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Access to US primary care physicians for new patients concerned about smoking or weight

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Abstract

Tobacco smoking and obesity are leading causes of preventable morbidity and mortality in the US, and primary care physicians are the main source of preventive care. However, it is not known whether access for new patients is affected by an expression of interest in preventive care. In a 2015 audit, we called US primary care physicians' offices to request appointment information regarding new patient physicals for simulated patients. Simulated patients were differentiated by smoking concerns (N=907), weight concerns (N=867), or no health concerns ("healthy" patients; N=3,561). Additionally, patient profiles varied by race/ethnicity, sex, and insurance type. We also examined whether access differed in states that expanded Medicaid under the Affordable Care Act. We found that physicians' offices were no more likely to offer appointments to patients with smoking concerns than to healthy patients (54% vs. 55%; p-value=0.56), and patients with smoking concerns were offered fewer appointments than patients with weight concerns (54% vs. 62%, p-value<0.01). In analyses adjusted for covariates, smoking concerns did not improve appointment offers for any patient group, and reduced Medicare patients' offers in Medicaid expansion states by 9 percentage points relative to healthy patients (95% CI: -16, -2). Health concerns did not statistically significantly affect waits-to-appointment. Our results suggest that patients with smoking concerns are no more likely to be offered new patient appointments than those with no health concerns. The greater likelihood of appointment offers for some patients with weight concerns is encouraging for obesity prevention and management.

INTRODUCTION

In the United States, cigarette smoking accounts for over 480,000 deaths and more than \$300 billion in direct medical costs and lost productivity annually, making it the leading cause of preventable morbidity and mortality (Centers for Disease Control and Prevention (CDC), 2016). Tobacco smoking cessation interventions have a US Preventive Services Task Force (USPSTF) grade of A, which denotes a "high certainty that the net benefit is substantial" (USPSTF, 2015). Over two-thirds of American adults are overweight or obese (National Center for Health Statistics (NCHS), 2017), and the USPSTF assigns obesity

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screening and management a grade of B, denoting a “high certainty of moderate net benefit or moderate certainty of moderate to substantial net benefit” (USPSTF, 2016). Additionally, the National Academy of Medicine recommends tobacco cessation, physical activity, and nutrition counseling for chronic disease prevention (Dzau et al., 2017). Despite this, high-value preventive care, especially for tobacco cessation counseling, remains underprovided (Barnett et al., 2017).

Primary care physicians are the main source of preventive care in the US, including clinically- and cost-effective smoking cessation interventions (e.g., Kotz et al., 2014; Starfield et al., 2005). Policy actions, such as Medicaid expansion under the Affordable Care Act (ACA), seek to improve access to both primary and preventive care (Davis et al., 2011). Currently, it is unknown whether access for new primary care patients is affected by an indication of potential interest in preventive care. To address this question, we conducted a national audit (simulated patient study) of primary care physicians’ offices.

Audits have been used to examine access and disparities in many markets (e.g., Bertrand and Mullainathan, 2004; Ge et al., 2016). By experimentally controlling for patient characteristics, health care audits avoid the major limitations of other methodologies. These include selection and social desirability biases in surveys, and the inability to fully control for differences in health and treatment preferences in utilization studies (Institute of Medicine (IOM), 2002). Among audits of access for patients with specific health needs, few include a healthy control group. Of those that do, a Canadian audit found that patients with diabetes and low back pain were more likely to be offered new patient appointments than patients expressing no health concerns (Olah et al., 2013). In contrast, a US audit found that offers to patients with hypertension did not differ substantially from offers to patients with no health concerns (Rhodes et al., 2014). This study examines whether appointment offers to new primary care patients who mention concerns about smoking or weight differ from offers to patients with no health concerns (“healthy” patients).

METHODS

Data are from an annual, nationwide audit (Sharma et al., 2015; Sharma et al., 2017; Tinkler et al., 2017). Since 2013, trained research assistants (RAs) have called primary care physicians’ offices on behalf of a purported aunt or uncle requesting information about the earliest available new patient appointment for a physical exam. In the ongoing study, RAs do not mention health but, if asked, state that the patient is “generally healthy but it is time for a checkup”. Simulated patients differ by race/ethnicity, sex, and insurance type (Medicaid, Medicare, private insurance through a job, and self-pay/uninsured). Race/ethnicity is implied by characteristically black, white, and Hispanic names developed from the literature on racially and ethnically distinctive first and last names (Bertrand and Mullainathan, 2004; Lavender, 1988; Word and Perkins, 1996). The ongoing study utilizes 72 healthy patient profiles (3 female and 3 male names for each of the 3 racial/ethnic groups, and 4 insurance types). In 2015, profiles with smoking or weight concerns were also used.

Conceptual framework

The IOM (2002) classifies differences in healthcare as arising from (i) patient preferences or clinical appropriateness and need; (ii) health system related factors; and (iii) discrimination. Only differences due to (ii) and (iii) are regarded as disparities. In our ongoing study, patients are healthy, and differences in access represent disparities under the IOM framework. The comparisons between healthy patients and those with smoking or weight concerns in this paper assess how needs and preferences affect access to primary care physicians.

Disparities may also arise due to financial considerations. Sloan, Mitchell, and Cromwell (1978) postulate that physicians are less likely to accept patients who generate less revenue and impose higher costs. Revenue depends on reimbursement and coverage, and factors such as patient complexity contribute to costs. Reimbursement varies by insurance type, and Medicaid patients, in particular, face limited access due to low physician payments (Decker, 2012; Sharma et al, 2017). Post-ACA federal regulations mandate coverage of some preventive care for smoking (4 counselling sessions, 90 days of medication, and up to two quit attempts per year) for Medicaid expansion, Medicare, and non-grandfathered private insurance plans. Under non-expansion Medicaid, coverage varies greatly at the state level (American Lung Association, 2018; Singleterry et. al, 2015). Interventions for obesity include counselling, medications, and bariatric surgery. In 2014, Medicaid programs in 14 states covered obesity drugs, 47 states (and Washington, DC) covered bariatric surgery under some circumstances, and 28 states covered some nutritional counselling (Petrin et al, 2014). Post-ACA federal regulations require obesity screening and management coverage by non-grandfathered private health plans (Kaiser Family Foundation, 2015). Medicare covers bariatric surgery for qualified patients, excludes coverage of pharmaceuticals for obesity, and covers obesity counselling under restrictive rules with low reimbursement (Andrews, 2015).

Following Medicaid expansion, Medicaid enrollment increased more rapidly in expansion states than in non-expansion states (Rudowitz, Snyder, and Smith, 2015). Medicaid policy creates spillover and substitution effects for patients with other insurance coverage (e.g., Sharma et al, 2017; Antonisse, et al, 2017). For example, increased demand from newly insured patients may exacerbate physician shortages. On the other hand, increased emphasis on preventive care under expanded Medicaid may spill over into prioritization of all patients with preventive care needs. Therefore, some of our analyses examine expansion states separately from non-expansion states.

Physician sample

Call lists each year comprise a national, random, unstratified sample from the latest American Medical Association's Physician Masterfile. The Physician Masterfile is a comprehensive listing of licensed US physicians and is frequently used in analyses of the US healthcare system (Association of American Medical Colleges, 2016; Donelan et al., 2013). We restrict our lists to physicians with primary specialties in family medicine, general practice medicine, internal medicine, general practice, and urgent care. Family medicine and internal medicine comprise 95% of the samples in nearly equal parts.

The ongoing study employs an overlapping cohorts design (i.e., the 2013 physician cohort was assessed in 2013 and 2014; the 2014 cohort was assessed in 2014 and 2015, and so on). The new list each year ensures that our sample remains representative of US primary care physicians. The overlap allows us to distinguish changes in access over time from any potentially confounding effects of the changing sample. Analysis of 2014–2016 data found no statistically significant differences in appointment availability between any two physician cohorts called in the same year. Therefore, the healthy group data utilized in this paper combines the two physician cohorts audited in 2015. Appendix A describes how patient profiles were assigned to physicians, as well as how physician eligibility and reachability were determined. Like many earlier healthcare audits, the response rate was 100% of reachable and eligible physicians. Our physician sample (mean age=54, female=35%, osteopathic physicians=12%) is demographically similar to active US physicians (Young et al., 2014). Calls were completed between July 28th and December 15th of 2015.

Call protocol

Using a detailed script that has been described previously, RAs claim to be calling for an aunt or uncle who has moved to the physician's area and is seeking a new patient physical exam (Sharma et al., 2015). This call protocol makes it plausible that the RAs lack detailed information about prospective patients and permits them to represent patients with demographic characteristics different from their own. The smoking/weight scripts suggest a possible interest in preventive care. They begin:

My aunt (uncle) NAME has recently moved to your area, she (he) is worried about her (his) smoking (weight) and I am helping her (him) find a doctor there. Could you please tell me when the earliest appointment for a physical exam is available with Dr. NAME?

Physicians' offices rarely (<1%) requested specifics about smoking or weight but, if asked, RAs stated that the patient consumed "half a pack a day," or weighed an amount consistent with a body mass index of 35 for a man or woman of average US height. The patients' general insurance type was requested by 34% of physicians' offices, while 7% requested detailed insurance information (insurance carrier, policy number, etc.). If a physician's office did not request insurance information, RAs asked whether the physician accepted the patient's insurance type.

Protection of human subjects

The deception involved in simulated patient studies raises ethical concerns. We mitigate risks to physicians, their office staff, and their patients by instructing RAs to request information but not to make actual appointments. We minimize the burden on physicians' offices by determining reachability, eligibility, and appointment availability in a single call. Random assignment of each physician to a single patient profile protects individual physicians' offices against perceptions of bias while still permitting evaluation of access to care at the systemic level. This study was approved and overseen by the Institutional Review Board at the corresponding author's institution.

Measures

Outcome measures are the probability of an appointment offer and the wait-to-appointment. An offer is valid if the physician (or an alternate provider in the same practice) accepts at least one plan from the patient's insurance type and provides a potential date for the appointment. The wait-to-appointment is the difference in calendar days between the offer date and the call date.

Statistical analysis

We used two-sided t-tests to compare unadjusted rates of appointment offers and waits-to-appointment between patient groups with different health concerns. A logistic regression was used to compute the national effects of health concerns, insurance, race/ethnicity, and sex on the probability of an appointment offer. Logistic analysis was repeated for Medicaid expansion and non-expansion states. Robust standard errors clustered by state were used in computations of confidence intervals and statistical significance. To control for study-related factors, we included indicator variables for call weekday and month, as well as individual RAs. Waits-to-appointment were highly skewed, and a Box-Cox analysis (Box and Cox, 1964) indicated that a logarithmic transformation was appropriate. Linear regression analysis of log-transformed wait-to-appointment data found no statistically significant differences based on health concerns, and these results are not reported. Data analysis was conducted using SAS Enterprise Guide 6.1 (SAS Institute, 2013) and STATA 14 (Stata Corp, 2015).

RESULTS

Table 1 shows probability of appointment offers for US patients in 2015 based on health concerns, and by insurance type and patient demographics. For example, physicians' offices were no more likely to offer appointments to patients with smoking concerns than to healthy patients (54% vs. 55%; p -value=0.56), and the probability of an appointment offer for those with smoking concerns was lower than for those with weight concerns (54% vs. 62%, p -value<0.01).

Figure 1 shows wait times categorized by weeks to appointment for those patients who received an offer of appointment. Approximately one-third of patients were offered an appointment within one week, and one-third were offered waits of more than four weeks. Patient health concerns did not statistically significantly affect waits-to-appointment.

Table 2 reports results of regression analyses of the effects of patient health, insurance, and demographic characteristics on appointment offers compared to a reference group of privately-insured white males with no health concerns. The predicted probability of an appointment offer for the reference group was 60% nationally, 59% in states that expanded Medicaid, and 62% in states that did not expand Medicaid.

Relative to the reference group, Medicare patients with smoking concerns were 9 percentage points (95% CI: -16, -2) less likely to be offered appointments in expansion states. The effect of smoking was not statistically significant for any other group either nationally, in expansion states, or in non-expansion states. In contrast, weight concerns among Medicare

patients led to an 8 percentage-point increase (95% CI: 2, 15) in appointment offers nationally and an 11 percentage-point increase (95% CI: 1, 21) in non-expansion states. Privately-insured patients with weight concerns saw a 9 percentage-point increase (95% CI: 1, 17) in appointment offers nationally, and a 10 percentage-point increase (95% CI: 0, 20) in expansion states.

Medicaid coverage decreased appointment offers by 21 percentage points (95% CI: -27, -15) nationally, by 20 percentage points (95% CI: -28, -11) in states that expanded Medicaid, and by 24 percentage points (95% CI: -33, -15) in states that did not expand Medicaid. However, in expansion states, the Medicaid disadvantage was partially offset for patients with weight concerns (12 percentage points (95% CI: 4, 19)). Medicare coverage also led to a 6 percentage-point (95% CI: 0, 12) increase in appointment offers in expansion states. Hispanic women received fewer appointment offers in non-expansion states (-11 percentage points (95% CI: -21, -1)). Self-pay patients were not at a disadvantage in receiving appointment offers.

We used the regression results in Table 2 to directly compare offers of appointments to patients with smoking concerns to those with weight concerns (not shown). Nationally, Medicare patients with weight concerns were more likely to be offered appointments than those with smoking concerns (p -value<0.01). In expansion states, patients with smoking concerns were less likely to be offered appointments than patients with weight concerns if they had Medicare (p -value<0.01) or Medicaid (p -value<0.01) coverage. Differences in appointment offers between patients with smoking or weight concerns were not statistically significant for any insurance type in non-expansion states.

A sensitivity analysis found that more comprehensive Medicaid coverage of tobacco cessation and obesity management at the state level did not increase appointment offers to Medicaid patients with smoking or weight concerns. A sensitivity analysis controlling for physician characteristics (age, sex, experience, osteopathic or allopathic physician, solo or group practice) did not alter the results of the regressions.

DISCUSSION

This paper examines whether an indication of interest in preventive care for smoking or weight concerns improves access to primary care physicians for new patients. We found that patients expressing concerns about smoking were no more likely to be offered appointments than the healthy. This is unfortunate because motivation to quit smoking is often transitory and an important predictor of success (Caponnetto and Polosa, 2008). Furthermore, efforts to raise awareness of tobacco risks and promote cessation are proving effective. As of 2015, 59% of US adults who had ever smoked had quit (Babb et al, 2017). In contrast, expressing a weight concern did result in increased appointment offers to Medicare and privately-insured patients nationally, to Medicaid and privately-insured patients in expansion states, and to Medicare patients in non-expansion states.

The finding that patients with weight concerns often have an advantage in access compared to those with smoking concerns may indicate a deficiency in current practices because the

potential health benefits from smoking cessation interventions are likely to have greater net benefits than obesity screening and management (USPSTF, 2015; USPSTF, 2016). Furthermore, patients with smoking concerns have an unambiguous need for preventive care, but expressing a weight concern is potentially ambiguous and less urgent depending on the extent of excess weight.

While our research does not identify the reasons underlying the difference in access between patients with the two health concerns, one possible cause is that the stigma associated with smoking is stronger than that associated with being overweight. People who smoke and the obese are both stigmatized (e.g., Chapple et al., 2004; Puhl and Heuer, 2009). However, two-thirds of Americans are currently overweight or obese but only 15% smoke, down from 42.4% in 1965 and 24.7% in 1995 (CDC, 2016, 2017; NCHS, 2017). In addition to being less prevalent, smoking is now associated with low socioeconomic status and mental illness (Gfroerer et al., 2013; Pernenkil et al., 2017). Despite reductions in aggregate smoking rates, success rates for individual cessation attempts are low (Babb et al, 2017), and physicians may believe that their time is better spent on interventions with greater probability of success.

Physicians and practice managers may establish formal or informal policies regarding which insurance types and health conditions to prioritize. Bias in healthcare and other settings may be subconscious. In an opinion article regarding bias in hiring, Mullainathan recounts responses to the results of a labor market audit (Bertrand and Mullainathan, 2004). “Many human-resources managers told us they were stunned. They prized creating diversity in their companies, yet here was evidence that they were doing anything but. How was that possible?” (Mullainathan, 2015). The source of any subconscious bias in appointment offers may be office staff or physicians. Appointments are made by office staff, including specialized schedulers, and may reflect the preferences of these staff rather than physicians. On the other hand, physicians’ attitudes are affected by patient characteristics (e.g., van Ryn and Burke, 2000) and office staff may adapt to a physician’s preferences, which are then reflected in appointment offers. Web-based scheduling is expanding (Zhao et al, 2017), and if this practice becomes prevalent for new patient appointments, the role of biases in scheduling may be reduced.

This study finds Medicaid patients to be at an overall disadvantage compared to the privately insured, including in expansion states. Medicaid patients’ difficulties in accessing care, including preventive care, are well-documented (e.g., Agency for Healthcare Research and Quality, 2014). The Medicaid disadvantage is particularly troubling in the tobacco-cessation context because 29% of Medicaid patients smoke compared to 13% of privately-insured adults (CDC, 2015). The finding that the Medicaid disadvantage is ameliorated for patients with weight concerns in expansion states suggests that Medicaid expansion has the potential to reduce some of the disparities in access to preventive care, but it is unclear why patients with smoking concerns saw no benefit.

More generous reimbursement and coverage may account for increased appointment offers to Medicare and privately-insured patients with weight concerns since physicians are sensitive to reimbursements, particularly for non-urgent needs (Clemens and Gottlieb, 2014).

The Medicaid program has historically suffered low reimbursement rates which has been found to limit access (Decker, 2012; Sharma et al., 2017). Prior research suggests that states with better Medicaid coverage of tobacco cessation have higher rates of smoking cessation (e.g., Greene et al., 2014), but sensitivity analyses on our data found that access to new patient appointments for patients with smoking concerns was no better in states with better Medicaid coverage of tobacco cessation services. This suggests that the improvement in smoking cessation in states with better Medicaid coverage is not driven by access to new patient appointments.

It is well documented that uninsured patients receive less preventive care compared to those with private insurance (Bandi et al., 2012; Fox and Shaw, 2015). However, in this study, self-pay patients were not disadvantaged when seeking new patient appointments. Our results suggest that uninsured patients' low usage of preventive care does not arise due to primary care physicians' unwillingness to accept new uninsured patients, but rather due to patient factors, including affordability.

Limitations

This research has several limitations. We were unable to contact all the physicians on the initial call list even after a systematic internet search for current phone numbers. It is likely, however, that these physicians are also inaccessible to prospective new primary care patients. We may have overestimated access because we regard an offer as valid if a physician accepts any plan of a particular type, but some plans have narrow networks. On the other hand, physicians' offices may have offered more appointments to actual patients able to provide detailed insurance and health information. Our requests for appointments for physical exams could have reduced physician offices' willingness to prioritize patients with health concerns.

Differences between expansion and non-expansion states cannot be directly attributed to the expansion decision and also reflect health, socio-economic, political and other differences between the states. Policy changes relating to primary and preventive care under the ACA were relatively new in 2015 and it is possible that not all physicians' offices were familiar with the new environment. Our study was insufficiently powered to test whether the effects of health concerns on appointment offers differed between expansion and non-expansion states on patients with different insurance types.

CONCLUSIONS

Tobacco smoking cessation is widely recognized as a key element of strategies to improve population health, and primary care providers play a crucial role in ensuring patient access to cessation therapies. We find that, in the search for a new physician, patients with smoking concerns are no more likely to be offered appointments than healthy patients, and are often less likely to be offered an appointment than patients who express concerns about weight. While the findings regarding people who smoke are troubling, the greater likelihood of appointment offers for some patients with weight concerns is encouraging in the context of obesity prevention and management.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1.
Wait-to-appointment times for US patients with appointment offers by health concern (2015)

Table 1.

Probability of an appointment offer for US patients by health concern (2015)

Patient group	Percent offered appointment (N)			P-values ⁺		
	Healthy	Smoking	Weight	Smoking vs. Healthy	Weight vs. Healthy	Smoking vs. Weight
All	55 (3561)	54 (907)	62 (867)	0.563	<0.01	<0.01
Insurance						
Medicaid	37 (911)	33 (237)	43 (208)	0.269	0.136	0.040
Medicare	64 (853)	59 (211)	72 (234)	0.178	0.016	<0.01
Self-pay	60 (912)	58 (225)	61 (210)	0.675	0.751	0.563
Private	60 (885)	66 (234)	69 (215)	0.076	0.011	0.489
Demographics						
Women	55 (1798)	53 (451)	61 (434)	0.431	0.019	0.013
Men	55 (1763)	55 (456)	62 (433)	0.975	0.007	0.027
Black	56 (1189)	54 (283)	64 (282)	0.683	0.010	0.018
Hispanic	53 (1149)	53 (324)	59 (299)	0.957	0.066	0.147
White	56 (1223)	54 (300)	62 (286)	0.566	0.062	0.053

Notes:

⁺Two-sided t-tests for difference between patients with different health concerns.

Table 2.

Probabilities of appointment offers for US patients nationally, and in expansion and non-expansion states (2015)

Patient group	Percentage point change in probability of appointment offer ¹ (95% CI)		
	National ² (N=5335)	Expansion ^{2,3} (N=3350)	Non-expansion ^{2,4} (N=1985)
Insurance			
Medicaid	-21 (-27,-15) ***	-20 (-28,-11) ***	-24 (-33,-15) ***
Medicare	4 (-1,8)	6 (0,12) **	1 (-6,7)
Self-Pay	0 (-5,4)	2 (-4,8)	-3 (-10,4)
Demographics			
Female	3 (-2,7)	1 (-4,6)	4 (-3,12)
Black	2 (-3,6)	1 (-5,7)	1 (-6,8)
Hispanic	0 (-5,4)	-1 (-6,4)	0 (-6,6)
Black female	-4 (-12,4)	-2 (-11,7)	-6 (-22,9)
Hispanic female	-5 (-12,1)	-1 (-9,6)	-11 (-21,-1) **
Health concerns			
Weight			
Medicaid	5 (-1,10)	12 (4,19) ***	-6 (-14,3)
Medicare	8 (2,15) **	7 (-2,15)	11 (1,21) **
Private	9 (1,17) **	10 (0,20) **	7 (-8,21)
Self-pay	0 (-5,6)	-4 (-10,2)	7 (-4,18)
Smoking			
Medicaid	-5 (-13,3)	-3 (-11,5)	-7 (-23,9)
Medicare	-6 (-11,0)	-9 (-16,-2) **	0 (-10,9)
Private	6 (-3,14)	6 (-7,18)	6 (-5,17)
Self-pay	-2 (-10,6)	-2 (-11,7)	-2 (-16,13)

Notes:

¹Reference category: Privately-insured white male with no specific health concerns. Predicted probability of appointment offers for the reference group was 60% nationally, 59% in states that expanded Medicaid, and 62% in states that did not expand Medicaid.

²Computed from a logistic regression that controls for study-related factors (indicator variables for day of the week, month when call was completed, and individual callers).

** Statistically significant at the 5% level.

*** Statistically significant at the 1% level.

³Expansion states: AK, AZ, AR, CA, CO, CT, DE, DC, HI, IL, IN, IA, KY, LA, MD, MA, MI, MN, MT, NV, NH, NJ, NM, NY, ND, OH, OR, PA, RI, VT, WA, WV.

⁴Non-expansion states: AL, FL, GA, ID, KS, ME, MS, MO, NE, NC, OK, SC, SD, TN, TX, UT, VA, WI, WY.