 (0.28–1.52)	1.04 (0.80–1.34)	0.92 (0.74–1.16)	0.41 (0.27–0.61)**
South	1.08 (0.79–1.49)	0.71 (0.50–1.00)	0.71 (0.59–0.84)**	0.83 (0.38–1.83)	0.94 (0.76–1.15)	0.94 (0.77–1.13)	0.48 (0.34–0.69)**
West	0.89 (0.63–1.26)	0.50 (0.33–0.77)**	0.95 (0.77–1.16)	0.46 (0.20–1.06)	0.91 (0.70–1.18)	0.74 (0.60–0.93)**	0.34 (0.23–0.52)**
Residence location††							
MSA	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Non-MSA	1.16 (0.86–1.58)	0.76 (0.58–1.01)	1.14 (0.94–1.39)	1.06 (0.64–1.74)	0.75 (0.64–0.89)**	0.99 (0.83–1.18)	0.89 (0.65–1.24)
Education							
Not a high school graduate	1.00	1.00	1.00	1.00	1.00	1.00	1.00
High school graduate	0.76 (0.59–0.98)**	0.83 (0.65–1.07)	0.84 (0.71–1.00)	0.93 (0.60–1.44)	0.84 (0.70–1.01)	0.94 (0.81–1.09)	0.81 (0.65–1.00)
Household income††							
High income	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Middle income	0.84 (0.63–1.13)	0.83 (0.61–1.12)	0.85 (0.70–1.04)	0.96 (0.59–1.56)	0.81 (0.66–0.98)**	0.92 (0.77–1.11)	0.70 (0.54–0.90)**
Low income	0.69 (0.49–0.98)**	0.72 (0.51–1.02)	0.88 (0.71–1.08)	0.81 (0.45–1.45)	0.80 (0.62–1.04)	0.97 (0.79–1.20)	0.79 (0.61–1.04)
Near poor	0.80 (0.49–1.31)	0.52 (0.32–0.86)**	0.73 (0.53–0.99)**	0.55 (0.23–1.30)	0.66 (0.49–0.88)**	1.00 (0.76–1.32)	0.63 (0.43–0.92)**
Poor	0.61 (0.43–0.88)**	0.62 (0.43–0.89)**	0.70 (0.55–0.88)**	0.80 (0.43–1.48)	0.81 (0.63–1.04)	1.22 (0.99–1.51)	0.80 (0.57–1.12)
Health status							
Excellent/very good	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Good	1.59 (1.19–2.14)**	1.23 (0.92–1.66)	0.99 (0.83–1.18)	1.58 (0.98–2.56)	1.18 (0.97–1.43)	1.19 (1.00–1.41)	0.98 (0.74–1.28)
Fair/poor	1.47 (1.13–1.91)**	1.17 (0.85–1.61)	1.16 (0.96–1.40)	1.65 (0.99–2.73)	1.28 (1.06–1.54)	1.79 (1.49–2.15)**	0.85 (0.64–1.13)

Data are adjusted ORs (95% CI). *Respondent reported receiving A1C screening within the past year. †Respondent reported having LDL cholesterol screening within the past year. ‡Respondent reported receiving influenza vaccination within the past year. §Respondent reported having their blood pressure checked within the past year. ‖Respondent reported having his or her feet checked for sores by a health care provider within the past year. ¶Respondent reported having a dilated diabetic eye examination within the past year. #Respondent reported having a routine check-up within the past year. **Statistically significant ($P < 0.05$) OR. ORs are adjusted for all other variables in the table. ††As a percentage of the FPL. MSA, Metropolitan Statistical Area.

Table 3—*Predictors of unmet health care needs among U.S. adults with diabetes*

	Unmet medical care needs*	Unmet dental care needs†	Unmet prescription needs‡	Problems with specialty referrals§	Delayed urgent care‖
Health insurance/USC					
Yes INS/Yes USC	1.00	1.00	1.00	1.00	1.00
Yes INS/No USC	1.35 (0.75–2.43)	1.82 (0.90–3.72)	1.43 (0.81–2.55)	1.44 (0.85–2.45)	1.15 (0.66–1.99)
No INS/Yes USC	2.76 (2.02–3.78)¶	2.55 (1.81–3.59)¶	1.99 (1.48–2.69)¶	1.66 (1.21–2.28)¶	1.50 (1.12–2.00)¶
No INS/No USC	5.51 (3.49–8.70)¶	2.93 (1.86–4.61)¶	3.67 (2.39–5.64)¶	3.52 (1.61–7.68)¶	3.13 (1.53–6.38)¶
Age-group					
≥65 years	1.00	1.00	1.00	1.00	1.00
45–64 years	2.33 (1.68–3.22)¶	1.88 (1.42–2.51)¶	1.59 (1.23–2.05)¶	1.54 (1.24–1.92)¶	1.52 (1.20–1.93)¶
18–44 years	2.59 (1.65–4.06)¶	2.11 (1.44–3.08)¶	1.63 (1.12–2.38)¶	2.32 (1.58–3.42)¶	1.58 (1.11–2.27)¶
Race/ethnicity					
White (not Hispanic)	1.00	1.00	1.00	1.00	1.00
Hispanic (any race)	0.42 (0.28–0.62)¶	0.62 (0.42–0.93)¶	0.47 (0.31–0.71)¶	1.47 (1.12–1.92)¶	1.49 (1.14–1.95)¶
Non-white (non-Hispanic)	0.57 (0.41–0.78)¶	0.95 (0.71–1.27)	0.70 (0.52–0.96)¶	1.46 (1.15–1.85)¶	1.27 (0.99–1.63)
Employment					
Employed	1.00	1.00	1.00	1.00	1.00
Not employed	1.11 (0.80–1.55)	1.18 (0.86–1.62)	0.90 (0.68–1.20)	1.11 (0.87–1.42)	1.27 (0.96–1.68)
Geographic residence					
Northeast	1.00	1.00	1.00	1.00	1.00
Midwest	1.09 (0.66–1.81)	1.49 (0.95–2.33)	1.18 (0.76–1.83)	0.69 (0.51–0.94)¶	1.26 (0.89–1.80)
South	1.26 (0.83–1.93)	1.37 (0.90–2.08)	1.31 (0.89–1.93)	0.66 (0.52–0.85)¶	1.21 (0.89–1.64)
West	1.54 (0.97–2.47)	1.21 (0.78–1.89)	1.36 (0.87–2.11)	0.89 (0.67–1.19)	1.35 (0.97–1.88)
Residence location					
MSA	1.00	1.00	1.00	1.00	1.00
Non-MSA	0.81 (0.61–1.08)	0.84 (0.61–1.15)	0.89 (0.67–1.17)	0.91 (0.73–1.15)	1.13 (0.91–1.40)
Education					
Not a high school graduate	1.00	1.00	1.00	1.00	1.00
High school graduate	0.99 (0.76–1.29)	0.97 (0.73–1.30)	1.03 (0.82–1.30)	0.97 (0.77–1.23)	0.92 (0.73–1.15)
Household income#					
High income	1.00	1.00	1.00	1.00	1.00
Middle income	1.53 (1.04–2.25)¶	1.72 (1.16–2.53)¶	1.88 (1.39–2.54)¶	0.93 (0.73–1.20)	1.27 (0.96–1.69)
Low income	1.32 (0.86–2.02)	1.98 (1.33–2.97)¶	2.25 (1.64–3.10)¶	0.86 (0.63–1.18)	1.06 (0.77–1.46)
Near poor	2.03 (1.21–3.39)¶	1.75 (1.05–2.92)¶	2.49 (1.63–3.81)¶	1.05 (0.71–1.57)	1.07 (0.72–1.58)
Poor	1.96 (1.25–3.08)¶	2.15 (1.41–3.28)¶	2.70 (1.86–3.93)¶	1.11 (0.80–1.54)	1.03 (0.76–1.41)
Health status					
Excellent/very good	1.00	1.00	1.00	1.00	1.00
Good	1.42 (1.01–2.01)¶	0.96 (0.66–1.39)	1.63 (1.11–2.39)¶	0.91 (0.66–1.25)	1.42 (1.01–2.01)¶
Fair/poor	1.83 (1.34–2.50)¶	1.80 (1.30–2.48)¶	2.70 (1.88–3.88)¶	1.43 (1.07–1.92)¶	1.83 (1.34–2.50)¶

Data are adjusted ORs (95% CI). *Respondent reported being unable to get medical care when needed within the past year. †Respondent reported being unable to get dental care when needed within the past year. ‡Respondent reported being unable to get prescription medications when needed within the past year. §Respondent reported a problem in getting a specialty referral when needed within the past year (only among those who were referred to a specialist in the past year, $n = 3,353$). ‖Respondent reported not always getting timely urgent care when needed within the past year (only among those who reported having an urgent need for care in the past year, $n = 2,766$). ¶Statistically significant ($P < 0.05$) OR. ORs are adjusted for all other variables in the table. #As a percentage of the FPL. MSA-Metropolitan Statistical Area.

ance and a USC were only one-fifth as likely to have received A1C screening (adjusted OR 0.23 [95% CI 0.14–0.38]), one-tenth as likely to have had their blood pressure checked (0.08 [0.05–0.15]), and one-fourth as likely to have had their feet checked by a health care provider (0.25 [0.17–0.37]), compared with diabetic individuals who had both insurance and a USC. None of the sociodemographic covariates showed this consistency of significant differences across all seven measures.

When we examined the two half-way groups with either insurance or a USC, those with only insurance or only a USC were less likely to have received services compared with the reference group with both insurance and a USC. In comparisons between just the two half-way groups, diabetic individuals with only a USC had higher rates of five of the six recommended services. Although not significant, diabetic individuals with only insurance appeared to fare slightly better than those with only a USC in receipt of dilated eye examinations (Table 2).

Having both health insurance and a USC was also optimal for gaining access to necessary health care services (Table 3). In almost all comparisons, diabetic individuals with both health insurance and a USC (Yes INS/Yes USC as the reference

group; OR 1.00) had significantly fewer reports of unmet health care need in the most recent 12 months compared with those in the three other groups without insurance and/or without a USC. The group of uninsured diabetic individuals without a USC (No INS/No USC) had the worst access in all cases. For example, being uninsured without a USC was associated with 5.5 times the odds of have an unmet medical need (OR 5.51 [3.49–8.70]), >3 times the odds of have delayed urgent care (3.13 [1.53–6.38]), and >3 times the odds of unmet prescription needs (3.67 [2.39–5.64]).

When the half-way groups with either insurance or a USC were compared with the reference group (Yes INS/Yes USC), those with only insurance but no USC did not have significantly different odds of experiencing an unmet medical need, unmet dental care need, unmet prescription needs, or problems with specialty referral and delayed urgent care. Diabetic individuals with only a USC (no insurance) were significantly more likely to experience unmet need compared with the reference group in all five cases (Table 3). In reviewing the association between unmet needs and other covariates, those aged <65 years were more likely to report unmet needs, compared with those aged ≥65 years. Racial/ethnic disparities were also noted in all five models, but the patterns were inconsistent.

CONCLUSIONS — This study contributes to the large body of literature about the importance of health insurance coverage. It also confirms more recent reports about how a USC is independently associated with better receipt of diabetes-specific services. Beyond the approaches taken in past research, this study not only addresses these two individual factors, but it also uses a novel approach to examine the combined effects of having a USC and/or health insurance. Among U.S. adults with diabetes, having both insurance and a USC was a far superior option compared with having only a USC, only health insurance, or neither one. In every case, uninsured diabetic individuals without a USC had the highest risk for not receiving services. Interestingly, the results were more mixed when the two half-way groups with either insurance or a USC were compared. Those with only a USC fared better in receipt of recommended diabetes-specific care, appearing more similar to the reference group; however, those with only insurance (and no USC) were closer to the reference group in reporting fewer unmet needs. The mixed patterns of association when health insurance was compared with a USC illustrate the importance of measuring access to all health care services and not just disease-specific care when one is assembling "report cards" on the progress of diabetic care. If we had only examined diabetes-specific services, as in Table 2, we might have mistakenly concluded that having a USC provides diabetic individuals with better access to health care services than health insurance, thus suggesting that having a USC or further improving the delivery system with new medical homes might be a good substitute for health insurance. However, Table 3 demonstrates the importance of also having stable health insurance coverage for this population.

It is clear that diabetic individuals need both continuous health insurance coverage and a stable USC. However, in the current political environment, incremental solutions are being proposed that may trade one for the other. The aim of some policies, such as expanding the number of community health centers or building medical homes for all patients, is to improve access to a USC while leaving thousands of Americans without insurance. Other proposals expand insurance coverage without a mechanism to ensure adequate provider capacity (24,25). Findings from this study call into question some proposals to build community health centers while leaving millions uninsured or others that mandate health insurance coverage without enacting major workforce reforms. The ideal long-term approach to improving access to healthcare for diabetic individuals includes expanding health insurance coverage while, at the same time, ensuring access to comprehensive and continuous primary care services. Access to health insurance and/or a USC is not randomly distributed and can sometimes appear counterintuitive (Table 1). For example, those employed were less likely to have insurance and a USC, illustrating an eroding employer-sponsored insurance system and the likelihood that people working may have less time to establish a USC. Ideally, this type of sociodemographic information can assist efforts aimed to increase the number of insured diabetic individuals while, at the same time, ensuring that all persons with diabetes have a USC.

Our results should be considered in the context of several limitations. First, secondary analyses rely on the methods used to gather information about households. For example, we could not revise MEPS-HC questions that pertained to the objectives of our particular study. Second, as with all observational studies that rely on self-report, response bias remains a possibility. Third, although the MEPS-HC is representative of the civilian, noninstitutionalized U.S. population, the format of our analyses limits causal inferences. Finally, a USC is not synonymous with a medical home, which could not be comprehensively evaluated with the MEPS-HC dataset.

In the current political climate, it seems more feasible to take a two-pronged approach: provide a usual source of care for some populations while extending health insurance coverage to others. In fact, current efforts to expand medical homes have focused on patients with chronic diseases such as diabetes, whereas private insurers prefer to expand their coverage to person without chronic disease and to exclude preexisting conditions. For diabetic individuals, a USC and health insurance, together, are associated with the highest likelihood that they will have optimal access to all necessary healthcare services. Thus, it is crucial that we simultaneously strengthen both the financing and delivery of healthcare services while, at the same time, generate forces to maximize the synergy between these two important aspects to achieve access to needed care.

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