CCRC
Actuaries, LLC

Response to Request for Proposal No. INS12001

West Virginia Offices of the Insurance Commissioner

Actuarial and Economic Modeling Services

Contact Information:

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April 2, 2012

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April 2, 2012

Purchasing Division
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Re: Response to Request for Quotation No. INS12001

Dear Ms. Murray:

We appreciate the opportunity to submit our response to Request for Proposal No. INS12001 – Actuarial and Economic Modeling Services. We have assembled a seasoned and experienced project team to address the complex actuarial and economic issues associated with building a successful Health Insurance Exchange in West Virginia. Jonathan Gruber, MIT Department of Economics, will lead the economic components of the work product, Dave Bond of CCRC Actuaries will lead the actuarial components and Michael Madalena will serve in the critical role of database management in assembling the necessary health care, demographic and premium information. This team is highly qualified to perform the requested actuarial and economic services due to our experience and knowledge in performing comprehensive actuarial and economic analyses for public and private health insurance programs, our experience in providing actuarial and financial analyses to government entities, and our expertise in governmental and health care issues.

Jonathan Gruber, a nationally recognized economist, is uniquely qualified to develop the economic models and address the various economic issues that impact the development of a successful Health Insurance Exchange. Mr. Gruber served as an advisor to the Romney Administration and the Massachusetts Legislature during the development of health care reform in Massachusetts, has served as a member of the Commonwealth Health Connector Board that oversees implementation of the law, and has most recently assisted Health and Human Services and the states of Colorado, Maine, Minnesota and Wisconsin. He was also a technical consultant to the Obama Administration and Congress during the development of the Affordable Care Act.

Since our formation in 2000, CCRC Actuaries' focus has been entirely on the actuarial issues in the financing of health care. We have served over 300 clients across the country including the Centers for Medicare & Medicaid Services, the Department of Defense and the states of Colorado and West Virginia. We are proud of and it is significant that each of these clients has been previously served by international actuarial consulting firms and has made the decision that CCRC Actuaries will be their actuarial firm. Additionally, we have extensive experience providing testimony to the Executive and Legislative Branches of the State of West Virginia, as well as various Boards and Management Teams.

CCRC Actuaries considers our prior experience and intimate knowledge of the West Virginia Health Plans a valuable asset to the State of West Virginia. No other actuarial firm has the depth of knowledge of the West Virginia health care delivery system and no other actuarial firm has produced a comprehensive actuarial model of the West Virginia health care financing system based on each of the State's 1.8 million residents. We would describe our relationship as professional and with trust that has been earned through experience. The experience and competence of the actuarial team led by Dave Bond has effectively

analyzed and projected experience for the West Virginia Health Plans for the last twenty-two years. Our professional services have been provided independently with integrity and diligence, meeting all requirements in terms of insightfulness, quality and timeliness.

Mr. Madalena is a Healthcare Econometric Consultant that has over twenty-four years of experience providing evidence based healthcare actuarial and econometric solutions. While the vast majority of his client base is governmental (state employee benefit programs, retirement systems, Medicaid systems, and regulatory agencies), he has also been active in the private employer and insurance carrier markets. In addition to his consulting expertise, Mr. Madalena also has extensive experience in the processing and analysis of healthcare data. He has developed a number of applications that utilize the databases he has constructed in the course of his consulting engagements.

CCRC Actuaries would serve as the prime contractor for this project, with Mr. Gruber and Mr. Madalena providing their expertise through subcontracts with CCRC Actuaries. The combined qualifications of the professionals on our team will prove to be a tremendous asset to the State of West Virginia in the development of the West Virginia Health Insurance Exchange. We appreciate your consideration of our project team and look forward to the opportunity to continue our relationship with the State of West Virginia Health Plans.

Should you have any questions or comments regarding our response, please do not hesitate to contact our offices.

Respectfully,

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I. INTRODUCTION / EXECUTIVE SUMMARY

A critical component of the Patient Protection and Affordable Care Act (ACA) is the establishment of state-based Exchanges. These Exchanges are innovative new marketplaces for individuals and small businesses to purchase health insurance. They also provide the major point of leverage for states to influence the implementation of the ACA. Many of the other policy levers under the ACA are controlled by the Federal government, from the determination of subsidy amounts to the definition of essential benefits. For states such as West Virginia, with a history of innovation and leadership in the health care arena and a strong interest in maximizing the potential of the ACA, the design and implementation of Exchanges should be a critical focus of policy makers in the coming years.

West Virginia will face a wide variety of choices about Exchange policy that must be resolved well in advance of the 2014 start date for Exchanges, such as:

- How to design Exchanges and outside insurance markets to minimize adverse selection.
- What role can reinsurance, risk adjustment, and risk corridors play in conjunction with Exchanges to ensure a fair distribution of risks across payors?
- How to best integrate the individual and SHOP Exchanges.
- Should the state merge non-group and small group insurance pools for rating purposes?
- Which health benefits will be a part of the West Virginia package of essential health benefits?

These are just a small subset of the many issues the state will face going forward in designing an Exchange. At the same time, any Exchange will be incorporated into a broader ACA framework that is outside of the state's control.

Effective state policy making on Exchanges, therefore, will require two key analytic inputs. The first is a rich understanding of the existing health insurance market. Only by carefully understanding the distribution of state population across insurance types, and the prices paid by individuals and firms for that insurance, can the state assess how those individuals and firms will react to the changes in the insurance environment that will arise due to the ACA. The second is a dynamic model of exactly how individuals and firms will respond to the ACA. Such a model must account for the complicated set of interacting incentives put in place by the ACA and the joint reactions to those incentives by firms, their workers, and household insurance decision makers.

In this proposal, we lay out a clear plan to address both of those needs in order to provide the essential inputs to Exchange planning for the State of West Virginia. We will do so by drawing on a wide array of data for West Virginia on individuals, firms, and the insurance environment in which they function. We will use this data to undergird an economic microsimulation model that has been developed over the past twelve years to undertake exercises exactly like those required by this Request for Proposal (RFP). This model has been used by a wide variety of state and federal policy makers and provides an ideal platform for modeling the effects of the ACA in West Virginia.

We begin by providing background on the research team and the models we will be using for this work. We then describe the wide variety of excellent West Virginia-specific data sources we plan to draw on for this analysis, and how this data will be used in microsimulation modeling. In

Section II we lay out the work plan for addressing the specific questions that are asked in the RFP.

Project Team Background

Dr. Jonathan Gruber

The principal health economic consultant for this project will be Dr. Jonathan Gruber, who will be supported by a team of research assistants. Dr. Gruber is a Professor of Economics at the Massachusetts Institute of Technology (MIT), where he has taught since 1992. He is the Director of the Health Care Program at the National Bureau of Economic Research, the nation's leading economic research organization. He is also a member of the Institute of Medicine, the American Academy of Arts and Sciences, and the National Academy of Social Insurance.

Dr. Gruber received his B.S. in Economics from MIT, and his Ph.D. in Economics from Harvard University. He has received an Alfred P. Sloan Foundation Research Fellowship, a FIRST award from the National Institute on Aging, and the Kenneth Arrow Award for the Outstanding Health Economics Paper of 1994. He was also one of fifteen scientists nationwide to receive the Presidential Faculty Fellow Award from the National Science Foundation in 1995. In 2006, he received the American Society of Health Economists Inaugural Medal for the best health economist in the nation aged forty and under. Dr. Gruber's research focuses on the areas of public finance and health economics. He has published more than 135 research articles, has edited six research volumes, and is the author of *Public Finance and Public Policy*, a leading undergraduate text.

During the 1997-1998 academic year, Dr. Gruber was on leave as Deputy Assistant Secretary for Economic Policy at the Treasury Department. From 2003-2006, he was a key architect of Massachusetts' ambitious health reform effort, and in 2006 became an inaugural member of the Commonwealth Health Connector (Connector) Board, the main implementing body for that effort. In that year, he was named the nineteenth most powerful person in health care in the United States by Modern Healthcare Magazine. During the 2008 election, he was a consultant to the Clinton, Edwards and Obama Presidential campaigns and was called by the *Washington Post*, "possibly the [Democratic] party's most influential health-care expert." During 2009-2010, he served as a technical consultant to the Obama Administration and worked with both the Administration and Congress to help craft the Patient Protection and Affordable Care Act.

Dr. Gruber brings three key attributes to this Project Team. The first is an expertise in health economics that is crucial to understanding how individuals and firms will respond to the incentives put in place by the West Virginia Health Insurance Exchange (WVHIE). The second is an expertise in policy making around Exchanges. Having served on the Board of the Commonwealth Health Connector, Dr. Gruber was a key architect of the nation's first comprehensive health insurance exchange. The Connector has been very successful to date in expanding access to, and improving the functioning of, the non-group insurance market; non-group insurance enrollment has more than doubled while prices have fallen by 50% relative to national trends. At the same time, the Connector has had only limited success in extending these benefits to the small group market, for a variety of reasons that may be informative for West Virginia as it moves forward. Dr. Gruber can provide insight into the causes of these successes and failures and how they might best be addressed.

The Gruber Microsimulation Model

The third attribute is that Dr. Gruber is the creator and primary manager of the Gruber Microsimulation Model (GMSIM), which computes the effects of health insurance policies on the distribution of health care spending and private and public sector health care costs. This model has been used over the past decade by a wide variety of state and federal policy makers to analyze the impacts of health insurance reforms. This model was first developed in 1999 for use in estimating the impact of tax credits on health insurance coverage, with funding from the Kaiser Family Foundation. Over the subsequent decade, the model's capability has been expanded to consider the full variety of possible health interventions, including public insurance expansions, employer or individual mandates, purchasing pools for insurance, single payer systems, and more. This model is widely used for a variety of health insurance modeling tasks. A partial list of sponsors over the past several years includes: The Kaiser Family Foundation, The Commonwealth Fund, The California Endowment, The California Health Care Foundation, The AFL-CIO, The Blue Cross/Blue Shield Association, the Universal Health Care Foundation of Connecticut, and The Robert Wood Johnson Foundation.

GMSIM has recently been used by a number of states to model state-specific health insurance reforms. In particular, GMSIM modeling for the Commonwealth of Massachusetts was a basis for fundamental health insurance reform in that state in 2006. This model was used first by Governor Romney's administration as they developed their proposals, and then for the legislature as they considered alternative paths to translating this proposal into legislation. Over the past decade, the model has been used in states such as California, Connecticut, Delaware, Kansas, Michigan, Minnesota, Oregon, Vermont, Wisconsin and Wyoming to model policy options in those states.

Perhaps most relevantly, GMSIM was used widely by both Congressional and Administration officials during the development of the ACA. GMSIM became an important resource during this process because of the close similarity between this model and the microsimulation model used by the Congressional Budget Office (CBO). GMSIM was able to mimic CBO's predicted impacts of the ACA on insurance coverage and government costs, making it an invaluable resource for policy makers who relied on CBO for the official scores of their legislative proposals. This allows us to carefully model the impact of the ACA on West Virginia in a manner which is closely consistent with nationally validated estimates of the impact of reform.

Most recently, Dr. Gruber has used GMSIM to model the implementation of ACA, and the key policy issues that rises for establishing Exchanges, in the states of Colorado, Connecticut, Maine, Minnesota, and Wisconsin. Dr. Gruber has carried out analyses for those states which parallel what is requested by this RFP, modeling their existing insurance markets and the impacts of ACA in those states. This allows him to be well positioned to consider those same issues in the context of West Virginia.

GMSIM is a complicated model that requires expertise in both computer programming and economic analysis. Dr. Gruber will be assisted by a team of high quality research assistants who have experience working with GMSIM on related policy issues.

CCRC Actuaries, LLC

The principal actuarial consultant for this project will be Dave Bond of CCRC Actuaries. CCRC Actuaries was founded by Dave Bond, F.S.A., M.A.A.A. and Brad Paulis in December 2000. Since CCRC Actuaries' formation, our actuaries have worked with a significant number of public and private self-insured health insurance programs. The nucleus of the CCRC Actuaries staff was previously the Baltimore Office for Health Care Actuarial Services of Ernst & Young LLP (Ernst & Young). While at Ernst & Young, the Baltimore office consulted with numerous health care organizations. Ernst & Young subsequently ceased the separate operations of Health Care under Actuarial Services. In addition to the long term care entities which we currently have as clients, we have performed actuarial work for several federal and state entities, including the Centers for Medicare & Medicaid Services (CMS), the Department of Defense (DoD), and the states of West Virginia and Colorado, as well as managed care and health insurance clients. CCRC Actuaries is proud of and it is significant that each of these clients were previously served by international actuarial consulting firms and have made the decision that CCRC Actuaries will be their actuarial firm.

Currently, CCRC Actuaries has over 300 clients including the following major clients: United Mine Workers of America Health and Retirement Funds (UMWA), the West Virginia Public Employees Insurance Agency (WVPEIA), the West Virginia Retiree Health Benefit Trust (WVRHBT), the West Virginia Children's Health Insurance Program (WVCHIP), The Robert C. Byrd Health Policy Institute, the Howard Hughes Medical Institute, and the West Virginia Department of Insurance - AccessWV. CCRC Actuaries has provided actuarial consulting services to the State of West Virginia for the last twenty-two years. Additionally, CCRC Actuaries is the primary actuary for engagements with the CMS and the DoD through a subcontract with Kearney & Company, P.C. CCRC Actuaries currently staffs eight actuarial consultants and provides the full gamut of health care actuarial services with the focus being long-term care and government programs.

CCRC Actuaries' Projection Model

CCRC Actuaries developed an actuarial projection model in 2009 for the West Virginia Health Care Authority which has the ability to forecast changes in insurance coverage for the 1.8 million West Virginians. The principle insurance packages at that time were commercial insurers, WVPEIA, WVRHBT, Medicaid, Medicare, WVCHIP and the uninsured. This model, as well as other actuarial models, will be utilized in providing the required actuarial inputs for the GMSIM economic model, in addition to other actuarial components of the project. This model will be updated to reflect specific requirements of the ACA and the workings of the WVHIE.

The CCRC Actuaries' projection model is a cohort model which projects health care expenditures based on demographics including health care expenditures, age and gender, insurance provider and household income. This model included the likelihood that families would purchase or elect coverage, the analysis was based on the affordability of the proposed insurance coverage, as well as the availability of other forms of insurance generally offered through employers. Families will select whether to have health insurance coverage and what amount of coverage in the future will use the same criteria as in the past with different choices. For example, healthier families will probably select the bronze or catastrophic plans, while less healthy families will be more likely to choose the gold or platinum plans. The decision will be

based on the families' expectation of future health care needs and the ability for the families to finance the various options.

CCRC Actuaries has extensive experience in modeling the impact of mandated benefits on both the national and West Virginia levels. Mandated benefits from the ACA that have been analyzed by CCRC Actuaries for its clients include eliminating lifetime and annual limitations, free preventive health services, extending coverage for children to age 26, potential Medicaid eligibility for current members of health plans, increase Medicare physician reimbursements, and Medicare Advantage payment reform. CCRC Actuaries has also analyzed the cost of numerous West Virginia legislative bills that have required various benefits, most recently analyzing the impact of mandated autism benefits in West Virginia.

The Gruber Microsimulation Model and CCRC Actuaries' Projection Model Integration

The teaming of GMSIM and the CCRC Actuaries' projection model will provide policy model options and recommendations with cost and price points in operating an Exchange in West Virginia. This will provide the basis in determining at what level of utilization sustainability will occur.

Madalena Consulting

The principal data management consultant for this project will be Madalena Consulting, LLC (Michael A. Madalena, Principal Consultant). Madalena Consulting has been active in the area of health care consulting since 1988 and as an independent entity since 1993. The majority of clients are public sector - Medicaid systems, public employee systems, and retirement systems. Madalena Consulting also consults with research entities, insurance companies, and private employers who are at risk for health insurance.

Mr. Madalena has twenty-four years of experience with the Oracle database (primary RDBMS) in both clustered and non clustered configurations (Version 5.0 to Version 11g), associated utilities (Export, Import, SqlLoader, and Server Manager), and interfaces (SQLPlus, PL/SQL, OCI, ODBC / ADO, and XA). He also has eleven years of experience with Oracle's application server and has used Portal, Discoverer, Report Server, and Forms Server for a wide variety of applications. In addition to the Oracle reporting and analysis tools, he has considerable experience with third party tools such as Cognos, Crystal Reports, Microstrategy, and Brio.

Mr. Madalena has been heavily involved in the development of many applications based on database systems, ranging from auto-associative heuristic learning models used for the measurement of disease and condition prevalence in populations based upon traditional health insurance data (medical, eligibility, and prescription drugs) to simulations that predict the results of various managed care initiatives.

Mr. Madalena holds a B.A. from Clarion State College in Social Sciences (concentrations in History and Psychology) and a M.S. from Carnegie Mellon University in Public Management and Policy Analysis with a concentration in Information Systems.

Madalena Consulting's primary business location is in Venetia, Pennsylvania. Several professional and support personnel are located in the Dallas, Texas and Phoenix, Arizona areas. Remote personnel access Madalena Consulting's computing resources via a series of virtual

private networks (VPN), a private wide area network (WAN), and web based secure socket layer (SSL) applications.

Madalena Consulting specializes in creating and maintaining health care databases from administrative systems such as claims and eligibility. Madalena Consulting's processing improves the data by editing and validating source data and enhancing the datasets with external measures and indicators such as CMS groupers, disease state groupers, normative data, and benchmarks. When available, other administrative and clinical data such as life insurance rosters, lab results, and information from programs such as wellness and demand management are merged into the database as well.

In addition to creating and maintaining integrated health care databases, the organization is also heavily involved in leveraging the value of the databases by supporting analysis and reporting services. These reporting applications and analyses include areas of interest such as:

- Development of evidence based strategies of health care financing.
- Business user interface development using a variety of reporting packages and on-line analytic processing (OLAP) tools.
- Computer simulation models of insured persons' behavior in a variety of health insurance plan designs.
- Development of prospective payment systems (both inpatient and outpatient), physician fee schedules, prescription drug reimbursement models.
- Actuarial and underwriting analyses such as incurred but not reported (IBNR); selection bias (disease state and demographic models); risk adjustment development models using custom, commercial (i.e. ACG from Johns-Hopkins), and academic (i.e. CDPS) systems; plan design modeling and simulation; and fund balance projections.
- Custom claim adjudication and enrollment system design, development, and implementation.

Additionally, Mr. Madalena and Dr. Gruber have collaborated on several projects in West Virginia, including:

1) A longitudinal study of WVPEIA members that examined the relationship of employee income, claim cost, and out of pocket expenses.

2) Analysis of the behavioral of Medicaid members enrolled in the Mountain Health Choices program.

Dr. Gruber and Mr. Madalena are also currently working to identify and develop datasets that will be used to further understand the relationship between employee cost (in terms of both premiums and cost sharing) for health care and the health insurance options they select.

CCRC Actuaries and Madalena Consulting have been working together in terms of analyzing health care financing issues for West Virginia governmental entities continuously over the last nineteen years. Working together serving the needs of WVPEIA, WVRHBT, WVCHIP, AccessWV and the West Virginia Health Care Authority, this Project Team has analyzed risk differentials in various populations on geographical and coverage basis. Our work has been used by state decision makers to determine policy directions and establish alternative benefit structures. When state legislators questioned the accuracy of what the State of West Virginia's

cost would be under the expanded Medicaid provisions of the ACA, the West Virginia Health Care Authority asked CCRC Actuaries to perform an independent analysis.

Data and Microsimulation Methodology

A strength of the analysis for West Virginia is the excellent data that is available for undertaking the modeling work requested by this RFP. In this section, we review the key data sources that will be employed.

Household Level Data

The core data for the GMSIM comes from the Current Population Survey (CPS), a nationally representative survey which provides detailed data on insurance coverage, employer insurance offering, health status, and detailed demographic information (income, race, age, etc.). The CPS provides representative data at the state level, so that we can use the West Virginia-specific sample to form the basis of the microsimulation modeling. In order to provide sufficient sample size, we will pool the most recent three years of the Current Population Survey (2009-2011) – this yields a sample size of 2700 households containing 5700 individuals in the state.

In other states, we have found that state-specific surveys sometimes yield different estimates of the insurance coverage distribution than that state's sample for the CPS. To address this in West Virginia, we will use the *2007 West Virginia Healthcare Survey* (WVHS) conducted by the West Virginia University Institute for Health Policy Research Group to recalibrate our CPS estimates. Initially, in 2001, the WVHS of 16,493 households was undertaken to learn about West Virginians who did not have health insurance. The survey was updated in 2007 on a sample of 1,750 households. The 2007 survey provides valuable statewide measures of change, but is not large enough to provide county-level estimates.

As has been done in other states, we will use tabulations of insurance coverage by age and income groups from the WVHS to recalibrate CPS data for the same year. We will then use the most recent CPS to update trends in coverage and apply those to our pooled 2009-2011 CPS sample.

We will also calibrate our data to ensure that it matches administrative totals for enrollment in private and public health insurance. Madalena Consulting will provide detailed distribution of the population by age and gender for the insured groups of WVPEIA, WVPEIA-Medicare, Medicaid and Medicare Dual Eligible, Medicaid Non-Dual Eligible, and WVCHIP. Further data will be obtained from the U.S. Census Bureau and other sources to understand the distributions of the Commercially Insured, Uninsured, and Medicare Non-Dual Eligible and Non-WVPEIA groups.

To update this data into the future, we will rely on U.S. Census Bureau projections. In aggregate, the various insured populations will be adjusted year by year to tie to the total West Virginia population that is projected by the U.S. Census Bureau.

Individual Insurance Market Data

In order to appropriately model reform, it is important to understand the characteristics of the individual or non-group insurance market that exists today in West Virginia. Compared to other

states, West Virginia has a relatively limited individual health care market. Industry estimates that only approximately 2% of West Virginians have individual policies. In 2010, West Virginia Insurance Commission reports indicate that there were approximately 14,000 lives covered by individual major medical policies. It is noteworthy that the top five insurance companies represent approximately 91% of the market in terms of lives. The largest individual insurance company is Highmark, which represents 74% of the premium volume and 66% of the lives in the marketplace. AccessWV is the state's high risk pool and covers approximately 1,000 additional lives. The AccessWV program offers four products to individuals and families, though its composition is 94% individual.

West Virginia Market Report – 2010 – Individual Business			
Company Name	Premiums	Lives	Claims
Highmark West Virginia, Inc.	$35,246,673	9,079	$15,614,741
Time Insurance Company	$5,964,485	2,179	$2,468,221
John Alden Life Insurance Company	$2,726,802	972	$1,127,889
Aetna Life Insurance Company	$1,285,177	63	$608,286
Health Plan of the Upper Ohio Valley	$1,246,860	265	$914,699

To understand this market, our Project Team would explore detailed information on plan characteristics, premiums, and rating rules of the top ten insurance companies. Currently, there are no restrictions or limits on rating individuals in West Virginia. However, premium increases must be filed with the West Virginia Offices of the Insurance Commissioner (WVOIC) and cannot be changed unless the rate filings are approved or satisfy a sixty day deemer qualification.

CCRC Actuaries has provided the management team of AccessWV preliminary analysis of the actuarial values based on the standard risk for the four AccessWV health plans, as well as an analysis of the Highmark individual products which are used to establish the marketplace premium restrictions which apply to the AccessWV program. Plan A, which has a $400 annual Medical deductible and a $2,000 maximum out of pocket, has an actuarial value of 78%. Plan B, which has an $800 annual Medical deductible and a $2,500 maximum out of pocket, has an actuarial value of 74%. Plan C, which has a $2,000 annual Medical deductible and a $3,000 maximum out of pocket, has an actuarial value of 67%. Plan D, which has a $4,000 annual Medical deductible and a $5,000 maximum out of pocket, has an actuarial value of 61%. Comparatively speaking, using the same risk assumption, the Highmark plans varied from 65% to 84% in terms of actuarial value.

Group Insurance Data

The small group and large group market represents the largest proportion of insured West Virginians. This market includes governmental payers, commercial insurers and self-insured entities. Our Project Team has experience collecting and analyzing data from all of these markets. According to reports from the WVOIC, the small group major medical business totaled 48,359 lives and the large group major medical business totaled 112,379 lives in 2010. In the small group major medical insurance market the top two insurers represent approximately 80% of the market. In the large group major medical insurance market, the top eight insurers represent 97% of covered lives. The charts below show the five largest insurers in the small and the large group health insurance marketplace.

West Virginia Market Report – 2010 – Small Group Business			
Company Name	Premiums	Lives	Claims
Highmark West Virginia, Inc.	$159,138,199	35,492	$122,741,879
Coventry Health and Life Insurance Company	$81,224,381	N/A	$57,363,823
United Healthcare Insurance Company	$14,279,589	3,497	$10,270,347
Carelink Health Plans, Inc.	$9,768,987	1,306	$6,294,125
Health Plan of the Upper Ohio Valley	$9,394,593	2,044	$9,406,643

West Virginia Market Report – 2010 – Large Group Business			
Company Name	Premiums	Lives	Claims
Highmark West Virginia, Inc.	$257,726,461	55,630	$237,658,746
Health Plan of the Upper Ohio Valley	$74,762,186	21,012	$67,415,076
Carelink Health Plans, Inc.	$35,104,010	4,262	$28,352,330
United Healthcare Insurance Company	$34,631,285	9,554	$29,436,595
Coventry Health and Life Insurance Company	$27,093,125	6,604	$20,122,793

CCRC Actuaries and Madalena Consulting have collected detailed distribution of the population by age and gender for the insured groups of WVPEIA, PEIA-Medicare, Medicaid and Medicare Dual Eligible, Medicaid Non-Dual Eligible, and WVCHIP. Further data was obtained from the U.S. Census Bureau and other sources to understand the distributions of the commercially insured and Non-PEIA groups. This information will be supplemented by the Medical Expenditure Survey Insurance/Employer Component (MEPS-IC). This data represents a very large sample of employers that are surveyed on their insurance details, including premiums and the sharing rules for premiums between employers and employees. The MEPS-IC provides state-specific and firm-size specific information that can allow us to impute premium information onto both large and small firms in the state. In addition to the insured portions of the small and large group market, there are significant numbers of employers who provide health insurance on a self-insured basis. As part of our analysis we will identify the largest providers and collect information to identify and analyze this portion of the health care economy.

Matching Insurance Market Data To Household Data

A key missing component in household surveys such as the CPS is data on insurance premiums and plan characteristics. We will resolve this issue by matching the data collected on insurance premiums and plan characteristics in the individual and group markets to our household data. In particular, we will use information on the characteristics of policy holders of plans in our data to match to comparable individuals in the CPS data. This will allow us to attach plan details to our CPS sample individuals.

Microsimulation Methodology

The GMSIM is a very complicated model that has evolved over the past twelve years to address the wide variety of health policy questions of the type discussed in this RFP. A detailed description of the model and how it functions is available at: http://econ-www.mit.edu/files/5939. In this section, we provide a brief overview of the model to help inform our responses below.

GMSIM is able to carefully integrate all of the key features of the ACA, including but not limited to:

- The introduction of tax credits for low income families.
- The individual mandate.
- Tax credits for small businesses.
- Penalties for businesses whose employees get federal tax credits.
- Reformed insurance markets with modified community rating and guaranteed issue with no preexisting conditions exclusions.
- Regulations on minimum insurance coverage, such as mandated benefits, maximum deductibles for small businesses, and out of pocket maximums.
- Regulations on insurers, such as mandates for dependent coverage, coverage of preventive care with no patient cost sharing, and minimum Medical Loss Ratio (MLR) restrictions.
- The introduction of a state insurance exchange.

GMSIM first turns these policy rules into a set of insurance price changes. For example, for the newly available tax credits, the model computes the implied percentage change in the price of non-group insurance for each individual in the model. These price changes are then run through a detailed set of behavioral assumptions about how changes in the absolute and relative price of various types of insurance affect individuals, families, and businesses. The key concept behind this modeling is that the impact of tax reforms on the price of insurance continuously determines behaviors such as insurance take-up by the uninsured and insurance offering by employers. The model assiduously avoids "knife-edge" type behavior, where some critical level is necessary before individuals respond, and beyond which responses are very large. Instead, behavior is modeled as a continuous function of how policy changes (net of tax) insurance prices.

In doing this type of analysis, a number of assumptions must be made about how individuals will respond to tax subsidies, through their effect on the price of insurance. These assumptions have been developed based on the available empirical evidence from the health economics literature, to which Dr. Gruber is a major contributor, and are outlined in the detailed documentation cited above. Indeed, one of the most important features of GMSIM is its transparency. Due to the proprietary nature of such models, many other modelers are unwilling to share in detail the underlying assumptions that are so critical to the analysis. Dr. Gruber has made it a clear feature of all of his engagements that all assumptions that underlie the analysis are publicly available and that he is willing to engage in any necessary "sensitivity analyses" around those assumptions.

The fundamental problem faced by most individual-based microsimulation models is that data on individuals does not reflect the nature of their co-workers, so that it is impossible to know the features of a firm's workforce. GMSIM addresses this problem by building "synthetic firms" in the CPS, assigning each CPS worker a set of co-workers selected to represent the likely true set of co-workers in that firm. The core of this computation is data from the Bureau of Labor Statistics that show, for workers of any given earnings level, the earnings distribution of their co-workers. Using this data, other sample individuals are randomly selected in order to statistically replicate the earnings distribution for that worker's earnings level. These workers then become the co-workers in a worker's synthetic firm.

This allows us to undertake detailed modeling of how employers will respond to the incentives put in place by the ACA. In the model, employers face three decisions about insurance: offering (whether to offer if now not offering, or whether to drop if now offering); the division of costs

between employer and employees; and the level of insurance spending. Each of these decisions is modeled as subject to "pressures" from government interventions. In particular, subsidies to outside insurance options (such as the expansion of Medicaid or tax credits to the Exchange) exert pressures on firm's currently offering insurance to drop that insurance and to raise employee contributions (in order to induce their employees to choose the outside option); subsidies to employer spending on insurance (such as the small business tax credit) exert pressures on firms that don't now offer insurance to be more likely to offer and causes firms to pick up a larger share of the cost of insurance as well as to increase insurance generosity; and penalties on firms that do not offer insurance causes firms to not drop insurance.

We can divide the data initially into those employers who offer insurance and those who do not, and explore their characteristics, most notably firm size, industry, and geography. We can then within each group model the dynamics of insurance offering, employer contributions, and insurance generosity. Although the RFP only highlights the first of these employer reactions (offering), the other reactions are critical for modeling both firm health insurance spending and employee decisions to enroll in Employee Sponsored Insurance (ESI). Based on this modeling, we can address the key questions raised in the RFP as well as additional questions of importance such as:

- How many firms begin to offer insurance, and how many firms stop offering?
- How many firms take advantage of the small employer tax credit?
- What happens to employee contributions among those firms that continue to offer insurance, and what are contribution levels among firms newly offering?
- What happens to the generosity of insurance among those firms that continue to offer insurance, and what is the generosity among firms newly offering?
- How many employees will take advantage of newly offered insurance by employers?
- How will employees react to the changes in insurance coverage among firms that continue to offer insurance?
- How many employees will exit employer insurance and join the Exchange (with tax credits) because employer contributions exceed 9.5% of their income (it is critical here to consider this question after employers have adjusted those contributions along the lines above)?

For each of these questions, and the others raised in the RFP, we can consider subgroup analysis by important employer characteristics such as firm size, industry, geography and average wages.

The RFP includes a very detailed set of requests which will provide state policy-makers with an excellent overview of the full set of issues that they need to understand in order to effectively implement the ACA. In the following sections, we provide our plan for addressing this full set of requests. Our responses follow the numbering convention in the Attachment A: Vendor Response Sheet.

II. VENDOR RESPONSE TO RFP / WORK PLAN

2.4.1. Background Research

As noted in the RFP, it is critical for West Virginia to have a "clear and comprehensive understanding of the current state of health insurance coverage" in order to design their Exchange. The rich set of data described in the introduction will allow us to carefully and comprehensively provide this information.

a. Study of the uninsured and underinsured in West Virginia

i. Descriptive Analysis of the Uninsured.

The pooled CPS sample that we will use will include observations on uninsured individuals in West Virginia. This provides a sufficient sample size to provide detailed analysis of the characteristics requested here. We will supplement with other data including WVPEIA.

a) **Household income:** The CPS has what is generally considered the highest quality data available on income.
b) **Household size:** The CPS also collects detailed information on relationships among everyone sharing the same living quarters so we can carefully measure household size.
c) **Geographic location:** The CPS sample is large enough that we will be able to distinguish the Charleston, Huntington, Parkersburg, Morgantown and Wheeling metro areas, as well as split the remainder of the state into its urban and rural components.
d) **Age and gender:** This is readily available in the CPS.
e) **Race and Ethnicity:** The CPS includes detailed identifiers for both race and ethnicity.
f) **Employment status and employer-sponsored insurance coverage:** The CPS provides detailed employment status information, as well as data on employer-provided insurance coverage.
g) **Eligibility and utilization for public programs:** We will gather data from the state on the precise eligibility criteria for each state public program, and use the detailed demographic information in the CPS to measure which uninsured are indeed eligible for public programs.
h) **Marital Status:** This is readily available in the CPS.
i) **Education Background:** This is readily available in the CPS.

Various estimates of the number of uninsured in West Virginia have ranged from 230,000 to 300,000. Recent Kaiser and Families USA studies have estimated the number as approximately 242,000 while the West Virginia Hospital Association has estimated the uninsured population at 300,000. The number of uninsureds account for 16-17% of the total population of West Virginia. Between 2007 and 2010, West Virginia Hospitals have provided $400 million to $580 million of uncompensated charity care.

We will provide the most accurate projections to date of the number of uninsured by approaching the problem simultaneously from two directions. The first is to use direct measures of uninsurance from household survey data (the CPS data which have been calibrated to the WVHS). The second is to use indirect measures that come from the difference between total population counts and administrative counts of insurance coverage. By combining these approaches we can narrow in on the proper measurement of uninsurance in the state.

ii. Descriptive Analysis of the Underinsured.

Assessing underinsurance is a more challenging undertaking because there is no clear definition of "underinsured". But using the methodology described above, we will have matched to each insured person in our data information about the generosity of their insurance coverage. In order to understand the whole marketplace, CCRC Actuaries will collect benefit, claim, and premium information from major group and individual carriers in order to analyze their benefits. Using this information, CCRC Actuaries will calculate the actuarial value of the major carriers. We can then define "underinsured" through a given cutoff in insurance generosity; for example, based on the ACA definition we can say that anyone holding a plan with an actuarial value of less than 0.6 is underinsured.

Having defined this sample, we can then provide information on topics as described below.

a) **Household income:** The CPS has what is generally considered the highest quality data available on income.
b) **Household size:** The CPS also collects detailed information on relationships among everyone sharing the same living quarters so we can carefully measure household size.
c) **Geographic location:** The CPS sample is large enough that we will be able to distinguish the Charleston, Huntington, Parkersburg, Morgantown and Wheeling metro areas, as well as split the remainder of the state into its urban and rural components.
d) **Age and gender:** This is readily available in the CPS.
e) **Race and Ethnicity:** The CPS includes detailed identifiers for both race and ethnicity.
f) **Employment status and employer-sponsored insurance coverage:** The CPS provides detailed employment status information, as well as data on employer-provided insurance coverage.
g) **Eligibility and utilization for public programs:** We will gather data from the state on the precise eligibility criteria for each state public program, and use the detailed demographic information in the CPS to measure which underinsured are indeed eligible for public programs.
h) **Personal preferences for health insurance coverage:** This is readily available in the CPS.

iii. Future Projections for the Uninsured in West Virginia.

A key component of the modeling described above will be future projections. We will begin by using population projections from the census to measure changes in the

composition of the underlying West Virginia population. We will then augment that with projections from our economic model on the evolution of insurance coverage as the ACA is implemented over the next decade.

b. Study of the insured population in West Virginia.

i. Descriptive Analysis of the Insured Population

The pooled CPS sample that we will use will include observations on uninsured individuals in West Virginia. This provides a sufficient sample size to provide detailed analysis of the characteristics requested here. We will supplement with other data including WVPEIA.

a) **Household income:** The CPS has what is generally considered the highest quality data available on income.
b) **Eligibility and utilization for public programs:** We will gather data from the state on the precise eligibility criteria for each state public program, and use the detailed demographic information in the CPS to measure which insured are indeed eligible for public programs.
c) **Household size:** The CPS also collects detailed information on relationships among everyone sharing the same living quarters so we can carefully measure household size.
d) **Geographic location:** The CPS sample is large enough that we will be able to distinguish the Charleston, Huntington, Parkersburg, Morgantown and Wheeling metro areas, as well as split the remainder of the state into its urban and rural components.
e) **Age and gender:** This is readily available in the CPS.
f) **Race and Ethnicity:** The CPS includes detailed identifiers for both race and ethnicity.
g) **Employment status and employer-sponsored insurance coverage:** The CPS provides detailed employment status information, as well as data on employer-provided insurance coverage.
h) **Insurance Market:**
    1). **Individual market.**
    2). **Fully-insured group coverage.**
    3). **Self-insured plans.**
    4). **Municipal, state and federal health plans (WVPEIA, etc.).**
    5). **Medicaid.**
    6). **Children's Health Insurance Program (CHIP).**
    7). **Medicare (including those dually eligible for Medicare and Medicaid).**
    8). **Military health care coverage.**
    9). **Stand-alone dental coverage.**
    10). **Policies that are not comprehensive, but may be limited in duration, scope or renewability.**
    11). **Coverage with service or pre-existing condition exclusions.**
i) **Immigration status.**

We will rely on a mix of CPS household data and administrative data collected from insurers. The CPS can provide detailed information on who is covered in the individual market, private group coverage, state/local group coverage, and public insurance coverage. One important concern with survey data such as the CPS is an undercount of those who are publicly insured according to administrative data. As in other states where we have faced this problem, we will use administrative data to recalibrate our CPS data base to match the proper totals.

An August 2009 report for the West Virginia Health Care Authority estimated the insured population as follows:

Insurance Category	2009	2014
WVPEIA Non-Medicare	175,324	173,557
WVCHIP	24,480	25,280
Medicaid Non-Duals	321,113	310,925
Commercially Insured	757,884	750,878
Uninsured	286,264	278,585
WVPEIA Medicare	37,784	41,584
Medicare & Medicaid Duals	57,118	60,712
Medicare Non-Medicaid/WVPEIA	168,571	183,737
West Virginia	1,828,538	1,825,259

These estimates will be updated and expanded to include the individual and group commercial market, military health coverage and stand-alone dental. Madalena Consulting will provide detailed distribution of the population by age and gender for the insured groups of WVPEIA, WVPEIA-Medicare, Medicaid and Medicare Dual Eligible, Medicaid Non-Dual Eligible, and WVCHIP. Further data will be obtained from the U.S. Census Bureau and other sources to understand the distributions of the Commercially Insured, Uninsured, and Medicare Non-Dual Eligible and Non-WVPEIA groups.

Distinct insurance groups will be defined as necessary and used in the projection of health care financing. Conflicting data sources will be reconciled to the census data by gender and age band.

The illegal immigration population in West Virginia is one of the lowest in the country, estimated by the Federation for American Immigration Reform at less than 5,000.

ii. Coverage trends.

a) Insurance market (Health and Dental)
b) Geographic locations
c) Household income

We will once again begin with Census projections of the population change over the next decade. We will augment this with results from our modeling as described above. There could be significant selection issues in the initial years of the WVHIE due to the elimination of pre-existing requirements and the question whether non-participation penalties are significant to induce the market to purchase health care through the

Exchange. This anti-selection should diminish over time as the Exchange represents a more significant part of the health care financing system.

iii. Impact of Public Program Expansion

A core of the microsimulation modeling will be accounting for the expansion in public insurance that is a major feature of the ACA. In particular, we will begin by accounting for the fact that some individuals are already eligible for public insurance, while others are made newly eligible by the ACA expansions. For the former group, the major effect on enrollment will come through the mandate. For the latter, we will use our microsimulation model to capture the enrollment in public insurance among those newly eligible. In the GMSIM, such enrollment probabilities vary by income and health status to provide a realistic assessment of who ends up on public programs.

c. Study of the Small Business Health Options Program (SHOP)

i. Analysis of the small group population

The CPS data used in GMSIM includes firm size indicators which will allow us to focus on the small group market. We will augment this with administrative data on insurance enrollments by firm size to cross-calibrate our CPS results, and augment them as necessary to match administrative data.

ii. Estimates for each year 2014-2016 assuming the State implements the Exchange for the small group (single risk pool and separate risk pool):

a) 1 to 25 employee markets;
b) 26 to 50 employee markets;
c) 51 to 100 employee markets;
d) 101 + employee markets.
  1) Household income
  2) Household size
  3) Geographic location
  4) Age and Gender
  5) Race and Ethnicity
  6) Eligibility for public programs, including Medicaid, Children's Health Insurance Program, and other state-based public health care programs (such as: PCIP, AccessWV, Tri-Care, Small Business Plan)

For this section, we will rely on the microsimulation modeling described above. A natural output of this modeling will be changes in employer-provided insurance enrollment in general, and use of the SHOP Exchange in particular. One important request here is for information on the characteristics of workers in the small firms that will enroll in the SHOP Exchange, e.g. the age and gender mix of SHOP enrolling-firms of size 26 to 50 employees. A unique feature of GMSIM is that it allows us to combine firm and worker characteristics in order to access both the behavior of firms, and the types of workers that make up those firms. We can therefore model both whether a firm decides to enroll in the SHOP Exchange, and the features of its workers if it does enroll.

This will allow us to provide information on household income, size, etc. for workers in the SHOP Exchange enrolled firms, for 2014-2016.

iii. Analysis of the number of WV residents who work across state lines and the number of non-WV residents who work within the State of WV.

A limitation of the CPS is that it reports only residential location and not work location as well. To address this important issue, we will complement our analysis with data from the 2010 American Community Survey (ACS). The ACS has data on a limited set of measures for a large sample of residents in every state. The survey does not include much of the information that we need for our microsimulation modeling, but unlike the CPS, it does include separate information on both state of residence and state of employment. We will use data from the ACS to impute onto our CPS data base information about residents who work in other states. This will allow us to provide estimates of the number and characteristics of residents who work within and outside the State of West Virginia.

a) Descriptive analysis of the impact of pooling risk with surrounding states.

The high average cost of healthcare for West Virginians will complicate any attempt to pool risks with other states. Partnering with another state, may take different forms, whether it is contiguous states to form a regional Exchange or a set of non-contiguous states with similar philosophies on running the Exchange. There will be some benefits with regards to administrative cost savings and lower variance of results from the larger insured group; however, the savings are limited in terms of total dollars as administrative costs for the Exchange are a small portion of the total costs. It will be difficult to realize these savings and the effort to work with two or more administrations, state legislatures and rules will not be insignificant.

iv. Analysis of the number of small business groups that are eligible for tax credits and at what level.

a) Provide an assessment of current and projected take-up of employer tax credits.
b) Provide an assessment of employee take-up of health insurance in each group size.
c) Provide an assessment of employee per month health insurance cost to the employer and the employee of each group size.

An important feature of the ACA is a new small group tax credit. This credit is highly targeted: it is available only to firms with fewer than twenty-five employees with average wages below $50,000, and it phases out starting at a firm size of ten employees and average wages of $25,000. To measure the impact of this tax credit, therefore, it is critical to have information both on firm size and average firm wages. The synthetic firm approach described above allows us to measure both of these in combination, which will provide information on the eligibility of small firms for the tax credit, and at what level of credit.

1) We will then use the GMSIM to predict take up of the small firm credit among eligible firms, which is a function both of credit generosity and the characteristics of the workers in these firms.
2) We will also further model employee enrollment in health insurance in these firms.
3) We can directly measure the impact of the tax credit in offsetting our modeled premiums for these small firms.

v. Project the number of employers that may opt to not participate in the SHOP and the impact it will have on the individual market.

A central output of the microsimulation modeling will be predictions as to which firms will and will not participate in the SHOP Exchange. If employers don't participate, then we can model the decisions of their employees to separately pursue enrollment on the individual market – inside or outside of the individual market exchange.

vi. Analysis of Federal and State efforts over previous ten years to provide assistance to small employers in providing affordable health insurance coverage to their employees.

An interesting question raised by this RFP is what we can learn from previous efforts at the federal and state level to provide assistance to small employers. Professor Gruber has a comprehensive understanding of such previous efforts, and the lessons learned are reflected in the construction of GMSIM. He can provide a separate review of these efforts and the lessons learned, and how they influence the results that we obtain for the ACA in West Virginia.

d. Assessment of Coverage Affordability in West Virginia

A key question for analysis of the ACA is how it will impact the affordability of insurance for West Virginia residents.

i. Analysis of the number of underinsured.

As described in section 2.4.1(a)(ii), we can directly measure underinsurance in our data by matching administrative information on insurance plans to the individuals in the CPS. Having done so, we can then simulate the implications for the individuals. For example, we can model the expected out of pocket spending facing individuals given the generosity of the insurance they are purchasing, and we can then compare that to income to assess the risk of spending more than five or ten percent of income out of pocket.

ii. Estimate of the average premium as a percentage of income.

As described in our data section, a unique feature of our approach will be marrying detailed administrative data on health insurance premiums and generosity to household data on West Virginia residents. Having performed this match, it will be straightforward to measure premiums as a share of income, both overall, and by demographic subgroups such as income level, location, age and race.

iii. Using a measure of price elasticity; determine how the market will respond to price changes within and out of the Exchange taking into consideration the share of the health premium as part of household income and the amount of public subsidy.

This is a centerpiece of the microsimulation modeling described in section 2.4.1(f). When the ACA is implemented, individuals will see large changes in prices for their various insurance options, including public insurance, the Exchange, the outside individual market, and the employer insurance market. How individuals will respond to these changes will be a function of their characteristics, including household income. The GMSIM incorporates these individual responses into our predictions of insurance market changes.

iv. Beginning in 2011, provide an analysis of transition of current and future consumers of the Exchange; apply this same analysis yearly to 2013 then after 2014.

It is important to recognize that individuals and firms will not respond instantly on January 1, 2014 to the reforms that make up the ACA. There will be a transition period as responses phase in. GMSIM includes a model of that transition phase that follows the estimated transition path implied by the modeling of the CBO.

v. Assessment of CHIP subsidy verses Exchange premium tax subsidies.

Under the submitted WVCHIP Premium expansion plan, the CHIP expansion to 220% began enrollment effective in January 2007. Subsequently, WVCHIP Premium was expanded to 250% FPL effective in January 2009 and to 300% FPL effective in July 2011. Premiums are assumed to cover 20% of the policy cost for children in the 200% to 250% FPL eligibility group and 25% of the policy cost for children in the 250% to 300% FPL group. The monthly premiums are $35 for families with one child in the program and $71 for families with more than one child in the program. This existing structure will be compared to the ultimate Exchange premium tax subsidies as the premiums under the Exchange are developed.

Under the ACA, Medicaid eligibility will expand to individuals and families with income up to 133% FPL. Approximately 11,000 children in WVCHIP Gold will move to Medicaid under this expansion. The WVCHIP Program will serve the remaining children up to 300% FPL.

vi. Descriptive analysis of individuals and families in the following income thresholds:

1) **Below 139% of the Federal Poverty Level (FPL).**
2) **140% to 200% of the FPL.**
3) **201 % to 300% of the FPL.**
4) **301 % to 400% of the FPL.**
5) **401% or more of the FPL.**

As noted earlier, an advantage of the CPS data is that they provide widely recognized high quality data on incomes. We can therefore readily provide analyses by any subcategory of income which the state desires to analyze.

e. Health Insurance Marketplace in West Virginia

We can assert with great confidence that no other actuarial firm has a better understanding of the West Virginia health care environment than CCRC Actuaries. Beginning in 1990, CCRC Actuaries has been the primary health actuary for West Virginia's state programs, and has completed virtually all other state governmental payers' projects.

In 2009, CCRC Actuaries completed a comprehensive actuarial study on West Virginia's health care financing for the West Virginia Health Care Authority and West Virginians for Affordable Health Care. This study included an examination of the then current system, and various potential transformations of the system. The potential transformations included expansion of Medicaid eligibility for adults, "pay or play" insurance mandates for individuals and employers, implementation of a medical home initiative, e-prescribing expansion, and the development and improvement of health information technology. Implementation costs and claim reduction estimates were computed for WVPEIA, WVCHIP, Medicaid, Commercially Insured, Uninsured, Medicare and Medicaid Dual Eligibles, and WVPEIA and Commercial Medicare. CCRC Actuaries also assisted the West Virginia Department of Health and Human Resources (DHHR) by reviewing the models that DHHR developed to estimate the effect of Medicaid expansion for proposed Senate Bills for health care reform. CCRC Actuaries provided DHHR independent estimates and assisted with improving DHHR assumptions and techniques to most accurately reflect the effect the bill would have on Medicaid expenditures and enrollment. CCRC Actuaries has also met with various Governors of West Virginia and State Legislators to discuss, among other state health care topics, possible solutions to reducing the OPEB liability of the West Virginia Retiree Health Benefit Trust.

In evaluating the regional health care delivery system for West Virginia, it is clear that in general the health care markets of Maryland, Virginia and Pennsylvania are very different from West Virginia due to differences in metropolitan population. On the other hand, similarities can be found in western Maryland, southeastern Ohio, Kentucky and Tennessee.

West Virginia, with a median age of 41.3, has the distinction of being recognized as one of the states with the highest median age in the United States compared to 37.2 nationally. This has increased from 38.9 ten years ago. This has significant ramifications for the State of West Virginia, as it has watched the growing number of retirees in the program compared to the number of actives.

According to the Centers for Disease Control (CDC), the percent of West Virginia residents with a body mass index (BMI) greater than thirty was less than 15% in 1990. This has increased to over 30% by 2009. Consequently, obesity has contributed to West Virginia having a lower life expectancy for a new born of 75.2, compared to 78.6 nationally. West Virginia's child overweight and obesity rate stands at 35.5%, about 4% higher than the national average.

In combination with its rural character, these three observations define the challenges of financing health care in West Virginia. Whereas other areas and other states have been able to negotiate with providers to change practice protocols and receive substantial unit discounts,

West Virginia's rural makeup has hampered the development of these basic managed care precepts.

West Virginia public and private insurers have experienced a high rate of increase in benefit costs and resulting required premium increases. In particular, WVPEIA has been understandably concerned about the recent high medical trends in providing health care coverage of active employees and retirees, while the State Medicaid program has experienced an average 9.8% annual growth from Federal Fiscal Year 1990 to Federal Fiscal Year 2009 according to State Health Facts. In the period of 2007 to 2009, the State Medicaid program experienced lowers trends; however, due to the passage of Patient Protection and Affordable Care Act (PPACA), medical and drug trends have started to accelerate, and are expected to continue to rise due to the expansion of eligibility, restriction of coverage limits, and elimination of pre-existing condition clauses.

Let's take a moment and compare West Virginia health statistics to the United States:

- Age 65+ population is 15.8% in West Virginia and only 12.9% nationally based on 2010 projected census figures.
- Low birth weight babies index is 9.2 for West Virginia in 2010 compared to 8.2 nationally.
- Smokers among adults is 26.8% for West Virginia in 2010 compared to 17.2% nationally.
- The overweight and obesity rate for West Virginia was 67.9% in 2010 compared to 63.8% nationally.
- Cancer deaths per 100,000 population was 201.6 for West Virginia in 2008 compared to 175.3 nationally.
- Heart disease deaths per 100,000 population was 228.1 for West Virginia in 2008 compared to 186.5 nationally.
- Diabetes deaths per 100,000 population was 32.8 in West Virginia compared to 21.8 nationally.

What do these statistics mean in terms of utilization of services and mortality?

- Hospital admits of 155 per 1,000 in West Virginia compared to 117 nationally in 2008.
- Emergency unit visits of 671 per 1,000 population in West Virginia compared to 415 nationally in 2009.
- Hospital outpatient visits of 3,673 per 1,000 population in West Virginia compared to 2,091 nationally in 2009.
- The infant death rate of 7.5 per 1,000 of births in West Virginia compared to 6.8 nationally.
- The number of deaths of 958.5 per 100,000 population in West Virginia compared to 758.3 per 100,000 population nationally, principally through higher death rates from heart disease, cancer, stroke, and diabetes.

Additionally, according to a Gallup Healthway's survey, West Virginia's 2011 statistics include: obesity, 35.3 percent; high blood pressure, 38.9 percent; high cholesterol, 33.5 percent; diabetes, 15.7 percent; depression, 23.9 percent; heart attack, 7.6 percent; cancer, 8.8 percent; neck or back condition, 38.9 percent; leg or knee condition, 33.9 percent; other recurring pain, 23.9

percent. At 26.8 percent, West Virginia was second to Kentucky in smoking. At 13.2 percent, the state was sixth in asthma.

These statistics frame the challenge for the WVHIE, as well as the exiting organizations of WVPEIA, WVRHBT, WVCHIP and AccessWV management and their respective Boards in structuring a financial plan for delivering health care services to insureds, active employees, retirees and children.

West Virginia health delivery systems are relatively limited by geographical areas in the state and bordering out-of-state providers. The rural nature of the state is summarized in that only 55% of West Virginia's population lives in metropolitan areas compared to 80% nationally. There are few areas with multiple and competing hospital systems. In many counties, there are few choices between primary care providers and specialty care providers. The number of physicians and RNs per 100,000 population in West Virginia fall short of national averages and many counties have access problems. Due to the rural nature of the state and the relatively low number of physicians in the state, many rural physician providers basically have a monopoly where the insured has no other convenient choice for medical care. Subsequently, a substantial number of West Virginians travel across state lines to get health care services.

While managed care was introduced on a statewide basis to West Virginia through the WVPEIA in January 1995, the industry is relatively immature and has not grown successfully. WVPEIA has recently reduced its managed care options from two to one carrier. The rural nature of health care delivery in West Virginia has remained undeveloped compared to other areas of the country. According to CMS in 2010, only 48% of West Virginia Medicaid recipients were in managed care options, representing 161,579 out of a total of 339,288 Medicaid recipients. Nationally, the average is 71.6% of recipients in managed care. Preliminary analysis of HMO results in West Virginia has indicated that administrative expenses are high and health care utilization exceeds expected benchmarks. There are academic studies which question whether managed care can succeed in rural areas, due to the lack of competition between providers. To date, the verdict is unclear in West Virginia with respect to the future of managed care and currently remains as a potentially critical part of the financial puzzle of providing universal health care through the WVHIE.

While the ACA has moved a substantial number of children from WVCHIP to Medicaid, the WVCHIP Board and management team remains focused on is its outreach efforts to insure children eligible for the program. The WVU Institute for Health Policy Research recently issued a publication, *"Health Insurance in West Virginia, The Children's Report"* that estimated that 93.4% of all children in West Virginia have health coverage with either private insurance, WV Medicaid or WVCHIP. The study further estimated that there are approximately 23,000 children uninsured in households with estimated incomes at or below 250% of the Federal Poverty Level. The counties with the largest number of uninsureds are Kanawha, Berkeley, Wood, Cabell, Raleigh, Harrison, and Monongalia, with each having over 700 uninsured children.

The number of uninsured in West Virginia was approximately 242,000 in 2010, or about 14% of the entire state population. Nearly three quarters of the uninsured were in working families; working full time or part time with adults aged 19-34 are at the greatest risk of being uninsured. The highest rates of uninsurance occur in the southern part of the state and uninsurance rates have increased state wide except for the eastern panhandle. Currently, the biggest obstacle for residents to acquire insurance is the high cost of premiums, copays and deductibles.

Compounding the issue is that West Virginia spends 13% more per person on health care than the national average. Due to these costs, very few small employers offer health insurance to employees.

A major goal of the teaming of GMSIM and the CCRC Actuaries' projection model is to address any questions about the financial impacts of implementing an Exchange in West Virginia. Through this process, our Project Team will address whether state law should require that all comprehensive health insurers participate in the Exchange. We can use our integrated model to address the questions listed here:

i. Descriptive analysis and survey of the West Virginia insurance market.

CCRC Actuaries and Madalena Consulting have experience working with the WVOIC and collecting data from the major insurers in West Virginia. We will collect data from the major insurers in West Virginia, the WVOIC, Department of Agents Licensing & Education as well as the Independent Insurance Agents of West Virginia, Inc. This will allow us to break down by carrier and by producer the products sold in each market and will include the following requested information.

a) **Number of products in each market, and the range of premiums charged for these products;**
b) **Number of policyholders insured in each product;**
c) **Common benefit design and associated cost-sharing among commercial health insurance products;**
d) **Relationships between benefit design and premiums charged;**
e) **Regional variation in provider networks and network adequacy among commercial health insurance products, including geo-access reporting;**
f) **Agent commission structure; and**
g) **Provide an analysis of price points for producer services.**

ii. Producers.

a) **Geographic distribution of target markets;**
b) **Commission structure and compensation ranges, and;**
c) **Using a 20 year time span (10 years back and 10 years forward) define the per producer/per carrier sales relationship broken down into blocks or lines of business.**

Information will be segmented by the individual, small-group and large group market place, as well as by insurance status: insured versus self-insured. Data will be collected from the major insurers in West Virginia, the WVOIC, Department of Agents Licensing & Education as well as the Independent Insurance Agents of West Virginia, Inc. Our project team will also work with the WVOIC to collect actuarial memorandums that were initially filed and updated for individual and small group health insurance products offered by the private insurers in West Virginia. These memorandums will contain commission schedules and will allow our project team to gain further insight on historical commissions that have been paid by insurers.

Various methods of geographic rating and commission systems have been used in West Virginia, ranging from a single state rate to as many as four geographic regions, currently used by Highmark. In the benefit analysis, we will note actuarial value differences in the benefit structure for inpatient services, outpatient services, physician services, prescription drugs as well as preventative and wellness services. This data will assist in defining the historical sales by line of business and the historical commission structure. The historical data will be used in conjunction with the dynamic projection model of population movements between insurance plans to project future sales. To the extent the data is available; the analysis will be broken down by geographic region.

As insurers are faced with meeting the minimum loss ratio, commission structures may change. This changing environment will be projected through our dynamic modeling. Our analysis will include projecting the impact of the ACA on producer income.

iii. Estimate the range of commission that has historically been paid to producers by insurers in the individual and small group health insurance markets. Include a separate range for commissions that have been paid in other creative purchasing arrangements or pools (public and/or private).

Based on the data collected in section ii above, a range of historical commissions paid in the individual and small group health insurance market will be provided, as well as any other forms of commissions paid in both public and private health care financing. Our project team will also work with the WVICO to collect actuarial memorandums that were initially filed and updated for individual and small group health insurance products offered by the private insurers in West Virginia. These memorandums will contain commission schedules and will allow the project team to gain further insight on historical commissions that have been paid by insurers.

iv. Analyze and provide various pro and con scenarios of flat fee and time based compensation to producers versus percent of premium. Provide some judgment and analysis as to the additional (or lessened) work expected for producers under the reforms given the probable increase or decrease in business from the utilization of navigators, individual mandate, government subsidies and the new information, comparability, online eligibility and functionality associated with the Exchange.

The agent role is important in consumers understanding the health insurance purchased. While the majority of agents are currently paid on a percent of premium basis, converting to a flat fee or time based compensation may better allocate resources as insurance companies must comply with the new minimum loss ratio requirements contained in the ACA. This will reduce some of the incentive to oversell based on an individual's needs and provide an opportunity for the Exchange and insurance companies to develop a simplified reimbursement system that will allow them to comply with the ACA. Our final report will detail the pros and cons of various scenarios of commission structures requested by the WVOIC.

f. Economic Modeling and Fiscal Analysis

A major goal of the teaming of the GMSIM and the CCRC Actuaries' projection model is to address any questions about the financial impacts of implementing an Exchange in West Virginia. We can use our integrated model to address the questions listed here:

i. Exchange's impact on individual and group insurance premium rates.

The primary advantage of economic modeling is to appropriately capture population movements across insurance categories. The primary advantage of actuarial modeling is to appropriately price insurance given the composition of a given insurance pool. By combining the economic modeling of GMSIM with the actuarial projection modeling of CCRC Actuaries, we are able to provide the best possible estimates of insurance pricing after the ACA that reflect the population movements induced by the law.

In particular, we will follow the iterative process that Professor Gruber has used with other actuaries in Colorado, Maine, Minnesota and Colorado:

- GMSIM will be used to estimate "first round" estimates of the composition of population in each segment of the insurance market after the ACA is implemented. This will account for movements into and out of group insurance, the Exchange, the outside (of Exchange) individual market, and public insurance.
- Professor Gruber will then provide to CCRC Actuaries detailed data on the new composition of these different markets, including age, gender, and health risk.
- CCRC Actuaries will take this information and incorporate it into their actuarial projection model to estimate the impact on pricing in each of these market segments, overall and by individual (e.g. by age or illness burden).
- CCRC Actuaries will then provide to Professor Gruber the changes in prices by individual, which he will match back on to GMSIM.
- Professor Gruber will then reestimate GMSIM using these updated prices to get a "second round" of information on the insurance market distribution of state residents.
- If that second round is meaningfully different from the first round, the process will be repeated, until the price changes no longer induce significant population movements in GMSIM.

The end result of this process is a dynamic model of population movements and pricing in insurance markets in West Virginia. We will produce a sophisticated estimate of which individuals end up in which market segments, and what prices they are paying. The latter can be used to address the particular request in section (i).

ii. Analysis of Producer Exchange fees providing models for incentive and sustainability.

The dynamic model described in section i above of population movements and pricing will be utilized in projecting the various scenarios envisioned under this proposal. This model includes a sophisticated estimate of which individuals end up in which market segments, and what prices they are paying. As part of this projection, Producer Exchange fees will be included.

iii. Analysis for Insurance Company fees for Exchange participation.

The dynamic model described in section i above of population movements and pricing will be utilized in projecting the various scenarios envisioned under this proposal. This model includes a sophisticated estimate of which individuals end up in which market segments, and what prices they are paying. As part of this projection, Insurance Company fees for Exchange participation will be included.

iv. The present breadth and anticipated future of the limited medical benefit plan market.

Currently, West Virginians have access to limited medical benefit plans including, but not limited to, hospital indemnity, surgical indemnity, cancer, skilled nursing confinement, and physician office visit policies. These policies offer an affordable way for West Virginians to protect against catastrophic medical bills as standalone policies or as a supplement to a comprehensive major medical policy.

With the introduction of the ACA, it is widely believed that the number of limited medical benefit plans will decrease significantly. The ACA requires that the medical plans provide specific mandated benefits while also conforming to a benefit tier, with the lowest having an actuarial value of 60%. Most limited benefit plans will not meet one or both of these criteria, thus resulting in their phasing out.

One limited medical benefit plan that may be unaffected or thrive under the ACA is the catastrophic medical plans. Under the ACA, individuals who are under the age of 30 or who would otherwise be exempt from the requirement under the ACA to have coverage because available coverage is unaffordable or enrollment in available coverage would be a hardship may purchase catastrophic coverage to meet the individual insurance mandate.

Our Project Team will work with the WVOIC, as well as West Virginian insurers, to assess the current limited medical benefit plan marketplace. This will include the specific types of policies offered, premiums paid, and number of current policies in force. Our Project Team will then model how the marketplace will be affected by the provisions and implementation of the ACA.

v. Analysis of cost shift between public, private - currently insured and uninsured - and with anticipated coverage expenses in 2014-2020.

The West Virginia Health Care Authority has previously engaged economists to study the cost shift in West Virginia. In general, the lowest payer in West Virginia is Medicaid, followed by Medicare, followed by the state government organizations of WVPEIA, WVCHIP, and AccessWV, followed by the commercial insurers and the uninsured.

The basic relationships of cost shift environment in West Virginia should not change with the coverage expansion mandated by the ACA. This is primarily due to Federal physician reimbursement laws for Medicare, as well as WVPEIA state legislative laws that do not allow providers to balance bill. It is anticipated that commercial insurers will

continue to pay higher rates, and the Project Team will incorporate these relationships in its economic modeling.

As the number of uninsured in West Virginia decreases, there will be a reduced cost shift from the uninsured. It is anticipated that the majority of the uninsured will be covered by Medicaid, though others will be covered through the Exchange. On the other hand, the cost shift is projected to increase due to lower Medicare provider payments resulting from the funding aspects of the ACA. Our integrated model will project the impact of the changing environment as it relates to the cost shift between public and private insurance for the various scenarios modeled.

vi. Analysis of adverse selection risks inside and outside of the Exchange; between carriers and risks.

Our Project Team has considerable experience in identifying and analyzing the impact of adverse selection in a changing market. The ACA alters the insurance market that exists today in ways that fundamentally impact the potential for adverse selection. The ACA prohibits many of the current insurance company tools designed to control adverse selection by requiring health plans to accept any individual, regardless of health condition, with no pre-existing condition exclusion periods and no ability to charge higher rates to those with high cost health illnesses. To mitigate the risk of individuals delaying the purchase of coverage until they need it, the ACA includes a mandate to purchase health insurance, premium subsidies to enhance affordability, and open enrollment periods.

The ACA includes penalties for not purchasing coverage; however they are not overly burdensome. Consequently, the adverse selection experienced in today's voluntary market will not disappear entirely. It will reduce, however, as the mandate and premium subsidies should encourage previously uninsured healthy individuals to purchase coverage.

Other types of adverse selection will occur in a reformed marketplace. Insurance Exchanges will be at significant risk of adverse selection from plans that serve the outside individual and small-group markets. Under the ACA, disparities exist between the requirements for Exchange plans and the rules for plans in the outside market. West Virginia should attempt to minimize these disparities, and thus minimize the risk of adverse selection.

The ACA's Essential Benefits Package, which will be defined by the federal government and will apply to both the Exchange plans and to non-grandfathered plans in the individual and small-group markets outside the Exchanges, will help create much-needed consistency in coverage and parameters for plan design across plans. West Virginia should maintain similar benefit mandates that go beyond the Essential Health Benefits so that they are consistent inside and out of the Exchange.

There is a risk that the WVHIE's potentially wider provider networks could lead to adverse selection against the Exchange if the outside market has weaker requirements and thus less adequate provider networks, which would discourage enrollment by higher-risk individuals with greater health needs.

The existence of two markets, the WVHIE and a traditional health insurance market outside the Exchange, must be crafted carefully to avoid adverse selection in either market, to avoid one from becoming the equivalent of a state high risk pool. One of the ACA provisions – the requirement for a single risk pool for individual coverage offered inside and outside of Exchanges (and the same requirement for small group coverage) will be particularly important to mitigating adverse selection between the two markets. In addition, all qualified health plans must meet the Essential Health Benefit and actuarial value levels for individual and small group coverage inside and outside an Exchange.

One concern is the ACA may encourage large employers to continue to offer their employees insurance, but to redesign the benefits so that they appeal to healthy employees. This strategy could jeopardize the success of the WVHIE by triggering adverse selection. High-risk employees encouraged to purchase coverage in the WVHIE would make the pool of policyholders acquiring coverage inside the Exchange less healthy. This would increase premiums in the WVHIE, require larger government subsidies, and exempt a larger percentage of the population from the individual mandate (leading to further adverse selection).

vii. Analyze adverse selection among benefit tiers within the Exchange.

Our Project Team has considerable experience in identifying and analyzing the impact of adverse selection in a changing market. The ACA alters the insurance market that exists today in ways that fundamentally impact the potential for adverse selection.

Differences in benefit design may cause adverse selection within the WVHIE. Less healthy individuals are likely to select richer benefit packages while healthier individuals may opt for less generous benefits. Individuals purchasing coverage in the WVHIE could purchase the lowest-level coverage while healthy, and then switch to much richer coverage at the next open enrollment period if they become sick.

Individuals and employers will choose products in the WVHIE annually based on the price of coverage and benefits offered. This will create a retail market that is much more prone to adverse selection. The ACA includes risk adjustment programs developed by Health and Human Services (HHS) in consultation with states to address this issue. The risk adjustment payments may not fully compensate insurers for benefit costs in excess of payments received. As West Virginia designs an Exchange to attract consumers and health plans to the new marketplace, it will be important to include risk mitigation tools such as risk adjustment programs and open enrollment periods that provide affordable options to consumers.

While the ACA includes a number of safeguards to deal with adverse selection among different plans within the Exchange (such as the Essential Benefits Package, uniform rules for qualified health plans offered through the Exchanges, the requirement for a risk adjustment system, and the "single risk pool" requirement), additional steps that West Virginia can take include:

- Standardize benefit design options as much as possible.

- Create a minimum level of benefits that is standard across plans and coverage levels.
- Establish consistent enforcement of actuarial value requirements.

viii. Review and assess open enrollment strategies modeling the impact that such strategies could have on the insurance market, in and outside of an Exchange.

Open enrollment strategies are a crucial piece in mitigating against adverse selection. The ACA has changed the landscape of underwriting and rating procedures that were formerly a common practice. It will be crucial for the WVHIE to create incentives for consumers to maintain continuous coverage, while attracting a stable risk pool of members to the Exchange. This will help the Exchange to reduce the likelihood of experiencing severe adverse selection. Initial and ongoing open enrollment periods should be structured so that members maintain continuous health care coverage, rather than choosing to purchase coverage when they incur or are about to incur high cost health care services and products and dropping coverage after their health care needs cease. Furthermore, the open enrollment procedures should be open and amenable to everyone, so that the Exchange draws in a broad cross section of risk.

Our Project Team will work with the WVOIC in determining the impact of various open enrollment strategies. Possible strategies that could be considered include:

- Only allow mid-cycle changes if a life-changing event occurs.
- Assess penalties against those who enroll late.
- After disenrollment, the Exchange may prohibit re-enrollment of members who do not have at least six months of continuous credible coverage outside of the Exchange.
- Limit the frequency of choice by only allowing benefit changes every 2-3 years instead of annually.
- Limit the degree of change by restricting changes to one level of coverage per year.

Additional administrative considerations in our Project Team's report on the Exchange will include:

- After the initial enrollment period, open enrollment should be limited to a thirty day window annually.
- The Exchange should clearly define rules for situations in which individuals can enroll outside of the defined open enrollment time period.
- The open enrollment period for each individual can be tied to month of birth or home address so that the administrative costs and burdens can be spread evenly throughout the year.
- The Exchange will need to evaluate the extent to which individuals will move between Medicaid, WVCHIP, WVPEIA, and the Exchange in order to promote continuity of coverage.

- Various options of enrollment should be considered in order to improve consumer navigation of the Exchange. Options can include both online and in-person mediums.

ix. Analyze risk adjustment methodologies and recommend best approaches to comply with state and federal goals.

x. Assess reinsurance and risk adjustment options.

Combined response to sections ix. and x. To help protect insurers against risk selection and market uncertainty, the ACA establishes three programs which are scheduled to be effective in 2014: temporary reinsurance and risk corridor programs to give insurers payment stability as insurance market reforms begin, and an ongoing risk adjustment program that will make payments to health insurance issuers that cover higher-risk populations (e.g., those with chronic conditions) to more evenly spread the financial risk borne by issuers. These programs will ensure that health plans and issuers compete for coverage on the basis of price, quality and service. The proposed regulations provide standards to make the programs work and significant state flexibility for their implementation, while minimizing the burden on states and issuers. Well-designed reinsurance, risk corridors and risk adjustment programs can help encourage innovative care delivery that will slow the growth in health care expenditures and resulting health insurance premiums.

Risk Adjustment

The ACA provides for a program of risk adjustment for all non-grandfathered plans in the individual and small group market both inside and outside of the Exchange. Under this provision, the Secretary of Health and Human Services, in consultation with the states, will establish criteria and methods to be used by states in determining the actuarial risk of plans within a state. The risk adjustment program serves to level the playing field, both inside and outside of the Exchange. Risk adjustment ends the incentive for issuers to avoid the sick and market only to the healthy by transferring excess payments from plans with lower risk enrollees to plans with higher risk enrollees. For this reason, plans will have to compete on the basis of price, quality and service. This allows consumers the ability to pick the plan that best meets his or her needs. The proposal suggests that a constant set of data for risk adjustment be considered, preventing a health insurer that offers qualified health plan in different states from having different reporting requirements. It proposes that risk adjustment calculations occur at the state, rather than plan or federal level, given states' role in the system. And, while a federal risk adjustment methodology would be developed, states could use an approved alternative.

Reinsurance

The transitional reinsurance program is a critical element in helping to even out the health insurance market, moderate premium increases and set the foundation for the establishment of the Exchanges from 2014 through 2016. The ACA provides that each state establish a transitional reinsurance program to help stabilize premiums for coverage in the individual market during the first three years of Exchange operation. Under this provision, all health insurance issuers, and third-party administrators on behalf of self-

insured group health plans, will make contributions to a nonprofit reinsurance entity to support reinsurance payments to individual market issuers that cover high risk individuals. The proposed rule would simplify the reinsurance program: rather than using a list of fifty to one hundred conditions to set reinsurance policy, it would base reinsurance on high-cost enrollees' claims. This is similar to the private reinsurance market practice and the current Early Retiree Reinsurance Program. It also proposes flexibility for states, allowing them to run the reinsurance program regardless of its Exchange decision, supplement the payments, vary the thresholds for when reinsurance begins and ends, and contract with reinsurance entities to run the program.

Risk Corridors

In addition to risk adjustment and reinsurance, the risk corridor program is a third element of protection for qualified health plan issuers in the Exchange. Risk corridors create a mechanism for sharing risk for allowable costs between the federal government and qualified health plan issuers. From 2014 through 2016, qualified health plan issuers with costs that are at least three percent less than the issuers' costs projections will remit charges for a percentage of those savings to HHS, while qualified health plan issuers with costs greater than three percent of cost projections will receive payments from HHS to offset a percentage of those losses. The ACA directs HHS to administer the risk corridors program. The proposed rule aims to align the data and payment policies for this temporary program with other programs to promote simplicity and efficiency.

Our Project Team will work with the WVHIE to assess their various options within the various defined options. Our Project Team will have to consider the impact of the different reinsurance and risk adjustment options in each of the non-group, small group, and large group segments, as well as the four distinct regions of the West Virginia health care marketplace.

xi. Analyze various reforms and the impact such reforms, potential and actual, will likely have on premiums in different markets.

CCRC Actuaries has extensive experience in modeling the impact of reforms in West Virginia. To the extent that reforms reflect wider and more comprehensive coverage, higher premiums will result. CCRC Actuaries has analyzed numerous West Virginia legislative bills in order to estimate the cost of mandated benefits and benefit expansions, as well as the subsequent impact that the bill will have on projected claims and premiums. Significantly, CCRC Actuaries has developed an actuarial projection model of the West Virginia health insurance economy in 2009 for the West Virginia Health Care Authority which has the ability to forecast changes in insurance coverage for the 1.8 million West Virginians under various potential reforms. The principle insurance packages at that time were commercial insurers, WVPEIA, WVRHBT, Medicaid, Medicare, WVCHIP and the uninsured.

CCRC Actuaries' projection model is a cohort model which projects health care expenditures based on demographics including health care expenditures, age and gender, insurance provider and household income. This model included the likelihood that families would purchase or elect coverage. The analysis was based on the affordability of the proposed insurance coverage, as well as the availability of other forms of insurance

generally offered through employers. Families will select whether to have health insurance coverage and what amount of coverage in the future will use the same criteria as in the past with different choices. For example, healthier families will probably select the bronze or catastrophic plans, while less healthy families will be more likely to choose the gold or platinum plans. The decision will be based on the families' expectation of future health care needs and the ability for the families to finance the various options.

CCRC Actuaries will use its past experience in modeling reforms in combination with Professor Gruber's and Mr. Madalena's experience with other states. The end result will be a collaborative team effort that combines aspects of all partners' extensive background in modeling health care reform policies.

xii. Model the impact of merging small and non-group markets.

Our Project Team has valuable experience in modeling the merger of the small and non-group markets. This was an essential part of the Connector in Massachusetts, in which Professor Gruber works on a frequent basis as a member of the Board. When the Connector initially merged the small and non-group markets, it was estimated that premiums would decrease 15% for the non-group market, and increase 1-1.5% for the small group market. Rating rules were also revised such that group size adjustments were allowed a factor of [0.95 to 1.10] and was excluded from a 2:1 rating band that was applied to the rest of the Connector. The merger of the two markets has been successful, but much of the success is due to specific characteristic of the Massachusetts market including:

- The non-group market was less than 10% of the merged market, allowing the small-group market to absorb the higher cost of the non-group market without creating a rate shock. This relationship is similar in West Virginia, with the non-group accounting for 9% of incurred claims and 14% of earned premiums of the merged group in 2010.
- Plan designs between the two markets were not vastly different. The small group market's benefits had an actuarial value that was 7% greater than the non-group market.
- Rating rules for both markets were similar before the merger.
- Sole proprietors could purchase insurance in the small group market prior to the merger.
- The morbidity of the non-group was estimated to be 30-40% higher than the small group. Had the difference in morbidity been vastly larger, the small group would have experienced a very large rate shock.
- The Massachusetts uninsured population is younger, wealthier, and estimated to be healthier than the average U.S. uninsured population. An increase on the insured pool may have had a positive impact on premiums.

Our Project Team will use its experience from both the Massachusetts Connector, and the West Virginia health plans, to determine the impact of merging the non-group and small markets and whether the landscape of West Virginia will facilitate this merger without negative consequences.

xiii. Model likely behavior in individual, small group, and large group market in response to specified market changes and policy decisions.

In order to model the behavior of the individual, small and large group markets, the management team will have to have a full grasp on the characteristics of each of these groups in West Virginia. These characteristics will first be researched and modeled through Professor Gruber's microsimulation economic modeling. From there, our Project Team will analyze how various potential market changes and policy decisions will affect each of these market segments.

The rules and governance for each of these markets will have a significant impact on how the potential changes will impact them. Likewise, the impact of decisions and market changes will depend upon the detailed characteristic of each market segment, such as age, gender, actuarial value of health plans, premiums paid, health status, and family income.

xiv. Model the impact of the self-insured market on an Exchange and recommend various approaches to mitigate adverse impact.

Our Project Team will model the impact of the self-insured market based on multiple sets of assumptions that define the health insurance exchange, as well as the makeup of the self-insured market in West Virginia. It is important to note that our Project Team has extensive experience with the state's largest self-insured plans of WVPEIA and WVRHBT, which account for approximately 12% of the insured market in the state.

Self-insured plans are exempt from many of the ACA requirements, including the requirements of offering the soon to be defined "Essential Health Benefits." Because of this, it is likely that many large employers will choose to self-insure, in order to reduce costs by defining the health benefits of their own plan. Therefore, there is a significant risk of adverse selection, since the self-insured plans do not have to follow the same rules as government plans, plans offered by insurers, and those plans which are offered in the Exchange.

Our Project Team will identify the self-insured plans within the state, analyze their benefits, premiums, and claim costs, and determine the overall economic effect that the WVHIE and self-insured plans will have on each other. Our Project Team will also identify which employers are most likely to switch to a self-insured plan in the coming months. In order to mitigate against the potential adverse impact of the self-insured plans on the Exchange, our Project Team will analyze how each potential course of action will help or hurt the Exchange and the West Virginia health care marketplace.

xv. Assess the adverse selection impacts of various legislative and policy decision scenarios.

Our Project Team has considerable experience in identifying and analyzing the impact of adverse selection in a changing market. The ACA alters the insurance market that exists today in ways that fundamentally impact the potential for adverse selection. As various legislative and policy decisions are made, our Project Team will develop the impact of adverse selection under the options being considered for the Exchange.

xvi. Develop methodologies to measure the cost of state-mandated benefits on a per member per month basis (PMPM), of each of the mandated benefits for coverage sold through the Exchange.

CCRC Actuaries has extensive experience in modeling the impact of mandated benefits on both the national and West Virginian levels. Mandated benefits from the ACA that have been analyzed by CCRC Actuaries for its clients include eliminating lifetime and annual limitations, free preventive health services, extending coverage for children to age 26 and changes to the definition of dependency, potential Medicaid eligibility for current members of health plans, increase Medicare physician reimbursements, and Medicare Advantage payment reform. CCRC Actuaries has also analyzed the cost of numerous West Virginia legislative bills that have required various benefits, most recently analyzing the impact of mandated autism benefits in West Virginia.

CCRC Actuaries will work with Professor Gruber to measure the cost of state mandated benefits on a per member per month basis. CCRC Actuaries will use Gruber's micro-simulation model to determine the health, age, gender, and general risk status of the members inside the Exchange. In using the specific risk classifications of the expected population, a detailed and aggregate PMPM cost estimate can be calculated for each specific state-mandated benefit, as well as various combinations of state-mandated benefits.

xvii. Analyze regional rating factors, tobacco usage and age bands.

The Project Team has considerable experience in identifying and analyzing the impact of adverse selection in a changing market. The ACA alters the insurance market that exists today in ways that fundamentally impact the potential for adverse selection.

Currently, the private insurance market includes rating based on regional factors, tobacco usage and age bands. The ACA restricts the usage of these factors. Our Project Team will evaluate the efficiency of utilizing the various factors within the Exchange, and the potential impact both within and outside the Exchange to the usage of various factors.

2.4.2. Exchange Design Options

The teaming of GMSIM and the CCRC Actuaries' actuarial projection model will provide policy model options and recommendations with cost and price points in operating an Exchange in West Virginia. This will provide the basis in determining at what level of utilization sustainability will occur.

a. How will changes to the rating and underwriting requirements in the individual and group markets affect premiums for people currently covered?

The changing of rating and underwriting requirements is probably the most important aspect of implementing the ACA. How will the risk change as insurers can no longer perform underwriting on new and existing policies? At the same time, how will the risk change as those who were previously uninsured are mandated to obtain coverage?

The impact of the ACA changing rating and underwriting requirements will vary across states because of the various characteristics of the uninsured and underinsured who will obtain fully credible comprehensive coverage. The Massachusetts Connector was able to merge the individual and small group markets. When the Connector initially merged the small and non-group markets, it was estimated that premiums would decrease 15% for the non-group market, and increase 1-1.5% for the small group market. The merger was successful due to the characteristics of these markets in Massachusetts. West Virginia may experience similar results, as the individual market is a very small segment of the health insurance marketplace, accounting for approximately 15,000 policies in recent years.

The actuarial projection model will take all of these complexities into account, and will incorporate changes to individual and group market premiums that will occur as rating and underwriting requirements are changed. As described above, our innovative approach will integrate both economic modeling of the changes in risk pools due to reform, and actuarial projection modeling of how those risk pool changes impact premiums. The result will be a comprehensive and dynamic assessment of how the insurance regulatory changes in the ACA impact premiums, including for those currently covered.

b. What might the cost of policies be within each benefit tier offered through an Exchange (Platinum, Gold, Silver, Bronze, and Catastrophic)?

The actuarial projection model will develop projected premiums for each benefit tier under the various scenarios anticipated to be run under this proposal. CCRC Actuaries will map in all of the various risks in order to determine the likely premium level for each of the five benefit tiers offered. Premium levels will be affected by anticipated adverse selection as well as the migration of those covered under employer plans to the Exchange, among other factors.

It stands to reason that within a healthcare entity the catastrophic plans will have the lowest premiums, followed by the bronze, silver, gold, and platinum plans. However, when comparing premiums between insurers, there will likely be some disparity among the tiers where this relationship will not hold. All of this will be determined by the additional benefits provided for each plan besides the mandated essential health benefits and the insurers' relationships with their network of providers.

c. Using minimum, median and maximum projections, how many people will receive coverage through an Exchange and what will be their demographic profile?

The actuarial projection model will develop both the expected number of people covered under the Exchange as well as the anticipated range of possible results. This will parallel work done using GMSIM in a number of other states that are planning to implement health insurance Exchanges. As in those other states, this projection will include the demographic profile of the insured under the Exchange, including important information about health and morbidity that is central to understanding pricing patterns in the Exchange vis-à-vis other markets. Once again, the innovative integration of economic and actuarial projection modeling will provide the best possible projection of the size and composition of the Exchange.

d. How many people are susceptible to switching (crowd-out) their source of coverage? (e.g. from employer sponsored insurance to an individual product offered in an Exchange or to other publicly subsidized coverage?)

A central component of GMSIM is modeling individual decisions to move across insurance coverage categories as policies change. The model divides the population into ex-ante insurance categories and then models movements into each possible ex-post (after policy) insurance category – including staying in one's existing insurance type or moving to a new insurance type. These movements are modeled based on the current state of knowledge within the health economics literature on the factors that determine health insurance transitions. As one of the key contributors to that literature (including co-authorship of the 1996 article which introduced the concept of "crowd-out"), Dr. Gruber is well positioned to integrate these insights into his model. This will allow us to develop a detailed table which will include not only the facts requested above about crowd-out, but a general matrix of movements across all possible types of insurance coverage.

e. If the individual and small markets are merged, what might be the impact on coverage and premiums in each market?

The individual health insurance marketplace in West Virginia is unusually small. It will likely make sense from a regulatory standpoint to combine the individual and small group markets. The level of impact will depend on the risk profile of each market. Most likely, those with individual coverage will see premium decreases while those with small group insurance will see premium increases.

A lot can be learned from Massachusetts' health insurance exchange, the Connector. When the Connector initially merged the small and non-group markets, it was estimated that premiums would decrease 15% for the non-group market, and increase 1-1.5% for the small group market. Rating rules were also revised such that group size adjustments were allowed a factor of [0.95 to 1.10] and was excluded from a 2:1 rating band that was applied to the rest of the Connector. The merger of the two markets has been successful, but much of the success is due to specific characteristic of the Massachusetts' market including:

- The non-group market was less than 10% of the merged market, allowing the small-group market to absorb the higher cost of the non-group market without creating a rate shock.
- Plan designs between the two markets were not vastly different. The small group market's benefits had an actuarial value that was 7% greater than the non-group market.
- Rating rules for both markets were similar before the merger.
- Sole proprietors could purchase insurance in the small group market prior to the merger.
- The morbidity of the non-group was estimated to be 30-40% higher than the small group. Had the difference in morbidity been vastly larger, the small group would have experienced a very large rate shock.
- The Massachusetts uninsured population is younger, wealthier, and estimated to be healthier than the average U.S. uninsured population. An increase on the insured pool may have had a positive impact on premiums.

Our Project Team will use its experience from both the Massachusetts Connector, and the West Virginia health plans, to determine the impact of merging the non-group and small markets will have on coverage and premiums, and whether the landscape of West Virginia will facilitate this merger without negative consequences.

Our model will show the change in the number of individuals covered and the premiums charged if the individual and small group markets are merged.

f. Provide an analysis and discussion of whether the Exchange shall expand the small group definition to include 1-100 by 2014 or by 2016.

Our model will show the impact on the number of insured and premiums charged if the Exchange expands the small group definition to include 1-100 by 2014 or by 2016. This will reflect the demographic composition and morbidity of enrollees in these respective markets, allowing us to carefully model the impact of premiums as the definition is expanded. This projection will be the basis for an analysis of issues to be considered in expanding this definition.

g. Will the inclusion of groups of 51-100 employees in 2016 have a positive or negative effect on the risk pool, and how the premiums will be affected?

The analysis for section f above will be used to identify the effect on the risk pool of expanding the small group definition, and how this will impact the premiums charged. In general, we would expect that merging the 51-100 size groups with the existing small group market will have a beneficial impact by lowering premiums on a risk adjusted basis. A common rule in the insurance marketplace is that the smaller the group, the higher the per capita cost. This is due to the law of large numbers and the current marketplace occurrence of adverse selection. Inversely, the inclusion of these larger groups in the small market will spread the risk over a larger amount of policies and help to lower the overall per capita cost. Of course, the net impact will depend not only on the size of the risk pool, but its composition. Our model allows us to carefully consider the composition of the 50-100 group relative to the existing risk pool, and then to incorporate that composition into our modeling of premium effects.

h. Provide an analysis of the impact of permitting large groups in the Exchange in 2014 or by 2016.

Our model will show the impact of permitting large groups in the Exchange in 2014 or by 2016. This projection will be the basis of an analysis of issues to be considered in this expansion.

2.4.3. Exchange Organizational and Impact Assessment

a. Evaluate the Implications of Organizational and Business Issues

i. Staffing and Business Operations.

In terms of developing the appropriate staffing, start-up costs and on-going operating costs, the two main sources of information will be our experience with insurance carriers, self-insured programs and other state health exchanges. The most appropriate source of staffing and business operations are other state health exchanges, and it is our intent to use their experience to develop appropriate staffing and costs. In particular, we believe that our experience in Massachusetts, as well as other states where we have worked whose exchanges have already addressed these issues, will assist in developing the appropriate organizational structure and costs. The core operations of insurance carriers and self-insured entities overlap many of the required operations of a successful health

exchange and we will use our years of experience with these programs to supplement the available information from other state health exchanges.

As important as policy decisions will be for the successful development and administration of a Health Insurance Exchange in West Virginia, it is just as vital to understand who the Exchange's customers are and what value a high functioning Exchange will provide. While the Exchange will fulfill the functions laid out in the ACA, it must do more to meet the needs of consumers, participating health plans, and the market as a whole.

The Exchange will flourish by proving its value to consumers, offering accessible services, including an easy process for determining eligibility for financial assistance, assessing plan options, and enrolling in coverage. A successful Exchange will provide the following for consumers:

- Meaningful choice with regard to health plans and providers.
- Convenience, including easy and transparent comparisons, a wide variety and clear shopping and choice, easy enrollment processing, and clear payment processing.
- Excellent customer service.
- Transparent comparison of value for the premium dollar.

The Exchange's goal is to give participants a wide range of choice and worthy value in an administratively simple way. To meet the goal of satisfying the customers, a lot of work will go on behind the scenes. Implementing the Exchange will involve the development of the following administrative decisions and activities:

- Insourcing/Outsourcing – Some functions will be performed by the Exchange staff while others may be contracted out to vendors with expertise in particular operations. Functions most likely to be performed by the WVHIE include establishing standards for qualified health plans, certifying plans that are to be offered in the Exchange, oversight of marketing practices of insurance plans, determining individuals who are eligible for tax credit and premium subsidies, and determining those who are exempt from the individual mandate. Outsourced functions may include eligibility and enrollment processing, premium billing, customer service operations, and the development and maintenance of the WVHIE's website.
- Procurement – The Exchange must have the skills to develop business process specifications, conduct performance monitoring and engage in strong contract management. The Exchange should have the authority to engage in contracts with other entities, including state and private organizations.
- Financial Planning and Management - Financial planning and management are necessary and crucial for all successful businesses. These capacities will be especially important as there are considerable uncertainties regarding key financial variables, and these uncertainties can be expected to last during the Exchange's early years of operations. Contingency planning is an essential part of an overall financial planning effort. Forecasting, monitoring and the capacity for rapid response are all required skills.
- Marketing and outreach.

- Customer service.
- Coordination/integration with other state agencies including Medicaid, WVPEIA, and WVCHIP.

It will be important for the WVHIE to learn from the experiences of other states which have already been through the setup process of a health insurance exchange. By learning from their successes and failures, the WVHIE can put forth its best possible Exchange. There will be a large and complex number of resources needed to ensure the proper operation of the Exchange. Administrative expenses will be impacted by the growth of the Exchange and the growth achieved impacts the Exchange's ability to capture economies of scale. Outreach and marketing are keys to growth of the Exchange, while customer service is crucial in keeping the individuals and employer groups that join the Exchange. The proper use of vendors and determination of insourced and outsourced functions are key to the operations of the WVHIE. Our Project Team will utilize both our experience with a variety of public and private insurance plans, as well as other states experience in developing their respective Exchanges to assist in developing estimates and assumptions used to determine the costs associated with operating an Exchange.

a) Partnerships and contracting needs to support an Exchange, including the costs associated with an external toll-free consumer hotline and Navigator program;

Our Project Team will develop estimates of contracting needs costs based on the organizational structure of the Exchange. In the most likely scenario, the Exchange will need actuarial analysis, actuarial compliance, a board of directors, an IT department, and internal auditing department, legal department, and administrators to run successfully. There will also need to be a grievance process for consumers and insurance companies for day to day operations of the Exchange. Our Project Team will use a Full Time Employee (FTE) model to determine the cost structure of the operations of the Exchange.

b) Applicable federal and state taxes, if any;

Our Project Team will use its knowledge of the ACA as well as state and federal law to determine tax estimates for the startup and future operations of the WVHIE.

c) Financial, accounting, federal and state reporting, and legal services (including the cost of reconciling tax credits and cost-sharing subsidies for employers and individuals in partnership with the federal government);

Estimates for the costs associated with financial, accounting, federal and state reporting and legal services will differ depending on whether they are outsourced or integrated into the scope of work performed by the staff of the WVHIE. Our Project Team would analyze these costs using either a FTE model or by researching fees associated with vendors who provide these services.

d) Any other fundamental operating expenses associated with carrying out the mandatory functions of an Exchange, as described in the ACA.

Costs estimates will vary depending on whether these services are outsourced or performed by the WVHIE's staff. Our Project Team has considerable experience in negotiating with outside vendors on behalf of state agencies. We will develop these cost estimates based on management's expectations with respect to which services will remain in house and which will require the work of outside vendors.

ii. Exchange Operation.

This analysis will be performed in conjunction with the management of the Exchange. We will discuss the most likely services that are to be performed by the Exchange staff in order to calculate staffing needs and total costs associated with the staff. It is most likely that the Exchange will need extra staff that can perform on a temporary basis in the first few years of the setup of the Exchange. After the initial setup, we will develop a staffing model that will support the continued operations of the Exchange. The funding options of the Exchange are discussed in section 2.4.3.c. These options will be discussed at length with the Exchange's management team in order to best estimate the most sufficient and least disruptive way to fund the Exchange.

iii. Analysis of how different United States Supreme Court rulings related to the Patient Protection and Affordable Care Act, including the pending case related to the Federal mandate and expansion of Medicaid, may impact implementation of the health benefit exchange, including but not limited to, the implications on the Exchange consumer take up rate if the federal mandate is deemed unconstitutional.

Supreme Court rulings may have a significant impact on the operations of the Exchange. If the Federal Mandate is deemed unconstitutional, the Exchange will most likely attract a much less healthy population, since there will be no incentive for the young and healthy to purchase health insurance in order to avoid a penalty. This would affect enrollment numbers and PMPM cost estimates. Our Project Team would calculate several different scenarios based on the possible outcomes of various Supreme Court rulings. GMSIM has already been used at the national level to consider these scenarios, so we can readily incorporate this into our West Virginia-specific analysis.

b. Assess Potential Impacts of Substantive Options on the Insurance Market.

The WVHIE will have to make crucial policy decisions during its setup and implementation period.

Some of the most important policy decision will likely include:

- Whether to establish one or multiple markets (by market segment, region, etc.).
- Will the Exchange require all insurance carriers in the state to offer their plans in the Exchange?
- Develop mechanisms for determining qualified health plans in the Exchange.
- Determine which carriers may sell young adult/catastrophic plans.

- Determine the minimum standards for plans offered in the non-group and small group markets.
- Determine the level of involvement of insurance agents and brokers in the Exchange.
- Determine the ways in which the state can make changes to benefit requirements and mandates in the future.
- Determine how existing public programs and specific population groups will be integrated and transitioned into the Exchange.
- Determine how to work with the Federal Government to implement risk adjustment measures.
- Determine how to fund the ongoing operation of the Exchange.

i. The likely impact of mandatory reforms and an Exchange on insurance market prices and market stability;

Our Project Team will analyze the major policies offered in West Virginia. In assessing what benefits are offered in these policies, our Project Team will be able to provide the Exchange with how the marketplace will be affected by the mandatory reforms and an Exchange. CCRC Actuaries was engaged by the Finance Board of WVPEIA and the WVRHBT to analyze the inclusion of the mandated reforms of the ACA. These reforms included, but were not limited to: eliminating lifetime and annual limitations, free preventive health services, extending coverage for children to age 26 and changes to the definition of dependency, potential Medicaid eligibility for current members of health plans, increase Medicare physician reimbursements, and Medicare Advantage payment reform. We found that the estimated annual impact would increase WVPEIA's claim costs by $9.5 million, or 2%, and would increase the WVRHBT's claim costs by $8.0 million, or 4%.

ii. The likely impact of mandatory reforms and an Exchange on enrollment of individuals in private health insurance in a single market system (where all private insurance is sold only through an Exchange in West Virginia) as well as a dual market system (where private insurance can be sold both inside and outside an Exchange);

Similarly, our Project Team will use the microsimulation model to track the movements of the population of West Virginians between the various insurance products.

iii. The likely impact of an incremental phase-in of the market reforms, such as rating bands in the individual market, on premiums for plans sold in an Exchange;

Our Project Team is well qualified to prepare projections of various phase-in scenarios. This will be applied across the healthcare market place and show in detail how each segment will be affected by these market reforms.

iv. The likely impact on premiums in an Exchange of merging the risk pools of the individual and small group market;

Our Project Team has extensive knowledge of risk pooling and merging the individual and small group markets from working with other states, particularly Massachusetts. Our

Project Team will be able to produce estimates with and without the merger of these two market segments so that the state can make an informed decision in its decision making process.

v. The likely impact on competition if an Exchange were to function as an active purchaser;

A state can make the Exchange an active purchaser, by using a bidding process, by applying restrictive certification and reporting requirements, and/or by negotiating with plans to identify and select high performers. This will most likely introduce a competitive environment between insurers, who will strive to ensure that they provide the most efficient and cost effective plans so that they will be included as a plan offered in the Exchange.

Our Project Team has valuable experience in the Massachusetts Health Insurance Exchange, which operates very similarly to an active purchaser. Our Project Team will use this knowledge to model the potential implications of the WVHIE acting as either an active purchaser or as a market organizer, and how it will affect competition between health insurers.

vi. The likely impact on competition if an Exchange were to function as a market organizer;

Should the Exchange act as a market organizer, it would act as a clearinghouse for qualified health plans, and maximize plan choices for consumers. This may lead to confusion for the purchaser if there are too many options. Our Project Team has valuable experience in the Massachusetts Health Insurance Exchange, which acts very similarly to an active purchaser. Our Project Team will use this knowledge to model the potential implications of the WVHIE acting as either an active purchaser or as a passive market organizer, and how it will affect competition between health insurers.

vii. The likely impact of employee take-up rate of employer sponsored insurance by size of employer.

A central component of GMSIM, as noted earlier, is the modeling of employers' decisions to offer (or not offer) insurance, as well as employee's decisions to take up that insurance, given both its availability and the availability of new non-group insurance options under the ACA. The model will naturally produce a wide array of facts on take-up rates, by size of employer, industry, and other firm characteristics.

viii. The likely impact of the manner by which individuals obtain coverage (i.e. directly from carriers, through a broker, using an intermediary).

Our Project Team will look at various scenarios and how the manner in which individuals obtain coverage will be affected for each of these scenarios. These estimates will be driven by the choices that the Exchange's management team would like to see, as well as our Project Team's most highly recommended courses of action.

ix. The likely impact on an Exchange due to large employers dropping their own Healthcare group plans for an Exchange.

Our Project Team will develop estimates as to how many employers will drop their plans, as well as the impact that it will have on the Exchange. Since employers tend to have high participation rates in employer plans, and active workers tend to be healthier than inactive workers, the risk characteristics of the members that will be drawn to the Exchange should be better than the average West Virginian. Our Project Team will convey to the management team the overall and specific impacts of these employees who will be purchasing through the WVHIE.

x. The likely impact of pooling risk with surrounding states.

The pooling of risk with surrounding states would most likely benefit the WVHIE. The population in West Virginia is a relatively high health care utilizer compared to the average population of America. If surrounding states are not interested in partnering, West Virginia should considering pooling risks with states that have similar health care utilization and demographics. The pooling of risk across multiple Exchanges would help to create beneficial economies of scale. Our Project Team would produce estimates as to how pooling risk with one or more specific states would impact the WVHIE.

xi. The likely impact of insurers' pooling practices to maximize the benefits of shared risk, including positive impacts for consumers on rates.

The pooling of risks helps to spread catastrophic claims over several years and several insurers. Our Project Team will be able to present to the Exchange the impact that various pooling practices will have on consumers, as well as the insurers and the Exchange.

xii. The likely impact of requiring Health Homes or advanced medical home.

CCRC Actuaries performed a similar analysis in the past. The analysis determined the benefit of requiring each member of a health plan to have a designated medical home. This analysis can be modified and adjusted to advise the management team of the WVHIE on whether mandating the use of a medical home would be efficient and practical for the state.

xiii. Any other applicable impacts agreed upon between the State and the successful vendor.

Our Project Team will use its broad knowledge of health insurance and its specific knowledge of the West Virginia healthcare marketplace to develop projections and recommendations for any other potential decision that the Exchange needs to make during this process.

c. Finance

The Department of Health and Human Services shall determine the amount of grant money given to each state that is developing their own Health Insurance Exchange. The purpose for this grant

money is to set up an Exchange. However, beginning January 1, 2015, each state is to ensure that their Exchange is self-sustaining, and no further grant money will be awarded. Depending on the size, utilization, and capabilities of the Exchange, costs could range from a few million to more than $50 million.

To ensure that the Exchange is self-sustaining, the WVHIE could raise capital through one or more of the following options:

1) Charge a fee to insurance carriers who offer coverage through the Exchange.
2) Charge a fee on consumers who purchase insurance through the Exchange.
3) Require navigators of the Exchange to be licensed, and charge a licensing fee.
4) Charge a fee to certify products sold in the Exchange.
5) Impose an assessment on providers, hospitals, and clinics.
6) Allow advertising on the Exchange's website.
7) Use existing or new state taxes to fund the operations of the Exchange.

When imposing one or a combination of these fees, the WVHIE should take measures to minimalize the amount of disturbance to the market place. To help insurers, any fees charged to the company should be done in a way that can count towards raising their loss ratios. This will help insurance companies meet the MLR requirements and benefit insurers for purposes of the rebate calculation.

If fees are charged to consumers, the fee should be large enough to cover costs, but not so large as to dissuade consumers from purchasing insurance within the Exchange. By doing so, it will help to create a balanced playing field with products that are offered outside the Exchange and would not be subject to this charge.

Finally, assessments on providers, hospitals, and clinics should not be so large that they will cause a large increase in charges, or financial burden on these medical providers.

d. Evaluate Impact on Other State Programs

i. Impacts of developing a "basic health program" as defined in Section 1331 of the ACA as a way of enhancing continuity of care among low income populations;

ii. Cost analysis of "basic health program" where by West Virginia could provide this plan to individuals with family incomes between 139% and 200% FPL in lieu of subsidized coverage through the Exchange.

Combined response to sections i. and ii. Dr. Gruber has worked with numerous other states to model the adoption of a Basic Health Program (BHP). The BHP option allows the states to cover the population from 139-200% of poverty either through an existing state Medicaid program, or through a new option that is different than the state exchange. This option is financed by a federal transfer of 95% of the federal costs of tax credits that would have been received by individuals in the 139-200% of poverty range.

There are a number of factors to consider in evaluating the BHP option. First is the net cost to the state: the cost of covering these individuals through this new option, relative

to the financing available through 95% of foregone federal tax credit costs. Our model will allow us to directly model both the cost of those individuals in the BHP, as well as the federal tax credit costs that the state will receive for covering them. Of particular concern here is the risk adjustment of such federal tax credits. The BHP population is likely sicker than the somewhat higher income groups in the Exchange, so it is important that federal tax credit calculations be risk adjusted to account for this.

Second is the impact on the affordability of insurance for those 139-200% of poverty, which we can address by considering their total insurance and out of pocket costs (relative to income) in either scenario. Third is the administrative costs of a BHP. Cost estimates of establishing a "basic health program" will be developed based on the number of full time employees and outside vendors needed to coordinate the basic health program. Much of the cost can be coordinated with Medicaid and WVCHIP since their members will be the people most affected by the formation of this plan, and they will benefit the most.

Having a fourth benefit plan in the Medicaid realm will most likely lead to confusion among consumers. The WVHIE will have to lead consumer education if this plan is to be successful. Costs could include the cost of an additional website, public forums, and staff that is assigned to contacting current Medicaid and WVCHIP members. Additional costs would be incurred when verifying that members are not covered by more than one of these plans. Additional measures would have to be taken in coordinating benefits as well.

iii. Impacts of ACA implementation on State-run health insurance programs for current and retired employees, teachers, and others; and

Our Project Team will use its extensive knowledge of state run programs when determining the impacts of the ACA implementation. Our Project Team has already performed work for WVPEIA, WVRHBT, WVCHIP, and AccessWV with respect to the ACA implementation.

iv. Costs associated with early implementation of consumer protections or Medicaid expansion in 2013.

Our Project Team will develop aggregate and PMPM costs associated with the early implementation of consumer protection and/or Medicaid expansion in 2013. The Federal government has increased its share of state expenditure in Medicaid programs, and this will have a direct impact on the effects of Medicaid expansion.

v. Impact of WVPEIA eligible consumers (current and early retiree) moving into the Exchange market.

Our Project Team will use its extensive knowledge of WVPEIA policies, premiums, and claim costs to determine the impact of WVPEIA members moving into the Exchange. This analysis will calculate the effects on both WVPEIA and the WVHIE.

vi. Impact of income eligible Medicaid recipients moving into Exchange market.

Our Project Team will use its experience with West Virginia Medicaid to determine the impact of Medicaid members moving into the Exchange. This analysis will calculate the effects on both West Virginia Medicaid and the WVHIE.

vii. Impact if Medicare were moved into the Exchange market.

Similar to WVPEIA and Medicaid, our Project Team will analyze those members who are currently enrolled in Medicare, and the impact that this older and more morbid population would have on the WVHIE.

viii. Estimated cost allocation between Medicaid, WVCHIP and the Exchange based on federal guidelines and anticipated utilization.

The ACA had changed the landscape of health care in the nation and in West Virginia. Our Project Team will analyze federal guidelines to determine how membership and utilization will be affected in Medicaid, WVCHIP, and the Exchange.

ix. Evaluate and discuss the potential solutions for the financial burden of obtaining coverage, specifically how will federal subsidies and cost sharing impact Medicaid, WVCHIP and other government program eligible and enrollees.

Federal subsidies will help to fund additional costs incurred by existing programs, and startup costs for the Exchange. However, all of the additional costs associated with the ACA will most likely not be funded by the federal government. Our Project Team will assess how much of the costs for these various entities will be borne by the entities and the additional funding that will have to be made up from alternative revenue sources.

2.4.4. Ad Hoc Services in Support of Continued Exchange Planning

To fully implement the WVHIE, an iterative process is expected that will involve updating and adjusting a multitude of assumptions as legislative and regulatory changes are made in the planning process. Our Project Team is available to provide ad hoc services to the State of West Virginia under this proposal. The scope of the services offered will include, but not be limited to those outlined in section 2.4.4. of the RFP. These services will be provided at the hourly rate outlined in the accompanying cost proposal.

2.4.5. Vendor Experience

a. Comprehensive knowledge of the ACA; including all applicable federal statutes, rules and regulations as they relate to both insurance coverage and the provisions of the Affordable Care Act, and particularly as it relates to an Exchange provisions included in Sections 1311, 1312, 1313, 1321, 1324, 1331, 1332, 1333, 1334, and any other applicable section of the ACA, related regulations or guidance;

The ACA defines actuarial value relative to the coverage of essential health benefits for a standard population, regardless of the actual population to which a plan provides benefits.

Insurers will be required to offer plans with an actuarial value of 60%, 70%, 80%, and 90%. There is a 2% variance allowance on the actuarial value of the plans, in order to allow insurers to have the flexibility to set cost-sharing rates that are simple and competitive while insuring consumers can compare plans of similar value.

A crucial decision with regard to the actuarial value calculations is that the WVHIE will have to decide how the standard population is developed. Currently, the national Department of Health and Human Services is working on developing a national standard database. When this is complete, West Virginia will have two options in developing the state's standard population that will be used to calculate the actuarial value of plans; 1) West Virginia can develop their own standard population based on Non-Elderly state claims data or 2) modify the Department of Health and Human Services developed national standard population to reflect the demographics, prices, utilization, and benefits within West Virginia.

With decades of experience developing actuarial values of health plans, our Project Team brings together an enormous combined base of knowledge about the ACA, its provisions, and its likely impacts on West Virginia. Professor Gruber was one of the principle architects of the ACA and has modeled its details extensively for the nation as a whole and for a large set of individual states. Our Project Team is also well qualified to help the state develop the standard population statistics. Our Project Team would use claims data that has been collected for over ten years of WVPEIA, WVRHBT, AccessWV, and WVCHIP experience and incorporate commercial, individual and group insurer and uninsured data that is available.

Health Insurance Exchanges are the centerpiece of the private health insurance reforms of the ACA. It is envisioned that the WVHIE will expand health insurance coverage, improve the actuarial value and the quality of such coverage, improve health care in general and reduce costs. The key issues in developing a successful exchange include:

- Adverse selection – The WVHIE must be protected against adverse selection. Under the ACA, small-group and individual insurance options will remain available outside the Exchange, heightening the prospect of adverse selection. Fortunately, a number of the ACA provisions weaken the incentives for adverse selection and these can be enhanced by West Virginia.
- Numbers of participants – Exchanges that include large numbers of insureds can offer more value through economies of scale, with more stable risk pools and stronger protection against adverse selection. The goal is to attract a broad cross-section of risk.
- Market Coverage and Structure – The ACA allows both the combination and separation of small-group and individual risk pools and Exchanges. It also allows the creation of regional Exchanges and the advantage and disadvantages of pursuing these options must be carefully weighted.
- Structured Choice – The concept is to provide consumers with choices without complexity by standardizing plans. An important implementation decision will be whether to further limit complexity, or to alternatively, offer maximum plan benefit flexibility. To provide one-stop shopping and tools to allow individuals to compare all products offered in the Exchange.
- Transparency and Disclosure- The cornerstone of the ACA is to maximize transparency and disclosure and probably represents one of the most important implementation tasks.
- Competition – The Exchanges are designed to increase competition among health insurers and focus that competition on value and price.

- Market Regulation - The ACA delegates to Exchanges a number of regulatory responsibilities including the certification of health plans. An important implementation decision will be the degree of the certification process for insurers.
- Governance – The ACA is noteworthy in how little guidance it provides with respect to governance issues.
- Employer Relations – It seems obvious that the WVHIE will need to be employer friendly to ultimately succeed.
- Administrative Costs – A major implementation goal is to minimize the additional administrative expenses, within policy goals, of the WVHIE since these costs will increase health care insurance premiums. The WVHIE may want to consider charging an administrative fee to insurers, both in the Exchange and outside of the Exchange, in order to fund the operation of the Exchange in the future.
- Cost Control – The purpose of the WVHIE is to establish a process for reducing the cost of health care insurance costs. This objective will be met through implementation decisions which lead to maximizing competition, choice, and participation, accompanied by controlled adverse selection and minimal administrative cost.

b. Comprehensive understanding of the health insurance marketplace;

Our Project Team represents economists and actuaries with decades of experience in the financing of health insurance issues. We are recognized national leaders in understanding the risk and insurance issues in the health insurance industry.

In particular, we start with a base of information from our 2009 report, "*Health Care Financing in the State of West Virginia – An Analysis and Projection of the Current System and Potential Transformations*" to the West Virginia Health Care Authority. Eight distinctive insurance groups represent health care financing in West Virginia representing 1,828,538 residents at the time:

- Non-Medicare WVPEIA Insureds – 175,324 covered lives.
- Medicare WVPEIA Insureds – 37,784 covered lives.
- Medicaid Non-Dual Eligible – 321,113 covered lives.
- Medicaid and Medicare Dual Eligibles – 57,118 covered lives.
- WVCHIP – 24,480 covered lives.
- Commercially Insured – 757,844 members with subgroups for Individual, Small Group and Large Group employers.
- Medicare Only Insureds – 168,571 covered lives.
- Uninsured Residents – 286,264 covered lives in 2009.

c. Comprehensive knowledge of the ACA mandated enrollment provisions and the approaches to implementation of these requirements as being taken by the relevant Federal entities;

The individual mandate, which is also known as the minimum essential coverage provision of the ACA, requires most people to maintain a minimum level of health insurance coverage for themselves and their tax dependents in each month beginning in 2014. Those exempt from the individual mandate include illegal immigrants, religious objectors and prison inmates. Those enrolled in Medicare, Medicaid, CHIP, and TRICARE. All others will need to be covered by

their employer, or have individually bought insurance that is at least at the Bronze level, or have a grandfathered health plan in existence before the health reform law was enacted. The penalty is $695 per adult, up to $2,085 for a family or 2.5% of family income whichever is greater. The individual mandate has been widely discussed and is currently being considered by the Supreme Court. While the Congressional authors of the ACA believed that without the individual mandate, the Exchanges and private insurance market reforms would not work effectively due to the adverse selection effect of healthy people choosing to forego insurance; other studies have indicated that the ACA could still be functional, albeit with higher premiums and lower participation.

d. Deep understanding of eligibility, verification and enrollment processing for public program benefits including, but not limited to, Medicaid, CHIP and Medicare Program. This includes knowledge of current practice technology and processes;

CCRC Actuaries has been involved in eligibility and enrollment issues with Medicaid, Medicare and WVCHIP over the years as a consequence of our requirement to produce actuarial analysis and actuarial reports. The enrollment processes have been nothing short of revolutionary for some public programs, resulting in more efficient processes for enrollees and lowering administrative costs for these programs. Social security beneficiaries automatically receive Part A (Hospital Benefits) and Part B (Physician Benefits) Medicare benefits, in fact, beneficiaries who don't want Part B must manually disenroll. Eligibility is usually based on attainment of age 65, but disabled social security beneficiaries become eligible on the 25th month of disability and those eligible with Amyotrophic lateral sclerosis (ALS) receive immediate Part A and Part B benefits after diagnosis. Beneficiaries of Part C (Medicare Advantage) and Part D (Medicare Prescription Drug Coverage) must sign up at specific times during open enrollment periods.

Medicaid recipients in West Virginia automatically receive benefits as part of their eligibility for the Supplemental Security Income (SSI) Program. Other recipients, not receiving an SSI check, must apply for Medicaid benefits at a local office of the West Virginia Department of Health and Human Resources. Medicaid eligibility is limited to applicants providing documentation of citizenship as required under the Deficit Reduction Act of 2005. Except in the case of pregnant women and children up to age 19 years, eligibility for Medicaid is based on categorical relatedness, income and assets. Categorical relatedness means that an applicant must be a member of a family with a child who is deprived of support due to the absence, incapacity or unemployment of a parent(s). If the applicant has no children under age 18, the individual must be age 65 or over, blind or disabled. The second factor considered is an applicant's income and wages. Mountain Health Choices is West Virginia's new Medicaid program for poverty level children and their parents who are not disabled. Under this program, members may receive benefits from the Basic plan or the Enhanced plan. To receive the Enhanced plan, members must commit to improving their health and to establish a medical home for most of their care, in return, members receive greater benefits.

West Virginia CHIP provides medical, prescription drug and dental coverage to children under age 19 whose families exceed Medicaid limitations but whose family income is less than 300% of the Federal Poverty Level. Other requirements include West Virginia residency, loss of family coverage in the last three months, not eligible for WVPEIA coverage and are U.S. citizens. WVCHIP offers three programs which are based on family income limitations: The Gold Plan has minimal copayments, no required premium and is eligible for children with family income below 150% of the FPL, the Blue Plan has required copayments, no required premium

and is eligible for children with family income between 150% and 200% of the FPL, the Premium Plan has required copayments, a required family premium and is eligible for children with family income between 200% and 300% of the FPL.

e. Expertise in actuarial and economic modeling;

CCRC Actuaries was founded by Dave Bond, F.S.A., M.A.A.A. and Brad Paulis in December 2000. Since CCRC Actuaries' formation, our actuaries have worked with a significant number of public and private self-insured health insurance programs. The nucleus of the CCRC Actuaries staff was previously the Baltimore Office for Health Care Actuarial Services of Ernst & Young LLP (Ernst & Young). While at Ernst & Young, the Baltimore office consulted with numerous health care organizations. Ernst & Young subsequently ceased the separate operations of Health Care under Actuarial Services. In addition to the long term care entities which we currently have as clients, we have performed actuarial work for several federal and state entities, including Centers for Medicare & Medicaid Services (CMS), the Department of Defense (DoD), and the states of West Virginia and Colorado, as well as managed care and health insurance clients. CCRC Actuaries is proud of and it is significant that each of these clients were previously served by international actuarial consulting firms and have made the decision that CCRC Actuaries will be their actuarial firm.

Currently, CCRC Actuaries has over 300 clients including the following major clients: United Mine Workers of America Health and Retirement Funds (UMWA), the West Virginia Public Employees Insurance Agency (WVPEIA), the West Virginia Retiree Health Benefit Trust (WVRHBT), the West Virginia Children's Health Insurance Program (WVCHIP), The Robert C. Byrd Health Policy Institute, the Howard Hughes Medical Institute, and the West Virginia Department of Insurance - AccessWV. CCRC Actuaries has provided actuarial consulting services to the State of West Virginia for the last twenty-two years. Additionally, CCRC Actuaries is the primary actuary for engagements with the CMS and the DoD through a subcontract with Kearney & Company, P.C. CCRC Actuaries currently staffs eight actuarial consultants and provides the full gamut of health care actuarial services with our focus being long-term care and government programs.

CCRC Actuaries developed an actuarial projection model in 2009 for the West Virginia Health Care Authority which has the ability to forecast changes in insurance coverage for the 1.8 million West Virginians. The principle insurance packages at that time were commercial insurers, WVPEIA, WVRHBT, Medicaid, Medicare, WVCHIP and the uninsured. This model, as well as other actuarial models, will be utilized in providing the required actuarial inputs for the GMSIM economic model, in addition to other actuarial components of the project. This model will be updated to reflect specific requirements of the ACA and the workings of the Insurance Exchange.

The CCRC Actuaries' projection model is a cohort model which projects health care expenditures based on demographics including health care expenditures, age and gender, insurance provider, household income and the likelihood that families would purchase or elect coverage. The analysis was based on the affordability of the proposed insurance coverage, as well as the availability of other forms of insurance generally through employers. The decision for families in the future will use the same criteria as in the past with different choices. The decision will be based on the families' expectation of future health care needs and the ability for the families to finance the various options.

CCRC Actuaries has extensive experience in modeling the impact of mandated benefits on both the national and West Virginian levels. Mandated benefits from the ACA that have been analyzed by CCRC Actuaries for its clients include eliminating lifetime and annual limitations, free preventive health services, extending coverage for children to age 26, potential Medicaid eligibility for current members of health plans, increase Medicare physician reimbursements, and Medicare Advantage payment reform. CCRC Actuaries has also analyzed the cost of numerous West Virginia legislative bills that have required various benefits, most recently analyzing the impact of mandated autism benefits in West Virginia.

Dr. Jonathan Gruber

Professor Gruber is a Professor of Economics at the Massachusetts Institute of Technology (MIT), where he has taught since 1992. He is the Director of the Health Care Program at the National Bureau of Economic Research, the nation's leading economic research organization. He is also a member of the Institute of Medicine, the American Academy of Arts and Sciences, and the National Academy of Social Insurance.

Dr. Gruber received his B.S. in Economics from MIT, and his Ph.D. in Economics from Harvard University. He has received an Alfred P. Sloan Foundation Research Fellowship, a FIRST award from the National Institute on Aging, and the Kenneth Arrow Award for the Outstanding Health Economics Paper of 1994. He was also one of fifteen scientists nationwide to receive the Presidential Faculty Fellow Award from the National Science Foundation in 1995. In 2006, he received the American Society of Health Economists Inaugural Medal for the best health economist in the nation aged forty and under. Dr. Gruber's research focuses on the areas of public finance and health economics. He has published more than 135 research articles, has edited six research volumes, and is the author of Public Finance and Public Policy, a leading undergraduate text.

During the 1997-1998 academic year, Dr. Gruber was on leave as Deputy Assistant Secretary for Economic Policy at the Treasury Department. From 2003-2006, he was a key architect of Massachusetts' ambitious health reform effort, and in 2006 became an inaugural member of the Commonwealth Health Connector Board, the main implementing body for that effort. In that year, he was named the nineteenth most powerful person in health care in the United States by Modern Healthcare Magazine. During the 2008 election, he was a consultant to the Clinton, Edwards and Obama Presidential campaigns and was called by the Washington Post, "possibly the [Democratic] party's most influential health-care expert." During 2009-2010, he served as a technical consultant to the Obama Administration and worked with both the Administration and Congress to help craft the Patient Protection and Affordable Care Act.

Dr. Gruber brings three key attributes to this Project Team. The first is an expertise in health economics that is crucial to understanding how individuals and firms will respond to the incentives put in place by the WVHIE. The second is an expertise in policy making around Exchanges. Having served on the Board of the Commonwealth Health Connector (Connector), Dr. Gruber was a key architect of the nation's first comprehensive health insurance exchange. The Connector has been very successful to date in expanding access to, and improving the functioning of, the non-group insurance market; non-group insurance enrollment has more than doubled while prices have fallen by 50% relative to national trends. At the same time, the Connector has had only limited success in extending these benefits to the small group market, for

a variety of reasons that may be informative for West Virginia as it moves forward. Dr. Gruber can provide insight into the causes of these successes and failures and how they might best be addressed.

f. Previous experience and expertise in development of similar assessments;

DR. JONATHAN GRUBER – BACKGROUND / QUALIFICATIONS

Dr. Gruber is a Professor of Economics at the Massachusetts Institute of Technology, where he has taught since 1992. He is the Director of the Health Care Program at the National Bureau of Economic Research, the nation's leading economic research organization. He is also a member of the Institute of Medicine, the American Academy of Arts and Sciences, and the National Academy of Social Insurance.

Dr. Gruber received his B.S. in Economics from MIT, and his Ph.D. in Economics from Harvard University. He has received an Alfred P. Sloan Foundation Research Fellowship, a FIRST award from the National Institute on Aging, and the Kenneth Arrow Award for the Outstanding Health Economics Paper of 1994. He was also one of fifteen scientists nationwide to receive the Presidential Faculty Fellow Award from the National Science Foundation in 1995. In 2006, he received the American Society of Health Economists Inaugural Medal for the best health economist in the nation aged forty and under. Dr. Gruber's research focuses on the areas of public finance and health economics. He has published more than 135 research articles, has edited six research volumes, and is the author of Public Finance and Public Policy, a leading undergraduate text.

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Contact references for Dr. Gruber are:

Gary Claxton, Vice President
Kaiser Family Foundation
202-654-1413
gclaxton@kff.org

Sara Collins, Vice President
The Commonwealth Fund
212-606-3138
src@cmwf.org

April Todd-Malmov, Director, Health Economics Program
Minnesota Department of Health
651-201-3561
Wakely Consulting
april.todd-malmov@state.mn.us

g. Relevant examples of successful projects in the past (and references);

CCRC ACTUARIES, LLC – BACKGROUND / QUALIFICATIONS

CCRC Actuaries was founded by Dave Bond, F.S.A., M.A.A.A. and Brad Paulis in December 2000. Since CCRC Actuaries' formation, our actuaries have worked with a significant number of public and private self-insured health insurance programs. The nucleus of the CCRC Actuaries staff was previously the Baltimore Office for Health Care Actuarial Services of Ernst & Young LLP (Ernst & Young). While at Ernst & Young, the Baltimore office consulted with numerous health care organizations. Ernst & Young subsequently ceased the separate operations of Health Care under Actuarial Services. In addition to the long term care entities which we currently have as clients, we have performed actuarial work for several federal and state entities, including CMS, the Department of Defense, and the states of West Virginia and Colorado, as well as managed care and health insurance clients. CCRC Actuaries is proud of and it is significant that each of these clients were previously served by international actuarial consulting firms and have made the decision that CCRC Actuaries will be their actuarial firm.

Currently, CCRC Actuaries has over 300 clients including the following major clients: United Mine Workers of America Health and Retirement Funds (UMWA), the West Virginia Public Employees Insurance Agency (WVPEIA), the West Virginia Retiree Health Benefit Trust (WV RHBT), the West Virginia Children's Health Insurance Program (West Virginia CHIP), The Robert C. Byrd Health Policy Institute, and the West Virginia Department of Insurance - AccessWV. Additionally, CCRC Actuaries is the primary actuary for engagements with the Centers for Medicare & Medicaid Services (CMS) and the Department of Defense (DoD) through a subcontract with Kearney & Company, P.C.

CCRC Actuaries currently staffs eight actuarial consultants and provides the full gamut of health care actuarial services with our focus being long-term care and government programs.

Some of CCRC Actuaries recent self-funded clients include:

West Virginia Public Employees Insurance Agency
Ted Cheatham, Executive Director
Charleston, West Virginia
304-558-7850 x 52634

Dave Bond of CCRC Actuaries has been the lead actuary for WVPEIA since 1990, noting that this was originally through an Ernst & Young contract through 2000. From January 2001 to date, CCRC Actuaries has served as the actuaries for the plan. During the time from 1990 through 2011, the plan has gone from great financial and public perception difficulties to a program that is both financially sound and well thought of by the participants. Additionally, the State of West Virginia was the first state to provide Medicare coverage through the Medicare Advantage Prescription Drug program effective July 1, 2007. CCRC Actuaries assisted the management

decision which ultimately resulted in the State of West Virginia saving approximately $140,000,000.

Our actuarial services to WVPEIA have included financial projections, pricing of benefit options, evaluating the impact of fee schedule changes and contribution level changes, benefit design recommendations, projection of retiree liabilities and options, analysis of a state prescription drug initiative, evaluation of the selection impact and pricing issues of managed care options, claim liability projections and general advice and council to WVPEIA, the WVPEIA Finance Board, and the West Virginia Retiree Health Benefit Trust Fund Board (WVRHBT). On an annual basis this includes the development of actuarial assumptions to reflect the degree of demographic differences between the self-funded fee-for-service option and the managed care options. The actuarial value of each managed care plan's benefit design is benchmarked to the PPB and the fee-for-service option. In addition, CCRC Actuaries is annually engaged to analyze the financial viability of managed care entities for WVPEIA and the WVRHBT. Further, at the request of management, CCRC Actuaries has testified at numerous public hearings and legislative meetings.

CCRC Actuaries is responsible for providing quarterly updates to the Five Year Financial Plan. The Financial Reports include plan revenues and expenses based on projected enrollment, utilization and cost trends observed by the Plan and in the industry, and expected changes in provider reimbursement and benefit design. On an annual basis, CCRC Actuaries performs a detailed medical and prescription drug trend analysis at the beginning of the process of developing the annual revised Financial Plan in December. The medical trend analysis focuses on emerging utilization and unit cost trends for services provided in-state and out-of-state for approximately forty-five categories of Inpatient, Outpatient, Physician and other services. The prescription drug trend analysis focuses on the emerging utilization and unit costs of both established drugs and new products on the market, including specialty drugs. Our analysis assists Management in developing changes in the prescription drug formulary to minimize plan costs while maintaining a highly medically effective formulary.

As part of the assignment, we have developed a methodology that allowed an analytical comparison of a state prescription drug initiative proposal based on WVPEIA and West Virginia Children's Health Insurance Program (WVCHIP) experience, including formulary and generic pricing adjustments. It is noteworthy that other participating prescription drug initiative states, represented by international actuarial and accounting firms, ultimately relied on our projections. Additionally, we identified a miscalculation in the development of managed care employee contribution rates that has resulted in increased revenue to the State of West Virginia of approximately $2.5 million in Fiscal Year 2003.

In 2000, we were engaged as the actuarial consultants for RXIS, a multi-state prescription drug initiative that was led by the State of West Virginia. Most recently we have performed analysis of West Virginia's participation in the CMS RDS program and the MAPD Program.

In developing all actuarial work, the actuaries employ methodologies consistent with the actuarial standards. Claim data is analyzed for validity and credibility is established based on statistical laws of numbers. CCRC Actuaries obtains data from a variety of sources to cross check singular sources of information and cross references claim reports to general ledger information to assure a greater quality.

West Virginia Retiree Health Benefit Trust (WVRHBT)
Ted Cheatham, Executive Director
Charleston, West Virginia
304-558-7850 x 52634

The West Virginia Retiree Health Benefit Trust Fund was created by the West Virginia Legislature in 2006 in an effort to pre-fund retiree health care benefits. Prior to the creation of the Trust, retiree health care expenditures and revenues were operated as a separate fund of WVPEIA. The Trust Fund provides health care coverage to approximately 14,000 Non-Medicare beneficiaries and 38,000 Medicare beneficiaries. CCRC Actuaries was appointed as the plan actuary in 2006 and continues to serve the Board in a consulting capacity.

Our actuarial services to the Trust Fund include analysis of medical and prescription drug claim and capitation data, development of benefit structures, projection of baseline program costs, and financial projections for Medicare and Non-Medicare retirees. Under this contract, CCRC Actuaries has developed GASB 43 and GASB 45 liabilities on multiple occasions as requested by the state based on current benefit structure and alternatives under consideration.

Both before and after the implementation of GASB 43 and 45, CCRC Actuaries has assisted the State in the evaluation of retiree health care liabilities based on the Sick and Annual Leave program and the subsidization of retiree health care. CCRC Actuaries was engaged to develop the Actuarial Accrued Liability (AAL), the Annual Required Contribution (ARC), the Annual Other Postemployment Benefits (OPEB) Cost, and the Net OPEB Obligation (NOO) for active employee and retiree health care and life insurance liabilities for Other Postemployment Benefits for the State of West Virginia's (the State) defined benefit and defined contribution cost sharing multi-employer plans. OPEB are benefits that are provided to retired employees beyond those provided by their pension plans. The OPEB for the WVRHBT includes subsidies for medical, prescription drug and life insurance benefits. These calculations include the OPEB liability of state agencies, state colleges and universities, West Virginia county school boards and non-state employers. This analysis has been performed in 2006 through 2009 and is currently being developed for 2010.

Governmental Accounting Standards Board (GASB) 43 and 45 address the liabilities associated with the rising cost of health care. Health costs continue to grow faster than national income and, despite research indicating that the employees receive good value for the increased spending; it is questionable whether governments and private employers can continue to finance the current benefit levels. Most recently, CCRC Actuaries has assisted Governor Tomlin and Senator McCabe in exploring multiple alternative scenarios which will result in both adequate funding of the liability at acceptable benefit levels for retirees.

In addition to the retiree health care liability, CCRC Actuaries performed an analysis of the current liability of the Sick and Annual Leave (SAL) Program, a subset of OPEB, offered to public employees of the State as of June 30, 2008. OPEB plans are subject to compliance requirements as described in Statements 43 and 45 of the GASB. The SAL analysis was conducted for employees covered under the State's Public Employees' Retirement System (PERS), Teachers' Retirement System (TRS), Teachers' Defined Contribution Retirement System (TDC), Teachers' Insurance and Annuity Association and College Retirement Equities Fund (TIAA-CREF), County Teachers (Plan C), Great West (Plan G), West Virginia Death,

Disability and Retirement Fund (Plan A) and West Virginia State Police Retirement System (Plan B).

In developing all actuarial work, the actuaries employ methodologies consistent with the actuarial standards. Claim data is analyzed for validity and credibility is established based on statistical laws of numbers. CCRC Actuaries obtains data from a variety of sources to cross check singular sources of information and cross references claim reports to general ledger information to assure a greater quality.

AccessWV / West Virginia Health Insurance Plan
Nancy Malecek, Director
Charleston, West Virginia
(304) 558-6279 – Extension 1175

Legislation to establish the West Virginia Health Insurance Plan was approved and signed into law on April 2, 2004. The plan largely follows the risk pool model legislation of the National Association of Insurance Commissioners.

The program offers coverage to residents of the state who have been turned down for individual insurance in the private market, or who can only get coverage at rates higher than the plan or who have a recognized chronic illness condition. The program serves as the state's alternative mechanism for portability under the federal Health Insurance Portability and Accountability Act (HIPAA). Under the legislation, the plan also accepts Health Care Tax Credit (HCTC) premium subsidy payments from the federal government for eligible trade displaced workers and Pension Benefit Guarantee Corporation recipients. Funding to cover plan deficits, beyond what will be covered by premium income, is covered by an assessment of hospitals.

Organization of the program is overseen by the West Virginia Insurance Commission. The program became operational in July 2005 and currently covers approximately 900 individuals. CCRC Actuaries was engaged to develop all benefit design considerations, develop the standard risk rate, and to develop financial projections to assist the Access WV Board. On a semi-annual basis CCRC Actuaries performs a market assessment analysis to determine what percent of the Individual Health Market its premiums represent. In addition, we produce quarterly reports that include results of the current fiscal year as well as a five-year projection.

Recently, CCRC Actuaries was engaged by the West Virginia Insurance Commissioner to consult on the State's development of the temporary high risk pool under the Patient Protection and Affordable Care Act. CCRC Actuaries projected the anticipated enrollment levels, premium revenue, and claims costs for the West Virginia Qualified High Risk Pool based on the proposed program structure and operating procedures.

West Virginia Children's Health Insurance Program (WVCHIP)
Sharon Carte, Director
Charleston, West Virginia
(304) 558-2732

CCRC Actuaries were selected by the West Virginia CHIP management team and the West Virginia CHIP Board to replace the prior provider of actuarial services in 2000. We replaced a large international actuarial firm in providing actuarial services to the West Virginia CHIP

program at significant professional fee savings over the prior vender. The Board initially hired us on a temporary basis and subsequently extended our involvement based on our command of the risk issues faced by the program.

Our involvement has included the development of program costs on an incurred basis for state reporting purposes and a cash basis for federal reporting purposes. We have been responsible for monthly claim reserve numbers to be reported to the Board. In addition, we have developed both the quarterly reports to the West Virginia Legislature, as mandated in the enabling act, as well as federal reporting requirements. Our analysis has included the monitoring and reporting of significant trend developments under the medical, dental and prescription drug benefit programs. Additionally, we developed an analysis on health care expenditures comparing Phase II children and Phase III, as well as expenditures by enrollment duration. We quantified the expected savings from both the implementation of a state prescription drug initiative and developed expected savings of the recently introduced three-tier formulary of the prescription drug program administered by Express Scripts.

Most recently we have completed and certified a proposed expansion of the program to CMS. Under this work we developed various benefit designs that resulted in expected costs for the Federal government, the State and the participants based on the request of the Board.

United Mine Workers of America Health Plans
Mr. David Richards, Assistant Director
Managed Care Program and Development & Research
Washington, D.C.
(202) 521-2298

CCRC Actuaries has been engaged by UMWA Health and Retirement Funds to provide actuarial services for the Combined Benefit Fund, the 1992 Benefit Fund and the 1993 Benefit Fund since 2001. These services include long-term actuarial projections for each fund, development of pre-funding premiums and, most recently, the impact of the Medicare Modernization Act under each of the available options for each fund.

The Combined Benefit Fund

CCRC Actuaries was engaged to perform the actuarial projection of long-term revenue and expenses for the Combined Benefit Fund. The Combined Benefit Fund provides primary health care benefits to retirees and survivors of UMWA. This fund is financed by several different acts of Congress and by the coal industry. In the fiscal year of 2009, The Combined Benefit Fund has annual revenue of $283 million and approximately 25,000 members. The greatest concentrations of covered insureds are in West Virginia, Kentucky and Pennsylvania. The operation of the fund is governed by the provisions of the Coal Industry Retiree Health Benefit Act of 1992, and is the result of a merger of the 1950 UMWA Benefit Plan and the 1974 UMWA Benefit Plan.

Covered benefits include primary health care benefits and death benefits. In 2010, health care benefits are projected to be 89% of plan costs, death benefits approximately 1% of plan costs and administrative expenses are approximately 10% of plan costs. Development of health care costs and death benefits required the construction of a demographic based model on the closed group

of covered individuals based on expected mortality and morbidity. The Combined Benefit Fund Board required a 10-year projection for its review and adoption of the projection.

1992 Benefit Plan, 1993 Benefit Plan, and Prefunded Plan

The UMWA Health & Retirement Plans engaged CCRC Actuaries in 2010 to perform similar analysis for the 1992 Benefit Plan Fund and the 1993 Benefit Plan Fund. Additionally, CCRC Actuaries began performing work for the Prefunded Benefit Plan in 2008. We have combined these three funds since both have the same Board of Directors, though each fund operates separately.

The 1992 Benefit Plan Fund has approximately 8,700 covered individuals with annual expenditures of approximately $102,000,000. The 1993 Benefit Plan Fund has approximately 8,300 covered individuals with annual expenditures of approximately $85,000,000. The Prefunded Benefit Plan is small plan, with approximately 40 covered individuals with annual expenditures of approximately $363,000. These engagements include analysis of historical claim expenditures for medical and prescription drugs, analysis of past trends, projections of future trends and demographic transfers into and out of each program.

West Virginia Affordable Insurance Workgroup Institute for Health Policy Research
Thomas Heywood
Charleston, West Virginia
(304) 347-1702

In 2002, the State of West Virginia Planning Grant began to study individual's motivations in purchasing health insurance, with the ultimate goal of developing health care products that appeal to these motivations. The State Planning Grant had completed surveys, focus groups and reviewed work of other states to help with strategies to reduce the number of uninsured. The group consisted of over 120 members with input from the healthcare system, business, industry, consumers and lawmakers.

Original recommendations were compiled in October 2003 and the goal of the WVAIW was to cover 50% of uninsured adults' ages 19 to 64 within five years, which was approximately 120,000 people. Two primary benefit packages were initially developed to provide the coverage to the uninsured. The Individual Health Access plan was similar to an Arkansas package and provides limited numbers of hospital stays, outpatient visits and prescriptions. The Adult Basic Package was developed to be offered to employers with 2 to 50 employees. CCRC Actuaries, based on these recommendations, developed the product as a major medical plan with a relatively low annual benefit amount.

The West Virginia Affordable Insurance Workgroup reconvened under the direction of Governor Joe Manchin in 2005. The Workgroup was co-chaired by Tom Heywood and Sonia Chambers and included a cross-section of the West Virginia health care economy including hospitals, physicians, private and governmental insurers and other professionals. The Workgroup proposed various insurance mechanisms to provide health care coverage including clinic models, self-insurance, group and individual models. Several of the initiatives were introduced in the marketplace. For you reference, we have included a copy of the Affordable Insurance Workgroup's Report and Recommendations.

West Virginia Health Care Authority
Sonia Chambers, Chair of the Board
Charleston, West Virginia
(304) 558-7000 ext. 214

Under direction from the West Virginia Health Care Authority the State initiated the development of a financial model to facilitate the redesign of financing health care in West Virginia. This study analyzed the impact that various proposals will have on employers, employees, the uninsured, private and public payors, and providers.

The model will provide projections for the cost of implementing several cost containment measures and the range of potential future cost savings from wellness initiatives, such as statewide patient-centered medical homes, e-prescribing pilot, electronic medical records pilot, assessment of the cost effectiveness and appropriate utilization of technology and procedures, budgeting process, implementation of preventive services, initiative to promote personal health responsibility, and initiative to promote end-of-life care.

In addition, the model will provide projections of the cost to extend health insurance under various options, such as a Medicaid expansion, company and individual insurance mandates, and increasing Medicaid reimbursement rates to match Medicare reimbursement rates. These projections will include the number of uninsured who will be covered and the cost to the government, employers and/or individuals.

West Virginians for Affordable Health Care
Perry Bryant, Executive Director
Charleston, West Virginia
(304) 344-1673

West Virginians for Affordable Health Care is a tax-exempt, nonprofit organization under IRC 501(c)(4) organized in November, 2005 by a diverse group of individuals concerned about the rising cost of health care and health care insurance coverage. CCRC Actuaries developed a report that analyzed the projected costs and savings of implementing various health care options. This report was ultimately published by national news services, including the Washington Post, New York Times and USA Today.

h. Experience working on these issues specifically with state governments, and understanding of the structure of the West Virginia state government;

The combined experience of Dr. Gruber and CCRC Actuaries represent the highest understanding of how other states have worked with these issues and the structure of West Virginia State government. Dr. Gruber was involved in the first comprehensive health insurance exchange in Massachusetts and now serves on the Board of the Commonwealth Health Connector. In addition, most recently Dr. Gruber has worked with the states of Colorado, Connecticut, Maine, Minnesota and Wisconsin on their respective issues regarding the establishment of health insurance Exchanges. CCRC Actuaries, with twenty-two years of experience of addressing actuarial health financing issues in West Virginia, represents a unique level of understanding of the structure of West Virginia government and governmental health care payors. CCRC Actuaries was directly contracted by a Joint Senate and House Subcommittee to address the Sick and Annual Leave issue. Our actuaries have routinely

presented, on a formal and informal basis, actuarial analysis to West Virginia governors and members of the legislature.

i. Familiarity with approaches being taken by other states to the extent those are available; and familiarity with West Virginia health insurance marketplace.

The combined experience of Dr. Gruber and CCRC Actuaries represents a high level of familiarity with approaches being taken by other states and a similar high level of understanding of the West Virginia health insurance marketplace. In addition to Dr. Gruber's direct work with Health Insurance Exchange issues in the states of Colorado, Connecticut, Maine, Massachusetts, Minnesota, and Wisconsin, the GMSIM has been used in the states of California, Connecticut, Delaware, Kansas, Michigan, Minnesota, Oregon, Vermont, Wisconsin and Wyoming to model alternative health care financing policy options. CCRC Actuaries have been the primary health care actuaries for West Virginia governmental programs since 1990, which represents a unique position of understanding of the West Virginia health insurance marketplace. This understanding culminated in CCRC Actuaries performing a health care financing model of the State of West Virginia under alternative health care reform policy options, as commissioned by the West Virginia Health Care Authority in 2009. This projection used detailed claim and premium information for over 900,000 coverages to project the impact to all of the 1.8 million West Virginians over a ten year period.

2.5. Mandatory Requirements

- **One or more members assigned to this contract must be a fellow of the Society of Actuaries (FSA) and/or a member of the American Academy of Actuaries (MAAA);**

Dave Bond and Chris Borcik are Fellows of the Society of Actuaries and Members of the American Academy of Actuaries.

- **Members assigned this contract must have at least 5 years of experience with health insurance products;**

Jon Gruber's research has focused on the areas of public finance and health economics for over twenty years.

Dave Bond has over thirty years of experience in actuarial issues in the self-funded health and the commercial health insurance industries.

Brad Paulis has twenty years of experience in providing actuarial consulting services for the health care industry and is currently pursuing his Associateship to the Society of Actuaries.

Chris Borcik has seven years of experience in providing actuarial consulting services for the health care industry, with an emphasis in governmental programs including DoD, CMS, CHIP and High Risk Pools.

Mike Madalena has over twenty-four years of experience in providing evidence based healthcare actuarial econometric solutions.

- **Members assigned this contract must be knowledgeable to Actuarial Standard Practice No. 8, 23, and 25;**

CCRC Actuaries is well versed in the Actuarial Standards of Practice. We have summarized Nos. 8, 23, and 25 in the Staffing Plan / Key Personnel section of our proposal.

- **The firm shall have no conflict of interest with regard to any carrier that is actively writing individual or group health products in the West Virginia market.**

Members of our Project Team do not have any conflict of interest with regard to any carrier that is actively writing individual or group health products in the West Virginia market.

- **This scope of work includes those tasks associated with overall planning and feasibility analysis supporting the State, and as appropriate, in the development, design, creation of an implementation plan for an Exchange in West Virginia. The following tasks are preliminarily identified as necessary for such planning and implementation, but it is expected that selected vendor will be assisting the State with identifying key questions, analysis, and decision points required for the analysis, and as appropriate, successful implementation of the Exchange. The state will require the successful vendor to describe how they will approach each requested outcome with the State retaining authority to modify approach as deemed necessary.**

Our Project Team will work closely with the WVOIC to assist with identifying key questions, analysis, and decision points required for the analysis, and as appropriate, successful implementation of the Exchange.

- **The successful vendor must provide the WVOIC with data and trend analysis of health insurance coverage and the private health insurance marketplace as described below. The successful vendor must coordinate with the WVOIC to secure data necessary for the analysis detailed in this section. To the extent possible, the successful vendor must identify and collect primary data to fill the gaps in existing primary and secondary data sources. Any primary data collected in completion of the services identified in this section must be made available to the WVOIC for future use. The successful vendor must present findings in oral presentations and provide a written report with appropriate graphs and charts. The potential vendor shall provide a work plan for completion of this project.**

Our Project Team will work closely with the WVOIC to secure and provide the data and trend analysis of health insurance coverage and the private health insurance marketplace in West Virginia. Our Project Team has extensive experience in modeling the impact of mandated benefits on both the national and state levels. Additionally, our Project Team has extensive experience in providing testimony and written reports both on the national and state levels. Our Project Team will provide a work plan, organized by deliverable, with anticipated completion dates identified for each activity/task as well as identify reporting milestones and timeframes over the projects duration.

2.6. Oral Presentations

Our Project Team will be available for oral presentations before the WVOIC Evaluation Committee at a mutually convenient time providing the following materials:

- PowerPoint presentation not to exceed 90 minutes
- Relevant graphs, diagrams and illustrations, etc.
- Handouts as appropriate to the RFP presentation.
- Other appropriate elements relating to the RFP.

III. DELIVERABLES / SCHEDULE

Per the answers provided in Addendum No. 1 by the West Virginia Offices of the Insurance Commissioner, the timeline for this project will be established after the award of the contract. With a thorough understanding of the federal deadlines for Exchange planning and development activity, our Project Team will work closely with the WVOIC to complete the requested research and data outlined in the Scope of Services in a timely manner.

Upon the successful award of the contract, our Project Team will meet all reasonable timelines established by the WVOIC. Our Project Team will provide a work schedule, organized by deliverable, with anticipated completion dates identified for each activity/task as well as identify reporting milestones and timeframes over the projects duration.

Dave Bond will serve as our Project Team's point of contact, assuring professionalism and timely responses and delivery.

IV. STAFFING PLAN / KEY PERSONNEL / RESUMES

Our Project Team consisting of Dr. Jon Gruber, Dave Bond, Brad Paulis, Chris Borcik and Michael Madalena will work on all areas of the project, as appropriate.

2.4.1. Background Research
2.4.2. Exchange Design Options
2.4.3. Exchange Organizational and Impact Assessment
2.4.4. Ad Hoc Services in Support of Continued Exchange Planning

- ✓ The principal health economic consultant for this project will be Dr. Jonathan Gruber, who will be supported by a team of research assistants from MIT.

- ✓ The principal actuarial consultant for this project will be Dave Bond of CCRC Actuaries. CCRC Actuaries staffs eight actuarial consultants, two of which are Fellows are the Society of Actuaries and Members of the American Academy of Actuaries. CCRC Actuaries is well versed in the Actuarial Standards of Practice. We have summarized Nos. 8, 23, and 25 below.

- ✓ The principal data management consultant for this project will be Madalena Consulting, LLC. Madalena Consulting has professional and support personnel located in the Dallas, Texas and Phoenix, Arizona areas.

- ✓ Resumes for key personnel are presented in the following pages.

Actuarial Standards of Practice

Actuarial evaluation and analysis of the healthcare marketplace by an actuary is governed by actuarial principles and methodologies. In completing the various analyses of the West Virginia healthcare marketplace and proposed healthcare insurance exchange, CCRC Actuaries will adhere to the Actuarial Standards of Practice. The most relevant standards of practice for this scope of work include ASOP No. 8, entitled "Regulatory Filings for Health Plan Entities," ASOP No. 23, entitled "Data Quality" and ASOP No. 25, entitled "Credibility Procedures Applicable to Accident and Health, Group Term Life, and Property/Casualty Coverages." Important highlights of these ASOPs include:

ASOP No. 8: Regulatory Filings for Health Plan Entities

Health filings require projection of future contingent events and can be categorized into two broad categories: rate or benefit filings and financial projection filings. Some of these filings are made on behalf of health plan entities, such as filings made in conjunction with applications for licensure. Other filings are required for health benefit plans provided by health plan entities, such as filings for approval of rates. Such filings may be required for new and existing health plan entities, for new health benefit plans, and for revisions to existing health benefit plans.

Many jurisdictions require health filings that demonstrate compliance with applicable law, which may vary considerably as to the requirements and procedures for these filings. In many cases, such law may be silent as to the assumptions and methodology to be used, thus giving the

actuary significant discretion to exercise professional judgment in preparing and reviewing the filings. When developing or analyzing health filings, the actuary should consider the following:

- When preparing a filing, the actuary should include in the filing a statement of its purpose, identifying the applicable law it is intended to comply with.
- The actuary should consider which assumptions are necessary for the filing.
- The actuary should request and review any existing and relevant business plans for the health plan entity or health benefit plan that is the subject of the filing.
- When setting assumptions, the actuary should adjust past experience for any known or expected changes that, in the actuary's professional judgment, are likely to materially affect expected future results. The actuary should make adjustments to past experience based on earned premiums and incurred claims, as appropriate, in a way that reasonably matches claim experience to exposure.
- The actuary should consider pertinent plan documents or contracts and, as described to the actuary, established administrative procedures, any plan interpretations that are not written in the plan documents, and any arrangements with providers of health care.
- The actuary should consider available data relevant to new plans or benefits.
- The actuary should base the projection of future capital and surplus on reasonable assumptions that take into account any internal or external future actions as described to the actuary that, in the actuary's professional judgment, are likely to have a material effect on capital or surplus.
- The actuary should base the projection of regulatory benchmarks on appropriate available information about the relevant book of business.
- The actuary should review the assumptions employed in the filing for reasonableness. The assumptions should be reasonable in the aggregate and for each assumption individually.
- The actuary should review the data used for reasonableness and consistency.
- The actuary should prepare and retain documentation in compliance with the requirements of ASOP No. 31 and ASOP No. 41.

ASOP No. 23: Data Quality

The actuary should consider data quality when selecting the data that underlie the actuarial work product, relying on data supplied by others, reviewing data, using data, and making appropriate disclosures with regard to data quality. Data that are completely accurate, appropriate, and comprehensive are frequently not available. The actuary should use available data that, in the actuary's professional judgment, allow the actuary to perform the desired analysis. However, if material data limitations are known to the actuary, the actuary should disclose those limitations and their implications. With respect to data quality, the actuary should consider the following:

- The actuary should review the data for reasonableness and consistency, unless, in the actuary's professional judgment, such review is not necessary or not practical. In exercising such professional judgment, the actuary should take into account the extent of any checking, verification, or auditing that has already been performed on the data, the purpose and nature of the assignment, and relevant constraints.
- The actuary should make a reasonable effort to determine the definition of each data element used in the analysis.
- The actuary should review the data used directly in the actuary's analysis for the purpose of identifying data values that are materially questionable or relationships that are materially

inconsistent. If the actuary believes questionable or inconsistent data values could have a material effect on the analysis, the actuary should consider further steps, when practical, to improve the quality of the data.

- If similar work has been previously performed for the same or recent periods, the actuary should consider reviewing the current data for consistency with the data used in the prior analysis.
- The actuary is not required to:
  - Determine whether data or other information supplied by others are falsified or intentionally misleading.
  - Develop additional data compilations solely for the purpose of searching for questionable or inconsistent data.
  - Audit the data.
- Because data that are completely accurate, appropriate, and comprehensive are frequently not available, the actuary should make a professional judgment about:
  - Whether the data are of sufficient quality to perform the analysis.
  - Whether the data require enhancement before the analysis can be performed.
  - If judgmental adjustments or assumptions can be applied to the data that allow the actuary to perform the analysis.
  - If the actuary believes that the data are likely to contain material defects, the actuary should determine, if practical, the nature and extent of any checking, verification, or auditing that may have been performed on the data.
  - If, in the actuary's professional judgment, the data are so inadequate that the data cannot be used to satisfy the purpose of the analysis, then the actuary should obtain different data or decline to complete the assignment.
- The actuary should comply with the requirements of ASOP No. 41, regarding the preparation and retention of the documentation. In addition, the actuary's documentation should include the following:
  - The process the actuary followed to evaluate the data.
  - A description of any material defects the actuary believes are in the data.
  - A description of any adjustments or modifications made to the data, including the rationale for any such adjustments or modifications.

ASOP No. 25: Credibility Procedures Applicable to Accident and Health, Group Term Life, and Property/Casualty Coverages

The purpose of credibility procedures is to blend information from subject experience with information from one or more sets of related experience when the subject experience does not have full credibility in order to improve the estimate of expected values, or to determine when the subject experience should have full credibility and blending is unnecessary. Credibility procedures should be used in ratemaking and prospective experience rating and may be used for other purposes. With respect to credibility procedures, the actuary should consider the following:

- The actuary should be familiar with and consider various methods of determining credibility. Credibility procedures selected should do the following:
  - Produce results that are reasonable in the professional judgment of the actuary.
  - Do not tend to bias the results in any material way.
  - Are practical to implement.
  - Give consideration to the need to balance responsiveness and stability.

- The actuary should use care in selecting the related experience that is to be blended with the subject experience. Such related experience should have frequency, severity, or other determinable characteristics that may reasonably be expected to be similar to the subject experience.
- Any credibility procedure requires the actuary to exercise informed judgment, using relevant information. The use of credibility procedures is not always a precise mathematical process.
- In carrying out credibility procedures, the actuary should consider the homogeneity of both the subject experience and the related experience. Within each set of experience, there may be segments that are not representative of the experience set as a whole. Credibility can sometimes be enhanced by separate treatment of these segments. The actuary should apply credibility procedures that appropriately reflect the characteristics of both the subject experience and the related experience.

Whenever appropriate in the actuary's professional judgment, the actuary should disclose the credibility procedures used. Any material changes from prior credibility procedures should be disclosed and supported.

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EDUCATION

Ph.D. in Economics, Harvard University, 1992
B.S. in Economics, Massachusetts Institute of Technology, 1987

EXPERIENCE SUMMARY

Professor of Economics, MIT, 1997-present
Margaret MacVicar Faculty Fellow, MIT, 2007-present
Associate Head, MIT Department of Economics, 2006-2008
Deputy Assistant Secretary for Economic Policy, U.S. Treasury Department, 1997-1998
Castle Krob Associate Professor of Economics, MIT, 1995-1997
Assistant Professor of Economics, MIT, 1992-1995

Director, National Bureau of Economic Research's Program on Health Care, 2009-present
Director, National Bureau of Economic Research's Program on Children, 1996-2009
Research Associate, National Bureau of Economic Research, 1998-present
Faculty Research Fellow, National Bureau of Economic Research, 1992-1998

Board of Directors of the Health Care Cost Institute, 2011- present
Executive Committee, American Economics Association, 2010-present
Board of the Commonwealth Health Insurance Connector Authority, 2006-present
Associate Editor, American Economic Journal: Economic Policy
Associate Editor, Journal of Public Economics, 1997-2001, 2009-present
Associate Editor, Journal of Health Economics, 2001-present
Member, Congressional Budget Office Long Term Modeling Advisory Group, 2000-present
Academic Advisory Committee, Center for American Progress 2004-present

Undergraduate Program Coordinator, MIT Economics Department, 1994-2005
Member, NIH Center for Scientific Review Study Section on Social Sciences, 1998-2002
Co-Editor, Journal of Health Economics, 1998-2001
Co-Editor, Journal of Public Economics, 2001-2009

FELLOWSHIPS AND HONORS

Named "One of the Top 25 Most Innovative and Practical Thinkers of Our Time" by Slate Magazine, 2011.
Partners Health Care Connected Health Leadership Award, 2011
Winner of 2009 Purvis Prize from Canadian Economic Association for Best Public Policy

Publication of the year
Elected to the American Academy of Arts and Sciences, 2008
MIT Undergraduate Economics Association Teaching Award, 2007
Named 19th Most Powerful Person in Health Care in the United States, Modern Healthcare Magazine, 2006
Inaugural Medal for Best Health Economist Age Forty and Under, American Society of Health Economists, 2006
Elected to the Institute of Medicine, 2004
2003 Richard Musgrave Prize for best paper in National Tax Journal in 2003
Member of the National Academy of Social Insurance, 1996
1995 American Public Health Association Kenneth Arrow Award for the Outstanding Health Economics Paper of 1994
National Science Foundation Presidential Faculty Fellowship, 1995
Sloan Foundation Research Fellowship, 1995
MIT Undergraduate Economics Association Teaching Award, 1994
FIRST Award, National Institute of Aging, 1994
Harvard Chiles Fellowship, 1991
Sloan Foundation Dissertation Fellowship, 1990
National Science Foundation Scholarship, 1987
Phi Beta Kappa, 1987

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"The Impacts of the Affordable Care Act: How Reasonable Are the Projections?" forthcoming, *National Tax Journal* (also available as NBER Working Paper #17168, June 2011).

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"The Tax Exclusion for Employer-Sponsored Health Insurance," forthcoming, *National Tax Journal* (also available as NBER Working Paper #15766, February 2010).

"Balancing Coverage Affordability and Continuity under a Basic Health Program Option," *New England Journal of Medicine*, 365(24), December 15, 2011.

"Medicare Part D and the Financial Protection of the Elderly," *American Economic Journal: Economic Policy*, 3(4), November 2011, p. 77-102 (with Gary Engelhardt).

"Choice Inconsistencies Among the Elderly: Evidence From Plan Choice in the Medicare Part D Program," *American Economic Review*, 101(4), June 2011, p. 1180-1210 (with Jason

Abaluck).

"Heterogeneity in Choice Inconsistencies Among the Elderly: Evidence from Prescription Drug Plan Choice," *American Economic Review*, 101(3), May 2011, 377-381.

"The Importance of the Individual Mandate – Evidence from Massachusetts," *New England Journal of Medicine*, 364, January 27, 2011, 293-295 (with Amitabh Chandra and Robin McKnight).

"Projecting the Impact of the Affordable Care Act on California," *Health Affairs*, 30, January 2011, p. 63-70 (with Peter Long).

"Massachusetts Points the Way to Successful Health Care Reform," *Journal of Policy Analysis and Management*, 30(1), Winter 2011, p. 184-192.

"The Facts from Massachusetts Speak Clearly: Response to Douglas Holtz-Eakin," *Journal of Policy Analysis and Management*, 30(1), Winter 2011, p. 194-194.

"Fundamental Health Care Reform for the United States," *Significance*, September 2010, p. 130-132.

"Buying Health Care, The Individual Mandate, and the Constitution," *New England Journal of Medicine*, 363, p. 401-403, July 29, 2010 (with Sara Rosenbaum).

"The Cost Implications of Health Care Reform," *New England Journal of Medicine*, 362, 250-251, June 3, 2010.

"How Sensitive are Low Income Families to Health Plan Prices?" *American Economic Review*, 100(2), May 2010, p. 292-296 (with David Chan).

"Patient Cost-Sharing in Low Income Populations," *American Economic Review*, 100(2), May 2010, p. 303-308 (with Amitabh Chandra and Robin McKnight).

"Patient Cost-Sharing, Hospitalization Offsets, and the Design of Optimal Health Insurance for the Elderly," *American Economic Review*, 100(1), March 2010, p. 193-213 (with Amitabh Chandra and Robin McKnight).

"Getting the Facts Straight on Health Care Reform," *New England Journal of Medicine*, 361(26), December 24, 2009.

"A Win-Win Approach to Financing Health Care Reform," *New England Journal of Medicine*, 361(1), July 2, 2009, 4-5.

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"Covering the Uninsured in the United States," *Journal of Economic Literature*, 46(3), September 2008, 571-606.

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"Crowd-Out Ten Years Later: Have Recent Expansions of Public Insurance Crowded Out Private Health Insurance?" *Journal of Health Economics* 27, March 2008, p. 201-217. (with Kosali Simon).

"Massachusetts Health Care Reform: The View from One Year Out," *Risk Management and Insurance Review* 11(1), Spring 2008, p. 51-63.

"How Much Uncompensated Care to Doctors Provide?" *Journal of Health Economics*, 26, December 2007, p. 1151-1169 (with David Rodriguez).

"Faith-Based Crowdout and Charity During the Great Depression," *Journal of Public Economics*, 91, June 2007, p. 1043-1069 (with Dan Hungerman).

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"Pay or Pray? The Impact of Charitable Subsidies on Religious Attendance," *Journal of Public Economics*, 88 (12), December 2004, 2635-2655.

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"Regulating Tobacco in the United States: The Government and the Court Room," *World Economics*, 3(3), July-September 2002, 27-53.

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"Youth Smoking in the 1990s: Why Did it Rise and What are the Long Run Implications?" *American Economic Revi*ew, 91(2), May 2001, p. 85-90.

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"Cash Welfare as a Consumption Smoothing Mechanism for Single Mothers," *Journal of Public Economics*, 75(2), February 2000, 157-182.

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"Social Security Programs and Retirement Around the World," *Research in Labor Economics*, 18, 1999, 1-40 (with David Wise).

"Public Health Insurance and Private Savings," *Journal of Political Economy*, 107(6), December 1999, 1249-1274 (with Aaron Yelowitz).

"Physician Fees and Procedure Intensity: The Case of Cesarean Delivery," *Journal of Health Economics*, 18(4), August 1999, 473-490 (with John Kim and Dina Mayzlin).

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"Social Security and Retirement: An International Comparison," *American Economic Review*, 88(2), May 1998, 158-163 (with David Wise).

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"Does Public Insurance Crowd Out Private Insurance?" *Quarterly Journal of Economics*, 111(2), May 1996, 391-430 (with David Cutler).

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"Physician Financial Incentives and the Diffusion of Cesarean Section Delivery," *RAND Journal of Economics*, 27(1), Spring 1996, 99-123 (with Maria Owings).

"Health Insurance Availability and the Retirement Decision," *American Economic Review*, 85(4), September 1995, 938-948 (with Brigitte Madrian).

"Physician Payments and Infant Mortality: Evidence From Medicaid Fee Policy," *American Economic Review*, 85(2), May 1995, 106-111 (with Janet Currie and Michael Fischer).

"The Labor Market Effects of Introducing National Health Insurance: Evidence from Canada," *Journal of Business and Economics Statistics*, 13(2), April 1995, 163-174 (with Maria Hanratty).

"State Mandated Benefits and Employer Provided Insurance," *Journal of Public Economics*, 55(3), November 1994, 433-464.

"Limited Insurance Portability and Job Mobility: The Effect of Public Policy on Job-Lock," *Industrial and Labor Relations Review*, 48(1), October 1994, 86-102 (with Brigitte Madrian).

"The Elasticity of Demand for Health Insurance: Evidence from the Self-Employed," *Quarterly Journal of Economics*, 109(3), August 1994, 701-734 (with James Poterba).

"The Effect of Competitive Pressure on Charity: Hospital Responses to Price Shopping in California," *Journal of Health Economics*, 13(2), July 1994, 183-212.

"The Incidence of Mandated Maternity Benefits," *American Economic Review*, 84(3), June 1994, 622-641.

"Taxation and the Structure of Labor Markets: The Case of Corporatism," *Quarterly Journal of Economics*, 108(2), May 1993, 385-412 (with Lawrence Summers and Rodrigo Vergara).

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"Realizing Health Reform's Potential: Will the Affordable Care Act Make Health Insurance Affordable?" Issue Brief, Commonwealth Fund, April 2011. Available at: http://www.commonwealthfund.org/~/media/Files/Publications/Issue%20Brief/2011/Apr/1493_Gruber_will_affordable_care_act_make_hlt_ins_affordable_reform_brief_compressed.pdf (with Ian Perry).

"Health Care Reform Without the Individual Mandate: Replacing the Individual Mandate Would Significantly Erode Coverage Gains and Raise Premiums for Health Care Consumers," issue paper from Center for American Progress, available at http://www.americanprogress.org/issues/2011/02/pdf/gruber_mandate.pdf

"Be Careful What You Wish For: Repeal of the Affordable Care Act Would be Harmful to Society and Costly for Our Country," issue paper from Center for American Progress, available at http://www.americanprogress.org/issues/2011/01/aca_repeal.html

"Why We Need an Individual Mandate," issue paper from Center for American Progress, available at http://www.americanprogress.org/issues/2010/04/individual_mandate.html

"Introduction to Social Security Programs and Retirement Around the World: The Relationship to Youth Employment," in Jonathan Gruber and David Wise, eds., *Social Security Programs and Retirement Around the World: The Relationship to Youth Employment*, forthcoming, University of Chicago Press (also available as NBER Working Paper #14647, January 2009) (with David Wise).

"Introduction: What Have We Learned About the Problems of and Prospects for Disadvantaged Youth?" in Jonathan Gruber, ed., *An Economic Perspective on the Problems of Disadvantaged Youth.* Chicago: University of Chicago Press, forthcoming.

"How Elastic is the Corporate Income Tax Base," in Alan Auerbach, James Hines and Joel Slemrod, eds., *Taxing Corporate Income in the 21st Century.* Cambridge: Cambridge University Press, 2007, p. 140-163 (with Joshua Rauh).

"The Role of Consumer Copayments for Health Care: Lessons from the RAND Health Insurance Experiment and Beyond". Report for the Kaiser Family Foundation, October 2006. Available at http://www.kff.org/insurance/7566.cfm

"Improving Opportunities and Incentives for Saving by Middle- and Low-Income Households," in Jason Furman and Jason E. Bordoff, eds., *Path to Prosperity: Hamilton Project Ideas on Income Security, Education and Taxes.* Washington, D.C.: The Brookings Institution, 2008. (with William G. Gale and Peter R. Orszag).

"Social Security and the Evolution of Elderly Poverty," in Alan Auerbach, David Card and John Quigley, eds., *Public Policy and the Income Distribution.* New York: Russell Sage Foundation, 2006, p. 259-287 (with Gary Engelhardt).

"Tax Policy for Health Insurance," in James Poterba, ed., *Tax Policy and the Economy* 19. Cambridge, MA: MIT Press, 2005, p. 39-63.

"Social Security Programs and Retirement Around the World: Fiscal Implications of Reform, Introduction and Summary," in Jonathan Gruber and David Wise, eds. *Social Security Programs and Retirement Around the World: Fiscal Implications of Reform*. Chicago: University of Chicago Press, 2007, 1-42 (with David Wise).

"The Fiscal Implications of Social Security Reform in the U.S.", in Jonathan Gruber and David Wise, eds. *Social Security Programs and Retirement Around the World: Fiscal Implications of Reform*. Chicago: University of Chicago Press, 2007, 503-532 (with Courntey Coile).

"The Fiscal Implications of Social Security Reform in Canada", in Jonathan Gruber and David Wise, eds. *Social Security Programs and Retirement Around the World: Fiscal Implications of Reform*. Chicago: University of Chicago Press, 2007, 83-118 (with Michael Baker and Kevin Milligan).

"Social Security Programs and Retirement Around the World: Micro Estimation - Introduction and Summary," in Jonathan Gruber and David Wise, eds., *Social Security Programs and Retirement Around the World: Micro Estimation*. Chicago: University of Chicago Press, 2004, p. 1-40.

"The Effect of Social Security on Retirement in the United States," in Jonathan Gruber and David Wise, eds., *Social Security Programs and Retirement Around the World: Micro Estimation*. Chicago: University of Chicago Press, 2004, p. 691-730 (with Courtney Coile)

"Income Security Programs and Retirement in Canada," in Jonathan Gruber and David Wise, eds., *Social Security Programs and Retirement Around the World: Micro Estimation*. Chicago: University of Chicago Press, 2004, p. 99-154 (with Michael Baker and Kevin Milligan).

"Health Insurance, Labor Supply, and Job Mobility: A Critical Review of the Literature," in Catherine McLaughlin, ed., *Health Policy and the Uninsured*. Washington, D.C.: Urban Institute Press, 2004, p. 97-178 (with Brigitte Madrian).

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"Health Care Reform in Wisconsin: The Facts," available at:
\http://wisopinion.com/index.iml?mdl=article.mdl&article=37203

"Howard Dean Wrong, Individual Mandate Right," blogged at *The New Republic* at
http://www.tnr.com/blog/jonathan-cohn/78614/dean-vermont-health-insurance-mandate

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Discussion of Brigitte Madrian, "The Effect of Health Insurance on Retirement," in *Brookings Papers on Economic Activity*, 1994:1, 241-247.

Review of Rationing America's Medical Care: The Oregon Plan and Beyond, ed. by Martin Strosberg, *Industrial & Labor Relations Review*, 46(4), July 1993, 727-729.

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"Demand and Reimbursement Effects of Healthcare Reform: Health Care Utilization and Infant Mortality in Thailand," NBER Working Paper #17739, January 2012 (with Nathan Hendren and Robert Townsend).

"Cheaper by the Dozen: Using Sibling Discounts at Catholic Schools to Estimate the Price Elasticity of Private School Attendance," NBER Working Paper #15461, October 2009 (with Susan Dynarski and Danielle Li).

"Does Church Attendance Cause People to Vote? Using Blue Laws' Repeal to Estimate the Effect of Religiosity on Voter Turnout," NBER Working Paper #14303, September 2008 (with Alan Gerber and Dan Hungerman).

"A Tax-Based Estimate of the Elasticity of Intertemporal Substitution," NBER Working Paper #11945, January 2005.

"Youth Smoking in the U.S.: Prices and Policies," NBER Working Paper #7506, January 2000.

December, 2011

DAVE BOND, F.S.A., M.A.A.A.
Managing Partner
dave.bond@ccrcactuaries.com

EDUCATION/CERTIFICATION

B.S., Mathematics, Temple University 1980
Fellow of the Society of Actuaries 1991
Member of the American Academy of Actuaries 1985

EXPERIENCE SUMMARY

Mr. Bond is the Managing Partner of CCRC Actuaries, LLC. He has over thirty years of experience in actuarial issues in the self-funded health and the commercial health insurance industries. His experience has been primarily in the actuarial area and encompasses a broad range of specialized skills. He has directed the product development section of an Actuarial Department with responsibilities, which included all rate filings and underwriting decisions. He has specialized in health care strategic planning for Continuing Care Retirement Communities (CCRCs), employers, and government groups, the product development and financial reporting for group and individual lines of insurance, in actuarial issues relating to Long Term Care (LTC) and CCRCs, as well as the product development, financial reporting, and underwriting of insurance operations. He has served as the lead actuary in providing actuarial services to governmental programs including employee, retiree, state high risk pools, children's health programs and state Medicare agencies.

Mr. Bond's Society of Actuary activities include: Participation in the American Academy of Actuaries response to the Health Care Reform Act, Chairperson of the Financial Matters Subcommittee of the State of Maryland Department of Aging's Continuing Care Advisory Committee, Membership in the Financial Advisory Panel for the CARF-CCAC, Membership in the Health Care Reform Examination Committee and the Financial Reporting Examination Committee, Membership in the Managed Care Pricing Examination Committee and Long Term Care Examination Committee, Co-chairing a Medicare Supplement SOA Workshop, Participation in the SOA Long Term Care Experience Committee, Participation in the American Academy of Actuaries Committee on CCRCs, and Editor of the Health Section News publication. Mr. Bond also has served and is currently serving as a member of the Financial Advisory Board for the Continuing Care Commission of AAHSA.

Prior to founding CCRC Actuaries, Dave managed and directed the actuarial activities of the Baltimore Office of Ernst & Young and previous to this position directed the group product development and group underwriting activities of an insurance company.

RELEVANT EXPERIENCE

As Managing Partner of CCRC Actuaries, Mr. Bond has primary responsibility for various actuarial functions of several major group carriers. Mr. Bond's experience includes oversight of the following projects:

West Virginia Public Employees Insurance Agency (WVPEIA). CCRC Actuaries annually receives claim and administrative expense information from participating Managed care organizations for WVPEIA. Our actuaries review the information for accuracy and reasonableness. We attest to WVPEIA on the requested MCO capitation level by each coverage tier which includes family, single and member plus children coverages and by type of managed care benefit structure. Mr. Bond has served the State of West Virginia in this capacity for since 1991 under an initial Ernst & Young contact which has continued under a CCRC Actuaries, LLC contract.

ACR Work. Mr. Bond and his staff reviewed the information submitted to CMS for participation as a managed care provider to Medicare eligible individuals. Information was screened for accuracy and for reasonability. MCOs were contacted and requested to send follow-up information as necessary. An analysis was completed by managed care organization that detailed whether CMS should or should not accept the provider as a participant.

Maryland Physicians Care (2006). Mr. Bond and his staff conducted a feasibility study for a provider group to participate in the Medicare Advantage program to cover both medical and prescription drugs to Medicare eligible members.

Providers

- Assisted a PHO in evaluating its experience under a capitated arrangement.
- Provided hospitals and physician groups with assistance in evaluating a global capitation proposal and construction of appropriate risk absorption models.
- Developed a risk analysis model for a PHO capitated contract.
- Performed projections of physician practice income streams under a capitated contract.

HMOs

- Conducted a review of budget and utilization levels.
- Audited ACR submissions to HCFA to determine compliance with HCFA regulations.
- Performed projections of future income streams.
- Performed claim liability analysis and prepared statutory opinion.
- Developed rate filings.
- Evaluated capital requirements including comparison to RBC standards.
- Constructed APR filings for Medicare Risk Contracts.

Indemnity (Insurer, Blue Cross/Blue Shield, and Self-funded)

- Audit of ACR submissions to CMS to determine compliance with CMS regulations.
- Evaluated and audited the actuarial liability for the Medicare Eligible Retiree Health Care Fund.
- Evaluated and audited the actuarial liability for Contract Resource Management.
- Performed numerous OPEB calculations as defined by GASB 43 and GASB 45.
- Performed rating review and recommended plan design and underwriting modifications.
- Analyzed claim liability and prepared statutory opinions.
- Performed strategic assessment of group division of major carrier.
- Reviewed strategic response to small group reform legislation.
- Providing clients with actuarial support relating to plan design and financial reporting of health care plans.
- Valuation and modeling of blocks of self-insured and insured business.

BRADLEY D. PAULIS
Partner
brad.paulis@ccrcactuaries.com

Brad has over twenty years of experience in providing actuarial consulting services for the health care industry, with an emphasis in government health care programs, Continuing Care Retirement Communities and Long Term Care. Brad is currently pursuing his Associateship to the Society of Actuaries. Brad serves on a volunteer basis on the Board of a local CCRC in Baltimore.

Brad's experience includes:

- Audit of ACR submissions to CMS to determine compliance with CMS regulations.
- Evaluated and audited the actuarial liability for the Department of Defense Medicare Eligible Retiree Health Care Fund and the Contract Resource Management.
- Assisted in the development of a temporary high risk pool under the Patient Protection and Affordable Care Act.
- Development of claim reserves and analysis of product design and evaluating benefit changes for governmental clients.
- Providing clients with actuarial support relating to plan design and financial reporting of health care plans.
- Developed a report that analyzed the projected costs and savings of implementing various health care options within the State of West Virginia.
- Performed numerous OPEB calculations as defined by GASB 43 and GASB 45.
- Development of a financial forecasting model for new and existing CCRCs.
- Former member of the financial review committee for CCRCs for the State of Maryland.
- Former member of the Financial Advisory Panel for CARF-CCAC.
- Providing state agencies with assistance in evaluating feasibility submissions for new and expanding CCRCs.
- Long-term care insurance product development and analysis.
- Providing actuarial consulting services to over 300 clients.

Christopher Borcik, F.S.A., M.A.A.A.
Senior Actuarial Consultant
chris.borcik@ccrcactuaries.com

Chris has over seven years of experience in providing actuarial consulting services for the health care industry, with an emphasis in governmental programs including DOD, CHIP and High Risk Pools, Continuing Care Retirement Communities, and Long Term Care. Chris is a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. Chris is a member of the Phi Beta Kappa academic honors society and graduated Magna Cum Laude from Gettysburg College with a Bachelor of Arts in Mathematics.

Mr. Borcik's experience includes:

- Audit of ACR submissions to CMS to determine compliance with CMS regulations.
- Evaluated and audited the actuarial liability for the Medicare Eligible Retiree Health Care Fund.
- Evaluated and audited the actuarial liability for Contract Resource Management.
- Developed benefit structures for a state high risk pool.
- Analyzed loss ratios for different benefit tiers and coverage levels.
- Developed quarterly actuarial projections for the state of West Virginia's high risk pool.
- Providing clients with actuarial support relating to plan design and financial reporting of health care plans
- Completed actuarial projections for the State of West Virginia Healthcare Authority related to proposed state health care reforms.
- Development of claim reserves and analysis of product design and evaluating benefit changes for governmental clients.
- Health Care insurance trend analysis and claim reserve calculation.
- Performed GASB 43 and 45 OPEB liability calculations for state government entities.
- Market Area and Pricing Analysis of competitors for CCRCs.
- Analysis of resident movement in a CCRC through various levels of care. Projecting future population flows including morbidity and mortality.
- Providing state agencies with assistance in evaluating feasibility submissions for new and expanding CCRCs.
- Calculated sample sizes and confidence intervals from Prescription Drug Event data.
- Valuation of Long-Term Care insurance blocks of business.
- Academic studies included intense analysis of Severity and Frequency Models, Construction of Empirical Models, Construction and Selection of Parametric Models, Risk Measures, Ruin Theory, Parametric Models, Credibility, and Simulation.

MICHAEL A. MADALENA
Healthcare Econometric and Actuarial Consultant

mikem@mm4q.com

EDUCATION

M.S., Public Management and Policy Analysis, Carnegie Mellon University

B.A., Social Sciences, Clarion State College

CLIENT EXPERIENCE

Mr. Madalena is a consultant with twenty-four years of experience providing evidence based healthcare actuarial and econometric solutions. While the vast majority of his client base is governmental (state employee benefit programs, retirement systems, Medicaid systems, and regulatory agencies), he has also been active in the private employer and insurance carrier markets. In addition to his consulting expertise, Mr. Madalena also has extensive experience in the processing and analysis of healthcare data. He has developed a number of applications that utilize the databases he has constructed in the course of his consulting engagements. These applications range in topic from quality and financial reporting to simulation models that predict selection bias. During his career, he has also has been heavily involved in the area of operational systems (such as claims processing, utilization management, eligibility, RFP response evaluations, and eligibility / enrollment) as well as the decision support applications previously referenced. His recent experience as a consultant includes:

- In a long term project for the West Virginia Bureau for Medical Services (BMS), Mr. Madalena designed, implemented, tested, and put into production an encounter data system that gathered claim and encounter information from all participating managed care organizations. In addition to integrating data from a total of four plans (Carelink, The Healthplan of the Upper Ohio Valley, MAMSI, and Unicare), the system also integrated data the state's PCCM program PAAS as well as the program wide eligibility file maintained by the state and the carved out benefits processed by the state's fiscal intermediary. The consolidated database has been used to provide for HEDIS based plan comparison reporting, utilization analysis, EPSDT reporting, provider profiles (emergency room and radiology / laboratory services), financial analysis, prescription drug reporting to participating MCO, and benchmarking. Since 2006, the combined encounter database has been the primary source of data used in the rate setting process for recipients insured by participating managed care organizations. This assignment started in October 1996 and continues through present.

- From 1993 to present, Mr. Madalena has developed and maintained an integrated healthcare database for the West Virginia Public Employees Insurance Agency (WVPEIA). This system stores claim and encounter data for all insurance options for WVPEIA enrollees (HealthSmart, Carelink, The Healthplan of the Upper Ohio Valley, Advantage Health, MAMSI, PrimeONE, and Mountain State Blue Cross and Blue Shield) as well as enrollment history and prescription drug claims. The database (updated monthly) has been used extensively for a number of applications including monthly management reporting, comprehensive annual reports, HEDIS based reporting, plan design change modeling, fiscal note preparation, selection bias analysis, hospital (inpatient and outpatient) and physician reimbursement analysis, disease management initiative support, audit support, support for

state procurements (i.e. PBM services, ASO vendors, etc), GASB 45 statement preparation, support for court cases and procurement protests in which the state is a party, and actuarial support. In addition to supporting written reports, the database is also accessible to WVPEIA management and professional staff in a web-based application that includes on-line analytic processing (OLAP) tools, ad-hoc query, and production reporting tools.

- For the West Virginia Healthcare Authority (HCA), Mr. Madalena has designed, implemented, tested, and put into production the agency's public payer database. This database stores the entire claim and encounter data for WVPEIA, Medicaid, CHIP, and Worker's Compensation. Medical, pharmacy, and eligibility data have been integrated into a database that assists the HCA in its' health policy mission. In addition to supporting the database and providing technical assistance, Mr. Madalena has provided analytic assistance to the HCA on a number of topics including breast cancer mortality and morbidity rates, cardiac disease burden, diabetic incidence rates, and crossover analysis among West Virginia's public health insurance payors. Mr. Madalena has been under contract with the HCA since 1997.

- West Virginia Children's Health Insurance Program (CHIP) has had Mr. Madalena under contract since the program's inception to provide data analysis and actuarial support services. Under this contract, he has designed, implemented, tested, and put into production an analytic database that stores all medical, dental, and prescription drug claims for the program. The database, that also includes detailed enrollment data, is updated on a monthly basis. The database has been used to support the program in a number of ways including annual HEDIS reporting, fiscal note preparation, audit support, actuarial support, and reimbursement analysis. In addition to supporting written reports, the database is also accessible to CHIP management and professional staff in a web-based application that includes on-line analytic processing (OLAP) tools, ad-hoc query, and production reporting tools.

- The South Carolina Employee Insurance Program (SCEIP) is a longstanding client that Mr. Madalena has been working with since 1990. The initial focus of the engagement was on the complete re-design of the employee health insurance program. Mr. Madalena was responsible for constructing a database that would support benefit modeling activities, monitor plan performance, and the construction of a preferred provider organization that would serve state employees. The actuarial framework developed in 1990 is still in use and supported by Mr. Madalena today. In addition, he has been responsible for the development and maintenance of a system that is used to experience rate entities that optionally join the SCEIP, establishment of HMO plan design and contribution rates, support for state procurements (i.e. PBM services, behavioral health vendors, ASO vendors, etc), GASB 45 statement preparation, support for court cases and procurement protests in which the state is a party, annual updates of the inpatient, outpatient, ambulatory surgical center, and physician networks, budget process support, legislative support, and audit support. The SCEIP database is also accessible to management, professional, and audit staff in a web-based application that includes on-line analytic processing (OLAP) tools, ad-hoc query, and production reporting tools. Mr. Madalena is also responsible for supporting and documenting the separate versions of ANSI standard 834 files used to transmit eligibility data to the state's third party administrators.

- The development of Mr. Madalena's relationship with the Teacher Retirement System of Texas (TRS) is similar to his relationship with SCEIP. The TRS group benefits plan was authorized in 1986 by the Texas legislature. By 1988, the agency was seeking tools to model plan design changes and to augment reporting provided to it by its' third party administrators.

Mr. Madalena was a member of a team that designed, implemented, tested, and put into production a database that integrated information from the state's medical claims / encounters, prescription drugs, and eligibility. In addition to the benefit modeling and reporting roles, the database was used to develop a state wide, direct contract provider network, provide budget and legislative support, audit support, and actuarial analysis. He also provides support for state procurements (i.e. PBM services, ASO vendors, etc), GASB 45 statement preparation, and support for court cases and procurement protests in which the state is a party. In 2001, the database played a key role in analyzing the impact of implementing a statewide active teacher's health insurance program. Once that program became operational, the claims and eligibility for it were integrated into the database as well. The combined active and retiree database continues to support the retirement system today.

- The New Mexico Retiree Health Care Authority (NMRHCA) hired Mr. Madalena in 2000 to construct an analytic database that would support the consolidated purchasing agreement it had entered with the New Mexico Public Schools Insurance Agency, Albuquerque Public Schools, and the state Division of Risk Management. Medical claims from six managed care options, a prescription benefits manager, and three eligibility systems were integrated into one database. The primary purpose of the database is to provide measurement tools that compare health plan performance. To do so, Mr. Madalena developed a series of analyses based on HEDIS definitions that examined and compared health plan performance from financial, utilization, and quality perspectives. The system is also used to monitor overall system performance with respect to unit cost, utilization, and casemix. NMRCA staff utilizes the web based OLAP, query, and production reporting tools to support the budgetary process, GASB 45 and 43 statement preparation, audit functions, and the plan's independent actuary. Mr. Madalena is also responsible for the plan's eligibility and cost reporting for ERRP and Part D subsidies.

- The State of Maryland Department of Management and Budget Employee Benefits Division (EBD) hired Mr. Madalena in 2005 to implement an integrated database of medical claims, prescription drug claims, and eligibility. Medical POS, PPO, and EPO claims are administered by three third party administrators (Carefirst, United Healthcare, and Aetna) while carveouts are in place for behavioral health (APS Healthcare) and prescription drugs (Catalyst RX). EBD staff and independent actuaries have access to the integrated database using web based reporting tools (Cognos Reportnet and Enterprise Powerplay Server). A series of reports and analyses have been implemented to support EBD planning and accountability. In addition, Mr. Madalena is involved in GASB45 preparation, legislative fiscal impact analysis, and ERRP and RDS reporting and reconciliation.

SELECTED PUBLICATIONS AND PRESENTATIONS

"Actuarial Review of the State Health Plan", (co-authored with William Hickman and Jeanna Bonneau), prepared for the Executive Director of the South Carolina Budget and Control Board, annually from 1998 to present.

"Impact of Medicare Part D on Dually Eligible Medicaid Recipients", prepared for the South Carolina Department of Health and Human Services, 2005.

"Professional Reimbursement Equity Analysis", prepared for the South Carolina Department of Health and Human Services, annually from 1999 to 2011.

"Institutional Reimbursement Equity Analysis", prepared for the South Carolina Department of Health and Human Services, 2005.

"Proviso 21.33 – Medicaid Cost Effectiveness", prepared for the South Carolina Department of Health and Human Services, 2005 and 2010.

"Cost Implications of Mandatory Preventative Benefits", prepared for the South Carolina Employee Insurance Program, 2004; updated 2010 for ACA.

"Adverse Selection Potential in the Implementation of a Statewide Teachers Health Insurance Program", (co-authored with William Hickman and Jeanna Bonneau), prepared for the Teacher Retirement System of Texas, 2001.

"A Comparison of Carrier Performance", prepared for the New Mexico Retiree Healthcare Authority, annually from 2001 to 2003.

ATTACHMENTS

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
INS12001	4

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SHELLY MURRAY
304-558-8801

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CHARLESTON, WV
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BID OPENING DATE: 03/21/2012 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT

REQUISITION NO.: .....

ADDENDUM ACKNOWLEDGEMENT

I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.

ADDENDUM NO.'S:

NO. 1 ..✓.....

NO. 2 .....

NO. 3 .....

NO. 4 .....

NO. 5 .....

I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF BIDS.

VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.

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CCRC ACTUARIES, LLC
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COMPANY

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NOTE: THIS ADDENDUM ACKNOWLEDGEMENT SHOULD BE SUBMITTE WITH THE BID.

PURCHASING CARD ACCEPTANCE: THE STATE OF WEST VIRGINIA CURRENTLY UTILIZES A VISA PURCHASING CARD PROGRAM WHICH IS ISSUED THROUGH A BANK. THE SUCCESSFUL VENDOR MUST ACCEPT THE STATE OF WEST VIRGINIA VISA PURCHASING CARD FOR PAYMENT OF ALL ORDERS PLACED BY ANY STATE AGENCY AS A CONDITION OF AWARD.

NOTICE

A SIGNED BID MUST BE SUBMITTED TO:

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PURCHASING DIVISION
BUILDING 15
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305-0130

THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:

SEALED BID

BUYER: SHELLY MURRAY

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

Attachment B: Mandatory Specification Checklist

The following mandatory requirements must be met by the Vendor as a part of the submitted proposal. Failure on the part of the Vendor to meet any of the mandatory specifications shall result in the disqualification of the proposal. The terms "must", "will", "shall", "minimum", "maximum", or "is/are required" identify a mandatory item or factor. Decisions regarding compliance with any mandatory requirements shall be at the sole discretion of the State.

A simple "yes" or "no" response to these sections is not adequate (Attachment B). Failure to meet mandatory items shall result in disqualification of the potential vendor's proposal and the evaluation process terminated for that bidder.

Decisions regarding compliance with the intent of any mandatory specification shall be at the sole discretion of the Agency.

- One or more members assigned to this contract must be a fellow of the Society of Actuaries (FSA) and/or a member of the American Academy of Actuaries (MAAA);
- Members assigned this contract must have at least 5 years of experience with health insurance products;
- Members assigned this contract must be knowledgeable to Actuarial Standard Practice No. 8, 23, and 25;
- The firm shall have no conflict of interest with regard to any carrier that is actively writing individual or group health products in the West Virginia market.
- This scope of work includes those tasks associated with overall planning and feasibility analysis supporting the State, and as appropriate, in the development, design, creation of an implementation plan for an Exchange in West Virginia. The following tasks are preliminarily identified as necessary for such planning and implementation, but it is expected that selected vendor will be assisting the State with identifying key questions, analysis, and decision points required for the analysis, and as appropriate, successful implementation of the Exchange. The state will require the successful vendor to describe how they will approach each requested outcome with the State retaining authority to modify approach as deemed necessary.
- The successful vendor must provide the WVOIC with data and trend analysis of health insurance coverage and the private health insurance marketplace as described below. The successful vendor must coordinate with the WVOIC to secure data necessary for the analysis detailed in this section. To the extent possible, the successful vendor must identify and collect primary data to fill the gaps in existing primary and secondary data sources. Any primary data collected in completion of the services identified in this section must be made available to the WVOIC for future use. The successful vendor must present findings in oral presentations and provide a written report with appropriate graphs and charts. The potential vendor shall provide a work plan for completion of this project.

I certify that the proposal submitted meets or exceeds all the mandatory specifications of this Request for Proposal. Additionally, I agree to provide any additional documentation deemed necessary by the State of West Virginia to demonstrate compliance with said mandatory specifications.

CCRC ACTUARIES, LLC
(Company)

DAVE BOND, MANAGING PARTNER
(Representative Name, Title)

410-833-4220 / 410-833-4229
(Contact Phone/Fax Number)

MARCH 27, 2012
(Date)

RFQ No. INS 12001

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:
"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (***West Virginia Code*** §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: CCRC ACTUARIES, LLC

Authorized Signature: Eugene Davis Bond, Jr. Date: 3-28-2012

State of MARYLAND

County of BALTIMORE, to-wit:

Taken, subscribed, and sworn to before me this 28th day of March, 2012.

My Commission expires September 22, 2014.

AFFIX SEAL HERE

NOTARY PUBLIC Deborah Stephens

Deborah Stephens
Notary Public
Cecil County
Maryland
My Commission Expires September 22, 2014

March 28, 2012

Academic Built Case for Mandate in Health Care Law

By CATHERINE RAMPELL

After Massachusetts, California came calling. So did Connecticut, Delaware, Kansas, Minnesota, Oregon, Wisconsin and Wyoming.

They all wanted Jonathan Gruber, a numbers wizard at M.I.T., to help them figure out how to fix their health care systems, just as he had helped Mitt Romney overhaul health insurance when he was the Massachusetts governor.

Then came the call in 2008 from President-elect Obama's transition team, the one that officially turned this stay-at-home economics professor into Mr. Mandate.

Mr. Gruber has spent decades modeling the intricacies of the health care ecosystem, which involves making predictions about how new laws will play out based on past experience and economic theory. It is his research that convinced the Obama administration that health care reform could not work without requiring everyone to buy insurance.

And it is his work that explains why President Obama has so much riding on the three days of United States Supreme Court hearings, which ended Wednesday, about the constitutionality of the mandate. Questioning by the court's conservative justices has suggested deep skepticism about the mandate, setting off waves of worry among its backers — Mr. Gruber included.

"As soon as I started reading the dispatches my stomach started churning," Mr. Gruber said of the arguments on Tuesday, while taking a break from quizzing his son for a biology test. "Losing the mandate means continuing with our unfair individual insurance markets in a world where employer-based insurance is rapidly disappearing."

Mr. Gruber, 46, hates traveling without his wife and three children, so he is tracking the case from his home in Lexington, Mass. There he crunches numbers and advises other states on health care, in between headbanging at Van Halen concerts with his 15-year-old son and cuddling with the family's eight parrots. (His wife, Andrea, volunteers at a bird rescue center.)

If the court rules against the mandate, Mr. Gruber says he believes the number of newly insured Americans could fall to eight million from the projected 32 million. He insists that without a mandate, the law will result in a terrible spiral: only relatively sick Americans will choose to get insurance, leading premium prices to rise and causing the healthier of even those sick people to drop their insurance, sending prices higher and higher.

Some other economists quibble, though, with Mr. Gruber's pessimistic assessment.

"My general thought about the mandate is if insurance is affordable and accessible, most people will buy it anyway," said David Cutler, an economist at Harvard and longtime collaborator of Mr. Gruber's.

Others, like Paul Starr, a Princeton sociologist, say they believe Mr. Gruber's work does not account for how hard it will be to enforce the mandate.

"There is this groupthink about how important the mandate is," Mr. Starr says. "Most people don't understand or won't acknowledge how weak the enforcement mechanism is."

Mr. Starr said he thought Mr. Gruber in particular was overstating the effectiveness of the mandate because "it's his baby."

That said, it is difficult for too many other experts to categorically refute Mr. Gruber's work, since he has nearly cornered the market on the technical science behind these sorts of predictions. Other models exist — built by nonprofits like the RAND Corporation or private consultancies like the Lewin Group — but they all use Mr. Gruber's work as a benchmark, according to Jean Abraham, a health economist at the University of Minnesota and former senior economist in both the Obama and George W. Bush administrations.

"He's brought a level of science to an issue that would otherwise be just opinion," Mr. Cutler says. "He's really the only person who has been doing all this careful modeling for so long. He's the only person you can go to for that kind of thing, which is why the White House reached out to him in the first place."

Mr. Obama had made health care reform a cornerstone of his campaign, and wanted to announce a credible proposal quickly after taking office. But members of the Obama administration's transition team said they had inherited an executive branch that had vastly underinvested in modeling research on health care, especially compared to the technical modeling that had been done in areas like tax policy.

"Creating a good model from scratch would have taken months, maybe years," said Lawrence H. Summers, who was the director of President Obama's National Economic Council and had

advised Mr. Gruber on his dissertation when they were at Harvard.

Mr. Gruber had already spent years researching government mandates, starting with his 1991 dissertation about how mandated employer benefits cut into workers' wages.

He also did similar analyses, on a broader range of public policies for the Treasury Department in the Clinton administration from 1997-98. He was recruited by Mr. Summers, who was then deputy secretary of Treasury.

Then in 2001, after returning to M.I.T., Mr. Gruber received an e-mail from Amy Lischko, who was then an assistant commissioner in the Massachusetts healthy policy department under then-Gov. Jane M. Swift, a Republican.

She was familiar with his work, and contracted him to model some potential ways that Massachusetts could expand health insurance coverage.

"He certainly wasn't as well known then as he is now in the health care arena," said Ms. Lischko, now a professor at Tufts University School of Medicine. "We couldn't exactly kick the tires on these kinds of models back then, but we knew he had done work on simulations before."

Mr. Gruber calls himself a "card-carrying Democrat." He and his wife host a "great quadrennial Democratic victory party" whether or not the Democratic candidate wins, he said. But given his reputation and relatively rare expertise, he still ended up working for two Republican governors in Massachusetts.

When Mr. Romney succeeded Ms. Swift in 2003, he proposed using an individual mandate to help the state achieve universal health care coverage. Mr. Gruber was again brought in to analyze the idea, which he had not formally modeled before.

"Romney saw it as a traditional Republican moral issue of personal responsibility, getting rid of the free riders in the system, not as much of an economic issue," Mr. Gruber said. "Not only were the Republicans for it, the liberals hated it. People forget that."

Mr. Obama had vehemently opposed an individual mandate before his election in 2008.

After the Massachusetts plan passed in 2006, Arnold Schwarzenegger, then the Republican governor of California, invited Mr. Gruber to Sacramento to help model a similar proposal.

"That was awesome," Mr. Gruber says, his eyes widening at the memory. "I got to see the sword from Conan the Barbarian."

The California proposal fell apart, but soon Mr. Gruber had a little cottage industry helping

states model potential health system changes. He also serves on the Massachusetts board that oversees the state's new health care exchanges.

Along with these credentials, Mr. Gruber's position as an adviser to the influential Congressional Budget Office also left him perfectly positioned to advise the White House on health reform.

"The most important arbiter of everything was the C.B.O.," said Neera Tanden, who was a senior adviser for health reform at the Department of Health and Human Services.

The C.B.O.'s assessment of a bill's efficacy and costs strongly influences political debate, but the office does not publicly reveal how it calculates those numbers.

"We knew the numbers he gave us would be close to where the C.B.O. was likely to come out," Ms. Tanden said. She was right.

After Mr. Gruber helped the administration put together the basic principles of the proposal, the White House lent him to Capitol Hill to help Congressional staff members draft the specifics of the legislation.

This assignment primarily involved asking his graduate student researchers to tweak his model's software code. It was also almost entirely conducted from his home office, while his children were at school and then after they had gone to bed.

"If I wanted to be in Washington, I'd have taken a job in Washington," he said. "I wanted to be around for my family."

Even though he was brought in by the White House, Congressional staff members from both parties trusted him because he was seen as an econometric wonk, not a political agent. But soon his very involvement with the bill caused questions about his objectivity to be raised in the news media.

During and after the bill's slog through Congress, he frequently spoke with reporters and wrote opinion pieces supporting the Affordable Care Act but did not always mention his role in helping to devise it.

He says he regrets not being more upfront about his involvement with the administration. But he does not apologize for publicly advocating the legislation, and continuing to do so — including through a comic book he wrote to explain the law.

"Yes, I want the public to be informed by an objective expert," he says. "But the thing is, I

know more about this law than any other economist."