



Published in final edited form as:

Health Serv Res. 2009 June ; 44(3): 946–964. doi:10.1111/j.1475-6773.2009.00952.x.

Insurance Disruption due to Spousal Medicare Transitions: Implications for Access to Care and Health Care Utilization for Women Approaching Age 65

Jessica R. Schumacher, MS,

University of Wisconsin-Madison, Department of Population Health Sciences, Contact Information: University of Wisconsin-Madison, School of Medicine and Public Health, 550 WARF Office Building, 610 Walnut Street, Madison, WI 53726, Phone: (608)263-4416, Email: jrschumacher@wisc.edu

Maureen A. Smith, MD, PhD, MPH,

University of Wisconsin-Madison, Department of Population Health Sciences, Contact Information: University of Wisconsin-Madison, School of Medicine and Public Health, 505 WARF Office Building, 610 Walnut Street, Madison, WI 53726, Phone: (608)262-4802, Email: maureensmith@wisc.edu

Jinn-Ing Liou, MS, and

University of Wisconsin-Madison, Department of Population Health Sciences, Contact Information: University of Wisconsin-Madison, School of Medicine and Public Health, 554 WARF Office Building, 610 Walnut Street, Madison, WI 53726, Phone: (608)261-1099, Email: jliou@wisc.edu

Nancy Pandhi, MD, MPH

University of Wisconsin-Madison, Department of Population Health Sciences; University of Wisconsin, Department of Family Medicine, Contact information: University of Wisconsin-Madison, School of Medicine and Public Health, 557 WARF Office Building, 610 Walnut Street, Madison, WI 53726, Phone: (608)263-9437, Email: nancy.pandhi@fammed.wisc.edu

Abstract

Objective—To assess whether a husband’s Medicare transition leads to insurance disruptions for his wife that impact her perceived access to care, health care utilization, or health status.

Data Sources/Study Setting—Respondents were married women under age 65 from the 2003–2005 round of the Wisconsin Longitudinal Study (N=655).

Study Design—Instrumental variable (IV) linear and IV-probit analyses provided unbiased estimates of the effect of an insurance disruption on study outcomes. The instrument was the husband’s age: 1) Women with husbands who transitioned to Medicare within the previous year (age 65–66); 2) Women with husbands who did not transition (60 < age < 65).

Data Collection/Extraction Methods—Respondents were surveyed via telephone and mail.

Principal Findings—After adjustment, women who experienced an insurance disruption due to their husband’s Medicare transition had a greater probability of experiencing a change in usual clinic/provider (71%), delaying filling or taking fewer medications than prescribed because of cost

Correspondence to: Jessica R. Schumacher.

Disclosures: None.

(75%), going to the emergency room (52%), and had lower average mental health scores than women who did not experience an insurance disruption.

Conclusions—Despite consistent insurance coverage, the insurance disruption that accompanies a spouse's Medicare transition has adverse access and health care utilization consequences for women.

Keywords

Women; Medicare; Access to Care; Health Care Utilization; Instrumental Variables

Introduction

Health insurance plays a critical role in health care use among near-elderly adults (ages 55–64). People approaching the age of Medicare eligibility are more likely to experience illnesses requiring medical care (Brennan 2000; Holahan 2004; McWilliams et al. 2004) and face increased medical expenditures relative to people in younger cohorts (Holahan 2004). Though prior research has shown that the near-elderly are less likely than younger cohorts to be uninsured (Holahan 2004; Morrissey and Jensen 2001), more than one in five near-elderly adults change their insurance in a given year (Sloan and Conover 1998). These insurance disruptions strike this population at a vulnerable time; the near-elderly represent the oldest age group without universal health care coverage and have a high likelihood of poorer health and morbidity (Brennan 2000; Jensen 1992; Sloan and Conover 1998).

There is reason to believe that the consequences associated with insurance disruptions may disproportionately burden near-elderly women. Over one-third of women in this age range are listed as a dependent on their husbands' employer-sponsored health insurance policies (McCormack et al. 2002; Short 1998). This is critical given that fewer employers are offering retiree health benefits (Iglehart 2002; McCormack et al. 2002; Morrissey and Jensen 2001), and fewer still are offering health benefits that continue to cover a spouse once employment has ended (Johnson, Davidoff, and Moon 2002). Given most women in this age range will not be Medicare eligible themselves because they are not yet 65 (Brennan 2000; Sloan and Conover 1998) coupled with the fact that women in this age range are more likely to be married to men who are older than they are (Mutschler 2001; Oppenheimer 1988; Wisconsin Department of Health and Family Services, Division of Health Care Financing, and Bureau of Health Information 2004), it appears that near-elderly women represent a group that is at increased risk of health insurance coverage disruptions. Further, while previous research has found evidence that a husband's near universal transition to Medicare at age 65 contributes to insurance disruptions for his near-elderly wife (Mutschler 2001), the consequences of such a disruption on perceived access to care, health care utilization, and health status are unknown. The fact that over the next 20 years, the number of women in the 55–64 year age group will increase by over 5.5 million (Purcell 2005) and that women are more likely than men to have higher health care expenses and utilize more health care services (Patchias and Waxman 2007), underscores the importance of examining the consequences of insurance change on a rapidly growing population of near-elderly women who are likely to experience these changes.

Studies examining the impact of health insurance disruptions on health care use and health outcomes have demonstrated conflicting findings, a likely result of methodological problems. Studies have found health insurance changes in the general population to be associated with a higher risk of avoidable hospitalizations (Franks, Cameron, and Bertakis 2003), emergency room (ER) visits (Kasper, Giovannini, and Hoffman 2000), and a lower likelihood of visiting a physician (Burstin et al. 1998; Kasper, Giovannini, and Hoffman

2000; Weber et al. 2005). Other studies have found insurance changes to be associated with an increased likelihood of physician office visits (Flocke, Stange, and Zyzanski 1997; Franks, Cameron, and Bertakis 2003), a finding which seemingly conflicts with previous research. The majority of research that has examined the impact of insurance disruptions on health care utilization and health outcomes, however, utilizes insurance change as an explanatory variable in a multivariable model with statistical control as the primary approach to adjust for confounding factors (Burstin et al. 1998; Flocke, Stange, and Zyzanski 1997; Franks, Cameron, and Bertakis 2003; Kasper, Giovannini, and Hoffman 2000). Yet, prior research has shown that nearly 60% of insurance changes are brought about by personal choice, including for example, a desire to change insurance policies due to between-plan differences (Cunningham and Kohn 2000). It is likely that many of the factors associated with the decision to change insurance plans are unidentified and/or unmeasured. To the extent these same unobserved factors are associated with perceived access to care, health care utilization, or health status, the relationship between insurance disruption and these outcomes are confounded and the estimates of effect are biased.

In addition, the majority of studies that have examined the impact of insurance disruptions have emphasized general, as opposed to near-elderly populations. The few studies of the near-elderly have been limited to the effect of gaps in or loss of insurance coverage on health care utilization and health outcomes (Baker et al. 2001; McWilliams et al. 2004; Sudano and Baker 2003), and not on the impact of insurance change on these same outcomes or on perceived access to care. This is a significant gap in the literature given the high percentage of the near-elderly that are likely to experience insurance changes at a time when they are also more likely to have chronic conditions requiring consistent access to medical care.

The purpose of the current investigation is to assess the extent to which a husband's transition to Medicare at age 65 leads to insurance disruptions for his wife that impact her perceived access to care, health care utilization, and health status. Disruption was defined as a change in insurance plan within the previous year. An instrumental variable analysis was used to provide unbiased estimates of the effect of insurance disruption on outcomes, isolating the insurance disruption effect to the women who experienced the disruption because of their husbands' Medicare transitions (Greene 1997). We compare our findings to the traditional multivariable approach. Our analysis addresses important gaps in the research literature including the consequences of insurance change in the near-elderly population and the methodological limitations of previous studies.

Methods

Population and Sampling

Participants were from the Wisconsin Longitudinal Study (WLS), a cohort of a one-third random sample of people who graduated from Wisconsin high schools in 1957. In the 2003–2005 data collection round, participants were surveyed using computer-assisted telephone interviewing (CATI) and a mailed follow-up survey. Among respondent survivors, the response rate was 88% for the telephone and 87% for the mailed surveys. Only married women under age 65 (under the age of Medicare eligibility) were included in the current analysis, limiting the age range of the sample to 62–64. Women with husbands under 65 who were on Medicare at the time of the survey were excluded, as they represent women whose husbands transitioned to Medicare for reasons other than age-based eligibility (e.g., long-term disability) (n= 43). In addition, women with husbands more than five years younger than they were at the time of survey administration were likewise excluded, due to the relation between marrying outside of this age range and health outcomes (Klinger-Vartabedian and Wispe 1989) (n=48). Lastly, women who were uninsured at the time of

survey administration or during the 12 months prior to the survey were excluded (n=18) so that the comparison groups included sets of continuously insured women whose insurance changed, but was not lost as a consequence of their spouses turning 65. Excluding these women allowed the two insurance disruption groups to be as homogenous as possible, while allowing the ability to isolate the impact of an insurance disruption within an insured population. Ninety-six percent of women in the sample had health insurance at the time of, as well as during the 12 months prior to survey administration, which is comparable to U.S. insurance rates for near-elderly women (Mutschler 2001). The final sample size was 655 married women aged 62–64.

Variables

Respondents were asked about the characteristics of up to nine current health insurance plans (three employer, three privately purchased, and Medicare, Medicaid, and Military plans) as well as their previous plan if they changed insurance in the previous 12 months. The primary dichotomous independent variable of interest was insurance disruption. A woman was defined as having experienced an insurance disruption if she changed her health insurance plan within the previous 12 months.

In order to describe the nature of insurance disruptions, current and previous plan characteristics were assessed with four yes/no questions (Cunningham, Denk, and Sinclair 2001) that are among those traditionally used to distinguish managed care and fee-for-service plans (Liang, Phillips, and Wang 2004; Tye et al. 2004). These characteristics included provider choice/existence of network (book, directory, or list of doctors associated with the plan), use of gatekeepers (requirement to sign up with certain doctors or clinic for routine care), specialty care referral (whether a referral is needed to see a specialist) and out-of-network coverage (whether the plan will pay for costs of visits to specialists/doctors not associated with the plan). Two summary variables were constructed that represent the total number of managed care characteristics evident in current and previous plans. A respondent's transition was determined to be to a more "managed" plan if there was an increase in the number of managed care characteristics following their insurance disruption. Cost sharing was assessed with a question that asked whether respondents were responsible for costs associated with doctor visits or prescriptions. Increased cost sharing was evident if the respondent transitioned from a plan with no cost sharing to a plan that required cost sharing. Transitioning to a "more managed" plan does not necessarily equate to less generous coverage. In fact, the reverse may be true, as studies suggest that managed care plans may have higher levels of benefits available to managed care members or lower out-of-pocket expenses in addition to more "managed" features (Miller and Luft 2002; Sullivan 1999). This may be particularly important in the near-elderly population, the majority of whom have at least one chronic condition, as patients may have lower out-of-pocket costs for medications in managed care plans (Stafford et al. 2003).

The outcome variables included usual clinic or provider change, perceived access to care (satisfaction with access to care, difficulties/delays in obtaining medical care, and delaying filling or taking fewer medications than prescribed because of cost), health care utilization (preventive care and clinic/hospital service use), and health status. If respondents had a usual place of care, respondents were asked if they had a usual provider. Respondents were then asked two follow-up questions to ascertain whether they changed their usual place of care or provider in the previous 12 months. Satisfaction with access to care was assessed with the Group Health Association of America (GHAA) Satisfaction Survey (Davies and Ware 1991), a scale based on the average of 11 statements that use a 1–5 response scale (strongly disagree to strongly agree). For difficulties or delays in obtaining health care, a summary variable assessed whether respondents "experience [d] difficulties or delays in obtaining any type of health care, or [did] not receive health care" due to one or more of 11 reasons that

encompassed health care costs, insurance considerations (e.g. doctor refused to accept insurance plan), and other access barriers. Barriers in access to prescription medication were assessed with the question, “In the past 12 months, did you take less medication than was prescribed or delay filling your prescriptions because of the cost?” Health care utilization was assessed with yes/no questions that inquired about use in the prior year of preventive care services (complete health exam, routine dental checkup, pelvic exam/Pap smear, mammogram, flu shot, blood pressure check, cholesterol test) and clinic/hospital services (saw doctor in clinic, spent one or more nights in the hospital, went to the ER for medical treatment, had outpatient surgery, saw chiropractor, saw dentist/oral surgeon). Last, health status was assessed with the use of the following three measures: self-rated health, the Health Utility Index Summary Score (HUI3) (Furlong et al. 1998), and the Short-Form Health Survey (SF-12) (Ware, Kosinski, and Keller 1996). The HUI3 scale ranges from 0 to 1 and includes hearing, speech, ambulation, dexterity, emotion, cognition, and pain. The SF-12 includes physical and mental health. Both the HUI3 and the SF-12 are continuous measures, with higher scores reflecting better health. Respondents rated their current health status on a five-point scale, dichotomized to 1=fair/poor health and 0=excellent/very good/good health.

Sociodemographic factors were included as control variables. Total household income was constructed based on 14 measures of personal, spousal, and other household members’ income and categorized into five groups. A missing indicator variable accounted for the 5% of respondents who refused income questions. Education included high school, some college or college graduate, and post-graduate. Respondent and spouse employment status indicators reflected whether each was employed for wages at the time of the survey. To assess chronic diseases, participants were asked whether a doctor/health professional had ever told them they had the following conditions: high blood pressure; diabetes; cancer; coronary heart disease; myocardial infarction; stroke; arthritis; and stiffness in joints (The Institute for Social Research 1998), summarized as either no chronic conditions or one or more chronic conditions. Current smokers represent respondents who smoke every day or some days.

Statistical Analysis

Multivariable probit (dichotomous outcome variables) and linear regression (continuous outcome variables) models were used to estimate the effect of an insurance disruption on perceived access to care, health care utilization, and health status, for comparison with prior research. Multivariable instrumental variable (IV) probit and IV-linear regression models were estimated to isolate the effect of an insurance disruption on study outcomes to women who experienced the disruption due to their husband’s Medicare transition in the previous year. Because transitioning to Medicare at age 65 can co-occur with retirement, we controlled for the employment status of the husband and wife, as well as total household income and insurance type. All models were additionally adjusted for education, smoking status, and chronic health conditions.

The instrument in the IV analysis was based on the age of each woman’s husband: 1) Women with husbands who did not transition to Medicare ($60 < \text{age} < 65$) ($n=354$); and 2) Women with husbands who transitioned to Medicare within the previous year (age 65–66) ($n=301$). It was appropriate to construct these groups due to the homogeneous nature of the sample. All women in the sample graduated from Wisconsin high schools and share similar characteristics including age, education level, and race/ethnicity. The instrument was therefore theorized to impact study outcomes only through its impact on the binary regressor of interest (insurance disruption). Our proposed IV (age of husband in two categories) was strongly associated with the primary predictor variable (insurance disruption). Women married to men who transitioned to Medicare in the previous year were significantly more

likely to have experienced an insurance disruption (25.6%) than women whose husbands had not yet transitioned to Medicare (15.6%) ($\chi^2 = 10.1$, $p = 0.001$).

There was significant evidence that insurance disruption could not be treated as exogenous, based on our examination of correlations between the error terms of the first and second stage equations (ρ). For dichotomous outcome variables, we used first and second stages of the IV-probit model. For continuous measures, a treatment effects model (“treatreg” in Stata) simultaneously predicted insurance disruption and the continuous outcome variable. If ρ is statistically significant, we reject the null hypothesis that insurance disruption is exogenous. In that case, the results of the non-IV models will be biased and IV results should be presented. The p-values for the Wald test that $\rho = 0$ were statistically significant ($p \leq 0.05$) for two outcome variables (visited a provider during the previous year and SF-12 mental health), while three outcome variables had p-values between 0.05 and 0.20 (any difficulty/delays, ER visit, and fair/poor health). Further, for all IV models reporting statistically significant effects of insurance disruption, ρ was negative, indicating that the estimated insurance disruption effect was biased toward zero in the traditional (non-IV) models.

Analyses were performed using Stata v10.0 (StataCorp 2007). IV models were estimated using the Stata procedure “CMP” which allows for an endogenous dichotomous predictor variable and a continuous or dichotomous outcome variable. For dichotomous outcome variables, the average marginal effect across respondents was calculated and 95% confidence intervals were bootstrapped with 200 replications. The resultant estimate (dy/dx) represents the average of the increase or decrease in the probability of experiencing each of the outcomes of interest for the group of women who experienced an insurance disruption due to their husband’s transition to Medicare, as compared to women who did not experience an insurance disruption. Results from models that estimate continuous outcome variables are presented as betas with accompanying 95% confidence intervals.

Results

Due to the nature of the cohort, all women were 62–64 and were married with at least a high school education (Table 1). Nearly two-thirds of the women reported one or more chronic conditions and the majority had private insurance (87%). Women with husbands between the ages of 65–66 were more likely to have a spouse who was retired and were less likely to have employer or private purchase insurance or to have insurance from their spouse’s employer than were women with husbands less than 65. Women with husbands between the ages of 65–66 who experienced an insurance disruption were significantly more likely than women who did not experience a disruption to be retired and to have private insurance. There were no significant differences for any other sociodemographic characteristics.

A majority of respondents reported high levels of satisfaction with access to care, though there was variability in access to care and health care utilization measures (Table 2). In addition, though the majority of participants reported seeing a doctor and received preventive services, 14% of respondents went to the ER for medical treatment and 9% reported a hospital stay of one or more days in the previous year.

Of the women who experienced an insurance disruption, the majority transitioned to a plan with the same (44%) or fewer managed care characteristics (41%). Only 15% transitioned to a plan that was more managed. Women who changed to a less managed health plan were significantly less likely to have a usual place of care ($p < 0.05$) and were more likely to have public insurance ($p < 0.01$). There were no statistically significant differences between women who changed to more or less managed plans in terms of the average premium,

deductible, or co-pay of their current plan (available for private plans only), nor were there differences between the groups in terms of the number of chronic conditions, health status, or other sociodemographic characteristics. There was no significant difference in the proportion of women who switched to a more or less managed plan by cost sharing or by levels of the instrument. The vast majority of women experienced no cost sharing changes (91%). Only 2% of women transitioned to a plan with less cost sharing.

The traditional multivariable approach demonstrated one significant difference between women who experienced an insurance disruption and women who did not on the perceived access to care measures (Table 3). On average, women who experienced an insurance disruption had a 5% increased probability of delaying filling a prescription or taking less medication than prescribed due to cost as compared to women who did not experience an insurance disruption. In contrast, results from the IV analysis demonstrated that on average women who experienced an insurance disruption due to their husband's Medicare transition had a 71% increased probability of changing their clinic or provider and a 75% increased probability of taking less medicine than prescribed because of cost, yet also had a 40% increased probability of having a pelvic exam or Pap smear in the prior year as compared to women who did not experience an insurance disruption.

Results from models predicting clinic/hospital use revealed that on average, women who experienced an insurance disruption due to her husband's Medicare transition had a 52% greater probability of utilizing the ER for medical treatment and significantly lower average SF-12 mental health scores as compared to the women who did not experience an insurance disruption (Table 4). In contrast, the traditional multivariable approach demonstrated no significant differences between women who experienced an insurance disruption and women who did not in terms of clinic/hospital use. No statistically significant associations were found with either methodological approach for any of the other health status measures.

Discussion

To our knowledge, the current analysis is the first to demonstrate the health care utilization and health consequences of the insurance disruption that occurs for women when their husbands transition to Medicare. Using an instrumental variables approach, we found that women who experienced insurance disruptions due to their spouse transitioning to Medicare had an increased probability of changing their clinic or provider and were more likely to receive certain preventive services (pelvic exam/Pap smear), yet were also significantly more likely to utilize the ER for medical treatment, to take less medicine than prescribed or delay filling a prescription because of cost, and also have lower average mental health scores as assessed by the SF-12. This finding serves to resolve the apparent inconsistencies in the literature that have previously demonstrated both increased and decreased probabilities of receiving preventive services following an insurance disruption (Burstin et al. 1998; Flocke, Stange, and Zyzanski 1997; Franks, Cameron, and Bertakis 2003; Kasper, Giovannini, and Hoffman 2000). Furthermore, the findings described for women who had husbands who transitioned to Medicare are consistent with the literature that has focused on the consequences of switching insurance plans. Prior research, for example, has found insurance changes in younger populations to not necessarily impact the likelihood of having a primary care provider (Burstin et al. 1998), but instead increase the likelihood of changes in usual source of care (Cunningham and Kohn 2000; Franks, Cameron, and Bertakis 2003), difficulties and delays in obtaining needed care (Burstin et al. 1998; Kahana et al. 1997), and ER visits (Franks, Cameron, and Bertakis 2003). These findings have serious implications for near-elderly women who are likely to be particularly vulnerable to the adverse consequences associated with discontinuities in care because of their chronic disease burden. The current investigation, however, also demonstrated that women who experienced a

disruption due to their husband's Medicare transition were more likely to have received a Pap test in the prior year. This is consistent with research that has demonstrated diagnostic testing expenditures to be higher within the first years of plan enrollment (Franks, Cameron, and Bertakis 2003), though the same pattern was not found in the current analysis for mammograms. This finding may in part be due to the U.S. Preventive Service Task Force recommending mammograms every 12–33 months, as opposed to annually.

The use of an IV approach in the current analysis allowed for the control of both unknown and known, but unmeasured, confounders. This is a key improvement relative to prior research given that insurance changes are likely brought about via a combination of forced change (Cunningham and Kohn 2000; Kahana et al. 1997), as well as personal choice (Cunningham and Kohn 2000). In the current analysis, the IV method produced different results than the traditional multivariable approach, underscoring the importance of considering the endogenous nature of insurance disruption in analyses examining the impact these disruptions have on perceived access to care, health care utilization, and health status.

The current analysis has several limitations. First, the study population lacks diversity. Though this aided the ability to find a valid instrumental variable as the women in the sample were a homogeneous group, there may be an issue with the extent to which findings are generalizable, particularly to women who are uninsured or experience gaps in insurance coverage. This said, it is likely that the relatively high levels of income in the study population would lead to an underestimation of the effect of an insurance disruption on study outcomes, as the women in this study likely have greater economic resources to offset the effect of a disruption than would women with lower levels of income and education. Further, the study sample is representative of two-thirds of the birth cohort nationwide in terms of education and race/ethnicity. Second, health status and insurance was assessed simultaneously. Thus, it is difficult to ascertain whether the lower levels of mental health experienced by women who experienced an insurance disruption preceded or were a consequence of the disruption. Third, there were significant differences between women with husbands aged 65–66 and women whose husbands were less than 65 in terms of the husbands' employment status and insurance type and source. These differences are not entirely surprising given retirement is an event known to occur with greater frequency at age 65. Given a spouse's age and retirement are known in advance, it may be reasonable to assume that the decision to change insurance is planned. Prior research suggests that married couples often coordinate their retirement decisions (Johnson 2004) and take into consideration their spouse's health care/insurance needs when planning to retire (Blau and Gilleskie 2001, 2006, 2008; Gruber and Madrian 1995; Karoly and Rogowski 1994; Rogowski and Karoly 2000). Despite advance knowledge of the event and planning, however, negative consequences are evident. Furthermore, it is likely that these results represent a best-case scenario, as women with fewer socioeconomic resources would likely experience a greater degree of disruption and its adverse consequences. Last, the WLS included plan characteristics traditionally used to distinguish managed care plans, but not breadth of insurance coverage. That said, the fact that respondents who switched to less managed plans were less likely to have a usual place of care and were more likely to have public insurance suggests that these factors may play a role in the mechanism by which insurance disruption can lead to adverse outcomes even among women who transitioned to less managed plans.

Despite these limitations, our primary finding—that women who experienced insurance disruptions due to their husband's Medicare transition have a higher probability of insurance disruptions, which in turn adversely impacts access to care and increases ER utilization—has important implications for future studies of insurance disruptions in the near-elderly. Indeed, these findings suggest that there are hidden negative implications of insurance

disruptions for near-elderly women, despite the fact that women in this age group are more likely than other age groups to be insured (Holahan 2004; Morrisey and Jensen 2001; Mutschler 2001) and despite the fact that this group of women is more likely to receive certain preventive services (e.g. Pap/pelvic exams). These findings further suggest that health systems and insurers should adopt strategies to encourage continuous access to care to help minimize the negative impact of insurance changes. The fact that one in five near elderly women experience changes to their insurance each year (Sloan and Conover 1998) at a time when most are living with at least one chronic disease further underscores the importance of timely access to medical services in the face of insurance change. Indeed, the health care services women in this age range receive is critical, given this is the time during the life course when many chronic conditions first emerge, and health care utilization during this time is likely to have important implications for future health outcomes (Xu and Jensen 2005). The increase in ER visits and the delay in filling or taking prescription medications among women who experience insurance disruptions due to their husbands' Medicare transitions may have important implications for health care utilization as they turn 65 and become Medicare eligible themselves.

Acknowledgments

This research was supported by a grant (5 P01 AG021079-01004) from the National Institute on Aging. Jessica Schumacher is supported by an Agency for Healthcare Research and Quality (AHRQ) National Research Service Award (NRSA) (T-32 Institutional Training Program Grant Number: 5-T32-HS00083-09). Portions of these results were presented on 06/24/06 at the 12th Annual NRSA Trainees Research Conference in Seattle, Washington.

References

- Baker DW, Sudano JJ, Albert JM, Borawski EA, Dor A. Lack of health insurance and decline in overall health in late middle age. *New England Journal of Medicine*. 2001; 345(15):1106–12. [PubMed: 11596591]
- Blau DM, Gilleskie DB. Retiree health insurance and the labor force behavior of older men in the 1990's. *Review of Economics and Statistics*. 2001; 83(1):64–80.
- Blau DM, Gilleskie DB. Health insurance and retirement of married couples. *Journal of Applied Econometrics*. 2006; 21(7):935–53.
- Blau DM, Gilleskie DB. The role of retiree health insurance in the employment behavior of older men. *International Economic Review*. 2008; 49(2):475–514.
- Brennan, N. Health insurance coverage of the near elderly. Washington, D.C.: Urban Institute; 2000. p. 1-7.
- Burstin HR, Swartz K, O'Neil AC, Orav EJ, Brennan TA. The effect of change of health insurance on access to care. *Inquiry: A Journal of Medical Care Organization, Provision and Financing*. 1998; 35(4):389–97.
- Cunningham PJ, Denk C, Sinclair M. Do consumers know how their health plan works? *Health Affairs (Millwood)*. 2001; 20(2):159–66.
- Cunningham PJ, Kohn L. Health plan switching: Choice or circumstance? *Health Affairs (Project Hope)*. 2000; 19(3):158–64. [PubMed: 10812794]
- Davies, AR.; Ware, JE. GHAA's consumer satisfaction survey and user's manual. Washington, D.C.: Group Health Association of America; 1991.
- Flocke SA, Stange KC, Zyzanski SJ. The impact of insurance type and forced discontinuity on the delivery of primary care. *Journal of Family Practice*. 1997; 45(2):129–35. [PubMed: 9267371]
- Franks P, Cameron C, Bertakis KD. On being new to an insurance plan: health care use associated with the first years in a health insurance plan. *Annals of Family Medicine*. 2003; 1(3):156–61. [PubMed: 15043377]
- Furlong, W.; Feeny, D.; Torrance, GW.; Goldsmith, CH.; De Pauw, S.; Boyle, M.; Denton, M.; Zhu, Z. Multiplicative multi-attribute utility function for the Health Utilities Index Mark 3 (HUI3)

- system: a technical report. Hamilton, Ontario, Canada: McMaster University Centre for Health Economics and Policy Analysis; 1998.
- Greene, W. *Econometric analysis*. Englewood Cliffs, NJ: Prentice Hall; 1997.
- Gruber J, Madrian BC. Health-insurance availability and the retirement decision. *American Economic Review*. 1995; 85(4):938–48.
- Holahan, J. *Health insurance coverage of the near elderly*. Washington, DC: Kaiser Family Foundation; 2004.
- Iglehart JK. Changing Health Insurance Trends. *New England Journal of Medicine*. 2002; 347(12): 956–62. [PubMed: 12239275]
- Jensen GA. The dynamics of health insurance among the near elderly. *Medical Care*. 1992; 30(7):598–614. [PubMed: 1614230]
- Johnson, RW. *Do spouses coordinate their retirement decisions?*. Boston, MA: Center for Retirement Research; 2004.
- Johnson, RW.; Davidoff, AJ.; Moon, M. *Insuring the near elderly: the potential role for Medicare buy-in plans*. Washington, D.C.: Urban Institute; 2002.
- Kahana E, Stange K, Meehan R, Raff L. Forced disruption in continuity of primary care: The patients' perspective. *Sociological Focus*. 1997; 30(2):177–87.
- Karoly L, Rogowski JA. The effect of access to post-retirement health insurance on the decision to retire early. *Industrial & Labor Relations Review*. 1994; 48(1):103–23.
- Kasper JD, Giovannini TA, Hoffman C. Gaining and losing health insurance: strengthening the evidence for effects on access to care and health outcomes. *Medical Care Research and Review*. 2000; 57(3):298–318. discussion 19–25. [PubMed: 10981187]
- Klinger-Vartabedian L, Wispe L. Age-Differences in Marriage and Female Longevity. *Journal of Marriage and the Family*. 1989; 51(1):195–202.
- Liang SY, Phillips KA, Wang HC. Selection bias into health plans with specific characteristics: A case study of endogeneity of gatekeeper requirements and mammography utilization. *Health Services & Outcomes Research Methodology*. 2004; 5:103–18.
- McCormack LA, Gabel JR, Berkman ND, Whitmore H, Hutchison K, Anderson WL, Pickreign J, West N. Retiree health insurance: recent trends and tomorrow's prospects. *Health Care Financing Review*. 2002; 23(3):17–34. [PubMed: 12500347]
- McWilliams JM, Zaslavsky AM, Meara E, Ayanian JZ. Health insurance coverage and mortality among the near-elderly. *Health Affairs (Project Hope)*. 2004; 23(4):223–33. [PubMed: 15318584]
- Miller RH, Luft HS. HMO plan performance update: An analysis of the literature, 1997–2001. *Health Affairs (Project Hope)*. 2002; 21(4):63–86. [PubMed: 12117154]
- Morrisey MA, Jensen GA. The near-elderly, early retirees, and managed care. *Health Affairs (Project Hope)*. 2001; 20(6):197–206. [PubMed: 11816659]
- Mutschler, PH. *If I Can Just Make It To 65: Measuring the Impact on Women of Increasing the Eligibility Age for Medicare*. Waltham, MA: The National Center on Women & Aging, Brandeis University; 2001.
- Oppenheimer VK. A theory of marriage timing. *American Journal Of Sociology*. 1988; 94(3):563–91.
- Patchias EM, Waxman J. Women and health coverage: the affordability gap. *Issue Brief (Commonwealth Fund)*. 2007; 25:1–12. [PubMed: 17469243]
- Purcell, PJ. *Older workers: Employment and retirement trends*. Washington, D.C.: Congressional Research Service, The Library of Congress; 2005.
- Rogowski J, Karoly L. Health insurance and retirement behavior: evidence from the health and retirement survey. *Journal of Health Economics*. 2000; 19(4):529–39. [PubMed: 11010239]
- Short PF. Gaps and transitions in health insurance: What are the concerns of women? *Journal of Women's Health*. 1998; 7(6):725–37.
- Sloan FA, Conover CJ. Life transitions and health insurance coverage of the near elderly. *Medical Care*. 1998; 36(2):110–25. [PubMed: 9475467]
- Stafford RS, Davidson SM, Davidson H, Miracle-McMahill H, Crawford SL, Blumenthal D. Chronic disease medication use in managed care and indemnity insurance plans. *Health Services Research*. 2003; 38(2):595–612. [PubMed: 12785563]

- StataCorp. Stata Statistical Software (release 10) statistical software. College Station, TX: StataCorp LP; 2007.
- Sudano JJ Jr, Baker DW. Intermittent lack of health insurance coverage and use of preventive services. *American Journal of Public Health*. 2003; 93(1):130–7. [PubMed: 12511402]
- Sullivan K. Managed care plan performance since 1980: another look at 2 literature reviews. *American Journal of Public Health*. 1999; 89(7):1003–8. [PubMed: 10394307]
- The Institute for Social Research. Health and Retirement Study, 1998. Ann Arbor: The University of Michigan; 1998.
- Tye S, Phillips KA, Liang SY, Haas JS. Moving beyond the typologies of managed care: The example of health plan predictors of screening mammography. *Health Services Research*. 2004; 39(1):179–206. [PubMed: 14965083]
- Ware J Jr, Kosinski M, Keller SD. A 12-Item short-form health survey: Construction of scales and preliminary tests of reliability and validity. *Medical Care*. 1996; 34(3):220–33. [PubMed: 8628042]
- Weber EJ, Showstack JA, Hunt KA, Callahan CDCML. Does lack of a usual source of care or health insurance increase the likelihood of an emergency department visit? Results of a national population-based study. *Annals of Emergency Medicine*. 2005; 45(1):4–12. [PubMed: 15635299]
- Wisconsin Department of Health and Family Services, Division of Health Care Financing, and Bureau of Health Information. Wisconsin Marriages and Divorces, 2003 (PHC 5359 Year 2003). Madison, WI: 2004.
- Xu X, Jensen GA. Utilization of health care services among the near-elderly: a comparison of managed care and fee-for-service enrollees. *Managed Care Interface*. 2005; 18(3):60–6. 70. [PubMed: 15816300]

Table 1

Key characteristics of married WLS female graduates under age 65 with husbands less than 66 (N=655)*

Characteristic	Overall Percent	Women, Husband < 65	Women, Husband 65-66	Characteristic	Overall Percent	Women, Husband < 65	Women, Husband 65-66
Total household income (\$)							
Less than \$30,000	14	15	12	None	37	37	38
\$30,000-\$45,000	14	14	15	One or more	63	63	62
\$45,000-\$60,000	15	15	16	Insurance status			
\$60,000-\$75,000	14	14	14	Employer or private purchase	87	91	82
Greater than \$75,000	38	36	41	Medicare + supplement	9	7	12
Missing	5	6	3	Medicare alone or with other public	1	1	2
Education				Other public	3	1	4
High school	57	56	57	Insurance status change			
Some college or college degree	33	33	32	Any change in insurance	20	16	26
Post graduate training	11	10	11	Insurance source			
Percent not employed				Insurance from graduate's employer	37	34	40
Respondent	60	59	61	Insurance from spouse's employer	51	55	46
Spouse	54	48	61				
Current smoker	11	11	11				

* Bolded values indicate statistically significant difference between women with husbands <65 and women with husbands 65-66 (p<0.05)

Table 2Descriptive statistics for dependent variables (N=655)^{*†}

Characteristic	Percent or mean (standard deviation)
Change in clinic/provider in past 12 months	
Any change in clinic or provider	15
Perceived access to care	
Satisfaction with access to care (mean)	4 (1)
Experienced difficulty/delay in obtaining health care in past 12 months	7
Took less of prescription or delayed filling prescription because of cost	5
Preventive care use in past 12 months	
Complete health exam	78
Routine dental checkup	85
Pelvic exam or pap smear	66
Mammogram	79
Flu shot	64
Blood pressure checked	95
Cholesterol test	77
Heart or exercise stress test	18
Clinic/hospital use in past 12 months	
Saw doctor in clinic	93
Stayed In hospital 1+ days	9
Went to ER for medical treatment	14
Outpatient surgery	15
Chiropractor	17
Saw dentist/oral surgeon	84
Health status	
Fair/poor health	8
HUI score (mean)	0.85 (0.18)
SF12-Physical score (mean)	49 (9)
SF12-Mental score (mean)	56 (6)

* Parentheses indicate standard deviations.

† Values represent percents unless specified otherwise.

Table 3

Adjusted marginal effects or betas and 95% confidence intervals (CI) for the relationship between insurance disruption and access to care or preventive care service use^{*†}

Variable	Probit/regression		Instrumental variable analysis	
	dy/dx	95 % CI	dy/dx	95% CI
Change in clinic/provider in past 12 months				
Any change in clinic or provider	0.06	(-0.02, 0.15)	0.71	(0.59, 0.75)
Perceived access to care				
Satisfaction with access to care [†]	0.13	(-0.09, 0.35)	-0.40	(-1.56, 0.76)
Experienced difficulty/delay in obtaining health care in past 12 months	0.05	(-0.01, 0.11)	0.20	(-0.12, 0.74)
Take less medicine than prescribed because of cost	0.05	(-0.01, 0.11)	0.75	(0.74, 0.77)
Preventive care use in past 12 months				
Complete health exam	-0.02	(-0.12, 0.07)	0.47	(-0.86, 0.73)
Routine dental checkup	0.05	(-0.01, 0.11)	0.12	(-0.51, 0.24)
Pelvic exam or pap smear	0.003	(-0.1, 0.11)	0.40	(0.25, 0.46)
Mammogram	-0.02	(-0.1, 0.07)	-0.05	(-0.64, 0.31)
Flu shot	-0.02	(-0.12, 0.09)	0.27	(-0.59, 0.45)
Blood pressure checked	0.01	(-0.01, 0.03)	0.03	(-0.53, 0.17)
Cholesterol test	-0.03	(-0.12, 0.07)	-0.07	(-0.65, 0.34)
Heart or exercise stress test	-0.05	(-0.12, 0.03)	-0.23	(-0.34, 0.37)

* Items in bold are statistically significant at the $p \geq 0.05$ significance level

[†] Represents beta coefficient from linear regression analysis

Table 4

Adjusted marginal effects or betas and 95% confidence intervals (CI) for the relationship between insurance disruption and clinic/hospital service use or health status ^{*†}

Variable	Probit/regression		Instrumental variable analysis	
	dy/dx	95 % CI	dy/dx	95% CI
Clinic/hospital use in past 12 months				
Saw doctor in clinic	-0.003	(-0.05, 0.05)	0.11	(-0.64, 0.22)
Stayed in hospital 1+ days	-0.03	(-0.08, 0.03)	-0.26	(-0.29, -0.19)
Went to ER for medical treatment	-0.02	(-0.09, 0.05)	0.52	(-0.29, 0.7)
Outpatient surgery	0.03	(-0.05, 0.12)	0.45	(-0.25, 0.73)
Chiropractor	-0.02	(-0.1, 0.06)	0.53	(-0.26, 0.7)
Saw dentist/oral surgeon	0.01	(-0.06, 0.08)	0.07	(-0.67, 0.25)
Health status				
Fair/poor health	-0.004	(-0.04, 0.04)	-0.13	(-0.23, 0.18)
HUI summary score [†]	0.01	(-0.02, 0.05)	0.04	(-0.07, 0.15)
SF-12 Physical [†]	1.66	(-0.25, 3.57)	3.64	(-1.92, 9.19)
SF-12 Mental [†]	-0.24	(-1.6, 1.12)	-9.06	(-11.03, -7.09)

* Items in bold are statistically significant at the p<0.05 significance level

[†] Represents beta coefficient from linear regression analysis