MEDICAID REDESIGN: PERSONAL RESPONSIBILITY AND HEALTH

Prepared for the American Economic Association Meetings: Atlanta, Georgia - January 5-7, 2010

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DECEMBER 2009

ABSTRACT

We examine the factors that influence behavior in a public health insurance program where enrollees select between different plans. The State of West Virginia recently redesigned their Medicaid program, providing beneficiaries with a choice between the Basic Plan and the Enhanced Plan. The latter offers a wider coverage of benefits but likewise stipulates contractual agreements between the patient and the State as well as his or her physician. These agreements were designed with the intent of leading patients to adopt healthier behaviors and to see their 'primary care physician' at indicated times. To understand which factors affect enrollment in specific plans, we utilize the population of administrative claims and enrollment records as well as a matched data set of administrative and survey data that include a rich set of psychological, physiological, and demographic covariates. We find strong evidence that members enroll in a specific health plan on the basis of prior health care utilization. However, barriers to meeting with the doctor and a lack of information about the different health insurance plans play a significant role in health care decision making, particularly for the parents of child members.

Keywords: Medicaid, choice, self-selection, state health reform

JEL codes: D80, H75, H72, I18

INTRODUCTION

Given the recent debate over health care reform at the national level, it is essential to understand which approaches to reform will be effective in reaching often proposed health care goals, such as increasing access to health care among the uninsured, reducing costs, and improving health in general. To this end, we investigate the outcomes from recent reforms to a public health insurance plan. The State of West Virginia recently redesigned their Medicaid program, providing beneficiaries with a choice between a Basic Plan and an Enhanced Plan. The latter plan offers more benefits but likewise requires additional agreements between the patient and the State as well as visit to the doctor to develop a health improvement plan. These contracts were designed with the intent of leading patients to adopt healthier behaviors and to use the health care system more effectively (for instance, using the emergency room only in emergency situations).

The reform sought to create a program that was structured to "tailor the benefits to the needs of each population," unlike its predecessor plan, which "provided all services to all members" and was seen as "a one size fits all approach."[1] Implicit in this design was the idea that beneficiaries would select the plan most advantageous to their situation. However, the reforms were surrounded by debate as to which factors would motivate self-selection into the two plans. For instance, some suggested that the healthiest individuals would choose the Enhanced Plan. These individuals would face the lowest costs to signing the agreements as they would already be abiding by the stipulations and would also be the most motivated to utilize the additional resources for better nutrition, weight management, and smoking cessation provided in the Enhanced Plan. Alternatively, some suggested that beneficiaries would self-select into their

[1] *Medicaid Transformation Grant Application, BMS to CMS*

respective plans on the basis of past health care utilization and those with relatively high demand for services would select the Enhanced Plan. The most contentious debates surrounded the effects of the new program on children, as a child could only be enrolled in the Enhanced Plan if their parent or guardian was willing to sign the additional agreements.

As of July 2009, almost 14 percent of members were enrolled in the Enhanced Plan. Identifying the motivations for plan selection and the characteristics of those in each plan is essential for effective implementation of health insurance program reforms. Essentially, the question is whether the Enhanced Plan appealed to those interested in healthy lifestyles---who were likely to have been healthy and have had lower health care utilization---or to those that had high demand for health services, who were likely relatively unhealthy. Of further importance is whether other factors, such as the role of information about the program or the barriers faced by beneficiaries en route to enrolling in a specific plan, dominated the plan selection decision. These factors have significant implications for the design of public health insurance programs. The goal of this paper is to determine whether beneficiaries self-select on the basis of prior health care utilization or whether there are other factors that influence enrollment behavior.

There have been many theoretical and empirical inquiries into the factors that influence individuals' health care decisions. For instance, Cameron, et al. (1988), Marquis and Holmer (1996), Riphahn, Wambach, and Million (2003), and Koc (2004), among many others, have focused on the determinants of demand for health care or health insurance. Recently, many studies have focused specifically on decision making in publicly provided health insurance programs (Abaluck and Gruber, 2009; Heiss, McFadden, and Winter, 2006; 2007; Lucarelli, Prince, and Simon, 2008). While the literature on health care decision making is voluminous,

the uniqueness of West Virginia's Medicaid reforms warrants thorough investigation into the factors that influence choice between plan options for public health insurance.

We utilize a four year panel of the population of administrative enrollment and health claims data (doctor visits and prescriptions) from the West Virginia Department of Health and Human Resources, Bureau for Medical Services. We link this panel with survey data that includes a rich cross-section of physiological, psychological, and demographic attributes from a stratified random sample of Medicaid members as of September 2008. We find strong evidence that adults self-select into the two different plans on the basis of prior health care utilization. Individuals with the highest utilizations rates, and presumably the most health care needs, select into the Enhanced Plan. Further, the influence of information about the plans and barriers to enrollment faced by beneficiaries play a significant role in health care decision making, particularly for the parents/guardians of child members. These findings are quite robust to a variety of specifications and regression methods.

Understanding plan selection within a public health insurance program is of utmost importance for policy makers considering reforms, particularly those that seek to introduce a 'personal responsibility' component. This research seeks to provide a foundation for future analyses that will assess the health and fiscal implications of public health insurance reforms. Developing optimal public health insurance programs to reduce costs while simultaneously increasing access, improving health, and allowing for choice is an incredibly difficult task and there may be a fundamental incompatibility among these goals. The empirical questions addressed herein are therefore quite important for a number of reasons.

First,the welfare ramifications of health care and health insurance reforms are particularly pressing in West Virginia, where 50% of the State's births are insured by Medicaid and the State

ranks near the bottom on a myriad of health and welfare measures. Further, there are 126,000 beneficiaries enrolled in the new Medicaid redesign program, 85 percent of whom are children. Second, the fiscal stakes are also significant as "the U.S. government currently accounts for almost half of all spending on health care in this nation" (Gruber, 2008).[2] Over the last half century, health care expenditures have steadily increased, significantly above GDP growth.[3] Some have argued that such cost escalation is not an inherently negative aspect of the U.S. health care system as it may be driven by demand and increases in consumer wealth (Hall and Jones, 2007). Yet states footing the bill for such expenditures are certainly coming to terms with the fiscal pressure. Although rising health care costs is not a phenomenon unique to West Virginia (or to the United States for that matter), from 1995 to 2005, "total expenditures for Medicaid increased from $144.9 billion to $315.2 billion, while its enrollment grew from 43.3 million to 60.4 million people, making it the nation's largest public health insurance program " (Iglehart, 2007). Additionally, the recently high level of unemployment has led many Americans to turn to programs like Medicaid, Medicare, and the Children's Health Insurance Program (CHIP) and this has added further pressure to already strained fiscal resources. Lastly, current federal health care reform proposals contain provisions to expand Medicaid to individuals within 150 percent of the Federal Poverty Level (FPL). Additionally, Childrens' Health Insurance Program (CHIP)-eligible children will be transferred to Medicaid by 2014 (HR-3962).

The paper proceeds as follows: In Part I, we describe the new Medicaid redesign program, Mountain Health Choices, and its implementation. In Part II, we discuss the literature

[2] There is, of course, a tradeoff between efficiency and an equitable distribution (Okun, 1975). In health care, the latter has typically dominated in the preferences of policymakers (Cutler, 2002).
[3] See http://www.cms.hhs.gov/NationalHealthExpendData/downloads/tables.pdf

on health insurance screening and the setting of defaults in dichotomous plan choices and explain the mechanisms by which beneficiaries self-select into their respective plans. We extend the analysis further in Part III, analyzing how individuals may make decisions given this 'screen and default' Medicaid redesign. We then estimate plan enrollment on the basis of prior health care utilization and other important factors in Part IV. Part V discusses the results of our empirical methods and motivates the idea that there are indeed factors other than health care utilization that account for enrollment behavior. The paper is concluded with a policy discussion in Part VI.

PART I: MOUNTAIN HEALTH CHOICES

One of the main providers of health insurance in the United States is the Medicaid program, administered by both state and federal governments. Medicaid is a public health insurance program for low income families and individuals, as well as elderly patients requiring long-term care, the disabled, and other qualified groups. In the wake of the passage of the 2005 Federal Deficit Reduction Act (DRA), West Virginia launched its Medicaid redesign program, Mountain Health Choices. The DRA provided states much more latitude in designing their Medicaid programs for specific groups of enrollees and states were invited to submit 'transformation grants' to the federal Medicaid agency, the Centers for Medicare and Medicaid Services, under the U.S. Department of Health and Human Services.

The Mountain Health Choices program, in contrast to the general Medicaid program, serves low-income parents and children and offers two benefits packages instead of the traditional single Medicaid benefits plan. The Enhanced Plan generally offers more coverage than the traditional Medicaid plan and the Basic Plan includes fewer benefits than the Enhanced Plan and the traditional plan. To enroll in the highest benefit plan, the adult member or parent/guardian of a child member must sign a personal responsibility agreement and submit a

health improvement plan that was developed with their primary care physician. By adding the 'personal responsibility' component, Medicaid officials intended for member to take a more active role in their health outcomes by incentivizing healthier behaviors and efficient use of the health system.

Rollout of the program took place in three pilot counties in early 2007 and, phase-by-phase, reached statewide implementation by January 2008, with the exception of three counties. A media campaign focusing on radio, newspaper, and outdoor advertising took place during the latter phases of rollout between September and late November to disseminate information about the redesign program. Sixty days prior to their redetermination date, or at the time of enrollment for new members, individuals eligible for Mountain Health Choices received an information packet containing a breakdown of benefits available under two different plans, a member agreement, a health improvement plan, and a pamphlet about the redesign program and instructions for enrollment. Members were automatically defaulted into the Basic Plan on the first day of their redetermination month (or the initial enrollment month for new members) and had 90 days from their redetermination date to visit their doctor and submit the paperwork necessary for enrollment in the Enhanced Plan. If beneficiaries failed to complete these contracts within the allotted time frame, they remained in the Basic Plan for a year or until the end of their enrollment period. Eligibility redetermination for children usually occurred on an annual basis, aligning the timing of the Plan decision with the enrollment period. Adult members usually complete the redetermination process every six months so that they would only be able to change their plan during every other enrollment period.[4]

[4] A large number of enrollees do not complete the redetermination process, even if they remained eligible because Medicaid benefits are applied retroactively so that a member who lets their benefits lapse can re-enroll at the time of an accident or illness and have their benefits applied retroactively. In this case, they would also select their MHC plan at the time of enrollment, regardless of whether it had been a year since their last redetermination date.

In order to enroll in the Enhanced Plan, beneficiaries had to sign both the member agreement and the health improvement plan.[5] The member agreement is a personal responsibility pledge that beneficiaries take, making promises to rely on their 'medical home' for services, keep appointments with their doctors, and to try to engage in healthy behaviors. The health improvement plan is an agreement developed during a visit to the member's primary care provider and outlines office visits, diagnostic services, and education programs the member should receive in the coming year.

The main differences between the two plans are in what we will term 'lifestyle' benefits and prescription drug benefits. The Enhanced Plan covers weight management, nutritional education, diabetes education, and chiropractic services where the Basic Plan offers no coverage. The Enhanced Plan also covers more benefits for chemical dependency/mental health treatments, and occupational, speech and physical therapy. The Enhanced Plan also covers an unlimited number of prescriptions (subject to prescription drug abuse policies) while the Basis Plan limits coverage to four prescriptions per month. A complete list of differences between the Enhanced, Basic and traditional Medicaid plans is provided in the Appendix.

PART II: REDESIGN MECHANISM

The redesign program was structured to "tailor the benefits to the needs of each population," unlike its predecessor plan, which "provided all services to all members" and was seen as "a one size fits all approach."[6] Two important issues for program implementation are how members self-select, or screen themselves into each plan and the role of the default plan in the selection process. As discussed above, the two plans differ in the benefits provided and the administrative requirements for enrollment.

[5] Both documents are included in the appendix.
[6] *Medicaid Transformation Grant Application, BMS to CMS*

SCREENING

One of the fundamental assumptions of the redesign was that beneficiaries would effectively self-select into the plan most advantageous to their situation. Many speculated that members would select a specific plan based on their health status but there was a spirited debate over whether individuals in relatively good health would select the Enhanced Plan for the lifestyle benefits and because of their increased engagement in their own health management, or whether relatively unhealthy individuals with high utilization rates would be most likely to choose the Enhanced Plan. There was particular concern over the selection-process for child members who could only be placed in the Enhanced Plan if a parent or guardian completed the member agreement and health improvement plan on their behalf. The characteristics of Enhanced Plan members have important consequences for whether the MHC program is primarily focused on lifestyle changes or chronic disease management.

While there have been many theoretical inquiries into the nature of screening in principal-agent type settings, there have been no studies to date that empirically confirm the efficacy of screening in public health insurance programs. The classic asymmetric information paper by Stiglitz and Rothschild (1976) focused on screening as a mechanism for insurance companies to overcome adverse selection among those choosing their insurance policies. Through offering a menu of policies based on prices and deductibles, insurance companies could screen risk via the self-selection of those purchasing insurance. This may result in a separating equilibrium, where those with relatively high risk are effectively separated from those with low risk. This screening mechanism was intended to alleviate the occurrence of adverse selection, where those with higher ex ante risk would choose insurance coverage meant for a general population. Given effective screening, those individuals with higher risk would thus choose an

insurance policy with a higher price and lower deductible, effectively self-selecting away from the policy meant for those with relatively less risk.

Analogously, one may think of the redesign structure as a means to separate beneficiaries on the basis of health risk through the setting of different "prices and deductibles." In this context, the price system for the Enhanced Plan is non-pecuniary and consists of a doctor's visit, completion of two agreements beyond the basic enrollment process in addition to the costs of complying with the agreements or risk of being subject to the perceived consequences of non-compliance with the agreements. Several factors would reduce the costs associated with Enhanced Plan. For instance, those with regular doctor's visits would not have to make and keep a new appointment, possibly favoring lower costs for those with relatively poor health or chronic health conditions. On the other hand, those already abiding by the actions stipulated in the agreements would face lower compliance costs and reduced probabilities of sanctions for non-compliance, likely favoring lower costs for those in relatively good health. On the benefit side, it is also unclear who would select into the program. Those interested in healthy lifestyles or alternative treatments (chiropractic) would be drawn to some elements of the Enhanced Plan while those with high health utilization rates, particularly for prescription drugs, would also expect large returns from selecting the Enhanced Plan. In the end, the differences between the characteristics of the two groups, Basic and Enhanced, is inherently an empirical question relevant to the health policy debate as reforms often combine efforts to encourage healthy lifestyles, better manage chronic diseases, and limit service utilization and/or costs.

SETTING THE DEFAULT

Since the program was designed in part with the intent of providing incentives for beneficiaries to adopt healthier behaviors, the Basic Plan serves as the default so that those

selecting the Enhanced Plan are the individuals most engaged in the process and most likely to make behavioral changes. The Enhanced Plan also increases coverage from the traditional Medicaid plan and defaulting participants into the expanded coverage would likely have important consequences for the cost of the Medicaid program. Much of the policy debate surrounding the West Virginia reforms has centered on access to services, particularly mental health services, which are not covered in the Basic Plan. From the perspective of providing the most comprehensive benefits to those who might need them, the Enhanced Plan would be the preferred default. Conversely, if the selection process created by defaulting to the Basic Plan results in sorting relatively unhealthy individuals into the Enhanced Plan, it might provide a mechanism for targeting efforts to the chronically ill, where the gains from proactive treatment are the greatest.

Recently, there has been much attention paid to the importance of default settings, particularly in the behavioral economics literature. For instance, Johnson and Goldstein (2003) have shown that setting the appropriate default for consent in organ donation is crucial: those European countries that utilized a default of 'presumed consent' had significantly higher rates of organ donor enrollment than those countries relying on a default of 'explicit consent.' Further, studies on the role of defaults in social security privatization (Cronqvist and Thaler, 2004), 401(k) savings plan choice (Madrian and Shea, 2001; Choi et al. 2002; Thaler and Sunstein, 2003; Choi et al., 2004; Carroll, et al. 2005), and online privacy settings (Johnson, Bellman and Lohse, 2002) have all stressed how default settings significantly influence human behavior.

To further illustrate the importance of the 'right' defaults, consider the example of 401(k) savings. Many firms use an enrollment process for their employees' 401(k) savings plan that is quite similar to that of Mountain Health Choices. Thaler and Sunstein (2003) explain that during

employees' eligibility period, firms provide information about the 401(k) plan and an enrollment form. Employees then decide whether to opt-out of the plan or to enroll. However, unlike Mountain Health Choices, if employees default—i.e. they do not make a choice during their eligibility period—they are automatically enrolled in the 401(k) plan, which ostensibly provides relatively greater benefits than the alternative. Thaler and Sunstein claim that "enrollments occur much sooner under automatic enrollment" than they do under any type of employer matching scenario, where employees' contributions to their own savings plans are matched by some percentage by their employers. This finding has profound implications for the Mountain Health Choices program. Given that the latter is an incentive for employees to join the 401(k) plan whereas the former is an automatic process without any incentive, this finding may imply that enrollment in the Enhanced Plan would likely increase through its setting as an automatic default vis-à-vis the system of incentives currently in place.

In analyzing the redesign program's default structure on a welfare basis, there are many approaches by which to judge. Yet assessing welfare with regard to defaults is a difficult task. As Carroll, Choi, Laibson, Madrian, and Metrick (2005) warn, "even a well-chosen default may be undesirable if agents have heterogeneous needs." If one judges welfare by overall plan coverage, then setting the default to the Basic Plan leads to an unequivocal decline in welfare. Yet if one judges welfare by the overall level of health, and setting the default to the Basic Plan induces beneficiaries to choose the Enhanced Plan and abide by the parameters of the member agreement and health improvement plan, then welfare may be increased.

One feasible avenue for welfare analysis is to assess whether an individual is enrolled in the 'right' plan based on their previous health care utilization patterns. We selected increasingly high utilization cut-off points to assess the degree of sorting on utilization. Using matched

survey and administrative data, Figure 1 presents the number of total, adult, and child members in each utilization category where δ and ρ indicate the number of annual doctor's visits and prescriptions for the prior year, respectively.[7] For example, of those with more than five doctor visits in the previous year, 59 percent (304 members) enrolled in the Enhanced Plan but the pattern was much more pronounced for adults (73 percent) than children (55 percent). Increasing this parameter to more than 10 doctor visits shows that there are 63 adult members (81 percent) and 105 child members (58 percent) are enrolled in the Enhanced Plan.

Prescription utilization presents an even more compelling result. Seventy-two percent of member requiring more than 12 prescriptions in the preceding year selected the Enhanced Plan. For members averaging more than 4 prescriptions per month, 84 percent were enrolled in the Enhanced Plan. (See Figure (I) for a complete breakdown). These simple calculations provide suggestive evidence that members with the worst health profiles, measured by health care utilization, are enrolling in the Enhanced Plan.

FIGURE I

Enrollment Analysis *Parameter*	**BP**	(1)	(2)	**EP**	(3)	(4)
δ > 5	213	30	183	304	81	223
δ > 10	91	15	76	168	63	105
δ > 15	38	9	29	98	46	52
ρ > 12	112	34	78	195	87	108
ρ > 24	48	21	27	109	68	41
ρ > 48	10	7	3	52	39	13

NOTES. N =877 for the child sample and N=174 for the adult sample, for a total sample size of 1,051. δ refers to the number of doctor visits and ρ refers to the number of prescriptions utilized within the prior year. BP refers to the total number of individuals enrolled in the Basic Plan, whereas EP refers to the total number enrolled in the Enhanced Plan. Columns (1) and (3) are the number of adults enrolled in their respective

[7] Annual numbers are used given the highly cyclical nature of health care utilization patterns detailed in Gurley-Calvez et al. (2009).

plans and columns (3) and (4) are the number of children enrolled in their respective plans. Parameters refer to utilization numbers strictly greater than the number indicated.

PART III: CHOICE AMONG HEALTH CARE PLANS

In their analysis of public insurance expansions, refundable tax credits, and insurance mandates, Meara et al. (2008) caution that "no single approach [to expanding insurance coverage] helps the working poor in exactly the ways policymakers might hope." This statement highlights the complex nature of health reforms, the uncertainty over behavioral effects, and the potential for unintended consequences. The West Virginia Medicaid redesign provides a valuable opportunity to assess how individuals self-select between options in a public insurance program.

Before proceeding to the empirical analysis, it is useful to consider some of the behavioral, cognitive, and rational-choice based determinants of enrollment behavior, in addition to the aforementioned institutional structure through which individuals self-select. Given that decisions regarding health insurance plan choice typically involve "uncertainty, time, and complexity," (Liebman and Zeckhauser, 2008), we shall briefly analyze enrollment decisions through the lenses of behavioral economics as well as the standard rational choice approach, as elements of both may have significant explanatory power as to why individuals choose one plan over another.

There has been much focus in the behavioral economics literature on how individuals make decisions and these findings have serious implications for health care plan decision making. Liebman and Zeckhauser (2008) explain that "status quo bias also proves to be an important feature of health care decision making." The latter refers to the tendency for individuals to stay with a current option while other options—sometimes far better than the

original—may be available (Samuelson and Zeckhauser, 1988). Cronqvist and Thaler (2004), in analyzing the Swedish social security privatization that led to multiple plan choices, claim that when "one option is designated as the default, it will attract a disproportionate market share" due to reasons like status quo bias, procrastination, or even laziness. At first glance, status quo bias might be less relevant for our analysis given that Mountain Health Choices members cannot remain on the traditional Medicaid plan. However, those who do not carefully read the information packet (or do not receive it) may not know that their benefit levels change even if they take no action. [8]

Present-biased preferences (O'Donoghue and Rabin 1999; Ibid 2000) may also lead to sub-optimal decision making in health care as individuals may pursue immediate gratification as opposed to planning for the future and simultaneously incurring the costs of signing the contracts for enrollment into the Enhanced Plan. These findings provide evidence that individuals may not necessarily choose health insurance plans purely on the basis of health care utilization but also on the basis of an individual's intertemporal preferences (i.e. hyperbolic discounting such that utility in the present is weighted far heavier than utility in the future) and cognitive/behavioral biases. In this instance, members might place more weight on the immediate costs of enrolling in the Enhanced Plan and discount the future expected benefits of increased health benefit coverage. Further, theoretical and empirical studies from health economics have shown that health insurance plan choices may not necessarily be efficient (Heiss, McFadden, and Winter, 2006; Ibid 2007) and may be "inconsistent with optimization under full information" (Abaluck and Gruber, 2009).

[8] Deeper analysis regarding the capacity to understand information and the psychological/attitudinal factors that influence active choices in Medicaid plans may be found in Walsh, et al., 2009.

A rational choice argument may likewise apply to plan enrollment. It is quite likely that some, if not all, beneficiaries are calculating the costs and benefits of enrolling in a specific plan and acting accordingly. For instance, a beneficiary with relatively good health may see the cost of signing the member agreement and health improvement plans as far outweighing the additional services covered in the Enhanced Plan. However, a beneficiary who 'needs' at least four prescriptions in any given month may see this benefit as greater than the costs he or she would have to incur. Levy and Weir (2009), in their study of Medicare Part D enrollment, claim that "Medicare beneficiaries seem to be able to make economically rational decisions about Part D enrollment despite the complexity of the program." Furthermore, status quo bias, in this sense, may be rational: while a better plan certainly exists, the costs of enrolling in such a plan induce a beneficiary to stay with the 'status quo' default plan.

Given that both behavioral and rational choice elements may influence how individuals make decisions regarding health care plan enrollment, we shall specify our regressions such that both are taken into consideration—namely, we shall include as an explanatory variable past health care utilization to take into account rational choice aspects and information variables to proxy for knowledge of changes to the status quo. Prior doctor visits and prescriptions filled serve as proxies for the expected benefits from increased benefit levels, particularly for prescription drugs.

A priori, we would assume that information also plays a significant role in the decision making process. Access to and influence of information likely had an impact on whether an individual enrolled in one plan or another.[9] For instance, 66.1 percent of Enhanced Plan enrollees responded in the affirmative to the question, "Do you recall seeing this envelope [a package of information about Mountain Health Choices] in the mail?" in our survey instrument,

[9] In Section IV, we estimate the influence of information on whether individuals choose one plan or another.

whereas only 51.1 percent of Basic Plan enrollees answered yes. The difference in means on the basis of plan enrollment is significant at the 1 percent level for both adults and children. Beneficiaries were also queried about the sources of their information about the redesign program, which included doctors, case workers, official government sources, pharmacists, friends and family, etc. The influence of information "from the mail" was rated as the most significant, followed by that from the doctor. Yet the ability to understand this information is likewise crucial. Walsh, et al. (2009) have shown that health literacy has a significant influence on whether Medicaid beneficiaries make active choices among the two different plans.

PART IV: DATA AND METHODS

We use two data sources to assess which factors influence individuals' plan enrollment behavior. The administrative dataset, provided by the West Virginia Department of Health and Human Resources, Bureau for Medical Services, provides data on monthly health care utilization including doctor visits and the number of prescriptions filled between January 2005 and December 2008 (only data through July 2008 are used in the analysis given the time lag involved in filing claims, particularly medical claims). The data are compiled for use in program administration and payment of claims. We supplement these data with a rich cross-section of survey responses collected in late 2008 from a stratified random sample of Mountain Health Choices enrollees. These survey responses provide data on the role of information, health and psychological traits, and the perceived costs and benefits of the reforms, amongst many demographic and socioeconomic variables.

The administrative dataset provides data on the entire population of beneficiaries. These data were collected at the end of February 2009. The data include start and end dates for all

enrollment periods on Medicaid as well as indicators as to which plan the member is enrolled. Medical claim data and prescription data were merged onto the eligibility file. After restructuring the data for analysis, keeping only those who were ever eligible for MHC, and removing duplicate observations, there are almost six million person-month observations for all months and years for which we have data representing almost 200,000 members. We exclude members in the four counties that have not implemented Mountain Health Choices.

Time is a crucial element in our empirical design. Members receive a packet of information 60 days prior to their MHC eligibility, are automatically enrolled in the Basic Plan on the first day of their redetermination month (unless the enrollment process for the Enhanced Plan has already been completed), and have 90 days after their redetermination date to complete the enrollment process for the Enhanced Plan. Thus, we identify plan choice three months after the individual is eligible for MHC, after the enrollment period has concluded. Past medical and prescription use, defined as the number of doctor's visits in a month and the number of prescriptions in a month.

In our cross sectional analysis of the administrative data, Enhanced Plan enrollment is estimated as a function of past medical and prescription service use, age, and controls for county and month of the medical and prescription data:

$$\mathbf{Pr}[\mathbf{y_i} = \mathbf{1}] = \mathbf{Pr}[\mathbf{y_i^*} > 0] = \boldsymbol{f}(\mathbf{x_i'\beta})$$

where:

$$\mathbf{y_i^*} = \mathbf{x_i'\beta} + \mathbf{T'\delta} + \mathbf{u_i}$$

and y_i is our variable of interest. The dependent variable takes on a value of one if the person is enrolled in the Enhanced Plan and a value of zero if they are in the Basic. The variables included in "*x*" are past medical and prescription use, age and age squared. Past medical and prescription

use are defined in two ways. The first measure reflects medical and prescription information in the month prior to when the individual is mailed the information packet and prior to any expected behavioral changes due to eligibility for the program. The second measure represents data from the last observed month prior to the information month, allowing us to include individuals who were not enrolled in the month prior to receiving information but were enrolled in a previous period.

T is a set of dummy variables indicating the month of the medical and prescription information to account for the cyclical nature of service utilization (e.g., service use is higher in winter months). Intuitively, the above equations state that we are estimating the probability that the *Enhanced* variable will take a value of one (the member will enroll in the Enhanced Plan) based on an underlying process, y_i^*Error! Bookmark not defined.. When values of y_i^* are high enough (essentially the costs of enrollment are offset by the benefits of the Enhanced Plan), then the member will choose the Enhanced Plan.

Combining the cross-sectional survey data with administrative records results in 1,051 observations, of which 877 are children and 174 are adults. Within our sample, 478 of the children are enrolled in the Basic Plan, whereas 399 are enrolled in the Enhanced Plan. For adults, 63 are enrolled in the Basic Plan and 111 are enrolled in the Enhanced Plan. Stratified sampling and higher response rates for Enhanced Plan members resulted in much higher percentages of Enhanced Plan participation than the overall rate of 10 percent. Summary statistics for the survey sample of the Mountain Health Choices members are displayed in Table I.

The survey data were collected by mailing printed surveys to respondents' homes. One version was for adult beneficiaries and another was for parents/guardians of children enrolled in

the program. The mailing envelope, cover letter, and the questionnaire were all addressed to a specific Mountain Health Choices member, thereby removing concerns of mismatches in responses in the event that multiple beneficiaries lived in one household. We utilized a stratified random sample, with strata regarding whether the beneficiary was an adult or child, and whether the beneficiary had enrolled in the Basic Plan or the Enhanced Plan. Children and adults were sampled proportionally to their ratio in the administrative database, resulting in a sample comprised of 85% children and 15% adults. 600 surveys were sent to adult members and 3,400 were sent to parents/guardians of child enrollees.

Enhanced Plan members were oversampled given their relatively low (10%) composition of the Mountain Health Choices population at the time. To encourage survey completion, a $2 bill was enclosed with the package of documents and the survey instrument and we likewise informed enrollees that they would be eligible for a $500 drawing. A follow up post card was sent approximately one month after the survey was sent to Mountain Health Choices members. 1,073 beneficiaries completed the surveys, which represents an overall response rate of 26.8%. The response rate for Enhanced Plan beneficiaries was higher than that for Basic Plan beneficiaries, with 38% of the adults and 39.1% of children enrolled in the Enhanced Plan responding and 21% of adults and children enrolled in the Basic Plan responding. We deal with oversampling and possible non-response bias by weighting the survey responses to the full population. Further methodological details may be seen in Gurley-Calvez, et al. 2009.

We separately assess the influence of information about Mountain Health Choices from the doctor, from official government sources, and from friends and family, as well as whether having a transportation barrier or time constraints likewise influenced enrollment behavior. The 'influence of information' variables are coded as dummy variables, where "1" indicates that a

beneficiary self-reported influence from that particular information source (either that the information was "Somewhat Helpful" or "Very Helpful", versus a "0" coding for "Not Helpful" or "Did Not Receive Information"). The transportation barrier variable was similarly dummy coded, where "1" indicates some level of transportation variable versus "0", which indicates that a beneficiary "Almost Never" has a transportation issue. If a beneficiary self-reported that they could not develop the health improvement plan with their doctor due to time constraints, this was likewise dummy coded as a "1".

With separate adult and child subpopulations, we estimate an ordinary least squares (OLS) regression of the following specification to estimate the factors that influence plan enrollment for our cross-section sample of merged administrative *and* survey data:

$$\boldsymbol{y_i = \beta_1 docmth_i + \beta_2 rxmth_i + information_i'\delta + barriers_i'\gamma + controls_i'\theta + \epsilon_i}$$

where y_i is a binary variable with "1" indicating enrollment in the Enhanced Plan and "0" indicating enrollment in the Basic Plan. The variable, *docmth*, is the number of doctor visits per month a beneficiary had in the prior year and *rxmth* is the number of prescriptions per month utilized in the prior year. *Information* is set of variables measuring the influence of information about Mountain Health Choices from the doctor, official government sources, and friends and family. *Barriers* is a set of variables measuring the barriers (transportation problems and a self-reported lack of time to develop the health improvement plan) faced by beneficiaries or beneficiaries' parents. *X* is a set of control variables including an education dummy, a marital status dummy (1=married, 0=otherwise), age, and a dummy variable indicating urban counties (0 indicates relatively rural whereas 1 indicates otherwise).

Analogously, in our probit model with separate adult and child subpopulations, we estimate the probability that a member will enroll in the Enhanced Plan. Plan enrollment is

modeled as a latent function of the influence of information, the barriers a beneficiary faces, past health care utilization, and a set of controls:

$$\mathbf{Pr}[\mathbf{y_i} = \mathbf{1}] = \mathbf{Pr}[\mathbf{y_i^*} > 0] = \boldsymbol{f}(\mathbf{Z_i'\tau})$$

$$\boldsymbol{y_i^* = Z_i'\tau + \mu_i}$$

where $y_i y$ indicates plan enrollment (1=Enhanced Plan, 0=Basic Plan) and Z is our full set of regressors from above (information, barriers, docmth, rxmth, including controls). An additive error term is included. Note that the parameter estimates under the probit regression have different coefficients than the ordinary least squares regressions and the specifications are noted accordingly.

We estimate both the OLS and probit regressions as follows (see Tables II and III): (1) is a parsimonious specification including the information influence variables, the barriers to enrollment variables, and prior health care utilization (doctor visits per month and prescription utilization per month); (2) is a full controls model including the original regressors and, in addition, education, marital status, and rural/urban county dummies as well as age; and (3) includes all of the above regressors but weights the survey data to the full population of Medicaid Mountain Health Choices beneficiaries).

PART V: EMPIRICAL RESULTS

Marginal effects from the probit analysis of administrative records are presented in Figure II. We find consistent evidence that Medicaid members who had more doctor's visits and prescriptions prior to enrollment were more likely to select the Enhanced Plan. The marginal effects from the first specification indicate that an additional doctor's visit in the month prior to receiving the information packet results in a 0.8 percentage point (about 5 percent) increase in the probability of enrolling in the Enhanced Plan. An additional prescription increases the

probability of enrolling in the Enhanced Plan by 1.0 percentage points. The magnitude of the effects is similar for both measures of previous medical and prescription use and for children and adults. Age is also an important factor, particularly for adults, as older members are more likely to select the Enhanced Plan.

FIGURE II

	Overall		Adult		Child	
Month Previous to Information	M.E.	S.E.	M.E.	S.E.	M.E.	S.E.
Child	**0.109**	0.011				
Age	**0.022**	0.005	**0.032**	0.006	0.008	0.007
Prev. Doc.	**0.008**	0.002	**0.005**	0.002	**0.008**	0.002
Prev. Rx.	**0.010**	0.001	**0.009**	0.001	**0.010**	0.002
Female	0.001	0.006	-0.011	0.012	0.000	0.007
Observations	14,337		4,411		9,900	
Observed Prob.	0.149		0.118		0.163	
Predicted Prob. (at x-bar)	0.134		0.098		0.149	
Pseudo R2	0.065		0.099		0.061	
Most Recent Observed Month						
Child	**0.099**	0.007				
Age	**0.021**	0.003	**0.034**	0.004	0.005	0.004
Prev. Doc.	**0.007**	0.001	**0.007**	0.002	**0.006**	0.002
Prev. Rx.	**0.010**	0.001	**0.007**	0.001	**0.009**	0.001
Female	0.002	0.004	**-0.015**	0.007	0.003	0.005
Observations	28,352		8,468		19,880	
Observed Prob.	0.124		0.093		0.137	
Predicted Prob. (at x-bar)	0.110		0.075		0.125	
Pseudo R2	0.059		0.097		0.050	

Bold indicates statistical significance at the 5 percent level or better.
All specifications include county controls as well as an indicator for the month of medical information.

Results from the survey analysis also suggest that prior utilization of doctor's visits and prescriptions affect plan enrollment. While prior doctor visits and prescription usage have an impact on whether a child enrolls in the Enhanced Plan, the barriers faced by parents/guardians

also have a significant influence on enrollment behavior. Specifically, weighted probit regression results indicate that an additional doctor visit would increase the probability of Enhanced Plan enrollment by 4.4 percentage points and that an additional prescription would increase the probability by 3 percentage points (Table III). If a child's parent or guardian faced a transportation problem or lacked the time to develop the health improvement plan with his or her child's doctor, this would decrease the probability of enrolling in the Enhanced Plan by 9.7 and 9.6 percentage points, respectively.

The magnitudes are larger for adults, with an additional prescription indicating a 4.1 percentage point increase in the probability of enrolling in the Enhanced Plan. These results are quite robust across all specifications and methods—with a parsimonious form, with full controls, and with weighting to the full population, as well as with OLS and probit methods. The demand for prescriptions is clearly a fundamental driver of Enhanced Plan enrollment and this has been found in other studies of publicly provided health insurance programs (Levy and Weir, 2009).

The influence of information also has a significant impact on enrollment behavior. For child beneficiaries, if a parent/guardian indicated influence of information from the doctor or official government sources, this would tend to increase the probability of Enhanced Plan enrollment by 16.2 and 6.0 percentage points, respectively. Interestingly, if a parent/guardian claimed that friends and family were important sources of information, this would *decrease* the probability of enrollment by 8.9 percentage points. This finding of negative influence from friends and family regarding Enhanced Plan enrollment is reasonable given the findings of status quo bias and present-biased preferences in health care decision making. These effects are likely magnified within networks; if many individuals within a social network are prone to these behavioral and cognitive biases, it is likely that they will influence their friends and family

members in a similar manner. However, as Walsh, et al. (2009) have found, when testing these variables for whether a beneficiary made an *active choice*, there is still a negative influence of friends and family for children, but a positive influence of friends and family for adults. They posit that this is due to the fact that adults, having on average relatively poorer health, may have an intervention from friends and family to make an active choice of plans, whether for the Enhanced Plan or the Basic Plan.

While it is not surprising to find that access to information about the two different health plans influences health care plan enrollment, this has tremendous relevance for further implementation of the Mountain Health Choices program or for governments that are seeking to reform their health care programs in such a fashion. In this reform structure, to increase the flow of official information about the program may induce more beneficiaries to enroll in the Enhanced Plan, enabling those individuals who have hitherto lacked the requisite information about the two different plans and their parameters to make a fully rational choice.

However, as Downs, Loewenstein, and Wisdom (2009) suggest about information flows, increasing the flow of information about the Medicaid redesign program may not be as effective a mechanism to allow for individuals to choose as they would naturally compared to a "nudge", which in this regard may take the form of *suggesting* to individuals a specific plan in which to enroll on the basis of their prior health care needs. This may be a more effective strategy given that many beneficiaries had not received official sources of information about the program and many individuals indicated confusion or lack of awareness about the redesign structure.[10] In

[10] Indeed, there is a significant difference in means between the two different plans for both adults and children with regard to not being aware that two different plans existed (p=0.00)—similarly, there is a significant difference with regard to receiving the package of information between the two different plans for both adults and children (p=0.00). Further, relatively few respondents had heard of a health improvement plan (Bone, et al. 2009). Many beneficiaries indicated in survey responses that they were enrolled in one plan when administrative data indicated that they were enrolled in another.

fact, there were 227 individuals enrolled in the Basic Plan who were not even aware that two different plans existed—a striking 22 percent of the sample. Yet ceteris paribus, as indicated through our empirical results, effectively increasing the flow of official information will likely lead to an increase in the probability of Enhanced Plan enrollment.

Another intriguing result is the role of education as a determinant for plan enrollment. If a parent has less than a high school education, this decreases the probability that his or her child enrolls in the Enhanced Plan by 5.7 percentage points in our weighted probit specification (and strictly within our cross section, this induces an 11.4 percentage point decrease in probability).[11] This indicates that those with relatively less education may have a more difficult time understanding the different materials or face a similar barrier. This is aligned with the findings about the role of health literacy in Walsh, et al. (2009) and provides evidence that health literacy, coupled with the role of information, may have a significant impact on how individuals enroll in their respective plans. Indeed, health literacy tends to be positively correlated with preventative health measures and overall health (US Department of Health and Human Services, 2000). Marital status likewise plays a similar role, but with a positive influence. Namely, if a child's parent is married, this tends to increase his or her probability of being enrolled in the Enhanced Plan by 4.6 percentage points in our weighted probit specification (the effect is 8.3 percentage points in our unweighted probit model). The intuition for such a finding may revolve around the role of support networks within a nuclear family and the ability for parents to share responsibility over their child's enrollment in health care plans. The results are quite different for adult beneficiaries, however. If an adult has more than a high school education, this tends to *increase*

[11] These results—for both parental education and parental marital status—are significant at the 5% level in both weighted and unweighted OLS and probit specifications. Age is similarly statistically significant but has a negligible economic effect.

his or her probability of enrolling in the Enhanced Plan by 17.8 percentage points (or slightly less for the unweighted regression, 17.7 percentage points).

These results provide evidence for what would be construed as adverse selection in private health insurance markets, yet as we have shown above, the role of information and barriers likewise plays a significant role. Given that the R-squared for the unweighted and weighted OLS regressions for children is .153 and .098, respectively, and .254 and .196 for adults, it may be that there are other factors that likewise influence enrollment behavior at the macro level. Because many of the variables from our survey data were inoperable due to missing observations, we did not consider the myriad factors that may influence an individual's enrollment in health care plans. This is a promising avenue for future research, however, as understanding how individuals choose health plans given a system of incentives and sanctions is crucial for understanding health care reform.

PART VI: DISCUSSION AND CONCLUSION

While it appears that individuals do indeed self-select into the two different plans on the basis of prior health care utilization, there are other factors that significantly influence enrollment behavior. Our results provide evidence that the screening mechanism is effective for identifying members with the highest health care utilization patterns, yet the influence of information and the barriers faced by beneficiaries significantly impact how individuals enroll in one plan or another, holding constant the influence of prior health care utilization. Specifically, we have shown that the influence of information from official sources plays a huge role in enrollment behavior for both child and adult beneficiaries, whereas the influence of information from the doctor and from friends and family tends to significantly influence Enhanced Plan enrollment in

a positive and negative manner, respectively. Likewise, barriers faced by child beneficiaries' parents/guardians negatively influences Enhanced Plan enrollment behavior. These findings have tremendous implications for those considering implementing any type of health care reform that involves choice between plans and it is crucial to consider the flow of information about health care programs and the barriers faced by individuals en route to selecting a specific health insurance plan.

To understand whether this redesign method is a viable option for a given health care reform, there are several issues to consider. There are many normative and ethical aspects that must be weighed before considering the Mountain Health Choices redesign method as a legitimate means for health insurance reform. For instance, assessing whether a framework of incentives and sanctions is appropriate for a vulnerable population is crucial. Individuals enrolled in Medicaid tend to have relatively lower education levels and greater difficulty finding transportation to the doctor's office than the full population. They also, on average, live in rural localities, have relatively worse health than the general population, and are relatively impoverished. Furthermore, removing benefits for children and having their parents choose health care plans for them may not maximize the well-being of children.

As Bishop and Brodkey (2006) admonish, the Mountain Health Choices plan "asks physicians to violate all three fundamental principles [of medical professionalism]: the primacy of patient welfare, the principle of patient autonomy, and the principle of social justice." Issues of state paternalism are also crucial, as governments have great power over how they structure the delivery of public health insurance and can exert significant coercion as to how individuals choose health care plans and the types of activities in which they can engage after enrolling in a particular plan (for instance, to enroll in the Enhanced Plan, an individual *must* meet with a

doctor after signing the health improvement plan and member agreement to develop times to meet for counseling on nutrition, tobacco cessation, and diabetes treatment, among other activities). Conversely, public health concerns in West Virginia are quite pressing. For instance, obesity rates, tobacco usage, and chronic health care conditions rank relatively high in the State and effective methods for dealing with such public health issues are of significant importance.

Furthermore, there are myriad behavioral issues to consider when analyzing the optimality of such a redesign. One must wonder whether a beneficiary of public health insurance 'properly' imputes the probability of future health problems into her choice of plans. As results from behavioral economics have shown, individuals do not tend to assign objective probability distributions to health risks but moreover subjective ones—i.e. the subjective probability of a health risk is deemed quite low when it is actually relatively high and vice versa. Additionally, the costs and benefits of plan enrollment may not be accurately weighed. Beneficiaries may see as an immediate cost the mandate of going to the doctor and signing documents, yet they may not accurately forecast future health care demand or take into account stochastic health care events. The long run costs may far exceed the short run costs of enrollment. This is certainly the case for children, as many of the parents/guardians of children in Medicaid surveyed indicated that "my child does not need any of the services available under the Enhanced Plan." Then again, the resulting choice between plans may be a function of a rational calculus on the part of the beneficiary. We presume that the rational choice model has explanatory power for some individuals, yet elements from behavioral economics may better explain why we see some individuals choose one plan when they should be choosing another (on the basis of their prior health care utilization).

It is too early to ascertain whether the redesign has led to any substantive changes in health, service utilization, or expenditures, however, and this is a promising avenue for future research. It is difficult to forecast whether a reliance on preventative care and early screenings would increase or decrease costs. Within this investigation, we have focused on the redesign mechanism and the resulting choices made by beneficiaries to determine whether the self-selection process, default structure, and redesign initiative have effectively sorted those beneficiaries who need coordinated care from those who deemed the additional benefits to have enrollment costs that were too high. We would assume that implementing the practice of preventative medicine could enhance health status, yet given that many governments are looking to reform their public health insurance programs given serious budget deficits, analyzing the redesign on a cost basis is crucial.

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APPENDIX

TABLE I
SUMMARY STATISTICS - KEY EXPLANATORY VARIABLES

Variable		Overall Adult Mean	Overall Adult Std. Dev.	Basic Plan - Adult Mean	Basic Plan - Adult Std. Dev.	Enhanced Plan - Adult Mean	Enhanced Plan - Adult Std. Dev.
Transportation Problem	ns	.391	.489	.413	.496	.378	.487
No Time to Develop HIP	*	.161	.369	.222	.419	.126	.333
Information from Mail	***	.753	.433	.619	.490	.829	.378
Information from Doc	*	.305	.462	.222	.419	.351	.479
Information from Social Network	ns	.149	.358	.143	.353	.153	.362
Doctor Visits Per Month	***	1.075	1.043	.632	.695	1.327	1.123
Prescriptions Per Month	***	3.192	3.570	1.624	1.720	4.082	4.021
Education	ns	2.017	.701	1.984	.684	2.036	.713
Marital Status	ns	.316	.466	.254	.439	.351	.480
Age	***	35.02	8.016	32.90	7.357	36.24	8.156
Non-Rural	ns	.391	.489	.444	.501	.360	.482

Variable		Overall Child Mean	Overall Child Std. Dev.	Basic Plan - Child Mean	Basic Plan - Child Std. Dev.	Enhanced Plan - Child Mean	Enhanced Plan - Child Std. Dev.
Transportation Problem	***	.185	.388	.247	.432	.110	.314
No Time to Develop HIP	***	.124	.330	.172	.377	.068	.251
Information from Mail	***	.714	.452	.657	.475	.782	.413
Information from Doc	***	.285	.452	.203	.403	.383	.487
Information from Social Network	ns	.092	.290	.103	.304	.080	.272
Doctor Visits Per Month	***	.566	.595	.473	.538	.676	.640
Prescriptions Per Month	***	.690	.965	.545	.739	.864	1.157
Education *(of parent)*	***	2.217	.717	2.159	.752	2.286	.668
Marital Status *(of parent)*	***	.498	.500	.444	.497	.564	.497
Age	ns	7.943	5.421	7.697	5.417	8.238	5.417
Non-Rural	ns	.339	.474	.358	.480	.316	.465

NOTE. Significance for differences in means for each variable on the basis of plan type is indicated by *** for p-values less than .01, ** for p-values less than .05, and * for p-values less than .10. N=877 for the child sample and N=174 for the adult sample, for a total sample size of 1,051.

TABLE II
OLS REGRESSION RESULTS

Dep Var: Enhanced	OLS		Full Controls		Weighted	
	Child	Adult	Child	Adult	Child	Adult
Transportation Problem	-.194 ***	-.027 ns	-.175 ***	.007 ns	-.092 ***	.026 ns
	(.039)	(.068)	(.039)	(.069)	(.019)	(.047)
No Time to Develop HIP	-.204 ***	-.098 ns	-.193 ***	-.030 ns	-.094 ***	-.005 ns
	(.042)	(.105)	(.042)	(.104)	(.020)	(.053)
Information from Mail	.106 ***	.289 ***	.103 ***	.310 ***	.062 ***	.213 ***
	(.036)	(.080)	(.036)	(.083)	(.020)	(.048)
Information from Doctor	.231 ***	.111 ns	.227 ***	.132 *	.168 ***	.077 ns
	(.038)	(.075)	(.038)	(.075)	(.033)	(.063)
Information from Social Network	-.185 ***	-.040 ns	-.170 ***	-.039 ns	-.132 ***	.031 ns
	(.059)	(.097)	(.060)	(.093)	(.038)	(.065)
Doctor Visits Per Month	.065 **	.089 ***	.074 **	.091 ***	.047 *	.056 *
	(.033)	(.032)	(.035)	(.031)	(.027)	(.032)
Prescriptions Per Month	.049 ***	.030 ***	.043 **	.029 ***	.037 **	.055 ***
	(.019)	(.008)	(.020)	(.009)	(.018)	(.010)
Less than HS Education			-.105 **	.004 ns	-.064 ***	.002 ns
			(.044)	(.085)	(.024)	(.057)
More than HS Education			-.006 ns	.143 *	-.008 ns	.174 **
			(.035)	(.078)	(.023)	(.067)
Marital Status			.075 **	.103 ns	.049 **	.073 ns
			(.032)	(.072)	(.020)	(.056)
Age			.006 *	.004 ns	.004 *	-.001 ns
			(.003)	(.005)	(.002)	(.003)
County			-.007 ns	-.073 ns	.003 ns	-.006 ns
			(.033)	(.066)	(.020)	(.043)
Observations	*877*	*174*	*877*	*174*	*107299*	*16160*
					Weighted Observations	
R-Squared	.136	.221	.153	.254	.098	.196

NOTES. The dependent variable, *Enhanced*, is a binary variable where "1" indicates that a beneficiary has enrolled in the Enhanced Plan and "0" indicates that a beneficiary has enrolled in the Basic Plan. The first regressions are parsimonious, the second regressions include the full set of controls, and the third regressions are weighted to the full Medicaid Mountain Health Choices population. Regressions are estimated using ordinary least squares and have been corrected for serial correlation (robust standard errors shown in parentheses). The data include 877 child beneficiaries and 174 adult beneficiaries, for a total sample size of 1,051. Variables are defined in Part III. Significance is indicated by *** for p-values less than .01, ** for p-values less than .05, and * for p-values less than .10

TABLE III
PROBIT REGRESSION RESULTS

Dep Var: Enhanced	Probit		Full Controls		Weighted	
	Child	Adult	Child	Adult	Child	Adult
Transportation Problem	-.220 ***	-.031 ns	-.203 ***	.022 ns	-.097 ***	.017 ns
	(.042)	(.078)	(.043)	(.079)	(.018)	(.044)
No Time to Develop HIP	-.231 ***	-.085 ns	-.220 ***	-.009 ns	-.096 ***	-.009 ns
	(.046)	(.110)	(.047)	(.106)	(.019)	(.050)
Information from Mail	.118 ***	.361 ***	.114 ***	.400 ***	.060 ***	.174 ***
	(.039)	(.097)	(.040)	(.103)	(.020)	(.034)
Information from Doctor	.250 ***	.116 ns	.250 ***	.139 ns	.162 ***	.059 ns
	(.042)	(.082)	(.042)	(.081)	(.033)	(.059)
Information from Social Network	-.191 ***	-.051 ns	-.177 ***	-.013 ns	-.089 ***	.035 ns
	(.059)	(.114)	(.062)	(.116)	(.024)	(.069)
Doctor Visits Per Month	.074 *	.110 *	.087 **	.111 *	.044 **	.051 **
	(.038)	(.061)	(.042)	(.063)	(.022)	.025)
Prescriptions Per Month	.059 **	.059 ***	.051 **	.063 ***	.030 **	.041 ***
	(.024)	(.021)	(.025)	(.022)	(.014)	(.010)
Less than HS Education			-.114 **	-.027 ns	-.057 **	-.001 ns
			(.050)	(.100)	(.023)	(.054)
More than HS Education			-.003 ns	.177 **	-.003 ns	.178 **
			(.039)	(.077)	(.021)	(.083)
Marital Status			.083 **	.135 *	.046 **	.074 ns
			(.035)	(.076)	(.019)	(.055)
Age			.006 *	.002 ns	.004 *	-.001 ns
			(.003)	(.005)	(.002)	(.003)
County			-.005 ns	-.066 ns	.001 ns	-.019 ns
			(.037)	(.077)	(.020)	(.040)
Observations	*877*	*174*	*877*	*174*	*107299*	*16160*
					Weighted Observations	
R-Squared (*if available*)	.107	.214	.121	.250	-	-

NOTES. The dependent variable, *Enhanced*, is a binary variable where "1" indicates that a beneficiary has enrolled in the Enhanced Plan and "0" indicates that a beneficiary has enrolled in the Basic Plan. The first regressions are parsimonious, the second regressions include the full set of controls, and the third regressions are weighted to the full Medicaid Mountain Health Choices population. Regressions are estimated via probit methods and have been corrected for serial correlation (robust standard errors shown in parentheses). The data include 877 child beneficiaries and 174 adult beneficiaries, for a total sample size of 1,051. Variables are defined in Part III. Significance is indicated by *** for p-values less than .01, ** for p-values less than .05, and * for p-values less than .10 R-Squared is pseudo R-squared given the utilization of a probit regression form.

OVERVIEW OF SERVICES AVAILABLE FOR ADULTS UNDER MEDICAID REDESIGN

Benefits Comparison – Adult			
Benefit Description	**Basic (Adult)**	**Enhanced (Adult)**	**Traditional**
Inpatient Hospital Care	Prior Auth Required	Prior Auth Required	Prior Auth Required
Inpatient Hospital Rehabilitation	Not Covered	Not Covered	Not Covered
Inpatient Hospital Psychiatric Services	Not Covered	Prior Auth Required - maximum benefit of 30-days/year	Not Covered
Outpatient Surgery/Services	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)
Diagnostic x-ray, laboratory services and testing	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)
Primary Care Office Visits	Covered	Covered	Covered
Physician Office Visits - specialty care*	Covered	Covered	Covered
Occupational/Speech/Physical Therapy	Covered - maximum benefit of 20/year Prior Auth Required *(Total allowed for all therapies combined)*	Covered Prior Auth Required	Covered 20/year Prior Auth Required
Weight Management	Not Covered	Covered	Not Covered
Home Health Services	Covered - maximum benefit of 25/year (Prior Auth Required)	Covered (Prior Auth Required)	Covered (Prior Auth Required)
Durable Medical Equipment	Covered - limited to $1000 per year with Prior Auth required if limits exceeded (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)
Non-emergency Medical Transportation	Covered - maximum benefit of 10/year (5 round trips)	Covered	Covered
Ambulance Services	Emergent Only	Covered	Covered
Prescriptions	Limited - 4/month	Covered	Covered
Hospice	Covered	Covered	Covered
Emergency Dental Services	Covered	Covered	Covered
Orthotics and Prosthetics	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)
Tobacco Cessation Programs	Not Covered	Covered	Covered
Family Planning	Covered	Covered	Covered
Cardiac Rehabilitation	Not Covered	Covered (Prior Auth Required)	Not Covered
Pulmonary Rehabilitation	Not Covered	Covered (Prior Auth Required)	Not Covered
Chiropractic Services	Not Covered	Covered (Prior Auth Required)	Covered (Prior Auth Required)
Podiatry Services	Not Covered	Covered	Covered
Chemical Dependency/Mental Health Services*(limited)	Not Covered	Covered - maximum benefit of 20 visits/year	Covered
Diabetes Education/Nutritional Counseling	Not Covered	Covered	Covered
Nutritional Educational Services	Not Covered	Covered	Not Covered
Nursing Home Services	Covered (Prior Auth Required)	Covered (Prior Auth Required)	Covered (Prior Auth Required)

OVERVIEW OF SERVICES AVAILABLE FOR CHILDREN UNDER MEDICAID REDESIGN

Benefits Comparison -- Children			
Benefit Description	**Basic**	**Enhanced**	**Traditional**
Well Child Visits (EPSDT Services)	Covered	Covered	Covered
Inpatient Hospital Care	Prior Auth Required	Prior Auth Required	Prior Auth Required
Inpatient Hospital Rehabilitation	Prior Auth Required	Prior Auth Required	Prior Auth Required
Inpatient Hospital Psychiatric Services	Prior Auth Required - maximum benefit of 30 days/year	Prior Auth Required	Prior Auth Required
Outpatient Surgery/Services	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)
Diagnostic x-ray, laboratory services and testing	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)
Primary Care Office Visits	Covered	Covered	Covered
Physician Office Visits - Specialty Care	Covered	Covered	Covered
Birth to Three Services	Covered	Covered	Covered
Occupational/Speech/Physical Therapy	Covered - maximum benefit of 20/year (total allowed for all therapies combined) (Prior Auth Required)	Covered (Prior Auth Required)	Covered 20/year Prior Auth Required
Weight Management	Not Covered	Covered	Not Covered
Home Health Services	Covered - maximum benefit of 25/year	Covered	Covered
Durable Medical Equipment	Covered - limited to $1000 per year with Prior Auth required if limit exceeded (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)
Non-emergency Medical Transportation	Covered - 10/year (5 round trips)	Covered	Covered
Ambulance Services	Covered	Covered	Covered
Prescriptions	Limited - 4 per month	Covered	Covered
Hospice	Covered	Covered	Covered
Vision Services	Comprehensive eye exam, glasses - maximum benefit of $750/year	Comprehensive eye exam, glasses, contact lenses, vision training	Comprehensive eye exam, glasses, contact lenses
Emergency Dental Services	Covered	Covered	Covered
Dental Exams (dental check-ups)	Covered - 2/year	Covered	Covered
Hearing Services/Aids/Supplies	Annual exam and hearing aids when medically necessary	Covered	Covered
Orthotics and Prosthetics	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services)	Covered (Prior Auth Required for Certain Services
Tobacco Cessation Programs	Covered	Covered	Covered
Family Planning	Covered	Covered	Covered
Cardiac Rehabilitation	Covered (Prior Auth Required)	Covered (Prior Auth Required)	Not Covered
Pulmonary Rehabilitation	Covered (Prior Auth Required)	Covered (Prior Auth Required)	Not Covered
Chiropractic Services	Not Covered	Not Covered	Covered
Podiatry Services	Not Covered	Covered	Covered
Chemical Dependency/Mental Health Services (limited)	Covered - maximum benefit of 26/year (Prior Auth Required)	Covered (Prior Auth Required)	Covered (Prior Auth Required)
Diabetes Education/Nutritional Counseling	Covered	Covered	Covered
Nutritional Education Services	Not Covered	Covered	Not Covered
Skilled Nursing Care (Private Duty Nursing)	Not Covered	Covered (Limited to 180 days/yr --Prior Auth Required)	Covered

West Virginia Medicaid Member Agreement

This Agreement outlines your Rights and Responsibilities as a person in the West Virginia Medicaid Program. It also is about ways you can work with your doctor and other health care providers to become healthier.

MEMBER RESPONSIBILITES

1. I will follow the rules of the West Virginia Medicaid program.

2. I will do my best to stay healthy. I will go to special classes as ordered by my medical home.

3. I will read the booklets and papers my medical home gives me. If I have questions about them, I will ask for help.

4. I will pick a medical home within 30 days or one will be picked for me.

- I will go to my medical home when I am sick.
- I will take my children to their medical home when they are sick.
- I will go to my medical home for check-ups.
- I will take my children to their medical home for check-ups.
- I will take the medicines my health care provider prescribes for me.
- I will show up on time when I have my appointments.
- I will bring my children to their appointments on time.
- I will call the medical home to let them know if I cannot keep my appointments or those for my children.
- I will let my medical home know when there has been a change in my address or phone number for myself or my children.

5. I will use the hospital emergency room only for emergencies.

MEMBER RIGHTS

1. I have the right to pick my medical home. This is where I go for check-ups or when I am sick and where my health care records will be.

2. I have a right to decide things about my health care and the health care of my children. I have a right to see my medical records. I have the right to ask questions about my health care and the health care of my children.

4/17/06 VMC

3. I will be treated fairly and with respect. I will get the care and treatment I need as soon as possible. I will not be treated differently because I am in the Medicaid Program.

4. I have a right to know about all laws and rules of the Medicaid Program.

5. I can contact Medicaid or my health plan with any questions about my health care.

6. I have a right to be sent a written notice when West Virginia Medicaid decides to deny or limit my Medicaid eligibility or services. I have a right to appeal a decision that says I have not kept my part of this agreement.

7. I have the right to appeal a decision that denies or limits my Medicaid eligibility or services. I have a right to appeal a decision that says I have not kept the member responsibilities in this agreement.

MEMBER ACKNOWLEDGEMENT

The information in this paper has been explained to me and I agree to follow this Medicaid Member Agreement.

_____ _____
West Virginia Medicaid Member Signature Date

_____
Witness: Title:

Location:_____
Date

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HEALTH IMPROVEMENT PLAN

Patient/Clinician Health Improvement Plan for Enhanced Medicaid Benefits
Child/Adolescent

Patient's Name_____ Medicaid ID Number_____

Date of Birth _____ Medical Home_____

1. Please indicate how often you and this patient have agreed that he/she will be seen at health center (medical home) this year (**choose one**):

   O **One** visit to the primary care provider this year

   O **Three** visits to the primary care provider this year (approximately every 4 months)

   O **Quarterly** visits to the primary care provider this year (approximately every 3 months)

   O **Monthly** visits to the primary care provider this year

   O **Other** as per EPSDT periodicity schedule # _____visits

2. Please mark any of following preventive and/or chronic illness care tests/procedures you would recommend for this patient **in the next 12 months:**

   () Age appropriate immunizations () Lipid screening

   () Lead Screening () Glucose level

   () Other_____ () Dental Check-ups

3. Health Education Classes. Please place a check mark in the appropriate box indicating if this patient needs education on any/all of the listed topics:

Nutritional Education ( )	Weight Management ( )	Diabetes Education ( )	Tobacco Cessation Education ( )

( ) I do not wish to sign the Member Agreement or to work with my medical home to develop a health improvement plan. By signing this, I am showing that I know that I will have the Mountain Health Choices Basic Benefit Plan.

Signature_____ Date _____
(Parent or Guardian)

Witness _____