

Act 128

Health System Reform Design

Achieving Affordable Universal Health Care in Vermont

Submitted by

WILLIAM C. HSIAO, PhD, FSA
K.T. Li Professor of Economics
Harvard University

STEVEN KAPPEL, MPA
Principal
Policy Integrity, LLC

JONATHAN GRUBER, PhD
Professor of Economics
Massachusetts Institute of Technology

And a team of health policy analysts

UPDATED January 21, 2011

WE WOULD LIKE TO THANK THE MANY INSTITUTIONS AND ORGANIZATIONS THAT ALLOWED US TO USE THEIR DATA TO CONDUCT ANALYSES VITAL TO THIS REPORT. UNLESS OTHERWISE CITED FROM A PUBLISHED REPORT, THE ANALYSES, AND THE RESPONSIBILITY FOR THEIR ACCURACY AND INTEGRITY, ARE SOLELY OURS. ANY CONCLUSIONS AND RECOMMENDATIONS IN THIS REPORT ARE ALSO SOLELY THOSE OF THE PRINCIPAL INVESTIGATOR'S AND ANALYSTS' AND ARE NOT NECESSARILY THOSE OF THE INSTITUTIONS AND ORGANIZATIONS THAT PROVIDED DATA.

ABOUT THE AUTHORS:

Dr. William Hsiao, Ph.D., FSA is the K.T. Li Professor of Economics and director of the Health System Studies Program at Harvard University. Dr. Hsiao received his Ph.D. in Economics from Harvard University and is a fully qualified actuary (i.e. Fellow, Society of Actuaries) with experience in private and social insurance. Dr. Hsiao has been a leading authority in health care financing for more than three decades and the World Bank regards him as the world's premier authority on national health insurance programs. Dr. Hsiao played a leading role in the development of the United States Medicare and Medicaid Programs and national health insurance during the Nixon and Carter Administrations, and has been actively engaged in designing universal health insurance programs for many countries including Taiwan, China, Colombia, Poland, Cyprus, South Africa, and Uganda.

Dr. Jonathan Gruber, Ph.D. is a Professor of Economics at the Massachusetts Institute of Technology, where he has taught since 1992. His research focuses on the areas of public finance and health economics. Dr. Gruber's Microsimulation Model was used to model the single payer options and public options in Vermont. He has developed GMSIM over the past dozen years to provide objective and evidence-based modeling of the impact of health reforms on insurance coverage and costs. He was a key architect of Massachusetts' ambitious health reform effort that widely expanded health insurance coverage to its residents. The GMSIM was the basis for the adoption of health reform in Massachusetts and it has also been used widely for state and federal health policy making, academic research, and private foundation analyses. In 2006, he became an inaugural member of the Massachusetts Health Connector Board, the main implementing body for that effort. In addition, Dr. Gruber has worked closely with governments in states such as California, Maryland, Minnesota, and Wisconsin to model reform options to expand health insurance coverage in these states.

Mr. Steven Kappel, MPA is the founder of Policy Integrity LLC, which specializes in the development and evaluation of health policy. Mr. Kappel has been involved in the development of health data and health policy in Vermont for nearly 30 years. Since 1993, he has provided analytical support to both the legislature and executive branch on every health care reform initiative within the state. He has worked on the design and implementation of several major state data resources, including the hospital discharge data system, the state "Expenditure Analysis" and the Vermont Household Health Insurance Survey. He has worked extensively with both public and private-sector organizations in Vermont, including insurers, hospitals, the Vermont Program for Quality in Health Care, and several different state agencies. Mr. Kappel is also an adjunct instructor in health policy at the University of Vermont. He holds a Master's Degree in Public Administration from the University of Vermont and is a graduate of the Vermont Leadership Institute.

PROJECT STAFF, ANALYSTS, CONTRIBUTORS AND COLLABORATORS

Anna Gosline, Project Manager
Nicolae Done, Analyst

Analysts from the Harvard School of Public Health

Ashley Fox
Nathan Blanchet

Jeremy Barofsky
Maxwell Behrens
Jacob Bor
Anthony Carpenter
Bradley Chen
Victoria Fan
Catherine Hammons
Bethany Holmes
Heather Lanthorn
Peter Rockers
Susan Powers Sparkes

Kristin Bevington
Sue Gilbert

Collaborators

Ian Perry, MIT
Nic Rockler, Kavet, Rockler and Associates
Tom Kavet, Kavet, Rockler and Associates

Contributors from the State of Vermont

Jennifer Carbee, Legislative Council
Nolan Langweil, Joint Fiscal Office
Robin Lunge, formerly of the Legislative Council
Jim Hester, former Director, Vermont Health Care Reform Commission

TABLE OF CONTENTS

1. Introduction	1
A. Principles and goals of Act 128.....	1
B. Current Problems in Vermont's Health System	3
2. CONSTRAINTS to Reform in Vermont.....	8
A. Legal Constraint: ERISA	9
B. Federal Constraint: PPACA.....	13
C. Federal Constraint: Medicare and Medicaid.....	15
D. Constraint: Stakeholder analysis	18
E. Constraint: Provider Human Resources and Health Care Facilities Infrastructure	27
F. Constraint: Organizational & Administrative Capacity	29
3. Design Principles & Strategies.....	31
4. Methods and data	33
A. Estimating the Savings	33
B. Costs Estimations	59
C. Gruber Microsimulation Model (GMSIM)	66
D. Macroeconomic Impacts.....	69
5. PPACA Impacts.....	72
6. Options 1A & 1B: Single Payer.....	74
A. Eligibility and Benefits Package Design	74
B. Budgeting Principles	79
C. Financing.....	80
D. Additional Investments.....	82
E. Payment to Providers.....	85
F. Walver Requirements and Assumptions	90
G. Impacts.....	93

7. Option 2: The Public Option	97
A. Overview and Modeling Assumptions	97
B. Governance and Organization	97
C. Benefit Package and Financing.....	98
D. Budget and Cost Containment Principles	98
E. Payment to Providers.....	99
F. Waiver Requirements	99
G. Impacts.....	100
8. Option 3: Public/Private Single Payer.....	102
A. Overview	102
B. Impacts.....	102
9. Implementation.....	105
A. Implementation of a single-payer system	105
B. Implementation of an ACO service delivery system	107
10. Comparisons and Recommendations	112
References	115

1. INTRODUCTION

"how we keep our feet on the ground and our heads in the clouds."

Louis Menand, 2010

The visions expressed in Vermont's Act 128 soar in the clouds; achieving them, however, requires us to keep our feet on the ground to reform the current broken health system. Vermont wants to be the vanguard and create a new system that may serve as a model for the whole nation. America itself faces three major health care problems: an inequitable system in which nearly 50 million Americans have no health insurance; rapid escalation of health costs that place a heavy financial burden and are unaffordable for most Americans and government; and uneven quality of health care and wasteful use of scarce resources. These problems are caused not by a political party or insurance company, but by an overall dysfunction of the health system. President Obama's Patient Protection and Affordable Care Act only deals with the insurance coverage problem, but does not present a systemic solution. Vermont seeks a fundamental system-wide reform.

A systemic reform requires the simultaneous changes of the major structures of a health system. This means that insurance coverage needs to be universal and financing of health care needs to be equitable and decoupled from employment; resources have to be reallocated toward prevention and primary care; payment rates have to shift to give higher value to primary care services; payment methods must promote integrated health care and reward providers for good performance all while enhancing competition; fragmented health care delivery must be coordinated and integrated; health information technology has to be modernized; incentives and information must be given to people to adopt a healthy lifestyle; and regulations have to be simplified and streamlined.

Vermont's aspiration is to take the state on a new path and create an innovative single-payer system that can solve the three major problems and provide equal access to good and affordable health care for all Vermonters. This project was commissioned to propose options to reform the health system structures and translate this noble vision into reality—all while keeping our feet on the ground.

A. PRINCIPLES AND GOALS OF ACT 128

Vermont has been working to improve its healthcare system for many years. While the approaches have varied over time, the basic goals have not. In his 1939 inaugural address, Governor George Aiken said, "A subject of nation-wide discussion today is that of health insurance and hospital insurance. Hospital insurance began in Vermont, and we the people of this state recognize full well that the health of our neighbors as well as of our own family is of vital importance to us."

His comments were made in the context of a state with significant health problems. As early as 1929, the issues of cost and access to care were being discussed.[1] During World War II, about 30 percent of Vermonters reporting to the Selective Service "were rejected and placed in the 4-F category because of poor health." [2]

Proposals to reform health care in the state were developed sporadically throughout the 1940s, 1950s, and 1960s, but the “first major effort to influence the modern health care structure came in 1973, when Governor Thomas Salmon appointed a nineteen-member commission to explore the need for regulatory authority over the health care delivery system in the state.”[3] The Commission’s findings sound remarkably current:

- There were too many specialists and not enough generalists in Vermont.
- The structure of health insurance was enormously complex, administrative costs of the system were very high, and lots of money flowed out of the state in the form of insurance company profits.
- Widespread variation existed in the utilization patterns of health care resources and costs.
- Malpractice costs were rising and leading to defensive medicine.
- There was a large and growing demand by the public for health care resources, without regard to costs.
- The health care system was fragile in rural areas.
- The state lacked the necessary data to plan and monitor the system.

In 1988, the Vermont legislature created the Vermont Health Insurance Plan “with the goal of ensuring that all Vermonters had health insurance coverage.”[3] This effort was ultimately derailed by state budget issues.

Act 160 (1992)

The next major reform was initiated in 1992 with the legislature’s enactment of Act 160. This act made the goals and principles of health care reform explicit. The opening statement of Act 160 said: “It is the policy of the state of Vermont to ensure that all residents have access to quality health services at costs which are affordable.” The policy section of Act 160 went on to call for:

- An integrated health care system, under the direction of a single state agency
- Comprehensive planning and budgeting
- Quality improvement
- Cost containment
- Regional and local decision-making
- Rational allocation of resources
- Universal access to preventive and medically necessary care

Act 128 (2010)

“An act relating to health care financing and universal access to health care in Vermont,” Act 128, was passed by the Vermont legislature in May of 2010, and was allowed to become law without the

Governor's signature. Building on the history of reform in the state, Act 128 established broad principles and goals. These principles and goals guided our efforts to design the options presented in this report.

The principles and goals address several broad areas:

- Shifting the focus of care from intervention to prevention and wellness
- Shifting the structure of care from fragmentation to organization
- Providing both coverage and access to care for all Vermonters
- Financing care in an equitable and sustainable way
- Maximizing efficiency and transparency throughout the system

But Act 128 goes well beyond goal-setting. It recognizes that in order to achieve these goals, broad changes to how healthcare is financed and delivered are necessary. Each goal must be linked to action. These changes will address how funds for care are raised, how providers are paid for delivering care, how systems of care are organized, and how the planning and regulatory processes operate.

While the state's long-standing reform efforts have addressed all of these areas, much remains to be done and it is very unlikely that the incremental steps that the state has taken in the past will achieve the goals laid out in Act 128.

B. CURRENT PROBLEMS IN VERMONT'S HEALTH SYSTEM

By many measures, Vermont's health system is one of the best in the United States. The state has consistently been ranked as the healthiest in the country by the United Health Foundation.[4] Vermont boasts the fifth highest rank in its percentage of insured residents.[5] Primary and preventive services in Vermont seem to be effective in keeping hospital utilization low, with Medicare beneficiaries in Vermont hospitalized for surgery at the lowest rate in the country.[6] And in 2008, Vermont was tied with Utah for the lowest overall hospital discharge rate in the country.[7]

All of these accomplishments are the result of the state's decades of reforms and unwavering effort to provide affordable, accessible medical care to its residents. As detailed in the previous section, Vermont's government championed health reform since the 1930s; virtually every decade since then the state has renewed its commitment to health care through research and legislation. Now more than ever before, Vermont should take pride in its wealth of health care data and its wide-ranging reform efforts, such as: The Blueprint for Health, Hospital Report Cards, Catamount Health, and Act 128, just to name a few.

In spite of these positive efforts, Vermont's current system is unmanageable and at risk of crisis. Escalating costs threaten the sustainability of the entire system, rising at a higher rate than both GDP and the national average. Despite offering a public option through Catamount Health, seven percent of people remain uninsured, and many others are underinsured, most of whom cite cost as the main obstacle to obtaining good coverage. These people lack adequate protection from the

financial risk posed by illness, endangering the stability of Vermont families and businesses. To create a sustainable system capable of containing costs over time while still providing a high level of care to all citizens, Vermont must change its reform strategy. Instead of adding layers of haphazard patches to fix isolated problems, the state must create a comprehensive framework that systematically addresses core issues.

At the heart of Vermont's healthcare reform lies the challenge of controlling rising costs. According to the Centers for Medicare and Medicaid Services (CMS), national per capita health care spending grew an average of 5.5% per year from 1991 to 2004; Vermont's per capita spending grew substantially faster, averaging 7.6% per year.[8] In 1991, Vermont ranked 42nd in per capita health care spending, but by 2004, the state ranked 9th, spending almost 15% more than the national average.[9] Vermont's comprehensive coverage, while admirable, contributes to these comparatively higher rising, as health coverage is correlated with higher resource utilization.

Current and rising costs are the main culprit for uninsurance, underinsurance, and endangered insurance for individuals, businesses and the state. Despite having one of the lowest uninsurance rates in the country, Vermonters still report concerns about coverage and barriers to care. Of those Vermonters who are uninsured, almost 75 percent report cost as the only, or the major, barrier to obtaining insurance.[10] Over half of the approximately 47,000 uninsured Vermonters qualify for some form of state benefits. Indeed, Vermont ranks only slightly better than the national average (61.7%) for adults who are both eligible and enrolled in Medicaid. Reasons for these low enrollment rates include administrative obstacles of enrollment and renewal of benefits, as well as availability and quality of managed care.[11]

Many other Vermont households with private insurance (15.7% in 2008) are classified as underinsured. This means that they dedicate five to 10 percent of their household's annual income to health care expenses, or that their annual deductible exceeds five percent of income. These expenses do not take into account the cost of insurance premiums. Thus, while these individuals and families are registered as insured, in reality they are not optimally accessing health care resources available to them because of unaffordable deductibles, co-payments, and coinsurance.[12]

Finally, many insured Vermonters do not feel secure in their insurance status. About 12% of those with coverage are worried that they will lose it in the next 12 months as a result of job loss or coverage becoming unaffordable. One-third of individuals covered by Catamount Health are concerned about loss of coverage.[10]

Insufficient coverage translates into inadequate care. About one in five uninsured adults and almost one in 30 insured adults report that in the last year, they did not seek medical care because they could not afford it[13]. These rates are not surprising considering that almost 20% of Vermonters live in families that pay \$5,000 or more out of pocket for health care annually, and 25% live in families that have had trouble paying a medical bill in the past year. For these families, the cost of health care is a significant and persistent issue.[10]

Vermont's businesses also suffer under the burden of high medical costs. Small businesses that offer health benefits protest that they cannot keep up with competitors who do not offer benefits. Recently, many employers have been forced to reduce health benefits. Costs are then shifted back onto individuals through higher premiums, deductibles and co-pays. Those employers that are able to maintain generous health coverage despite rising health costs do so at the expense of offering

salary increases or other benefit packages. For example, in Lake Champlain Chamber of Commerce's annual member survey, 78% of employers felt that the cost of health hurt their ability to extend other benefits to employees.[14]

At the state level, the impact of rising costs is seen most directly in the Catamount Fund. The fund relies primarily on employer assessments, payments from employers whose workers do not have health insurance, cigarette taxes, and beneficiary premiums. These sources, however, have not kept up with subsidy cost, necessitating several transfers from the General Fund.[13] It is clear that the Catamount Health program is not sustainable under its current cost and revenue structure.

The reasons for increasing costs in Vermont are multiple and complex. Many of them have been repeated throughout the ongoing rhetoric of health reform over the past 50 years. The ever-increasing availability of high-technology care, such as sophisticated imaging devices, is replacing less costly, traditional diagnostic and treatment methods. Patients equate the presence and use of this technology to the quality of service they receive, even when low-technology, cheaper alternatives may work just as well.[15] Additionally, pharmaceutical companies are financially rewarded for developing new technology, not for creating low-priced or more efficient technology.

The predominant way in which physicians are reimbursed, through fee-for-service payments, also contributes to rising costs by rewarding the volume of health services, not the quality of health outcomes. This system promotes over-utilization of resources. According to our analysis of BISHCA's Vermont Health Care Uniform Reporting and Evaluation System (VHCURES), only about 3% of all physician office visits paid for by private payers were covered under a capitation agreement. Conversely, much of hospital care is paid for under some form of prospective payment, such as DRGs. These prospective payment mechanisms provide an incentive to constrain services during an episode of care; however, they do not encourage physicians to reduce the number of episodes.

Despite Vermont's past efforts, provider integration remains limited. Vermont's delivery system is characterized by many small professional practices and very few organized systems of care. According to one estimate, 70 percent of Vermont physicians are in practices with 3 or fewer doctors[16]. Only about 25 percent of privately employed physicians have any sort of electronic medical record, which is crucial in transmitting information in an integrated system. Complaints about human resource constraints, such as a lack of primary care physicians and psychiatrists, plague the system. Poorly coordinated care results in excess expenditures due to redundant examination and testing, unmanaged chronic conditions that result in expensive acute episodes, and ultimately a lower quality of care for the patient.

The increasing reliance on specialists, rather than primary care physicians, is often blamed as a cost driver both in Vermont and the nation as a whole. According to our analysis of the Vermont Department of Health's provider survey—published biannually—from 1998 to 2008, the rate of primary care providers (PCPs) per 1000 people in Vermont increased by 6.9 percent, whereas the specialist rate per 1000 increased by 32.6 percent[17]. Although the actual number of PCPs (80.2/1000) is on target with national recommendations for PCP levels, the comparative growth rate may be a contributing factor to increasing cost rates.

Administrative costs have been a concern in Vermont for many years. The net cost of insurance incurred by payers is fairly easy to measure, but teasing out how much of that is going to manage medical care, and how much is from navigating a complicated payer system is more difficult.[18]

While some of provider administrative activities are independent of payer structure, it is clear that providers spend a substantial amount of their time and resources in activities other than patient care (See Section 4A).

Meanwhile, the state's most rigorous attempts at cost control, budgeting in hospitals and insurance rate review, may not promote cost-savings. Most budgets, including the State's, are balanced by predicting revenues for a fiscal year and then constraining costs to match the revenues. In contrast, Vermont's hospital budget process and the health insurance rate review first approve costs, and then must generate revenue to meet the cost. Budget reviews submitted to the state highlight the reasons that expenses are rising (salary pressures, utility costs, technology, etc.) instead of examining available revenues. There is neither consideration of trends in income or GDP nor an attempt to adjust yearly expenses according to predicted revenues[19]. In this respect, the state has the opportunity for system regulation but is not using it wisely.

Correspondingly, the insurance rate review process in Vermont focuses on a determination of the accuracy of projected claims costs in the future. Once the anticipated expenditure level is accepted, premiums are set based on those expenditures, without regard to affordability. Insurers assert that they are limited in their ability to control spending[20]. This need to generate a certain amount of revenue, both for hospitals and consequently insurers, drives high prices and over-utilization, which results in higher premiums.

The factors contributing to rising costs reach far beyond this brief list. One characteristic that they all share in common, however, is that they are interdependent and result from a lack of overarching planning and budgetary control. The reform of any single cost driver will not be sufficient to fix the complicated and multitudinous network of rising costs.

Indeed, the reason that so many of these cost drivers are still plaguing the system in spite of Vermont's numerous reform efforts is the state's lack of comprehensive, organized regulation. The financial actions made by each member of the health care system have real and significant consequences on the other parties.

While hospitals and private payers do not balance their budgets based on revenues, Medicare and Medicaid aggressively do. One of the results of this uncoordinated cost control is "cost shifting." When public payers reduce the rates they pay providers in order to balance their own budgets, hospitals seek more revenue from private payers to recuperate lost revenues. According to an analysis by BISHCA, in 2007 approximately \$200 million was shifted onto private payers from Medicare, Medicaid, and Bad Debt & Free Care.[21] This form of cost-shifting is nearly unavoidable in a multi-payer environment, especially when various payers have different abilities to set prices. Cost shifting hampers efforts to contain costs, resulting an unaffordable system regardless of who pays—employers, workers, or government.

Similarly, despite budget reporting and the Certificate of Need regulations, Vermont has been unable to rein in hospital budgets. Budgets and capital projects are just two small parts in the many ways hospitals can derive and manipulate revenues

In these examples, one payer or player appears to be saving funds, but the effects of these shifts on aggregate spending are minimal. Unless all aspects of the system can be managed, any regulation that targets one portion of the health care system will result in a strain on another. When considering the aforementioned challenges in Vermont's health system, it becomes evident that

Vermont must enact comprehensive measures to create a sustainable model. Sustainability will hinge upon system-wide coordination and control of costs, integration, payment structure, and insurance availability.

Despite 70 years of reform, Vermont does not have a coordinated, sustainable system that is capable of comprehensively managing costs inflation. Any change the state makes will simply be a stopgap measure without the ability to manage cost-drivers, payment methods, insurance systems, and provider networks. If Vermont is committed to providing accessible, affordable health care to all its residents far into the future, it must adopt a system-wide approach, which comprehensively tackles the health care financing, delivery and payment system.

2. CONSTRAINTS TO REFORM IN VERMONT

The goals of Act 128 are clear. But in order to satisfy these goals the design of a viable systemic reform requires us to overcome many hurdles and constraints. These constraints include institutional, fiscal, legal, political and operational challenges. Below is a brief summary of these constraints. The following six sections address some of these areas in more detail, including legal constraints related to PPACA, ERISA, Medicaid and Medicare, political constraints as revealed in our political landscape analysis, the supply of physicians and health care facilities capacity as well as operational constraints for implementing reform.

- **Benefit package constraint:** Most Vermonters do not want to see their current health insurance benefit package reduced. Unions particularly emphasize that they won these benefits at the expense of higher wages. Meanwhile, our analysis found that the average Vermonter has a rich benefit package already. For covered medical and drug benefits, excluding dental, vision care and nursing home care, for every dollar spent by Vermonter that's reasonably allowed by insurance plans, insurance already pays 87 percent of the cost while the patient pays 13 percent. This insurance coverage ratio is between the "gold" and "platinum" benefit package as defined by the Patient Protection and Affordable Care Act (PPACA).
- **Fiscal constraint:** Vermont unions, grassroots organizations, employers and state government are not willing to spend any more for health care. The current spending is already stretching the limit of what their budgets can afford. The most recent estimates show that Vermont has a budget gap of \$150 million.[22] Clearly the state government is not in any position to spend additional funds for health care. As discussed above, both employers and individuals are also straining under the pressure of increasing health care costs. In short, Vermonters cannot spend any more.
- **Four legal hurdles:** Vermont has to comply with four sets of federal laws and regulations relating to Medicaid, Medicare and PPACA, and ERISA. Designs must further maximize federal funding. Act 128, as well stakeholder interviews, made it clear that reforms must capture the greatest amount of potential federal assistance possible.
- **Payment constraint to hospitals:** Our analysis shows that, on average, Vermont's community hospitals have low profitability; in 2008 the average total margin was -1.4 percent, in 2009 it was just 0.2 percent. Financial health of hospitals overall improved in 2010, but the median total margin for Vermont's eight small Critical Access Hospitals was 0.0%.[23] Any measurable reduction to total amount paid to hospitals could jeopardize the survival of Vermont hospitals. In addition, our stakeholder analysis shows that hospitals would mobilize all their political strength and support to oppose any reduction in total amount paid to hospitals.
- **Payment constraint to physicians:** Any measurable reduction to their total amount for physician services could jeopardize the supply of physician in Vermont, particularly

primary care physicians. Furthermore, our stakeholder analysis shows that the organized physicians in Vermont would strongly oppose any reduction in the total amount paid for physician services. However, some redistribution between specialties and types of practice maybe possible.

- Supply of providers and health care capacity: Vermont has a shortage of primary care physicians and nurse practitioners, a shortage that will worsen as demand for health care services increases under universal coverage. Also, some community hospitals need renovation and updating.
- Grassroots concerns: Grassroots organizations and single payer advocacy groups make it clear that they would not compromise on universal coverage, decoupling health insurance from employment, equal access for all Vermonters to reasonably high quality health care, and protection from bankruptcy from health expense due to illness.
- Operational hurdles: Government civil servants made it clear that any new health system reform must be practicable and executable by the state government. Otherwise, the bureaucracy would be blamed be problems encountered in implementation.

A. LEGAL CONSTRAINT: ERISA

Many policy experts cite ERISA as a barrier to comprehensive health care reform at the state level. To understand how ERISA might impact or limit our designs, we, with the help of staff from Vermont's Legislative Council, studied case law, published analyses and reports, and consulted leading national experts on this issue. Below we outline our analysis and that of other authorities on ERISA.

In 1974, Congress enacted the Employee Retirement Income Security Act (ERISA), which regulates employer benefit plans including health coverage, and "supersede[s] any and all State laws insofar as they may now or hereafter relate to any employee benefit plan." [24] This phrase is commonly referred to as ERISA's "preemption clause." The objective of the preemption clause is to encourage employers to sponsor benefits plans for their employees and to allow employer-sponsored benefit plans to operate independent of potentially differing state laws. ERISA also contains provisions saving for the states the general authority to regulate in the areas of insurance, banking, and securities [24] ("savings clause") and clarifying that states cannot simply deem employer benefit plans to be insurance plans for purposes of regulating them ("deemer clause"). [24] ERISA plans include both those that are "self-insured" and those whose benefits are offered through an insurance product. Because states can regulate insurers, they can prescribe benefits and administrative features of insured plans but cannot regulate self-insured ERISA plans.

Because the language of ERISA is confusing and the preemption and savings clauses appear largely contradictory, most of what is known about the limitations imposed by ERISA comes from court decisions. Even looking to the judiciary for guidance on ERISA does not make the law's prospective application clear, however, because opinions from the circuit courts of appeal are not uniform in their interpretation.

The U.S. Supreme Court has interpreted the term "relates to" to mean that ERISA preempts state laws that have "a connection with or reference to" an ERISA plan. [25] This means that state laws

cannot specifically mention ERISA plans, but it also means that states must be very careful in assessing the potential impact of proposed legislation on ERISA plans. Any law that seeks to influence benefits, administration, or structure under an ERISA plan,[26] imposes substantial costs on a plan, or requires employers to provide employees with specific benefits is likely to be preempted.[25]

In *New York State Conference of Blue Cross & Blue Shield Plans v. Travelers*,[27] the Supreme Court upheld a New York law imposing a hospital surcharge on all commercial insurers except Blue Cross & Blue Shield. In its ruling, the Court identified a general presumption against preemption in areas of traditional state regulation, such as health care, and held that the indirect influence of the surcharge was not sufficiently connected to ERISA plans so as to “bind plan administrators to any particular choice” and thus trigger ERISA’s preemption clause.[27] But the Court also hinted at the possibility that an “exorbitant” tax could reach a level at which consumers would effectively have no real choice and suggested that such a mandate might violate ERISA.[27]

The 4th and 9th Circuits have weighed in on ERISA with respect to “pay or play” laws, which require employers to pay an assessment against which they can credit money spent on employee health care services or coverage. Each circuit has reached a different result. In *Retail Industry Leaders Association v. Fielder*, the Court of Appeals for the 4th Circuit struck down a Maryland law requiring very large employers to spend at least 8% of their total payroll on their employees’ health insurance costs or pay to the state the amount their spending fell short.[28] The only affected employer in the state was Wal-Mart, which had an ERISA plan. The court found that because Wal-Mart’s options were either to increase contributions to its own plan or to pay money to the state of Maryland, Wal-Mart effectively had no choice but to restructure its employees’ health benefit plans, and that lack of choice was an ERISA violation. The court held that “the choices given in the [Maryland law] . . . are not meaningful alternatives by which an employer can increase its healthcare spending to comply with the [law] without affecting its ERISA plans.”[27]

In contrast, in *Golden Gate Restaurant Association v. City and County of San Francisco*, the Court of Appeals for the 9th Circuit upheld a San Francisco ordinance requiring employers either to make health care expenditures on behalf of their employees or to make payments directly to the city.[29] In relevant part, the court relied on the Supreme Court’s ruling in *Travelers* to hold that while an employer might choose to adopt or change an ERISA plan instead of making the required expenditures under the ordinance, the ordinance’s influence on such a decision is “entirely permissible.”[29]

Vermont is in the 2nd Circuit, which means that the decisions in other circuits are not binding on Vermont, but also makes it difficult to ascertain the limits of what may be permitted in this state under ERISA. And given that most of the guidance on ERISA has come from court rulings, it is hard to determine how the courts would treat an untested scenario, such as a single payer health care system.

ERISA is not necessarily a bar to a single payer health care system. While ERISA most likely would preempt a state’s ability to enact a law prohibiting self-insured employer-sponsored benefit plans or requiring these plans to include particular benefits, states may be able to enact legislation that would create a universal state system through broad-based tax financing as an optional alternative

to employer-sponsored benefit plan.¹ In addition, ERISA may not preempt a state's ability to largely align other aspects of the health care delivery system, such as claims payment rules, through a "single channel," which allows the state to replicate some of the beneficial features of a single payer system in an environment with multiple payer and benefit plans.

Patricia Butler, among the leading national experts on ERISA and its implications for state-based health initiatives, provided us with her opinion on the issue of a payroll tax-financed universal health care program.

"As outlined in more detail in a November 2006 monograph, universal publicly administered programs like single payer systems can raise ERISA preemption problems because they create incentives for employers sponsoring health coverage plans to terminate or modify their plans.[26] No courts have considered such state laws so it is not possible to predict precisely how a court would view such a challenge. States could defend this challenge with several credible arguments. For example, both taxation and health care financing are exercises of traditional state authority that a court should not presume Congress intended to preempt.[27] (It should be kept in mind that when Congress enacted ERISA in 1974, the need for states to expand health care access seemed remote because serious discussions of a national health care program were under way.[30]) Such a state law would not be directed at employer health plan administration – employers would be free to provide coverage to employees even if they also were paying the tax.² A payroll tax is not substantively different from other revenue sources that could be used to fund a single payer system such as income taxes or other assessments on individuals that would involve no employer role other than remitting the tax. Furthermore, the incidence of a payroll tax on employers actually falls on employees so its economic impacts are similar to those of an individual income tax."[31]

We also consulted Phyllis Borzi, Assistant Secretary of Labor for the Employee Benefits Security Administration and former an attorney and research professor at the George Washington Medical Center's School of Public Health and Health Services. She states the viability of tax-financing more forcefully, arguing that ERISA does not preempt broad tax-financed health programs. She confirmed this both in our conversation and in her published writing below:

"Clearly ERISA is not an impediment for states that choose to levy a fee or tax on all employers and to then use the funds to subsidize health care coverage expansions. In such a situation, the regulated entity is the employer, not the employer plan."[32]

We also investigated potential ERISA issues in regard to a "single channel" system of health care administration. In this design, all billing and claims processing would be done through uniform mechanisms, regardless of payer. This would simplify the administration of health benefits for providers to achieve the uniformity in billing practices and claims processing found in a single payer system (see Section 4A), but would not dictate a defined benefits package for employers and insurers, as multiple plans and multiple benefit packages could still exist, as well as multiple

¹ The 9th Circuit's ruling in *Golden Gate* suggests that *Travelers* may be read to permit laws and regulations to influence employer behavior without running afoul of ERISA.

² While addressing a different sort of publicly administered health program in San Francisco, the 9th Circuit Court of Appeals upheld the City's "pay or play" employer assessment against a preemption challenge, noting that the requirement was only that employers pay an assessment and the law did not directly affect ERISA plans. *Golden Gate Restaurant Association v. City and County of San Francisco*, 512 F. 3d 1112 (9th Cir. 2009).

payment levels. This can be achieved either by using one entity to process claims or through regulation requiring the use of the same billing and claims processing practices.

Requiring an ERISA plan to be administered in a specific way or through a single processor would most likely violate ERISA.[32] There have been no preemption cases that explicitly consider state claims adjudication standards; however, to the extent that the state law requires ERISA plans to define certain benefits in a particular way or administer the claims under certain standards, it is likely ERISA would preempt the law.[33] Because of this any single channel system must allow ERISA plans to administer their own benefits. Very few employers, however, administer ERISA plans themselves. Most ERISA plans contract with an insurer or a third-party administrator for billing and claims processing services.

States have clear authority to regulate insurers under the “savings clause” and this regulatory authority should include the administration of claims and billing practices.”[24] Claims processing standards should be saved from preemption when applied to insurers, health maintenance organizations, and other insuring entities.[33]

A state’s ability to regulate the practices of a third-party administrator (TPA) requires a more complex ERISA analysis. Because TPAs are not insurers when they administer claims rather than underwriting insurance risk, the savings clause does not apply to them.[24] Recent opinions of the Second Circuit Court of Appeals provide support that imposing a fee on a TPA does not “relate to” an ERISA plan.[34] The Second Circuit Court of Appeals held that ERISA did not preempt a hospital surcharge imposed on insurers administering self-insured ERISA health plans, even though the surcharge applied to that part of the insurer’s business. The Court of Appeals indicated that under *Travelers* the surcharge did not refer to ERISA plans nor did its economic influence directly impact upon plan activities.[34] In another recent decision, the Court of Appeals held that even when ERISA plans comprise a large percentage of a tax base, this was insufficient to trigger ERISA preemption of a state law taxing pensions.[34]

These decisions, however, address fees or surcharges imposed on TPAs and do not address the issue of regulating the administrative practices of these entities. In order to ensure the state does not trigger ERISA preemption, the state’s regulation of billing and claims processing should be designed to set standards for the TPAs. In addition, the law should be tailored so as to not directly impact on benefits offered by ERISA plans. In doing so, the state may defend an ERISA challenge by arguing that the ERISA plan itself is not the entity being regulated and is not significantly impacted by the regulation of the TPA.[33] However, certain claims payment rules, such as determination of medical necessity, do seem to directly determine benefit, which could make those individual rules more difficult to defend. Furthermore, there are claims payment standards established by ERISA, that any intermediary or regulation of claims processing would have to comply with.[33]

ERISA, however, is clearly no bar to a state-wide rate setting system. According again to Pat Butler:

“The Supreme Court’s 1995 Travelers Insurance case provides sound precedent to shield state rate-setting programs from ERISA preemption. Travelers upheld New York’s hospital rate-setting program, which required hospitals to collect surcharges of 24 percent from commercial insurers but not Blue Cross or Blue Shield plans. Although the law imposed higher costs on private-sector employer-sponsored (i.e. ERISA) plans choosing to buy coverage from commercial insurers, the Court held that ERISA did not preempt the law because the law was not specifically directed at ERISA plans and its

indirect economic influence did not "bind plan administrators" seeking insurance to choose Blue Cross or Blue Shield."

It is clear, Butler comments, that ERISA would not preempt a state rate-setting program that established rates for all providers – including hospitals, physicians and other providers - as long as it dictates what providers must *charge* rather than what payers must pay. "That this will require ERISA plans (both insured and self-insured) to pay those rates is what the Court approved in *Travelers* – the state law imposes costs on ERISA plans (that may differ across the country), but the Court noted that "cost-uniformity" is not an ERISA objective," she wrote to us. A fee-for-service payment system would be most closely analogous to the New York hospital rate-setting program at issue in *Travelers*.

Capitation payments have not been the subject of litigation and are somewhat more complex because the payments must inherently define the scope benefits provided by the accepting organization. But if those payments in no way determine the scope of benefits, and leave employers free to design benefits with insurers, they should not be treated any differently in the courts than fee for service rates.

Risk adjustment mechanisms, for any kind of payment, should be easily defended against an ERISA challenge. The surcharge on hospital bills paid by commercial insurers in New York was in fact a risk-adjustment mechanism; Blues plans were insurers of last resort and required at that time to take all applicants. As such, their risk profile was often significantly worse than competing commercial plans and the surcharge was designed to give financial relief and lower premiums to encourage enrollment of a broader risk profile.

B. FEDERAL CONSTRAINT: PPACA

The Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act of 2010, together known as the PPACA, were signed into law in March of 2010. PPACA represents the most comprehensive piece of federal health care legislation since the laws creating Medicare and Medicaid in 1965. By 2019, the law is expected to reduce the number of Americans without insurance by 32 million individuals all while reducing the federal deficit by \$143 billion over the 2010 -2019 period[35]. However, the requirements of the PPACA create barriers to the design and implementation of a single payer system at the state level.

PPACA achieves its gains in coverage through three main mechanisms. Firstly the law introduces an individual mandate. By 2014, most Americans and legal residents will be required to have health insurance or face a tax penalty. Certain categories of people are exempt from the mandate, as well as those suffering financial hardship or who cannot find affordable coverage.³ The law also expands Medicaid eligibility to include all individuals earning up to 133% of the Federal Poverty Level (FPL). Previously, states were only required to cover certain mandatory populations – for example low-income children, parents and pregnant women. PPACA will expand coverage to low income childless adults, a population that was traditionally excluded from Medicaid. Some states, including Vermont, already provide coverage for this group.

³ Individuals for whom the lowest cost plan option exceeds 8% of their income are exempt from the mandate; individuals whose income falls below the tax filing threshold are also exempt.

The centerpiece of the bill, however is the creation of health insurance Exchanges. These insurance marketplaces will allow individuals and businesses employing up to 100 workers⁴ to compare and purchase qualified health plans. Individuals earning up to 400% of FPL will also be able to access refundable tax credits and cost-sharing subsidies through the Exchange to help make insurance more affordable. Employers whose employees access these tax credits will have to pay a fee, though business with less than 50 workers are exempted from these penalties. Businesses with 25 or fewer low-income workers are furthermore eligible for tax credits to help offset the cost of providing health insurance to their workers, though employers can receive these credits for a maximum of six years⁵ beginning in 2010 [36].

Participating in the Exchanges is limited to licensed health plans in good standing in the state. In addition to the traditional private market, there are two more federal plans. The Office of Management and Personnel is required to contract with insurers to offer at least two multi-state plans in every Exchange. The law also provides funding the Consumer Operated and Oriented Plan program, which fosters the creation of non-profit, member run organizations that offer qualified health plans in the Exchange in all 50 states.

In addition to prescribing a minimum essential benefit package for all products, the Exchange provisions create four benefit tiers. Bronze plans cover 60% of the costs of the plan, silver covers 70%, gold covers 80% and platinum covers 90% of the costs. At a minimum, health plans participating in the Exchange must offer at least silver and gold plans. Plans must also meet basic requirements pertaining to marketing, provider networks, and outreach and enrollment, as well as consumer information standards. Plans must be guaranteed issue, guaranteed renewable and are limited in how they can vary premiums.⁶ In addition, the Department of Health and Human Services will design and administer several risk-adjustment mechanism, two temporary programs and one permanent, to balance, risk both across plans both inside and outside the Exchange.

Beyond these basic requirements and federal programs, however, states were granted a great deal of flexibility in designing their Exchanges, and indeed can even opt to have the Federal government run Exchange on its behalf. Exchanges can be administered by the state itself or by a non-profit entity. States can chose to combine the individual and small group market, and to restrict the eligible to either those with 50 or 100 workers. States also have broad latitude to control which health plans can offer products in the Exchange. At one extreme, Exchanges could take an inclusive approach allowing in all willing plans that meet the basic requirements. At the other extreme, state could chose to create a much more exclusive Exchange, setting very high certification standards. States can even eliminate insurance market outside the Exchange entirely [37].

In recognizing state's roles as innovators in health care reform, an earlier version of the PPACA allowed states to apply for a waiver out of the Exchange requirements in 2014, the same year in

⁴ Starting in 2017 states can allow business with more than 100 employees to being purchasing insurance through the exchange.

⁵ The small business tax credit is available in two phases; Phase I runs from 2010-2013; Phase II begins in 2014. Employers can qualify for tax credits for the entirety of Phase I (four years), but can only collect credits for two consecutive years of Phase II, yielding a maximum of six years overall.

⁶ The Exchange only allows rating variations based on age (limited to a 3:1 ratio between highest and lowest premiums), family composition, area and tobacco use. Vermont already has full community rating for the small group and individual markets meaning that there is no variation in premiums based on any factor.

which states would otherwise have been required to establish an Exchange. By demonstrating at least equal coverage and benefits for its residents, a state could be granted a pass through of funds equal to what would have been paid in individual and small business tax credits and cost-sharing subsidies to put towards their own state plan. The language also included a provision to coordinate the Exchange waiver process with other programs administered under the Department of Health and Human Services, which include both Medicaid and Medicare. However, in the final version of the bill as passed into law, this waiver date was moved back to 2017. This was largely due to worries over the ability to negotiate budget neutral waivers, as there would be no experience upon which to base how much money the Federal government should transfer to the state. If a state was required to establish an Exchange and let it run for a few years, however, the pass through could be based on actual numbers of enrollees and the associated federal spending.

The PPACA establishes myriad other health care programs, pilots and investments related to payment reform in Medicare and Medicaid; provider workforce, education and payment issues; prevention and wellness; medical malpractice; comparative-effectiveness research; and long term care insurance.

CBO estimated that the total cost of the coverage components of the law are expect to be \$938 billion over the 2010 – 2019 period [35]. These costs, in addition to the other program spending and investments, are financed through savings from Medicare and Medicaid and new taxes and fees. According to an April report by the Chief Actuary at CMS, the PPACA will cut some \$575 billion from Medicare. About 25% of spending cuts come from reduced payments to Medicare Advantage plans, while the remaining comes from various spending reductions in Medicare Part A and B. There will also be cuts to Medicaid's Disproportionate Share Payments to hospitals. Additional financing will come from a combination of sources including employer fees, individual tax penalties, changes to the tax code around medical spending accounts, health savings accounts and flexible spending accounts, a tax very on high-value or "Cadillac" health plans and an increase in the Medicare Part A payroll tax for high wage earners and un-earned income.

C. FEDERAL CONSTRAINT: MEDICARE AND MEDICAID

I. MEDICARE

Medicare is a federally-funded, federally-administered health benefit program for individuals age 65 or older and for individuals with disabilities.⁷ See generally 42 USC §1395 et seq. The program is organized in "parts:"

- Part A covers hospital benefits and the premium is paid by a payroll tax;
- Part B covers "supplemental" services, such as physician's services or home health services, and individuals pay a premium for these services;
- Part C allows insurance companies⁸ to offer Medicare managed care plans, which include the services usually covered by Parts A, B, and D; and

⁷ Individuals with disabilities must have been disabled for at years 24 months in order to qualify.

- Part D provides prescription drug coverage through regulated private health insurance⁹ offered by qualified health insurers. There are premiums and cost-sharing for Part D plans which vary across insurers and plans¹⁰.

The benefits provided in Medicare are not comprehensive and individuals frequently purchase supplemental health insurance from private insurers to cover additional benefits and cover some or all of the Medicare cost-sharing. Low-income Medicare beneficiaries are also eligible for Medicaid (“dual-eligibles”). For those without supplemental insurance and not eligible for Medicaid, the state can provide partial wrap-around benefits to low-income seniors. For example, Vermont currently offers a prescription drug program, called VPharm, which pays for low-income Medicare beneficiaries Part D premiums and cost-sharing.

Because Medicare is governed by federal law and rules, states have a limited role under traditional Medicare. There may be, however, opportunities to include Medicare in a state-created a single payer or single “pipe” system. These opportunities are discussed in more depth below and include:

- Seeking a waiver from the new Center for Innovation at the Centers for Medicare and Medicaid Services (CMS) under 42 USC §1315a;
- Seeking a more traditional Medicare waiver under 42 USC §1395b-1;
- Administering Medicare as allowed under 42 USC §1395kk; or
- Seeking waivers to include Medicare in an accountable care organizations 42 USC §1395jjj.

First, the Patient Protection and Affordable Care Act of 2010 created the Center for Innovation within CMS to provide new opportunities for innovation in Medicare and Medicaid, specifically to test new service delivery and payment reform models. 42 USC §1315a. The goal of the waiver provision is to create innovative ways to reduce program expenditures and improve quality of care. This type of waiver could be used alone, or in combination with other provisions, to align the Medicare payment and delivery requirements with Medicaid and create the basis for the single payer or single “pipe” system. In addition, this waiver does not require budget neutrality for the initial 5 year waiver term, which gives a state more flexibility in the design of the program and allows a period of time to achieve cost savings.

Second, under Medicare’s traditional waiver authority at 42 USC §1395b-1, CMS has the authority to allow flexibility in payment mechanisms in order to improve quality or efficiency in Medicare. This provision is more limited in scope and alone would be insufficient to fit Medicare into a new

⁸ Medicare Part C managed care plans, also called “Medicare Advantage Plans” must be offered by a risk-bearing entity licensed under state law to provide health insurance or health benefits. CITE. While it is not impossible for the state to create an entity which could be licensed under state law as an insurer, the solvency and other requirements make it impractical. There is a waiver available for provider-sponsored organizations, but that waiver is only available for up to 36 months and may not be renewed. These regulations make it impractical for the state to use this provision to include Medicare in the single payer system.

⁹ Again, there are licensure and other requirements for entities offering Part D plans which make it impractical for the state to offer Part D plans as part of its single payer system.

¹⁰ 42 USC CITE provides for an actuarial value that each plan must meet, but allows for great variation across plans. In addition, there is a federal subsidy available for low-income Medicare enrollees.

system. This authority, however, allows for some additional models to be considered in the system design and could be used in combination with other provisions.

Third, there is also the authority for a state to administer Medicare benefits as long as certain minimum requirements are met. 42 USC §1395kk. The state must have a demonstrated capability to carry out the functions, it must comply with conflict of interest standards, and have sufficient assets to financially support the functions. If the state or entity is able to fulfill these requirements, the state is able to determine and make payments for Medicare services, provide beneficiary education and assistance, and communicate necessary information to providers.

Fourth, Section 3022 of the PPACA provides explicit authority for Medicare participation in a sharing savings program or an Accountable Care Organization (ACO) 42 USC §1395jjj. The purpose of this provision is to encourage the development of a legal entity comprising health care providers, hospitals, and other supplies in order to promote health care provider accountability for a patient population, to coordinate items and services under parts A and B, and to encourage investment in infrastructure and processes for high quality care and efficiency. The provision allows for a mechanism for providers to share in financial savings as long as the care provided meets quality measures. This is meant to give providers a financial incentive to increase efficiency without reducing the quality of care for patients.

The outcome of any waiver negotiation is uncertain. However, there is sufficient flexibility under federal law through administrative flexibility and waivers to achieve alignment billing, and other administrative functions.

II. MEDICAID AND STATE CHILDREN'S HEALTH INSURANCE PROGRAM (SCHIP)

Medicaid is a state-federal program, which provides health benefits for low-income individuals. See generally 42 USC §1396 et seq. Until 2014, Medicaid eligibility is limited to low-income individuals over 65, individuals with a disability, families receiving assistance funded with TANF, and children and pregnant women. After 2014, Medicaid eligibility is expanded to any individual with income under 133% of the FPL (\$24,352.30 annually for a family of 3). Vermont currently provides health benefits for individuals under 300% of FPL (\$54,930.00 annually for a family of 3) through a variety of programs funded with Medicaid under two Section 1115 waivers.

States administer Medicaid benefits and have federally-defined options for covered services and cost-sharing. Federal law mandates that states provide certain minimal services under their Medicaid program and allows states the ability to provide a broader array of services. Federal law also limits the amount of premiums and cost-sharing charged to certain populations, such as the elderly or individuals with disabilities. Overall, there is a great deal of flexibility in the covered services offered under a state's Medicaid program and the limits on cost-sharing may be accommodated in an income-sensitized sliding-scale.

The funding for Medicaid is based on a formula of shared federal-state match. In Vermont, for example, the typical match rate is about 60% federal funds to 40% state funds. Under Medicaid, states must be careful about how federal funds are used and must be able to ensure that federal money is matched with state funds, and not other federal funds.

Similarly, SCHIP provides funding for state-administered health benefits for children and pregnant women. See generally 42 UCS §1397aa et seq. The purpose of SCHIP is to provide coverage for these

groups up to higher income levels than usually accommodated in Medicaid. It is also a program that matches federal funds with state funds, although at a higher match rate.

In addition to the inherent state flexibility in Medicaid and SCHIP, both programs have federal provisions allowing CMS to waive federal law in order to allow states to innovate. SCHIP provisions may be waived under section 2107(e)(2)(A) of the Social Security Act to the same extent as Medicaid. Section 1115 of the Social Security Act allows waiver of many provisions around eligibility, and benefits. In addition, while states have flexibility in payment mechanisms, the new waiver provided for in the PPACA discussed above will provide broader flexibility in payment and service delivery.

One challenge in aligning Medicaid payments will be payments to federally qualified health centers (FQHCs). FQHCs on their per encounter method, unless the FQHC agrees to the new payment method and that new payment method reimburses the FQHC the same amount as it would have received under their traditional payment mechanism.

In summary, there is great flexibility in Medicaid and SCHIP through waivers, which would allow the state to align benefits, payment methods, and other administration.

D. CONSTRAINT: STAKEHOLDER ANALYSIS

Vermont has consistently been one of a handful of states that has “taken the lead” in health reform.[38] Since the 1970s, Vermont has made progressive improvements to its health system—increasing coverage, improving coordination, and attempting to control costs. Vermont also made an unsuccessful bid in 1994 for comprehensive health reform that would have created either a single-payer or regulated multi-payer health system. Our team studied this history and learned as much as possible from the state’s current health reform stakeholders and about its current institutions. We call this research process a “political landscape analysis,” and its purpose was to inform the design of the three options so that they would be as viable and practical as possible while fulfilling the mandates of Act 128.

The political landscape analysis draws partly from a literature review on Vermont’s health-related history and institutions, and most heavily from 60 interviews with politicians, civil servants, hospitals and health providers, businesses, unions, and a variety of advocates. We begin with a brief overview of our methods and information sources and their important limitations. Next we review the history of health reform in Vermont, drawing lessons applicable to today’s efforts. We then summarize some of the primary perspectives and concerns of eight major categories of stakeholders. Finally, we conclude with some cautious optimism about Vermont’s opportunities.

I. METHODS AND INFORMATION SOURCES

This political landscape analysis is based primarily on semi-structured interviews with a diverse sample of “stakeholders” who have substantial interest in, influence over, or expertise in health

reform in Vermont.¹¹ Analysis of stakeholders' views is important because health reforms are significantly and routinely influenced by these groups' relative positions and resources. Stakeholder analysis methodology has been developed in academic literature, and we adapted the methodology to incorporate our historical review and meet this project's particular needs.[39, 40]

We conducted 64 interviews with nearly 120 people representing at least 60 different organizations. Most interviews were conducted in-person by two members of our team between July 15th and September 3rd, 2010, and a few others were conducted by phone, by only one author, or during a few meetings by our team in early December 2010. In addition to these semi-structured interviews, members of our team also participated in other less formal stakeholder engagements and discussions that covered similar material and also contributed to the overall analysis.

Interviewees represented a diverse mix of legislators and elected officials, executive branch officials, hospitals, health providers (physicians, nurses, other types of providers), small and large businesses, unions, and a variety of citizen and institutional advocates. The interviews involved substantive, open-ended conversations and varied in content. They were guided by key themes, however, including: general views on Act 128 and health reform; historical lessons learned; perspectives on health system financing, payment, and organizational options; Vermont's political culture; and various subjects that interviewees' perceived to be constraints or facilitating factors for reform. The interviewees were assured that conversations with our team were confidential (to encourage everyone to speak openly), and that our written report would only summarize general findings across major groups (unless we explicitly seek permission to do otherwise).

Following our interviews, we categorized our findings according to key themes, recorded primary concerns across stakeholder groups, and compared current findings to those from our historical analysis. Throughout this process, the two researchers discussed findings with Professor Hsiao to inform his technical designs.

Table 1. *Summary Figures on Interviews*

Total number of interviews/meetings	64
Total number of individuals interviewed	120
Total number of organizations/groups interviewed	60
Number of individuals associated with: ¹²	
• Vermont's Legislature	15
• Vermont's Executive Branch	6

¹¹ The historical section also draws heavily from a review of literature on past health reforms in Vermont. For more details on our methods, see our team's original proposal at: <http://www.leg.state.vt.us/jfo/Healthcare/Hsiao%20Proposal%20-%20public.pdf>.

¹² These group figures are not mutually exclusive (several individuals are associated with more than one group) and do not include a few interviewees not associated with any of these groups.

• Hospitals	31
• Physicians, Nurses, and Other Health Providers	23
• Large Businesses (excluding health-related businesses) ¹³	10
• Small and Medium Businesses	13
• Unions	11
• Health Reform Advocates	10
• Other Advocates (diverse interests)	7
• Health Insurance Companies	2

II. LIMITATIONS

This data collection and analysis effort exceeds our team’s original proposal, but it still has important limitations. First, due to limits on time and budget, the stakeholder analysis should not be considered exhaustive. There are undoubtedly more stakeholders and groups with whom we could have met (and indeed were invited to meet), and it was also not possible to conduct a population survey or hold town-hall-style meetings to hear from Vermont citizens directly. Still, we feel that our diverse sample of interviewees is reasonably representative of the spectrum of viewpoints on health reform in Vermont, especially among those most likely to shape legislation.

Second, the methods used in this analysis and the nature of political environments both dictate a cautious and nuanced treatment of the findings. There is a good deal of subjectivity involved in conducting interviews and assessing respondents’ views—sometimes, we will get it wrong. The political environment is also constantly changing—a stakeholder may have supported an idea last summer, but oppose it today (or vice versa). In other words, the “viability” of health reform comes in ever-changing shades of grey, not fixed black-and-white positions. Despite that limitation, we hope to have collected useful guidance from stakeholders that have helped shape our technical designs into effective *and viable* options for Vermont.

III. OVERVIEW OF HISTORICAL ANALYSIS.

Vermont has incrementally reformed its health system over the past four decades. Only once, however, did the state come close to adopting comprehensive health reform legislation that had the potential to convert the patchwork of payers, hospitals, and providers into an organized system that would control costs and achieve universal coverage. In 1992, Act 160 created the Vermont Health Care Authority (VHCA), which was responsible for preparing two universal access plans—one a single-payer system, the other a regulated multi-payer system—among other responsibilities.[41] The idea was then for the Vermont General Assembly to develop comprehensive health reform

¹³ In addition, we listened to three hours of recorded testimony by 19 business representatives, stating their views on health reform to a joint hearing of Vermont’s House and Senate Health Committees (March 23, 2010).

legislation based on those two plans in 1994. The VHCA was also presumed to be the body that would take charge of implementation and oversight after the adoption of a comprehensive reform plan.

The prospects for health reform in 1994 initially looked bright. There were a number of reasons to be optimistic that comprehensive health reform would be passed that legislative session. For one, Governor Howard Dean was a physician and was likely to have the will and the political sway with physicians to make health reform a reality. Second, President Clinton was trying to pass his health reform bill and health care was a highly salient issue garnering national attention. Not unlike the present Act 128, two detailed plans were developed which were meant to be used as the basis for legislation. As there were no previous failed efforts at that time, there was little sense of pessimism or inertia that has subsequently plagued health reform initiatives. Finally, the longest running and very influential Speaker of the House, Ralph Wright, was spearheading health reform in the House.

So why did comprehensive health reform fail and the status quo prevail in 1994? No one cause is sufficient to explain that outcome, but several factors stand out.

1. ***Financing and total cost.*** First, there was ongoing tension over the level and type of financing for the reform. Some were only willing to accept progressive income or payroll tax financing, and others willing only to accept sales tax or absolutely no new taxes. Some legislators objected to a payroll tax that would have been shared 50-50 between employer and employee since this would have reduced the contribution some businesses had been paying toward premiums. In addition, the Governor only supported reform that could be virtually self-financed from savings, requiring no additional public investment; whereas most other proposed plans had high price tags.
2. ***Governor side-stepped VHCA.*** Although the VHCA had been the Governor's idea, Dean ultimately decided that their work had strayed too far from his vision for reform—largely because both plans would have called for tax increases he opposed as a fiscal conservative. Instead, a Special Committee on Health Reform was created in the Legislature to develop a new proposal and the VHCA's recommendations and analysis were marginalized.
3. ***Too many reform bills introduced.*** Ultimately, three different health reform bills were introduced during the 1994 session without support built behind just one. As a result, the vote within the House was split and there was no stable majority support for a single bill.³
4. ***Lost support of providers.*** Although Governor Dean was a physician, physicians' initial support was lost as they felt excluded from the reform process. Also, while early versions of the various bills included tort reform for medical malpractice, this provision was dropped under pressure from trial lawyers, causing physicians' support to wane further.³
5. ***Public support and the specter of increased taxes.*** Shortly before a vote in the House on the health reform bill, a major Vermont newspaper published an article that misrepresented the costs of reform. The article outlined potential tax increases from the latest plan without accounting for savings from eliminating premiums, thereby misrepresenting the nature of the reform that would have replaced premiums with a payroll tax.[42] This created widespread fear about the potential for an increased tax burden. In addition, when it became clear that health reform might result in a payroll tax, employer mandate, and/or increased sales taxes, small local business groups spearheaded a newspaper and radio

campaign in opposition. This kind of campaign was unusual at the time, and in a fiercely local state it had a profound impact on the perceptions of citizens and Legislators, particularly those representing small, rural districts.

IV. OVERVIEW OF STAKEHOLDER ANALYSIS

We next provide an overview of our interviews with stakeholders. This is intended as an illustrative summary of key perspectives, rather than as a detailed account of all issues discussed.

Hospitals

Hospitals as a group are not opposed to health reform, including payment reforms and even global budgets, and they know that something must be done about rising health care costs. But the devil is in the details for hospitals and they would want several concerns addressed before supporting any reform. Their key concerns are about sustainable funding and risks to sustainability if they lose control of their budgets. Predictability and sustainability of funding are more important than what the sources of funding are, and any changes in payment mechanisms must be implemented cautiously to avoid untenable financial shortfalls (hospitals are more likely to support incremental reforms over rapid changes for this reason). State-level changes must also recognize federal constraints, especially since Medicare and Medicaid (CMS) are hospitals' "real paymasters." Another set of concerns involves cross-border issues, such as out-of-state Medicaid patients seeking care in Vermont, or Vermonters seeking care in New Hampshire. Hospitals' concerns are not primarily political, but they do worry about government's tendency to "over-promise and under-fund"—ideal reform would somehow recognize and control for this. For this reason, hospitals found the idea an organization administered by a third party to be preferable to a directly government administered organization.

Hospitals share many concerns as a group, but each hospital also has unique concerns depending on its size, geographic location, prior experience with issues such as the provider tax and "disproportionate share" (DSH) payments, and health status of its surrounding population. Hospitals have a very special status in Vermont both economically (as large employers) and culturally (nearly all Vermonters have some intimate and usually positive connection to their local hospital), so addressing both their group and individual concerns will be vital to successful health reform.

Businesses

Overall, both small and large businesses are dissatisfied with the current system. Rising health care costs are putting serious strains on all employers that currently offer health insurance. Many businesses that previously offered more comprehensive health benefits have been forced to shift to high deductible (essentially catastrophic) plans to offset rising costs and have faced hard choices about hiring more staff or offering existing staff health care. Some large businesses reported that they will limit their health care burden next year by capping the percent increase in their premium contributions and shifting costs to employees, either by reducing benefits or increasing employees' contributions.

Although the status quo seems unacceptable, businesses have a number of concerns about what reform would mean for them. Many businesses have developed strategies for coping with increased costs, including wellness programs, and some fear losing control over benefits and

discretion in managing costs. Both small and large businesses have serious concerns about allowing government to play a larger role in the provision of health benefits. They feel this would result in increased costs since government would be unable to withstand political pressures to increase benefits and coverage, necessarily funded through increased taxes.

Although the status quo seems unacceptable, businesses have a number of concerns about what reform would mean for them. Many businesses have developed strategies for coping with increased costs, including wellness programs, and some fear losing control over benefits and discretion in managing costs. Both small and large businesses have serious concerns about allowing government to play a larger role in the provision of health benefits. They feel this would result in increased costs since government would be unable to withstand political pressures to increase benefits and coverage, necessarily funded through increased taxes. For these reasons, businesses are concerned about the prospect of a broad tax-financed health system but are willing to engage the idea if there was a credible commitment that the taxes would not be continually increased due to political pressures. For this reason, businesses large and small found the prospect of an independent or third party organization that would be insulated from politics and removed from direct government control to be preferable to a directly government administered organization. In sum, business is not monolithically opposed to comprehensive health reform and many would welcome the opportunity to level the playing field and shed the burdensome responsibility of insuring employees. Employers are especially open to the idea if they could still offer supplemental insurance plans, if special provisions could be made for small businesses, and if they have a credible commitment that taxes will not be arbitrarily increased from year to year.

Physicians, Nurses, and Other Health Providers

Health providers¹⁴ recognize many economic and quality-of-care flaws in the current health system and are open to reform, but their support is also dependent on how key issues are treated. Among physicians, there is a debate about the trend of physicians moving from independent employment to hospital employment, and also divergent perspectives between relatively well-paid specialists and lesser-paid primary care providers. Both issues could be affected by reform, inevitably concerning some but satisfying others. There is more uniform agreement among physicians about the costs of “defensive medicine” and the consequent need for tort reform. Physicians are also nearly uniformly concerned with under-reimbursement from public funders, especially Medicaid. The clearest message there is that if Medicaid payment rates were adopted broadly, many would be forced out of business (the same is true for hospitals). Providers experiences with low Medicaid reimbursement rates cast a negative impression on programs that are directly run through the government and as a result providers felt more comfortable with the idea of an independent or third party organization that would be insulated from politics and removed from direct government control. Finally, several respondents cited burdensome school loan payments as a significant problem, as they discourage young students from specializing in primary care and exacerbate a dearth of primary care doctors.

One issue voiced strongly by nurses (and some physicians too) is that administrative, mostly insurance-based hassles often interfere with providing quality care for patients. For that reason, while viewpoints differ on “pure single payer,” there seems to be support across providers for a

¹⁴ Our analysis focused most heavily on physicians and nurses, but also included other types of health providers.

unified or at least simplified payment system (assuming adequate compensation). Some were hopeful that new funding from PPACA would help build up cadres of nurses and nurse practitioners and help with the primary care doctor shortage as well. Providers other than physicians and nurses were also concerned with perceived under-reimbursements and inclusion of their services in standard benefits packages. A final warning from both nurses and physicians is that, to the extent that reform brings new information technologies, these must be phased-in carefully and with adequate training to avoid creating barriers to access or discontinuities in care (as some have experienced with prior technologies).

Unions

Unions expressed a number of serious concerns about the current system. Although unions tend to have better benefits than non-union employees, they noted the increasing struggle to maintain these benefits and the compromises, such as on salaries, required to do so.¹⁵ Having comprehensive benefit plans can also mean that members of unions are reluctant to switch careers due to fears of losing insurance coverage for themselves and their families. For these reasons, some unions have been vocal supporters of decoupling insurance from employment. While open to such systematic reforms, unions would be concerned that whatever benefit plan their members receive be comparable to current benefits, especially since they have fought hard and made other compromises to attain those. Unions of public sector workers would oppose, however, any plan that would only pool state-funded programs, since this would likely increase costs of premiums and/or reduce benefits without the benefit of decoupling insurance from employment. In sum, while unions vary in their support for comprehensive reform, many would support a plan that truly and completely separates insurance from employment, assuming a reasonable benefit plan that does not dramatically deteriorate their current coverage.

Health Reform and Other Advocacy Groups

“Advocacy groups”¹⁶ is a very broad title, but here we focus on groups that have been active participants in health reform and represent diverse groups such as workers, health consumers, some health providers, senior citizens, and the general public. These groups include the most ardent supporters of systemic reform, and indeed some were instrumental in pushing for Act 128 and the goals and values it establishes. Advocates are most concerned with access to care (involving both lack of insurance and under-insurance), affordability, and fairness in financing (access to care should be according to need, not ability to pay). Some are policy experts and have clear views on financing, payment, or organizational options for Vermont’s health system, while others are more open to a variety of policy choices as long as major goals and values are fulfilled. For those that do focus on policy, important issues are progressive financing (preferably through income taxes), minimizing other cost barriers to access such as co-payments, decoupling health insurance from employment to ensure uninterrupted access for all, and reducing the role of the profit motive in health care (usually by increasing government’s responsibilities). A debate among advocates is whether reform can or should be incremental or more sweeping, with what seems to

¹⁵ Beyond their own interests, unionized workers also expressed increasing frustration from seeing their neighbors, friends, and families struggle with limited access to health care.

¹⁶ We should note that some would disagree with the term “advocate” because it connotes a professional activity, whereas some in this group are simply Vermonters voluntarily teaming up with fellow citizens.

be a majority siding for more sweeping changes than Vermont has enacted in the past. Vermont has a rich history of citizen advocacy in health reform, and this “social movement” is likely to continue to be a strong player as reform is debated in the Legislature.

Executive Branch

The incoming executive branch under the leadership of Governor-elect Peter Shumlin is highly supportive of comprehensive health reform. During the primaries and run-up to the gubernatorial election, Shumlin was the only candidate to openly endorse a single-payer health system. In support of that position, Governor Shumlin has already taken steps to move the health reform agenda forward, including appointing a number of leaders in health reform to key posts in government and bringing in a special coordinator on health reform who has prior experience in this position from Vermont’s 1994 health reform effort.

Vermont’s various health agencies are also supportive of reform and DVHA has already hired an expert on payment reform. However, civil servants and the health-related bureaucracy need assurance of the continuity of ongoing health reform efforts and that these efforts will be integrated into any new framework. In addition to existing state-based health reform initiatives like the Blueprint for Health, the health-related bureaucracy is also concerned about how comprehensive reform will be integrated with the national reform legislation under PPACA, both legally and practically. The necessity of maximizing federal dollars by integrating Vermont-based reform with national reform is a key concern of civil servants involved in health policy (the same is true of legislative leaders). The executive branch is very supportive of comprehensive reform, but continued support hinges on working out the practical details of an integrated reform effort that maximizes federal funding.

Legislative Branch

We interviewed several representatives and senators who have been involved in health policy in the past.¹⁷ Legislators represent Vermonters, of course, so many of their views reflect issues described above, but legislative experience also builds certain distinct perspectives. Regarding health reform, legislators have a unique appreciation for the problems with the current health system, as they deal directly with economic sustainability problems from skyrocketing health costs in the state’s budget and hear stories of individual hardships from their constituents. Most agree that the status quo is not a viable option, but they also express anxiety about the complexity of health reform and the tendency for public support to splinter as details of reform emerge. Given the complexity, one suggestion was that a major reform package may require work throughout two legislative sessions (2011 and 2012). One clear message from multiple legislators is that, while Vermont has previously focused on health coverage, the emphasis now must be on controlling costs—in line with growing the state’s economy and encouraging young people to stay in the state. Especially with the current state budget deficit, Vermont cannot afford to simply pay more for a better system. Legislators also feel that a reform plan must make clear how it is even possible for Vermont to enact big changes on its own given federal and cross-border issues, while also ensuring that Vermont benefits as much as possible from PPACA. Whatever happens with health reform, legislators know they will be under pressure due to the complexity of policy options, the often

¹⁷ Some of our interviewees will depart the Legislature at the end of 2010, and some who will begin new terms.

contradictory interests of their constituents, and the various budgetary and legal constraints; but most were optimistic that they could build on Vermont's previous health policy efforts in a more systemic way.

Health Insurance Companies

Our analysis of the three health insurance companies with significant operations in Vermont (Blue Cross Blue Shield of Vermont, MVP, and Cigna) was much more limited than our analysis of other groups, partly because much of Act 128 has fairly clear implications for those companies. It is reasonably safe to assume that health insurance companies would oppose any major health system reform that reduces their autonomy in financing and paying for health care, increases government's role, and/or introduces new competitors to their market. However, given Vermont's history with reforms such as guaranteed-issue, community-rating, and the Blueprint program, it must be noted that the remaining health insurers in Vermont (especially those run as non-profits) are likely more accustomed and potentially more open than insurers elsewhere to working with state-led regulations. In addition, a continued market for supplementary insurance would generate ongoing opportunities for private insurance in the state. It is possible that one or more companies may be interested in partnering with the state and substantially reforming their business model in order to continue to operate in Vermont. Of course, the opposite is also possible: that an industry with deep pockets nationally will oppose reforms due to the threats they pose to the Vermont market and other markets that could follow Vermont's lead.

V. CONCLUSIONS – STAKEHOLDER OPPORTUNITIES AND CONSTRAINTS

Despite groups' different perspectives, one resounding message from our stakeholder analysis is that no group is satisfied with the status quo and the need for systemic reform is great. Rapidly rising health care costs are already limiting benefits, burdening businesses and local governments, and threatening the access to health care that Vermont has worked for decades to improve. Fortunately, Vermont has created a new opportunity to implement comprehensive health reform. The state has a legislative and executive branch largely supportive of reform; cabinet appointees with extensive health experience; support from a wide array of health providers, businesses, and citizens; and improved knowledge of what works in health reform compared to 1994. These factors create a unique window of opportunity for Vermont to go beyond what national level reform was able to accomplish.

But...it will not be easy. There are a number of hurdles that Vermont must clear to achieve the goals set forth in Act 128. First and foremost, now even more than in 1994 the idea of paying more (or being paid less, in providers' case) to finance a universal health system is unacceptable to the majority of stakeholders. There is a strong sense that expanding insurance coverage and benefits should come from savings within the system as a whole rather than from new sources. While inevitably costs and benefits may be redistributed within a new system, the total cost of reform should not be more than under the current system. This is a key foundational point of our team's design work. Other hurdles include federal, legal, and budgetary constraints; cross-border practicalities; and ideological and political differences both across and within the various groups that care about and are affected by health reform. Although virtually every stakeholder expresses a variety of complaints about the current system, it is unlikely that a single reform plan will fully satisfy everyone, even if the majority is made better off. These internal divisions and uncertainty about a new system make even those who are frustrated with the current system circumspect

about reform. Nevertheless, achieving a better, more sustainable health system for all Vermonters is possible with a thoughtfully-constructed reform design, reasonable compromises, and careful implementation. If Vermont fails, it may not have another window of opportunity such as this for many years. If Vermont succeeds, it may very well become a model for the nation.

E. CONSTRAINT: PROVIDER HUMAN RESOURCES AND HEALTH CARE FACILITIES INFRASTRUCTURE

In order to provide universal coverage and transition to a more integrated delivery system, Vermont must ensure sufficient supply side capacity and infrastructure to deal with the increased demand for services and to ensure quality provision of health care services and capable management in an era of changing payment methods and increased provider risk. In particular, this means ensuring capacity of physicians and health care facilities, including health care information technology (HIT).

Most crucially, Vermont will need an adequate number of primary care physicians to deal with the increase demand that will follow after universal coverage is achieved. Primary care physicians (PCPs) play an integral role in affordable, organized care, managing chronic diseases and keeping patients out of costly specialty care. As Vermont's population ages and chronic diseases account for the majority of health spending, an adequate supply of PCPs will become even more essential in the near future.[21]

Currently, there are not enough primary care physicians in the state to meet residents' needs. Kaiser State Health Facts estimates that in 2008, 16,833 Vermonters lacked recommended access to a primary care doctor.[43] Eight of the fourteen major Vermont hospitals list increasing access to primary care in their 2010 strategic initiatives.

Additionally, while the percent of PCPs accepting new patients has remained stable throughout the 2000s, the percent accepting new Medicare and Medicaid patients has dropped by 7%.[44] Considering the substantial number of Vermonters who are covered by these programs, this could indicate a significant PCP shortage for these populations.

The present shortage of PCPs will be exacerbated in the near future by the aging physician population. Between 2004 and 2006, while there was a 67% increase in the number of Vermont physicians aged 55 and older, there was only a 7% increase in the number under the age of 55.[44] Vermont's current efforts to recruit and retain PCPs will have to take these predictions into account.

Importantly, the statewide figure does not account for regional variations. When considering the supply of PCPs in Vermont, taking these variations into account is essential. In more isolated, rural areas there are in fact significant shortages of PCPs. Historically, rural practice has not attracted enough physicians due to relatively low salary compared to specialty medicine and to quality of life (availability of entertainment, quality education, and employment opportunities for a spouse or partner.)[45]

The following areas have been designated as Primary Care Health Professional Shortage Areas by the VT Department of Health: Enosburg, Brighton, Waitsfield, Chelsea/Corinth, and Castleton.[44]

In contrast, Windsor and Bennington have PCP levels that greatly exceed the ideal rate. These surpluses can serve to mask the regional variability of PCP levels when provided at a state level.

Supply side sufficiency is, however, not just with respect to physicians and other providers. In order to guarantee quality health care, Vermont also needs sufficient health care facilities infrastructure, including health information technology. Vermont's vision for its statewide health information technology (HIT) system is laudable and comprehensive. Legislation in Act 61 of 2009 mandates comprehensive coordination of Vermont's statewide HIT plans, led by the Department of Vermont Health Access (DVHA). The state seeks to implement an integrated electronic health information infrastructure to coordinate information across various levels of health care professionals, public and private payers, and patients.[46]

Funding for Vermont's HIT system comes from the Health IT Fund of 2008, in which a fee of 2/10ths of 1% imposed on all health insurance claims is paid to the state to support HIT and HIE grants. The Fund will be available through 2015, matching funding from federal resources allocated to health information technology. Vermont will build on its HIT-HIE network with funds from the HITECH Act and other components of the American Recovery & Reinvestment Act (ARRA), as well as the PPACA. [46]

An important part of Vermont's HIT network is the Vermont Information Technology Leaders (VITL), a non-profit organization funded by the state that is in charge of a statewide Health Information Exchange (HIE). Representatives from the Governor and the General Assembly sit on VITL's Board. Currently, the Vermont Blueprint for Health IT infrastructure runs on the Vermont HIE Network (VHIEN), operated by VITL. In the future, VHEIN will be expanded to include a more far-reaching exchange of information.[46]

On a physician level, the current state of EHR adoption is not widespread; only about 20-25% of private physicians have any form of EHR. However, Fletcher Allen recently extended their EPIC system to their primary care and specialty network, and the statewide is expected to rise significantly over the next several years. All other hospitals are also upgrading their systems and offering their EHR systems to their physician network.[46]

Vermont is on the right track to realize its vision of a meaningful, comprehensive statewide HIT system, which will ultimately lead to a more efficient and less costly health care delivery system. Continued funding and legislative support will allow Vermont to realize its HIT goals.[46]

While HIT infrastructure, and meaningful use of said infrastructure, is of utmost importance, the physical healthcare facilities in Vermont must also be capable of providing the high quality, efficient care. In 2006, the system-wide Age of Plant for Vermont hospitals was 10 years, which was slightly younger (more favorable) than nationwide benchmarks for comparable hospitals. Four years later in 2010, the system-wide Age of Plant had dropped by a small margin to 9.8 years. Although apparently similar, these numbers tell a different story when broken down into Age of Building and Age of Equipment.[47] In 2006, the system-wide Age of Building was 9.5 years; in 2010 it was 12.5 years. The Age of Equipment dropped from 10.6 years in 2006 and to 8.0 in 2010.[47] This indicates that on a statewide level, hospitals have been investing more money into newer technology than in keeping up their physical structures. While this is not necessarily undesirable, both hospitals and state monitoring agencies should be aware of these trends, as they may signal unnecessary and redundant investment in marketable new technologies at the expense of buildings.

While aggregate data is useful, it is also relevant to look at individual hospital Age of Plant trends over time. Some hospitals have consistently had both high Ages of Building and Equipment (Copley, Southwestern VT and Springfield), while others have remained relatively young (North Country, Gifford.) Other hospitals, such as Rutland and Northwestern, have seen their Age of Building dramatically increase while their Age of Equipment decreases. Each hospital is in a unique position; when considering capital investments on a statewide level, these distinctions should be kept under consideration.

F. CONSTRAINT: ORGANIZATIONAL & ADMINISTRATIVE CAPACITY

Implementing major health system reform will always be constrained by current infrastructure and organizational capabilities. Transitioning to a new health system design will require reorganization, integration and the building up of significant functions and capabilities. Many of these functions largely exist in Vermont. However, international experience suggests that operationalizing a new system can take several years.

The role of a payer in the health care system is complex. Whether a single payer or one of multiple payers, a wide range of administrative activities are required, including:

- Determination of eligibility
- Determination of financial contribution (e.g. premium)
- Collection of revenue
- Determination of benefits
- Provider credentialing
- Provider contracting
- Quality Assurance
- Determination of reimbursement methodologies and amounts
- Paying providers
- Claims adjudication
- Financial / actuarial projections and budgeting
- Risk management (e.g. reinsurance)
- Data acquisition, management, and analysis
- Beneficiary services
- Care management
- Appeals of coverage decisions

Currently these activities are performed by multiple payers in Vermont, from Blue Cross Blue Shield VT to the Department of Vermont Health Access (DVHA), the state Medicaid agency. While private payers typically perform all these activities within one organization, for the Medicaid program the functions are performed by several different state agencies (e.g. DVHA, the Department of Children and Families, the Vermont Department of Labor, the Agency of Human Services), working with several different contractors, including HP, who administer Medicaid claims Maximus, who administer the enrollment and APS, who coordinates care management for the public beneficiaries.

One of the advantages of a single payer-type system is a unified source of data. While that will be the case prospectively, we will need to incorporate historical data from disparate payers into a single system. This will be similar to the process of creating VHCURES, but the requirements to

support a production system (one that pays providers and collects revenues) differ from those of an analytical system. The ability to integrate data will be especially critical during the “cut-over” period – the time when services were obtained under the old system, but will need to be paid under the new.

Creating an efficient single payer system also requires significant investments into update information technology architecture itself, allowing 100% electronic claims submissions and processing. Systems for the rapid—and secure—exchange of patient information is also integral to a well functioning health system. For example in Taiwan, the development of Smart Cards, which carry medical records and other information, took several years to develop and implement. Efficient electronic communications between all parties in health systems are necessary to maximize savings from a single payer-type system.

3. DESIGN PRINCIPLES & STRATEGIES

The principles behind our designs follow directly from the goals of Act 128 as guided by our analysis of the constraints discussed above.

- First and most importantly, we wanted to design a system that could achieve universal coverage for residents of Vermont, providing everyone with financial risk protection and access to care. This came with one important caveat, however: that the cost of covering the uninsured and underinsured would be paid for entirely with the savings generated by our reforms.
- We examined a multitude of potential overarching designs in order to maximize the savings that could be generated by health system reform in Vermont. We explored potential savings from several avenues: administrative savings, a reduction in fraud and abuse, the move towards an integrated delivery system, and malpractice reform. At the same time, we analyzed various methods of financing that would help maximize these savings, achieve universal coverage, and satisfy legal constraints.
- We designed an Essential Benefit Package with an eye to the average level of benefits currently enjoyed by Vermonters to ensure that they are not losing coverage. Furthermore, the benefit structure was designed to promote not only preventive care and early detection, but also early treatment and wellness services.
- We designed payment methods to promote the integration of care and reduce clinical waste and overuse.
- We aimed to increase the supply of and access to physicians and high quality health care. We achieved this by recommending investments – again, financed solely from savings to the system representing at no additional overall spending – to improve health care facilities and increase the number of physicians. Our reforms further aimed to increase current physicians’ patient care time by reducing unnecessary paperwork and administrative burdens, and ensuring that, on average, overall physician net income does not change.
- Furthermore, our designs attempted to always maximize and protect the federal revenue that can be obtained for Vermont. This applies to our designs with respect to Medicaid and Medicare payments for Vermonters and the potential payments from PPACA. This led us to recommend that Vermont Medicaid raise its payment rates to providers to maximize the federal matching funding. As detailed in Section 4B, if implemented today, this could bring in additional \$40 million in 2010 federal funds.
- PPACA has the potential to annually bring in more than \$400 million in 2010 dollars of new federal funding into Vermont when it is fully implemented. As such, we believe that Vermont should continue with Exchange planning and that furthermore the state should begin the implementation of any system reforms in 2015 to lock in these funds and provide the basis for negotiating a reasonable waiver from the Exchange requirements in this year (See Section 2B).

- This timeline is also consistent with our analysis of the time it might take to create and reorganize the current infrastructure to implement a single payer system. Indeed for all our estimates and design elements, we restrained ourselves to evidence-based, achievable figures and realistic timeframes and assumptions.

4. METHODS AND DATA

A. ESTIMATING THE SAVINGS

To evaluate the cost of our designs we had to estimate potential savings stemming from several different design features. Those savings fall into four categories:

- First, there are the administrative savings that accrue by shifting to a single payer system.
- Second, we estimated potential savings from reduced fraud and abuse, owing to the heightened detection ability and authority inherent in the comprehensive, uniform claims database central to any single payer type system. Researchers estimate that fraud and abuse in the US comprises 3-8% of total health expenditures.
- Third, we estimated the potential savings to Vermont as it moves towards an integrated delivery system. US and international experience suggests that integrated delivery systems can reduce the high levels of waste and duplication that exist in the current system; some researchers estimate that as much as 30% of health spending in the US is waste.
- Lastly, we estimated savings to Vermont should it move to a no-fault medical malpractice system, such as the system in New Zealand. The mechanism through which this system achieves savings is not through the elimination of malpractice insurance, but through its effect on defensive medicine, which researchers estimate to comprise 2-9% of health expenditures in the US.

We define a single payer system as a health insurance system that provides insurance coverage to every resident with a standard benefit package. Typically, a single-payer system unifies both the mechanisms by which services are paid for (the channel) and the actual reimbursement amounts. However, a single channel is possible even when there are multiple payers. For example, in both Germany and Japan, all providers send claims to a centralized processing center despite the existence of multiple insurance funds. In Germany and Japan, there is also a uniform rate schedule, but it is possible to have a single channel with multiple benefit packages and multiple rate schedules negotiated between different payers and provider groups.

We modeled two types of single payers systems in our designs. The first is a single channel system, similar that of Germany and Japan, in which different insurance plans channel all of their claim payments through one central organization. This can be seen in our Public Option, Option 2. We also modeled a more traditional single payer system for Options 1 and 3, where there is just one insurance fund.

Administrative costs savings under a single channel or single payer generally fall into two categories: reduced costs on the payer side, and reduced costs of filing payment with multiple payers on the provider side. Insurance plans compete with each other for business and also attempt to select healthier populations to insure. Both processes generate significant sales, marketing, and underwriting expenses. Insurance plans offer a variety of benefit packages and set a multitude of rules delineating what and when health care services qualify for payment, as well as multiple claim

adjudication rules. These multiple benefit packages, payment and claim rules create administrative burdens for providers. In addition to the direct billing costs of dealing with this complexity, administrative hassles take important clinical time away from physicians and nurses. For example, as outlined in more detail below in the section on administrative cost savings, we estimated that on average, physician practices spend 15% of their revenues on insurance related matters. Physicians themselves spend more than several hours per week of their time on these matters, and nurses spend an even larger part of their day dealing with the demands of insurers.

The structure of the single payer dictates how much administrative cost savings can be achieved. A single channel payment system will create less cost savings because Vermont residents would continue to be insured under many insurance plans with many different benefit packages, increasing the administrative burden on providers. Insurance companies would continue to incur sales, marketing and underwriting expenses; they would continue to worry about lapse rates and adverse selection and design insurance products accordingly to counter act against them. Providers would continue to deal with myriad copayments, deductibles and coverage limits.

A single channel payment, with its maintenance of multiple risk pools, benefit packages, drug formularies and payment levels, may also have implications for the degree to which integration of the delivery system can be achieved. For example, when a population can select among different benefit options, especially around their scope of provider choice, the impact of integration is attenuated. For example, free access to any provider can reduce the value of coordination of care within an ACO.

Finally, international experiences suggest that the governance and management structure of a single payer may also impact the savings rate over time. By promoting competition in the claims administration and insulating total budget and benefit decisions from the political process, we expect a single payer run by an independent board with contracted claims services to have slightly greater administrative savings as well as slightly reduced total spending.

Table 2 below summarizes our estimated savings as a percent of Vermont's total health expenditures that could be produced from the Options 1, 2 and 3 compared to the current multiple insurance system. The detailed analysis that supports these figures can be found in the following four sections.

Table 2: Accumulated savings by source as percent of total health expenditure over the 2015-2024 period.

	Option 1 Savings	Option 2 Savings	Option 3 Savings
Administrative - Insurer & Provider	7.3%	3.6%	7.8%
Reduced Fraud and Abuse	5%	5%	5%
Shift to Integrated Delivery System	10%	5.5%	10%
Medical Malpractice Reform	2%	2%	2%

Management Structure	-	-	0.5%
Total Savings	24.3%	16.1%	25.3%

Much of these savings will take time to accrue. Administrative costs can measurably reduced when Vermont shifts into a single payer system (or a single channel of payment system,) the savings requires the establishment of a single payer organization, the development of electronic record systems, a uniform claim review and processing system and management of information systems. Relying on US and international experience, we assume creating an operational single payer system in Vermont would take two to three years. We assume that the majority of the administrative savings will accrue in the first two years, while the remainder would be saved over the next five years as the operational system improves and becomes more refined. Likewise, changes to medical malpractice will take time to translate into altered physician behavior with respect to defensive medicine. We assume it will take five years to capture the potential savings. Savings related to a movement towards an integrated delivery will take the longest time; we assume modest savings will accrue each year over 10 years.

We estimate that in first year of full implementation, 2015, Option 1 will produce a savings of approximately \$530 million in 2010 US Dollar real terms, Option 2 will produce a savings of \$330 million in 2010 US Dollar real terms, and Option 3 will produce a savings of approximately \$590 in 2010 US Dollar real terms. While we estimate that these savings will accrue in the first year of implementation, we recognize that they may take 2 to 3 years to be fully realized.

As shown in Table 2, we determine that all three options will yield significant savings. However, our research and analysis indicate that the single-payer options (Option 1 and 3) will have a more dramatic impact on in reducing cost than the public option because they incorporate a uniform benefits package and reduce much of the administrative structure needed to compensate multiple payers. We recognize that these savings estimates are inherently uncertain and that the true impact will depend largely on how the proposed system is implemented. Therefore, we have taken a conservative approach to all cost savings estimates derived from extensive research as well as domestic and international experience. We use the savings estimates presented in Table 2 and discuss them in detail below to guide our analysis. Consequently, these numbers should be interpreted as indicative of potential cost savings from implementing each of the three option and not as definitive answers.

We estimate that Option 1 will produce cumulative savings of 24.3% of total health expenditure between 2015 and 2024. Option 2 will produce cumulative savings of 16.1% of total health expenditure between 2015 and 2024. Finally, Option 3 will produce cumulative savings of 25.3% of total health expenditure between 2015 and 2024. Option 3 produces additional savings as compared to Option 1 because it incorporates a more streamlined management structure that is able to reduce costs through administrative efficiencies and greater leverage in negotiating payment rates and benefit package levels.

Our conservative approach to estimating cost savings reveals considerable opportunity for Vermont to build a more sustainable health system. Because a fundamental premise of our proposal is to ensure that no additional money is spent on healthcare over current levels, it is important to determine where the realized savings will be reallocated. In developing Options 1, 2 and 3, we

allocated these savings to providing insurance for all Vermonters, guaranteeing a minimum standard benefit package, and giving additional dental and vision coverage. Beyond this, each option allocates \$50 million of savings towards investment in human resources for primary care and updates to community hospitals and delivery system infrastructure to ensure an adequate supply of services to meet increased demand. A detailed discussion of the use of these savings is found in Section 4B: Methods Cost Estimation and in the Option 1 description.

I. ADMINISTRATIVE COST SAVINGS

While there are significant methodological challenges in measuring the full impact of administrative costs, there is a broad consensus that they are higher in the United States than in other countries, and that much of this difference arises from the mechanisms by which providers are reimbursed in the US. The US system features multiple payers, each one of which has its own complex set of rules for claim submission and adjudication. Claims may be delayed or denied for countless reasons. Payment varies enormously for the same service.

For example, in their most recent report from 2003, Woolhandler and Himmelstein estimate that administrative costs comprise 31 percent of health care expenditures in the United States, but just 16.7 percent of health care expenditures in Canada.[48] The authors calculated administrative costs by adding insurance overhead, employers' cost to manage benefits, and administrative costs for hospitals, providers, nursing homes and home health care agencies.

Woolhandler and Himmelstein sum total administrative costs of two national health systems in an effort to attribute the difference to the multiple payer system in the US. Alternatively, one can more carefully look at a subcategory of administrative expenses in the US to estimate the potential savings from moving to a single payer or single channel system. This subcategory, referred to by Kahn et al 2005 as Billing and Insurance Related (BIR), is comprised of those administrative activities and functions whose "primary purpose is to move money from payer to provider in accordance with agreed upon rules." [49] This categorization does not necessarily provide strict guidance as to how to separate and estimate BIR administrative costs. Therefore, we provide additional insight on BIR activities pertinent to insurers, providers and hospitals below.

To estimate the magnitude of BIR administrative savings by moving to a single channel and single payer system for commercial insurers, hospitals and physicians, we used data from BISCHA, the annual statements of Blue Cross Blue Shield of Vermont (BCBSVT) as filed to the National Association of Insurance Commissioners (NAIC), our own survey of Vermont physicians, Vermont hospital budgets as reported to BISHCA, and the 2008 Vermont Health Care Expenditure report by BISHCA. In order to develop reasonable ranges of administrative savings if Vermont were to transition to a single-payer or single channel system, we focused on payer-related or BIR administrative costs. We reviewed pertinent literature, as well as administrative costs of other countries, to highlight mechanisms through which administrative costs can be reduced through payment reform.

Vermont would not be able to reap the full benefits of a whole nation that operates under a single payer or single channel system because people from New York, Massachusetts and New Hampshire come to Vermont for health services. These people are covered by a variety of health insurance plans. The single payer or single channel organization still has to collect the payments from the outside residents who come to Vermont for health services. In addition, many Vermonters go

outside of Vermont for health services. The organization also has to pay these out-of-state providers for the services they have rendered to Vermonters. In addition to out of state users, Medicare beneficiaries will continue to have their own benefit packages, as will Medicaid. The degree to which both programs' claims processing rules and standards can be integrated into the full single payer is also uncertain (see Section 6F: Waivers). Lastly, we modeled a single channel that includes the entire private market in Vermont, including self-insured plans using third-party administrators. If these plans were not part of the single channel (see Section 2A: ERISA) the savings would be lower.

Insurer Administrative Costs and Potential Savings

Private insurers incur large administrative costs related to their insurance, provider relations and claims payment functions that can be reduced or eliminated through the implementation of a single-payer or single-channel method of payment. Insurance functions of private insurers include business development and marketing, sales and underwriting, and risk analysis. Provider relations involve the selection of, negotiation with, contracting with, and maintenance of relationships with providers. Claims payment administrative activities entail establishing claims review systems to identify reasonable costs and recognize fraud and abuse. They also include the authorization and payment of claims, adjudication of claims, check issuing, and financial auditing. Based on the type of payment reform, savings can be derived from each of the three areas, as well as general overhead related savings, to varying degrees and through different mechanisms. In addition to these BIR activities, there are a number of administrative activities undertaken by insurers that can be used to lower costs and improve efficiency, quality and outcomes.[50] These can include utilization review, quality management and data collection and analysis.

Much of insurers' insurance function expenses can be eliminated through implementation of a single-payer system. In addition to these savings, provider relations and claims payment expenses can be reduced through economies of scale and claims simplification. Marketing and advertising expenses would be negligible in a single-payer system. Insurers would also be able to dedicate less time to information systems. Furthermore, insurers would spend significantly less time and resources designing benefit packages and developing products due to a standardized benefits package under a single-payer system. In a single-channel system, insurance functions expenses will remain relatively constant, and expenses on claims payment and provider relations would be reduced through economies of scale. In Vermont, some administrative expenses related to each of these functions will continue to exist even in the presence of a single-payer system, because people from out-of-state will continue to use Vermont facilities. Therefore, certain BIR operations will continue to process these claims and make payments accordingly.

A number of studies have examined the costs of administration for insurers both in the United States and internationally. On average, the cost of administration is 7.5 percent of total health expenditure in the United States. This is compared to 1.9 percent in Finland, 2.2 percent in Taiwan and 5.6 percent in Germany[51]. Of 10 OECD countries, excluding the United States, the average share of total national health expenditure dedicated to insurance administration was 4 percent in 2005. These lower administrative costs are attributed to global budgets, absence of marketing costs and cost sharing, more standardized benefit design and authorization rules, uniform premium contributions, standardized forms to switch insurers, fewer underwriting costs, lower or no profit margins, and less churning of membership.[51, 52]

In 2009, Collins et al found that administrative functions comprise 5.8 to 14.1 percent of insurers' expenditures for US private, Medicare and Medicaid health plans.[51] In general, public programs had lower shares of premium revenue dedicated to administrative functions than private insurers. The authors then estimate that the implementation of a national insurance exchange would lower the average administrative costs as a share of claims from approximately 12.7 percent to 9.4 percent across individual and employer plans. The primary savings channels are through reduced marketing and underwriting, decreases in costs of claims administration, less time spent negotiating provider payment rates and fewer or standardized commissions to insurance brokers.

Kahn et al. use data collected by Milliman USA from 1996 to 2001 from 73 insurers for 129 health plans, including commercial, Medicare and Medicaid, in order to estimate BIR specific expenses for private insurers.[49] The authors find that BIR expenses comprised 8.4 percent of premium revenue for commercial insurers, 9.4 percent of premium revenue for Medicaid insurers, and 3.8 percent of premium revenue for Medicare insurers. Of BIR categories, claims, sales and marketing, finance and underwriting, and information systems comprise the largest shares (between 1.1 and 1.6 percent of premium revenue.)[49]

In BISHCA's 2008 analysis they found that administrative costs as a share of premiums for private health insurers in Vermont ranged from 10.2 percent to 12.3 percent.[53] We deconstructed the 12.3 percent of premium dedicated to administrative costs for BCBSVT to estimate potential savings from moving to a single-payer system. We made various assumptions to approximate these savings: (i) expenses for commissions, marketing and advertising would be eliminated, and (ii) expenses for rent, salaries/wages, auditing, actuarial and other consulting services, postage and telephone, printing and office supplies, outsourced services including electronic data processing equipment and software, and payroll tax expenses would be sharply reduced. We then created a range of estimates for each savings category. Through these calculations, we found that BCBSVT could save between \$43.4 and \$56 million in administrative costs annually, or administrative costs equal to 4.7 percent to 6.7 percent of total expenses. Another report from 2004 found that marketing and underwriting comprised 64% of total administrative costs for BCBS plans nationally.[54] This category of expenditure would see vast, if not complete, savings from a movement to a single-payer system.

Additional data specific to Vermont shows that administrative costs as a share of premiums for Medicaid were 8.7 percent of premiums in 2008.[53] For Medicare, administrative costs as a share of premiums were 5.3 percent in 2008.[53] In California, Kahn et al found that administrative costs as a share of premiums were 11.6 percent for Medicaid and 4.5 percent for Medicare between 1996 and 2001.[49]

These state, national and international figures are compared with administrative data reported in the 2008 Vermont Health Care Expenditure Resident Analysis. In this analysis, administrative costs related to private insurance, Medicare and Medicaid are reported as 7.6 percent of health expenditure, which is similar to the overall estimate for the United States discussed above.

As previously mentioned, savings from moving to a single channel system would be derived from reductions in claims payment administration and provider relations activities. We estimate 1 percent of health care expenditure will be saved in Vermont, and thus decreasing from 7.6 percent to 6.6 percent of health care expenditure over a period of 6 years. The savings are relatively small due to the necessity to maintain much of the administrative activities of insurers under a single channel system.

According to global experience and available evidence, a single payer system would significantly reduce the administrative costs caused by multiple health insurance plan arrangements that exist in the United States. Taiwan was able to reduce its insurance related administrative costs to just 2.2 percent of total health spending by moving to a single payer system. Vermont can achieve large insurer-related savings from movement to an electronic system of claims recording and the issuance of smart cards for insurance processing purposes to all Vermonters.

In moving to a single payer system, we assume that the administrative burden in Vermont will be significantly reduced, however, not as completely as the Taiwanese experience due to out of state use of Vermont facilities and potentially additional costs related to Medicare and Medicaid claims processing. However, as a result of the single benefit package, savings under a single payer system will be much larger than under a single channel system. Therefore, we assume that 3 percent of health care expenditure in Vermont will be saved by moving to a single payer system, with these savings spread over 6 years. Administrative savings as a share of health care expenditure in Vermont will fall from 7.6 percent to 4.6 percent.

Physician and Other Professional Administrative Costs and Savings

Administration is a necessary component of provider activities. The seemingly excessive administrative duties required as a result of multiple payers and insurance companies create provider discontent, systemic inefficiencies, and detract from time providers could be spending serving patients. Direct provider-related administrative duties include billing and collecting from multiple payers, verifying insurance, dealing with drug formularies, seeking prior authorization, collecting varied cost shares and performing quality and utilization reviews. Indirect or overhead provider related administrative costs include rent, capital depreciation, medical malpractice premiums, additional staffing expenses and salaries, and equipment. The combination of these direct and indirect administrative costs comprises a relatively large portion of provider expenses. By moving to a single payer or single channel system, much of these provider related administrative costs can be reduced or nullified.

As a result of the diversity of administrative functions performed by providers, multiple measures have been used to estimate their costs. These measures range from the percent of provider time spent on administration, to average hours per week spent by physicians on administration, to the share of total revenue providers dedicate to administration. We utilize all of these measures to provide an estimate for the potential savings derived from moving to a single payer or single channel system.

Casalino et al 2009 estimate that private practices spend approximately \$68,274 per physician per year interacting with health plans. Primary care physicians spend approximately \$64,859 annually per physician, which is approximately 19 percent of the average primary care physician's total revenue.¹⁸[55] To obtain these estimates, the authors administered a national survey stratified by providers, administrators, and providers who also act as administrators in their practice. Through this survey, estimates were obtained on the mean number of hours per week providers directly spend interacting with health plans. These estimates were then converted into dollar values per

¹⁸ The average primary care physician makes \$180,000 annually. This net income is approximately one-half of total revenue. Therefore, \$64,859 is approximately 19 percent of \$360,000.

year for physicians and for each type of staff, using external data on annual compensation, including benefits, and annual time worked. Approximately \$23 billion to \$31 billion was estimated to be spent per year on administrative duties by physicians and their practices in 2006. On average, physicians reported spending 43 minutes per workday (or 3 hours per week) fulfilling administrative duties. Primary care physicians spent significantly more time on administrative duties than specialists (3.5 hours per week versus 2.6 hours per week). Additionally, solo or two-person practices spent significantly more time on administration than practices with 10 or more physicians (3.5 hours per week on average/4.3 hours per week for primary care physicians versus 2.6 hours per week). On average, the combined time of RN/MA/LPNs spent interacting with health plans per practice was 3.8 hours per week. Clerical staff spent 35.9 hours per week on average on administrative duties. Time spent dealing with formularies and obtaining authorizations comprised the largest share of provider time spent on administrative duties. In estimating the average cost of interacting with health plans per practice per physician, costs of interaction-related equipment, supplies, telephone, fax, or office space or for time spent by nurse practitioners (NPs) and physician assistants (PAs) interacting with health plans were not included.

Using 2000 Medical Group Management Association (MGMA) annual survey data, Kahn et al. estimate that California physicians spend approximately 20 to 27 percent of their total revenue on administration.[49] Decomposing this number, 12.4 to 14.5 percent of total revenue is dedicated to BIR expenses, depending on the size the type of medical practice. Business office, provider time, information technology, medical receptionists and administrative supplies and services comprise the largest shares of BIR expenses. Using American Medical Association survey data, the authors find that physicians spend approximately 8 percent of their time on billing and other non-clinical work. Of that, approximately 4.9 percent of physician time is devoted to BIR interactions.

Additional studies have been conducted to make similar estimates of administrative related provider costs. In a case study of one large urban-based academic teaching hospital's physician organization, Blanchfield et al [56] find that 12 percent of their net practice revenue was dedicated to excessive administrative complexity. To make this calculation, a hypothetical system was developed, parallel to the current administrative system within the organization, which was stripped of the functions, staffing and associated costs for both the professional billing office and the clinical practice associated with the existence of multiple payers. The authors highlight that their model is not a single payer system, and rather more similar to the single channel analysis. The primary causes of excessive administrative burden were additional billing staff costs (1.5 percent of net practice revenue), physician practice time costs (8.8 percent of net practice revenue), and lost revenue resulting from wrongly denied claims (1.6 percent of net practice revenue.)

Sakowski et al [57] find that approximately 10 percent of practice revenue is dedicated to BIR activities. The authors' conclusions are based on a survey of 500 physicians in three distinct geographic areas in the United States. In this study, each physician spends on average 35 minutes per day on insurance related functions. In translating this time, along with other practice expenses including overhead, supplies and technology, it is estimated that BIR costs are \$85,276 per FTE physician. The authors exclude cost estimates of clinicians' efforts on recording procedure and diagnosis coding needed for billing due to measurement concerns. This could potentially bias downward their estimates.

One study estimates administrative related provider costs, without breaking out costs specific to BIR. Woolhandler and Himmelstein [48] find that approximately 27 percent of physicians' revenue

in the United States is dedicated to administrative functions. This includes 13.5 percent of physicians' time dedicated to administrative tasks, 8.3 percent of gross income dedicated to clerical employees, one-third of office rent and expenses dedicated to administrative functions, and one-half of other professional expenses dedicated to office administration.

We conducted a survey of Vermont physicians in 2010 to examine whether the administrative and insurance provider-related cost estimates referenced above are consistent with the Vermont experience. Survey results show that on average, physicians report spending more than 3 hours per week interacting with health plans. Physicians in practices owned or embedded in other organizations reported spending less time interacting with health plans than physicians practicing independently. Vermont physicians had 0.78 FTE non-clinical staff dedicated to all aspects of billing, claims review and payment collection for each FTE physician in the practice. These data are consistent with the other estimates based on survey data.

In estimating the share of health expenditure dedicated to administrative costs for providers and related potential savings from moving to a single channel or single payer system, we break the analysis out into two categories – (1) physicians and (2) other providers. The other provider category includes dental services, chiropractic services, physical therapy services, psychological services, podiatrist services, vision products, durable medical equipment, drugs and other supplies.

With regard to physicians, evidence shows that administrative expenses related to BIR range from approximately 10 percent to 19 percent of practice revenue. In order to be conservative, we assume in projecting savings related to implementation of a single-payer or single-channel system in Vermont that 15 percent of practice revenue is dedicated to BIR. We utilize the 2008 Vermont Health Care Expenditure Analysis to translate this estimate into the share of total health expenditure dedicated to BIR. In 2008, 15.1 percent of health care expenditure was spent on physician services. This amounts to \$697 million, of which we assume 15 percent was spent on BIR related activities. Therefore, approximately \$104 million was spent on BIR activities, which amounts to 2.3 percent of total health expenditure in Vermont dedicated to BIR activities by physicians.

As mentioned above, potential savings from moving to a single channel or single payment system would be derived from the fact that providers only have to learn and follow the rules of one claim payment system and adjudication procedures, instead of a multitude of claims procedures and adjudication rules. Providers would also employ fewer staff to handle payer related matters and physicians would reduce their own time devoted to dealing with multiple payers. These administrative hassles take time away from physicians and nurses rendering health services.

We estimate that a single payer system will reduce BIR costs by one-half. In pulling from the evidence above, we estimate that a single channel will save one-third of BIR expenses for physicians. These savings are less than the savings derived from a single payer system, because providers will continue to deal with several benefit packages. From these estimates, BIR expenses will be 1.53 percent of total health expenditure in Vermont under a single channel system and BIR expenses will be 1.15 percent of total health expenditure in Vermont under a single payer system.

There is relatively little discussion or evidence related specifically to administrative costs of the other provider category. Therefore, the 15 percent of net practice revenue estimate from physicians is used to for other providers as well. To translate this into the share of total health expenditure dedicated to BIR we utilize the 2008 Vermont Health Care Expenditure Analysis. In 2008, 20

percent of health care expenditure was spent on the other provider category.¹⁹ This amounts to \$921 million, of which we assume 15 percent was spent on BIR activities. Therefore, approximately \$138 million was spent on BIR activities, which amounts to 3 percent of total health expenditure in Vermont dedicated to BIR activities by other providers.

Similar savings will be derived from moving to a single channel or single payer system as discussed for physicians. Therefore, we estimate that a single payer will produce a savings of one-half of BIR expenses for other providers and a single channel system will produce a savings of one-third of BIR expenses. From these estimates, BIR expenses for other providers will be 2 percent of total health expenditure in Vermont under a single channel system and 1.5 percent total health expenditure in Vermont and under a single payer system.

Hospital Administrative Costs and Savings

Similar to providers, hospitals incur large administrative costs associated with interacting with multiple payers. These functions include contract negotiation, bill and collection payment, patient insurance coverage and cost-sharing verification, salary payments for administrative staff, and overhead and health information technology related expenses. In moving to a single payer or single channel system, hospitals will be able to streamline much of their operations, greatly reducing administrative costs associated with the current multiple payer system.

The Vermont hospital budget reports shows that in 2010 the percent of total costs attributable to administrative and general (AG) activities,²⁰ was approximately 22 percent of total hospital budget operating expenses. AG activities are wide-ranging and include many non-BIR expenses, such as social services or pharmacy. Fiscal operations expenses, which is most closely involved with insurance related activities, ranges from 3 to 9 percent of hospital operating expenses. In addition to the hospital budget reports, the Vermont Association of Hospitals and Health Systems (VAHHS) conducted a Hospital Association Billing Survey (HABS) in order to approximate potential savings associated with the elimination of sending bills to CIGNA/MVP and BCBCVT, an analysis they shared with us. The survey estimated a savings of roughly 0.72 percent of total hospital operating expenses due to the elimination of sending bills to CIGNA/MVP and BCBSVT in 2010. These data reflect a narrow focus for potential savings by limiting the analysis to expenses related to direct billing activities with insurers, while excluding more systemic changes in cost associated with patient admissions, nurse and physician time costs, medical records maintenance and billing and collection from patients.

Similar estimates of total hospital administrative costs as a share of operating expenses were found by Woolhandler and Himmelstein.[48] Using Medicare Cost Reports, the authors estimate that 24.3 percent of U.S. hospital costs were administration-related. The authors classify administration

¹⁹ This includes ½ of dental services (2.3%), chiropractic services (0.4%), physical therapy services (0.9%), psychological services (0.9%), podiatrist services (0.1%), vision products and durable medical equipment (2%), and drugs and other supplies (12.3%).

²⁰ Specific categories within AG include fiscal services, dietary, housekeeping, laundry and linens, maintenance of personnel, operation of plant and maintenance, nursing administration, nursing education, central services and supplies, pharmacy, medical staff education, interns and residents, medical records, medical library, medical care evaluation, social services and research.

expenses according to Medicare cost account categories, and include administrative and general, nursing administration, central services and supply (excluding the purchase cost of supplies), medical records and library, utilization review, and the salary costs of the employee benefits department.

Two studies specifically break out payer related or BIR expenses from general hospital administration expenses. McKay [58] estimates that administrative costs were 22.6 percent of Florida hospital operating budgets in 2003. Of this amount, 21.3 percent were directly tied to payer related expenses, which is 4.8 percent of total hospital operating costs. Payer related administrative costs are a result of administrative requirements associated with payment to insurers. Kahn [49] estimated that administration related expenses comprised 20.9 percent of total California hospital revenue and of this amount, 6.6 to 10.8 percent of total revenue was BIR.

This evidence shows that administrative expenses related to BIR or payer related activities range from approximately 4.8 percent to 10.8 percent of hospital operating expenses. Similar to the provider cost estimates, we use the 2008 Vermont Health Care Expenditure Analysis to translate these estimates into a share of total health expenditure in Vermont. In 2008, 35.6 percent of health care expenditure was spent on hospital services. This amounts to \$1.6 billion. We use 6.5 percent as a conservative estimate from current available evidence for hospital BIR. Therefore, approximately \$82 million was spent on BIR or payer related activities, which amounts to 2.3 percent of total health expenditure in Vermont which is dedicated to BIR activities by hospitals.

Of this 2.3 percent of total health spending in Vermont, significant savings will be derived at the hospital level by moving to a single channel or single payer system. We use the same rationale that is used at the provider level to assume that under the single channel system one-third of BIR costs will be saved and under the single payer system one-half of BIR costs will be saved. Therefore, under the single channel system, hospital BIR expenses will be approximately 1.53 percent of total health expenditure in Vermont. Under the single payer system, BIR will be approximately 1.15 percent of total health expenditure in Vermont.

II. SAVINGS FROM FRAUD AND ABUSE

Fraud and abuse are problems in the U.S. health care system. Fraud refers to intentional deception on the part of health care providers.[59] This includes submitting claims to public and private insurance companies for services that were not actually provided, and also referring patients to an entity with which the referring provider has a financial relationship.[60] Abuse refers to activities that financially benefit a provider, but that are inconsistent with accepted and sound medical, business or fiscal practices, such as submitting claims for medically unnecessary services.

The costs associated with fraud and abuse are substantial. Recently, the FBI estimated that fraudulent activities accounted for 3-10 percent of total health expenditure in the US in 2007[61]. Similarly, the National Health Care Antifraud Association, a coalition of private health care providers and private agencies, estimated that approximately 3% of national health care spending is lost to fraud each year. Estimates of costs associated with abuse are difficult to obtain, given the difficulty in defining 'medically unnecessary services.'

Fraud and abuse have received increased attention in the past decade, and steps have recently been taken at the federal level to address the issue.[62] The Patient Protection and Affordable Care Act (PPACA) of 2010 contains several provisions that aim to reduce fraud and abuse in the U.S. health

care system, including payment suspensions for Medicare and Medicaid claims that are alleged to be fraudulent. In addition to the PPACA legislation, congress pledged a 50% funding increase in fiscal year 2010 for activities related to fraud detection in federal health programs, including Medicare and Medicaid.[63]

The fragmentation of health care payment systems makes detection of fraud and abuse difficult. Limited communication between payers can make it difficult to identify providers that are engaged in improper behaviors. The effect of fraud and abuse on each payer may be imperceptible, while the additive effect on the system is substantial. Unless very detailed and expensive auditing is done, these small transgressions are not easy to detect. Further, efforts to strengthen detection in federal programs may lead to increased fraud in non-federal programs, as offending providers shift improper behaviors to affect more vulnerable payers. An important first step in developing a system to combat fraud and abuse is to construct a single database with accurate and timely information on all provider claims to public and private insurance companies.

All claims database

Several states, including Vermont, have recently attempted to construct state-level all claims databases in an effort to strengthen fraud and abuse detection activities, and also to strengthen data and evidence-based components of health system planning activities.[64] However, many of these states are finding that challenges related to uniform data reporting and stakeholder buy-in undermine the usefulness of these databases. Indeed, the VHCURES system in Vermont, operational since 2008, has substantial gaps in reporting and currently does not include claims for Medicare and Medicaid. Further, VHCURES administrators are struggling to harmonize disparate data sources into a single format for easy comparison.[65]

Having a single-payer health care financing system makes it substantially easier to implement a coherent state-level all claims database for fraud and abuse detection. With a single-payer, communication between payers is no longer an issue. The single-payer organization can develop a database of all insurance claims and link those claims to individual providers. Provider profiles that track behavior over time can then be used to identify instances of fraud and abuse. When Canada implemented its single payer system in the early 1970s, it was able to identify and investigate the possible fraud and abuse cases quickly and easily.

We want to make clear that most providers do not commit fraud or abuse a health insurance system. However, just a small number of providers can make a large negative financial impact with numerous fraudulent claims and abuses. A comprehensive database from a single payer system can identify culpable parties and leave most providers who practice appropriate medicine without any interference. In the Implementation section of this report, we recommend a process in which fraud and abuse can be investigated while minimizing the interference with physicians and other practitioners who practice appropriate medicine.

Once identified, there are various steps that should be taken to address fraud and abuse. Fraudulent behaviors are by definition illegal and should be dealt with through the legal system. There are provisions in the PPACA of 2010 to strengthen federal authority to prosecute fraud in the U.S. health care system.[66] These provisions also include funding for collaborative programs between state and federal authorities to recover payments made for fraudulent claims.

Behaviors identified as abusive to the health care system, however, are not usually criminal. Rather, they constitute deviations from accepted norms with regard to the definition of necessary care. There are two common methods for regulating the professional norms of health service delivery. First, insurance companies have frequently used feedback mechanisms to inform providers of their personal deviations from the practice patterns of their local peers. Second, insurance companies may refer cases of abuse to the professional organizations that are most qualified to regulate the norms that define abuse. That is to say, health provider professional organizations, whether local or national, can be given responsibility for self-regulating identified instances of abuse.

Evidence from the U.S. and abroad suggests that developing a provider profiling system to root out fraud and abuse can lead to substantial costs savings. Several randomized controlled trials have found that peer-comparison feedback programs lead to a reduction in service provision [67]. A recent evaluation of 10 physician profiling programs conducted by the U.S. Government Accountability Office found that the programs led to reduced costs [68]. Recent experience in Taiwan—a country that in the mid-1990s implemented a single-payer health care system with provider profiling—suggests that profiling can reduce total health spending by as much as 7-8%. We estimate that Vermont would be able to reduce its total covered health expenditure by 5% from fraud and abuse when a comprehensive claim data is established.

III. WASTE AND DUPLICATION SAVINGS

The leakage and waste of resources in the health care sector is a persistent issue in the US. Due to this well-recognized problem, various measures have been put into place to reduce waste and improve efficiency of health spending. One such option of particular focus in Vermont is to move towards creating an integrated delivery system, which aligns both health and financial objectives across types and levels of providers.

In this section we discuss sources and levels of waste in the health care system in the US and Vermont based on available evidence. We identify potential health system reform measures to address this waste, with a particular focus on integrated delivery systems (IDS) and provide rationale for savings estimates to be derived from IDS in Vermont. Two comprehensive reform plans aimed at addressing waste through an integrated delivery system in Vermont are discussed in detail: (i) the Vermont Blueprint for Health and (ii) the accountable care organization (ACO) model.

Sources of waste

Fragmentation in health service delivery leads to waste, and ultimately to inflated health care costs. There are three primary forms of waste associated with health service delivery fragmentation: (i) administrative, (ii) operational and (iii) clinical.[69] Administrative costs are discussed above. In this section, we are primarily concerned with operational and clinical waste. Operational waste most often results from the *misuse* of health care resources, while clinical waste most often results from the *overuse* of health care resources. [70] Misuse occurs when providers have insufficient information to make correct diagnostic and treatment decisions and as a result recommends inappropriate services to patients. Drug events are the most prevalent source of operational waste. Overuse occurs when physicians are faced with a diagnostic or treatment decision for which there is no clear direction, and as a result provide a relatively poor service given its cost. The primary sources of clinical waste include overuse of expensive diagnostic tests, hospital admissions and surgeries.

Aggregate levels of waste across a health care system are difficult to directly measure due to ambiguity in the boundaries of wasteful behavior.[71] For example, clinical decision-making that leads to overuse is by definition discretionary and therefore difficult to evaluate. Despite these challenges, attempts have been made to measure overall waste and most conclude that the costs associated with waste are substantial. A recent report found that more than 21 percent of total health spending in the US is due to non-administrative waste.[72] The authors concluded that the majority of this waste (14 percent of total health spending) results from overuse of health services. Eliot Fisher and colleagues at the Dartmouth Institute have shown that, after adjusting for population demographics and local prices, some regions of the US spend more than twice as much per capita on Medicare services as compared to other regions.[73, 74] Additionally, they found that increased spending was not associated with improved quality of care. Fisher estimates that up to 30 percent of total health spending is due to waste, most of which results from the overuse of discretionary services.[74, 75] A similar conclusion was reached in another recent report, which concluded that 29 percent of health care spending in the US results from operational and clinical waste.[76, 77]

In investigating discrete services, the impacts of wasteful behavior resulting from misuse in the US health care system become readily apparent. Studies find that as many as 40 percent of elderly persons with insurance coverage under Medicare and Medicaid receive prescriptions each year that are not clinically necessary.[78, 79] As noted above, drug events, particularly in the elderly population, constitute a large portion of the waste that results from misuse. Estimates suggest that up to 6.5 percent of hospital patients experience adverse drug events, resulting in an average additional length of stay of 2.2 days and an additional cost of \$3,244 per event.[80] A recent report by the Vermont Department of Health found that patients in the state experienced serious reportable events, of which adverse drug events are a major part, at a rate similar to other states.[81] Likewise, waste derived from misuse of health services often lead to hospital readmissions. Nearly 20 percent of all Medicare hospital admissions result in readmissions due to incomplete treatment or poor care.[82] These readmissions account for \$12 billion in Medicare spending annually.[83] A recent report found that the hospital readmission rate in Vermont was 14 percent.[84, 85] John Wennberg and colleagues conclude in a recent article that inpatient visits during the last two years of life may account for more than half of regional differences in health care spending, a common proxy for waste (further discussed below).[85]

The overuse of diagnostic tests is well-documented. Studies suggest that 16 percent of hematocrit and 26 percent of complete blood count (CBC) tests are unnecessary.[86] There is a particularly large amount of waste resulting from overuse of expensive imaging tests.[87] As many as 30 percent of imaging tests may be unnecessary.[88] Other diagnostic tests show similar overuse rates.[89-94] There is also evidence of surgical overuse in the U.S. health care system. As much as 40 percent of repeat cesarean section deliveries may be performed unnecessarily.[95] Similarly, 15 percent of appendectomies are performed on patients without clinical indication of appendicitis.[96]

A recent evaluation of health service supply in Vermont, New Hampshire and Maine found that the rates of diagnostic testing, hospital admissions and surgery in Vermont were similar to that in the other two states.[97] This suggests that Vermont does not necessarily do better or worse with regard to its overuse rates as compared to elsewhere in the US.

The highly fragmented nature of health service delivery in Vermont leads to unnecessary waste of resources. Most practices in Vermont are very small, with one or two physicians per practice. Added to this, there is little integration among primary care providers. Similarly, the hospital system in Vermont is comprised primarily of small community hospitals, each covering a distinct geographic area with minimal local competition. Finally, there is little integration across levels of service delivery in the state (i.e. between primary care providers, specialists and hospitals).[98] Vermonters have long recognized the problems posed by fragmentation. [99] Indeed, health care reform efforts in the state in 1994 and 2006 attempted to address the issue and push Vermont's health system toward more integrated service delivery.[41, 100] However, these efforts were incomplete and additional reforms are necessary to fully integrate the state's health system. This persistent fragmentation leads to waste and ultimately to inflated health care costs.

IV. INTEGRATED DELIVERY SYSTEMS

One potential channel that has been explored to deal with the waste derived from operational and clinical services is the introduction of IDS. IDS is defined as a health care organization that owns hospitals, physician practices, and perhaps even an insurance plan, which aligns financial incentives across the organization and uses team-based health care.[101] Despite these common characteristics, there is no universal consensus of what exactly constitutes an IDS, even among managers of IDS organizations themselves.[102] However, organizations such as Kaiser Permanente, Mayo Clinic, Cleveland Clinic, Geisinger Health System, Intermountain Healthcare, and Group Health Care Cooperative are widely recognized as IDS.

The financial benefit of an IDS arises from savings from quality improvements and efficiency made possible by centralized organization.[101] There are many examples in the published literature of savings arising from IDS efficiencies and innovations which support these claims (see for example McCarthy and Mueller 2009.)[103, 104] Baicker and Chandra (2009) cite savings from better prevention, lower readmission rates, greater compliance with medications and incentives to avoid unnecessary procedures resulting from integration of service delivery.[103, 104] However, many innovations tend to focus on specific care innovations rather than comparison of IDS versus non-IDS organizations. It is therefore difficult to separate the savings arising from specific innovations (such as care coordination or disease management of diabetes) from the IDS specific savings. For example, a large observational study of Medicare patients treated by physicians in 22 different health care markets found that physicians working in large multispecialty group practices (including IDS) had 3.6 percent lower costs per patient on average (\$272 per patient). Physicians in large multispecialty group practices also tended to have higher scores on quality of care measures despite lower average costs. In spite of these challenge, we discuss the findings of a number of studies that have worked to create appropriate distinctions in estimating both costs and savings derived from IDS.

A 2009 analysis of fifteen organized health care delivery systems demonstrated that many IDS have achieved significant savings and quality improvement.[103] The diversity of IDS innovations ranged from disease management programs, to primary care-oriented prevention, to telephone based follow-up, and many others. Despite these innovations, there was some ambiguity in the findings with regard to overall cost across service categories. Compared to the national average, risk-adjusted Medicare spending in the last 2 years of life at the 15 IDS ranged from 0.83 to 1.60 times the national average. Four of the IDS had lower Medicare spending than the national average, while 6 IDS did not have significantly different Medicare spending in the last 2 years of life than the

national average. This indicates that while some IDS do achieve significant savings, potential savings from expensive end-of-life care are difficult to derive. Factors specific to individual IDS may explain these different patterns of expenditure; however, published analysis of these factors is not readily available. These findings highlight the potential need for focused attention on these high cost services that do not reap the savings benefits derived from IDS.

In contrast to these findings, Sterns (2007) [105, 106] finds that chronically ill patients receiving care in 14 integrated delivery systems used fewer physicians in the last 24 months of life than chronically ill Medicare patients across the US.[105] Furthermore, patients in integrated delivery spent 18 percent fewer days in the hospital and 34 percent fewer days in the ICU in the last 24 months of life as compared to their national counterparts. As a result, physician and hospital spending for patients in IDS were 24 percent and 2 percent less than non-IDS settings. Added to these findings, a 2004 meta analysis found that prepaid group practices, which are generally thought of as integrated delivery systems, had approximately 25 percent lower costs than health plans did not utilize integrated delivery system providers.[107] The authors were not able to identify the exact channels from which these lower costs were derived.

Genesys Health System in Michigan re-designed its model of care around the Institute for Healthcare Improvement's (IHI) Triple Aim of i) improving population health; ii) enhancing the patient experience of care; and iii) reducing or controlling the cost of care.[108] Genesys pursued the Triple Aim by engaging primary care physicians in a physician-hospital organization to emphasize care coordination, community-based health promotion, integrated patient self-management support, and lower hospital bed utilization. Between 2004 and 2007, Genesys provided health care at 26 percent lower cost than its competitors, which was attributed to fewer inpatient admissions and re-admissions, and fewer hospital days per inpatient admission.[109]

Partners HealthCare System in Massachusetts introduced pay-for-performance rewards for quality of care in its Community Healthcare (PCHI) networks.[110] Quality measures for diabetes care for adults and asthma care for children increased significantly over 2 years, as compared to the average quality improvement across the state and within PCHI which did not implement pay-for-performance. Researchers have posited that the causal chain between IDS and quality of care is due to strong physician leadership, conducive organizational culture, clear and shared aims, good governance, accountability and transparency, selection and workforce planning, and patient-centered teamwork.[105]

Health information technology

Health information technology (HIT) is an important facilitating technology that allows IDS to monitor performance and realize savings. Denver Health introduced a computerized physician order entry (CPOE) system and consequently reduced the time required to fill medication orders by 85 percent. The introduction of an online patient portal by Geisinger Health System was associated with 5,000 fewer patient telephone calls per month. HealthPartners introduced generic prescribing processes in its electronic health record (EHR), leading to an increase in generic prescribing from 45 percent in 2002 to 72 percent in 2007. Each percentage increase in generic prescribing was associated with \$1 million in savings. Kaiser Permanente saw its physician visit rate decrease 26 percent after implementation of its EHR, with an offsetting increase in telephone visits and secure messaging with patients.[103]

The impressive efficiencies and savings derived from the implementation of HIT must be considered alongside the significant capital and labor costs of implementing and operating HIT. The capital costs of health information technology, even for large IDS, and the perception of high maintenance costs are cited as reasons why, in a national survey of U.S. hospitals, only 10 percent of U.S. hospitals have a basic electronic health record (EHR), and just 1.5 percent of U.S. hospitals have a comprehensive EHR.[111]

The increased labor input to use EHR to complete tasks is also a perceived barrier to realizing savings from HIT. A systematic review of studies examining time required to use HIT found that while computers may save nurses significant documentation time (23-24% compared with usual documentation), physician documentation time using HIT increased by 17.5%.[112] A 2009 systematic review of HIT found a paucity of evidence to support the cost-benefit of HIT adoption, and that realized benefits of HIT adoption fell far short of the benefits claimed from HIT.[113] These systematic reviews are consistent with expert opinion that adoption of HIT alone is not sufficient to achieve significant savings.[114]

Fletcher Allen as an IDS

Fletcher Allen satisfies the definition of an IDS proposed by Merlis [101] because it integrates hospitals and physician practices – all the way up to the governance structure on the board – and has aligned financial incentives across the organization, and provides team-based care through its Community Care Team for example.[115]

The Tri-State report on health services utilization and expenditures for the commercially insured population (age less than 65 years) suggests that Fletcher Allen is significantly more efficient than other health care providers in Maine, New Hampshire and Vermont.[116] The Tri-State report analyzed health care utilization and expenditure by hospital service area (HSA). Since Fletcher Allen is the predominant hospital service provider in Burlington, Vermont we interpret the Tri-State report findings about the Burlington HSA as a proxy for Fletcher Allen. Across the Tri-State area, Burlington had the lowest rate of hospitalization for ambulatory care sensitive conditions (1.96 per 1,000 members); the lowest rate of outpatient emergency department visits (125 per 1,000 members); the lowest rate of potentially avoidable outpatient ED visits (16.1 per 1,000 members); and among the lowest rates of re-admission (3.38 per 1,000 members) in the state. Burlington HSA had a higher rate of office/clinic visits than most areas in Vermont (4,799 per 1,000 members), but this was associated with a significantly lower rate of avoidable ED use by members, suggesting that office visits helped prevent unnecessary ED care. These facts explain why age-adjusted expenditures for Burlington HSA were the lowest of any Vermont HSA.

Table 3: Age-Adjusted Variations in Health Spending by Hospital Service Area, 2008

	Age-Adjusted PMPM (2008)	Age Adjusted/Crude	Age-Adjusted PMPM Rank
Barre	\$331.75	99.4%	6
Burlington	\$315.40	105.1%	1
Morrisville	\$323.32	97.3%	3

Randolph	\$348.71	95.5%	8
Newport	\$375.75	95.0%	11
St. Johnsbury	\$345.73	96.2%	7
St. Albans	\$327.84	102.2%	5
Middlebury	\$326.97	99.0%	4
Rutland	\$381.48	96.8%	13
Bennington	\$374.46	97.3%	10
Springfield	\$351.42	95.2%	9
White River Jct	\$381.01	97.0%	12
Brattleboro	\$323.08	95.0%	2
State	\$339.04	100.0%	

Source: Vermont Department of Banking, Insurance, Securities and Health Care Administration (BISHCA); Vermont Healthcare Claims Uniform Reporting and Evaluation System (VHCURES).

These conclusions are also supported by the Dartmouth Atlas project data for Medicare insured patients over 65 years, as referenced above. Medicare expenditures in the Burlington HSA were \$6,712 in 2007 compared with the Vermont state average of \$7,350. The Hospital Care Intensity rating, a composite measuring the amount of time spent in hospital and the intensity of physician services provided in hospital to Medicare members, was in the 23rd percentile for Fletcher Allen compared with hospitals nationally. This was significantly lower than the Burlington Hospital Referral Region (HRR) average of the 32nd percentile of Hospital Care Intensity.[117] These figures for both commercially insured and Medicare patients demonstrate that Fletcher Allen has achieved significant savings through system efficiencies by doing things such as preventing avoidable inpatient admissions and Emergency Department utilization.

V. INTEGRATION IN VERMONT: FROM MEDICAL HOMES TO ACOS

Vermont has already begun a process to integrate service delivery in the state in order to improve quality of health care and lower its cost. In 2006, Vermont passed legislation that moved forward the Blueprint for Health. The Blueprint outlines a model for integration that has three components: (i) a foundation of patient centered medical homes (PCMHs) intended to provide comprehensive, coordinated primary and ambulatory care with a whole-person orientation, (ii) community health teams (CHTs) comprised of multi-disciplinary professionals intended to engage the general population with preventive health practices, and (iii) a statewide HIT infrastructure that includes an electronic medical record system, for improved patient management and policy evaluation.[118] All payers in Vermont have agreed to help share the costs of the both the CHTs and enhanced payments to primary care practices.

PCMHs have received increased attention nationwide, and are seen by many as a way to increase the quality of health care while reducing costs.[119] As described in Blueprint documentation, the PCMH model places emphasis on the provision of high quality primary care. Further, the Blueprint identifies the CHT as a mechanism for coordinating care between primary providers, specialists and hospital. This coordination is meant to minimize duplication of services, as well as increase the quality of care across a continuum of services. CHTs are empowered to promote preventive care in the hopes that this will reduce the need for future service utilization.

An important aspect of the Blueprint for Health is the proposed implementation of a robust information technology infrastructure. There are two primary goals of this infrastructure. First, the infrastructure should support the work of CHTs in coordinating clinical services across levels of the health system. This requires an electronic medical record system with up-to-date patient information accessible by all health care providers in the state. Second, the infrastructure should ensure appropriate health information is available to support social, economic, public health and other service planning.[118] This requires a centralized registry of aggregate data on various types of measures, including clinical and administrative data.

Today, there are Blueprint pilots in three locations covering 10 percent of the state population. This initiative has met with enthusiastic support from most Vermont stakeholders, though its impact on the quality and efficiency of health service delivery remains to be thoroughly evaluated. The Blueprint Annual Report, however, presented initial trends from two practices for Emergency Department and Inpatient Admissions. One practice showing growing overall admissions and the other reduced overall admissions rate over the pilot period 2007 – 2009.[118]

National evidence over the level of cost-savings that can be achieved with PCHM also varies widely with some studies finding no discernable effect and other showing savings of up to 20 percent. For example, a quasi-experimental PCMH pilot at Group Health Cooperative, an integrated delivery system in Washington state, demonstrated \$10 per member per month (PMPM) savings versus usual care over 21 months, or about 2 percent of total expenditures. However this difference was not statistically significant. The difference was due to decreased ER utilization (\$4 saving PMPM) and inpatient admissions (\$14 saving PMPM). Savings were partially offset by higher primary care costs (\$1.60 PMPM) and specialty care costs (\$5.80 PMPM.)[120]

In higher risk and higher spending populations, such as Medicare and Medicaid, however, pilots do find savings. For example, Geisinger Health System, another IDS, introduced a PCMH pilot among its Medicare beneficiaries in 2006-2007 and demonstrated 4-7 percent savings per-member per-month versus usual care.[121] Geisinger's savings were due to a 20 percent decrease in hospital admissions and 29 percent lower hospital re-admission rates in the PCMH pilot versus usual care for Medicare beneficiaries. A sub-group analysis of diabetic patients demonstrated a \$100 per-member per-month savings from the PCMH versus usual care.

In another study, forty-nine separate John Hopkins & Kaiser Permanente physician practices participated in a randomized controlled trial of 'Guided Care', a PCMH-like model of primary care using physician-nurse teams. This PCMH trial was among patients with multiple medical conditions aged at least 65 who were expected to be high medical users. This trial achieved average savings of \$113 PMPM, due to 24 percent fewer hospital days, 15 percent fewer ER visits, and 37 percent fewer skilled nursing facility days. However these results were not statistically significant due to the small scale (900 patients) and short duration (8 months) of the trial.[122]

A much larger state-wide PCMH project in North Carolina has demonstrated significant PCMH savings. Community Care of North Carolina (CCNC) has implemented a PCMH program covering 760,000 Medicaid patients in North Carolina across 14 networks and 3,000 physicians.[123] Because the CCNC PCMH covers a large majority of Medicaid patients, the savings estimated from the PCMH were calculated against estimated costs of usual care based on historical growth, not against usual care occurring at the same time. As compared to historical trends in the cost of usual care, the CCNC's PCMH achieved savings of \$29 PMPM, saving the state \$230 million in 2005. These savings were due to significant reduction in inpatient costs (\$20 PMPM), primary care & specialist care (\$5.62), ER costs (\$2.50 PMPM), and outpatient costs (\$3.74).[124]

Recent analysis of these PCMH pilots have identified critical factors for success [125]: (i) dedicated care managers; (ii) expanded access to care; (iii) performance management tools; and (iv) effective incentive payments. Each of the PCMH trials outlined above, as well as others outlined in a recent report incorporates elements of the PCMH, such as nurses within the primary care team, care coordination, health information technology, incentive payments, or some combination of these elements [126]. However the lack of consistency of design or measurement across these PCMH pilots makes it difficult to separate the savings generated by any one of these elements in the PCMH. Notwithstanding the common elements within each PCMH pilot, the different duration of the PCMH pilots, different scale (number of patients or physicians) in each pilot and differences in the measurement of outcomes in each of these PCMH trials make it difficult to draw precise conclusions about savings from the PCMH model at present.

There are also some studies that examine potential quality improvements resulting from PCMHs. Evidence from two recent evaluations of PCMHs operating in states across the US suggests that the adoption of the PCMH model leads to higher quality of care [127, 128]. The Group Health PCMH pilot reported that 4 percent more of its PCMH pilot patients met quality goals after 12 months than usual care patients. Geisinger PCMH patients experienced significantly better preventive care and diabetes care compared to usual care. Diabetes quality measures improved by 15 percent in the Community Care of North Carolina PCMH. Intermountain Healthcare of Utah's PCMH pilot reported an absolute reduction in 2 year mortality of 3.4% compared with usual care among patients aged at least 65 years.[128] Many other PCMH trials report improved process and outcome measures of quality. It is difficult to compare which PCMH design elements are critical to improved quality due to the difference in design and measurement of these PCMH pilot studies.

The Medical Home model, however promising, may not be able to achieve savings from the full integration of across the continuum of care. Firstly, the system remains largely based on fee-for-service payments, which reward volume of care, especially outside the primary care practice. Furthermore, there are no incentives for other providers – specialists or hospitals - to share information, improve coordination, or become part of the decision making process for patients. The Accountable Care Organization (ACO) is an emerging model for expanding the scope of integration and providing incentives for all providers to integrate service delivery and provide the most efficient and effective care and reduce clinical waste.[75] The ACO model will be further addressed as we detail proposed payments to providers (Section 6E) and Implementation issues (Section 9B).

As discussed, numerous studies have found high degrees of waste of health care expenditure due to misuse and overuse of health services. Estimates of this waste range from 15 percent to 30 percent of total health expenditure in the US. By continuing to move towards an integrated delivery system, Vermont will be able to reduce a large amount of this waste in its health care system. The implementation of ACOs will create an organization that will take responsibility to deliver high

quality health care by integrating all levels of health services, from preventative care to convalescing services to rehabilitation. In doing so, the quality of health care will be enhanced through providing continuity of care, avoiding complications from toxicity of multiple drug interactions, and improving the coordination of physicians' services. These actions will reduce the duplication of tests and overuse of certain drugs and services. Additionally, there will be an organization to monitor whether physicians use the most cost-effective health care available to their patients. In making our estimates, we assume that if ACOs perform these roles effectively there will be an overall savings of 10 percent of total health care expenditure between 2015 and 2024 in Vermont. We use a conservative estimate as a result of potential implementation challenges and outliers in the system.

VI. SAVINGS FROM MEDICAL MALPRACTICE REFORM

Tort reform related to medical malpractice is a controversial element of health reform. However, evidence suggests the current US malpractice system does not efficiently achieve its social goals and that reforming the medical malpractice system could result in small though significant savings for the state, especially if comprehensive reform is undertaken. But perhaps more importantly, these changes in the liability landscape may be a necessary precursor for the payment and delivery system changes that require providers to accept more risk for the costs of medical care. In this section, we provide background on medical malpractice in the U.S and Vermont, and present recommendations drawn largely from international experiences for reform efforts and the resulting potential savings.

The Current Medical Malpractice System

Under the U.S. system a tort is a civil wrong, of which medical malpractice is one of many. To prove medical malpractice, a claimant must show that the plaintiff experienced an injury because the practitioner's actions were negligent under the law, and that said negligence was the cause of the injury. To prove that care did not meet acceptable standards, and was thus negligent, malpractice cases require extensive discovery and testimony by costly expert witnesses. On average, malpractice claims are settled in five years, from initial claim to award determination.[129]

The social goals of any medical malpractice system are two-fold: (i) to provide an incentive to deter unsafe medical practices and; (ii) to compensate persons injured by malpractice. The system should be administratively efficient so that these two primary goals are achieved with minimum expense. In theory, current malpractice system should provide an efficient means to compensate negligent injuries. Once a patient decides to sue, attorneys act as the system's gatekeepers and must navigate claims through the judicial system.[130-132] Most medical malpractice litigators are compensated on a contingency-fee basis such that they receive about 35% of any damages award and nothing if they do not prevail. For this reason, attorneys must weigh the size and likelihood of an award against the lawsuit's potential costs when deciding whether to take a given case. In theory, this produces an efficient system in which attorneys litigate the most egregious claims and courts provide redress for victims of medical negligence, while deterring future instances of sub-standard care with the threat of economic penalties. At the same time, medical malpractice insurance protects providers against the threat of bankruptcy while providing a source of compensation for victims.[129] If a claimant proves negligence, the court can award economic and non-economic damages. Economic damages compensate a claimant for lost wages and medical care costs and

other costs that are generally fairly simple to calculate. Non-economic damages compensate plaintiffs for pain, suffering, and other non-pecuniary losses.

However, evidence suggests that the U.S. medical malpractice system does not effectively achieve its social goals. Recently, researchers used a similar physician review of over 1500 randomly-selected and closed malpractice claims to determine the system's ability to compensate negligent injury, while denying claims that caused injury without error.[133] They find that the system differentiates with reasonable acuity, such that 73% of claims producing injury due to error were compensated, while only 28% of claims without error were compensated. In addition, compensated claims that did not involve error (as judged by physician review) received awards that were 40% lower on average than those with error. Although attorneys have strong incentives to only adjudicate worthy claims, their incentives are not completely aligned with the system's social goals. For example, after a 10-year HMPs follow-up, it was found that the most important predictor of claim payment was the plaintiff's degree of disability, not the presence of negligence.[134] Because of attorneys' skewed incentives, asymmetric information, and their imperfect ability to judge medical error, a full 37% of claims did not involve error and 3% of claims did not even involve injury. The system also raises equity concerns since poor and elderly malpractice victims are less likely to sue.[135] As regards overall cost, 78% of administrative expenses were found to cover claims involving errors, meaning that there is some, but not an egregious amount of frivolous litigation clogging the system. Researchers also found that for every dollar spent on compensation, 54 cents were used to pay administrative expenses, leading them to conclude that the "overhead costs of malpractice litigation are exorbitant." [133]

Costs of Medical Malpractice

The Congressional Budget Office (CBO) estimates that, in 2009, health providers spent approximately \$35 billion or about 2% of total U.S. health expenditure on direct malpractice-related costs (premiums, settlements, awards, and administrative costs).[136] Another more recent and transparent calculation of the total direct and indirect costs of the medical liability system lead by Michelle Mello at Harvard University concluded that the system cost \$55.6 billion or 2.4% of total health care spending in 2008.[137]

If 2.4 percent of U.S. health expenditure is credited to the cost of medical malpractice litigation, 80 percent, or \$45.6 billion or 1.9% of that total cost is attributable to so-called defensive medicine.[137] Defensive medicine refers to situations where provider actions are influenced by a desire to avoid possible malpractice claims. In such situations, providers may be induced to order marginally useful tests to cover themselves, or may refuse to care for risky patients. The concept of defensive medicine has been discussed in academic, governmental, and popular press since the 1970, but it was a landmark 1994 study from the US Congressional Office of Technology Assessment (OTA) that first truly defined it. The report defined defensive medicine as "the ordering of tests, procedures, and visits, or avoidance of certain procedures or patients, due to concern about malpractice liability risk." [138] Further, the OTA defines any over-utilization of resources in the face of defensive medicine as "positive," and any evasion as "negative" defensive medicine.

The extent and true cost of defensive medicine are notoriously difficult to quantify; Mello and her team noted the poor quality of data available to them to estimate the effects. For example, the American Medical Association, based on a 1996 study of heart surgery by Kessler and McClellan[139], estimates that tort reforms could save 5 to 9% of total health by expenditures through a reduction in defensive medicine. Surveys of doctors give additional insight to the

prevalence of medical malpractice. For example, a 2009 survey estimated that 91 percent of the 1213 physicians surveyed ordered more tests and procedures than were necessary for their patients to protect themselves from malpractice suits.[140] In 2008, an additional survey of physicians found that between 60 and 78 percent of 4,720 physicians reported ordering additional tests or consultations as a result of malpractice fears, concern over malpractice suits, or an increased reliance on technology because of malpractice fears.[141] In 2008 the Massachusetts Medical Society conducted an extensive survey of eight subspecialties and monetized their results, finding that defensive medicine represented \$1.4 billion in the state or about 3% of total health spending for just these specialties, which represent just 46% of doctors in the state.[142]

Medical Malpractice in Vermont

Medical malpractice liability insurance premiums are proportionally low in Vermont. In 2004, Vermont's total medical malpractice liability insurance premium paid was \$25.6 million, representing less than 1% of total health expenditure.[143] Malpractice premium rates in Vermont recorded the lowest increase of any state from 1993 to 2001, when rates declined about 30%[144]. From 2002-2004 however, approved rate increases totaled 50% and 80% for the two largest malpractice insurers respectively and overall rates increased between 33% and 94% depending on specialty and company.²¹ Even with these increases, Vermont medical malpractice rates remain among the lowest in New England and the nation.[143] Because of recent premium increases, Vermont's legislature created the Vermont Medical Malpractice Study Committee (VMMSC) to investigate medical malpractice issues and their impact on medical care provision. However, the VMMSC found no evidence to substantiate anecdotal claims of provider flight and the number of physicians in Vermont has remained stable. Further, a review of closed medical claims found no discernible trend in claim frequency or severity[143]. Since claim severity and quantity have not been increasing in Vermont, the VMMSC attributes the premium hikes to investment losses and the fact that rates had been set too low in the 1990s because of competition from companies that subsequently withdrew from Vermont or went bankrupt. The VMMSC's actuarial consultant concluded that, because of Vermont's already low malpractice rates, a popular tort reform of capping non-economic damages at \$250,000 would produce a 5.7% premium reduction[143], as opposed to a 10% national decrease assumed by the CBO.[136]

Vermont's low medical malpractice liability status is highlighted by its mean and median malpractice awards of \$137,444 and \$80,000 respectively, ranking the state 48th overall in 2003. These rates are compared with the national mean and median of almost \$300,000 and \$160,000 respectively nationwide. On average, of the 75 medical malpractice cases filed annually 1996-2004, 30 received an award, constituting a 40% claim acceptance rate (VMMSC report, tables 1.2 and 1.5, 2005).[143] In contrast to the U.S. average of five years, the average time between reporting and settling claims in Vermont is two years.[143]

²¹ The Vermont medical malpractice market is very concentrated with two physician-owned companies representing 63% of the market as of 2003, Medical Mutual Insurance Company of Maine and ProSelect, while the top five insurers represented 86%. Specific to Vermont, large market fluctuations have occurred since 2001, when St. Paul Insurance withdrew from Vermont and the Phico Insurance Company went bankrupt. In 1995, these two companies represented 70% of written premiums and 25% in 2001. Tables 3 and 4 show premium changes by insurance company and specialty during the "soft" (1996-2001) and "hard" market periods (2001-2005).

Medical Malpractice Reform

Potential reform options can be split into two categories: conventional tort reform and comprehensive, system-wide reform.[133] The most common components of the former include shortening statutes of limitations, capping non-economic damages, and eliminating joint-and-several liability. System-wide reforms include implementing no-fault compensation, using specialized medical courts to adjudicate malpractice claims, creating a fault-based administrative system, or shifting from individual to organizational or enterprise liability.

There is relatively little evidence supporting the assertion that traditional tort reform could produce significant reductions in healthcare spending, despite physicians frequent claims otherwise.[145, 146] The CBO's most recent estimates of the impact of national tort reform are based on a conventional reform package that includes capping awards for non-economic damages at \$250,000, caps on awards for punitive damages of \$500,000 and limited statutes of limitations.[136] The CBO found that this package of reforms would reduce national medical liability insurance premiums by 10 percent. Given their estimate that the direct costs of medical liability are 2 percent of health expenditure, the CBO estimates this type of tort reform would reduce U.S. health expenditure by 0.2 percent, attributable to lower direct costs for medical liability. As a result of recent research on the impact of positive defensive medicine on medical expenditure, the CBO also reports that an additional decrease of 0.3 percent in national health expenditure attributed to reduced defensive medical care would occur with this tort reform package.²² Similar estimates of the impact of tort reform derive from other empirical research using different data sources and time periods. The estimated range of savings derived from a 10 percent decrease in malpractice premiums is 0.13 percent to 1.2 percent of total healthcare expenditures.[144, 147, 148]

Alternatively, Vermont could replace its current civil malpractice tort system with a no-fault compensation system for providers. In discussing a move to a no-fault compensation system, we use the model of New Zealand, with reference to comparable models in Scandinavia, to provide a background on the system and evidence on its potential impact in Vermont.

In New Zealand, the Accident Compensation Corporation (ACC) adjudicates all injury claims and administers the country's no-fault compensation system. In 2008, the ACC's operating costs equaled 12 percent of claims.[149, 150] Claim payments required by the ACC are, on average, less than US \$30,000. Physician indemnity insurance costs less than US\$1,000 per year for all specialties in 2005.[149] The ACC model provides redress through a fixed award schedule intended to ensure that claimants with similar disabilities receive similar awards.[149] Awards are comprised of four compensation categories: 1) treatment and rehabilitation costs, 2) earnings reimbursement (up to 80% of a claimant's lost earnings at the time of injury up until a set maximum), 3) a lump-sum payment of up to \$70,000 for permanent impairment, and 4) support for dependents. The fact that New Zealand already provides free medical care also reduces the cost of awards because, unlike the U.S., this component of compensation is not at issue. The no-fault system also allows New Zealand to focus on reducing rehabilitation and return-to-work times. Recent reforms have improved public

²² These national estimates are not directly applicable to Vermont because they account for the fact that many states have enacted some of the proposed reforms. In addition, these estimates include federal revenue increases (from lower health costs producing higher taxable wages) as part of the reform package's budget impact.

perception of the system, as 60 percent of respondents now view the ACC with confidence, up from 42% in December 2005.[150]

As of 2005, New Zealand replaced the term “compensable medical injury” with “treatment injury.” A treatment injury includes all personal injuries occurring during medical treatment, irrespective of whether negligence was involved, creating a no-fault medical liability system. To prove treatment injury, a causal link between treatment and injury must be shown, while injuries that are a “necessary part” of treatment are not covered. This change was made partially because of research which showed that even with an easy claims process, only about 3.3% of potentially compensable events resulted in successful awards. This number cannot be directly compared to the U.S. rate of 3%, since this refers to the percentage of adverse, negligent events that result in *claims*; however the New Zealand number refers to the percentage of all potentially compensable *adverse events* that receive payment. Moreover, the same study reviewed hospital records in New Zealand and showed that about 2% admissions were associated with an adverse event potentially compensable by the ACC.[151] Although an appropriate comparison would adjust for differences in case-mix, patient severity, and technology change, this compares favorably to the U.S. adverse-events rate of 3.7% mentioned above. Since the 2005 reform, medical claims to the ACC have increased as hoped from an average of 2,000 per year to over 5,000 in 2008. The system has historically compensated about 40% of claims.²³[149] Assuming pre-reform per claims costs of about US\$30,000 and a 40% acceptance rate, claims costs would have jumped to US \$61 million per year in 2008 or about 0.4% of New Zealand's total health expenditure[152], comparing favorably to U.S. malpractice costs of about 2% of total health spending.²⁴

Another interesting aspect of New Zealand's system is the creation of a separate process for patients seeking non-monetary remedies for injuries they perceive were caused by medical treatment. A government official called the Health and Disability Commissioner (HDC) receives complaints from patients and attempts to resolve them using advocacy, mediation/investigation and disseminates the findings to improve care quality.[153]

In addition to New Zealand, all Scandinavian nations operate some form of no-fault medical-error compensation system, as well. The Scandinavian nations have similarly short waiting times to claims resolution as New Zealand and allow the patient a right to a jury trial after two appeals.

The VMMSC report reviewed the possibility of changing Vermont's malpractice system to no-fault compensation. The VMMSC voted 6 to 1 against creating a fixed-compensation medical malpractice scheme based on pre-set amounts, with only the Vermont Medical Society dissenting. Although this vote is not surprising given that three of the Commission's members were affiliated with the insurance industry, the report identifies five concerns with comprehensive reform- (i)

²³ Data on average claim compensation since the recent reform in New Zealand is not available yet.

²⁴ More recent cost information was not available. ACC funding for treatment of injuries caused by the medical system comes from earnings taxes and general taxation. Previous to 1999, the system operated in a “pay-as-you-go” framework, meaning that enough levies were collected each year to cover annual claim costs. Given that some claims require payments for 30 years or more, this arrangement meant that future levy payers would cover current injury claims. As of 1999, the system is now required to be fully-funded, meaning that enough funds are collected each year to compensate the full lifetime costs of every claim that occurs in that year (ACC website, <http://www.acc.co.nz/about-acc/overview-of-acc/WPC088749>, Accessed 12/3/2010).

constitutional and moral limitations on the right to a jury trial; (ii) types of coverage offered by the system; (iii) how compensation schedules would be created; (iv) ways to avoid biased relationships between system participants; and (v) how to ensure the system improves patient safety.

The New Zealand and Scandinavian models will be helpful in addressing these questions.[154] Any shift from a negligence-based malpractice system should include a strong patient safety component to maximize quality improvement. This system should include mandatory data collection by hospitals on inpatient adverse events with annual reviews to identify the specialties and locations where the incidence of adverse events is highest. The Danish system which compensates individuals if their care does not meet the standard of an experienced specialist seems to produce the greatest benefits in patient safety.[154] Other lessons are that neutral and experienced medical experts must be employed and an effective separation between compensation investigations and disciplinary authorities must be maintained. In addition, it should be noted that the difficulties inherent in claims adjudication are far from eliminated in a no-fault system. In the current system, juries must rule on whether medical care caused the injury and whether that care was below standard. In a no-fault system, the difficult question of causality must still be addressed, but not the negligence issue.

Potential Savings

Vermont is a relatively low-cost malpractice state and there are no state-specific studies estimating the prevalence and cost of defensive medicine. From literature and national experience, we estimate that conventional reforms such as capping non-economic damages will result in an overall decline of 0.6% in overall healthcare spending.

For several reasons implementing piecemeal reform does not represent a particularly palatable option for improving Vermont's health system. Incremental reform efforts would not create a large impact due to the persistence of high administrative costs associated with each stage of claims processing. Tort reform also does not alter the current premium setting system which aligns premium rates with investment returns, and not with Vermont's medical malpractice profile. This premium variance alone, apart from premium levels, reduces physician welfare and system effectiveness. Moreover, attorneys are incentivized to accept claims that will produce large awards or have the highest likelihood of receiving payment, instead of cases caused by the highest level of negligence and led to the most severe injuries. Meanwhile, recent evidence using a nationally-representative survey of about 4,700 doctors found that physicians in states with tort-reform report similar levels of concern about malpractice lawsuits and use of defensive medicine as their counterparts in states without reforms.[141] The fact that traditional liability reform does not alter the perceived threat to physicians could put in jeopardy not only savings from defensive medicine but also the practice pattern changes that are a necessary part of the savings from moving to an integrated delivery system.

We recommend that comprehensive reform of Vermont's medical malpractice liability system include a no-fault compensation system that would shift from attempting to prove negligence to a broader determination on whether an injury could have been avoided.²⁵ Dedicated judges and

²⁵ No-fault medical reimbursement is not completely without precedent in the U.S. Created by the National Childhood Vaccine Injury Act of 1986, the National Vaccine Injury Compensation Program (VICP) was established To ensure adequate vaccine supply and provide timely redress to individuals injured by a given vaccine

independent medical experts would be used to make compensation determinations. In addition, the system could include a separate, non-compensatory track for individuals interested in non-pecuniary redress for their injuries. One model could be the Veterans' Affairs Administration's "Sorry Works!" program. The program includes an expression of apology, disclosure and possible fair compensation.[143]

Estimates on how comprehensive reform will affect direct and indirect costs of the malpractice system will be necessarily approximate. By shifting to a no-fault insurance system, legal and administrative fees will dramatically decline. We assume that these savings will be channeled into paying the increases in benefits for individuals submitting claims. An additional channel should be created where people are able to appeal the decision of expert administrative body. Furthermore, individuals who experience major losses or damages will be able to sue providers for additional compensation. Under this system, the already relatively low premium rates in Vermont will not decrease. However, these costs will be shifted to additional benefits, to pay for the expert administrative body and for additional costs associated with appeals and large damages.

Evidence indicates that moving to a no-fault system would achieve the malpractice system's goals both more effectively and equitably, achieve these goals more quickly and with lower administrative costs, eliminate malpractice premium variability. The savings would stem solely from changes to practice patterns resulting from reduced defensive medicine. As noted, estimates of defensive medicine vary widely, from 2 percent to 9 percent of total health spending. We use the lower-bound estimate that 2 percent of total health expenditure can be saved through the elimination of defensive medicine practices resulting from a transition to a no-fault insurance system. We use the lower-bound due to uncertainties surrounding implementation and the resulting impact.

B. COSTS ESTIMATIONS

This section explains the two major models we used to estimate the impacts of our designs, as well as detailed explanations of the cost estimates we used as the inputs for the models.

Premium validation

In order to ensure that current insurance costs are properly reflected in the Gruber Microsimulation Model (GMSIM, see page 68), it was necessary to validate the accuracy of the premium levels used by the model. GMSIM uses ESI premiums from the Vermont sample of the 2009 Medical Expenditure Panel Survey, Insurance Component (MEPS-IC). According to the survey, the average premium for single coverage at Vermont establishments that offer health insurance was \$5,001. This value represents the gross premium, which includes not only paid medical and drug costs but also a "loading" amount representing administrative costs and profits, if any. In Vermont, the average loading for employer-based insurance is approximately 12%, according to a 2009 BISHCA report on health plan admin costs[53]. However, MEPS is based on a limited sample of Vermont establishments. In an effort to verify this average premium, our team analyzed data

(<http://www.hrsa.gov/vaccinecompensation/>, Accessed 12/1/2010). Virginia and Florida also implemented no-fault compensation funds for birth injury during the 1980s. These changes led to decreases in malpractice premiums for obstetricians and improved insurance access, but the evidence is weak their overall effect.

from two other sources: the Vermont Healthcare Claims Uniform Reporting and Evaluation System (VHCURES) provided by BISHCA and Blue Cross Blue Shield of Vermont's (BCBS VT) group business experience.

VHCURES is a database of all the health insurance eligibility and claims incurred by Vermont residents. It includes data collected from all private health insurers, including third party administrators (TPA's), pharmacy benefits managers (PBM's), and any other businesses providing administrative services for business. Most importantly, VHCURES contains exact dollar amounts paid by the insurer (paid charges) and out-of-pocket for each health care episode recorded. The sum of paid charges and out-of-pocket expenses within each claim represents the total cost of the claim (allowed charges). Under a data agreement with BISHCA, we gained access to a comprehensive set of claims for 2009, provided by its contractor, OnPoint Health Data. Since this dataset includes claims from insurers offering only pharmacy benefits, as well as very small insurers, we excluded these claims from the analysis. We focused only on the six largest insurers – those incurring at least \$25 million in paid claims in 2009. The procedure involved summing up all the paid claims for 2009 and dividing by the total number of members incurring claims recorded in VHCURES. The average gross premium estimated using these data amounts to \$4,670 for people between 18 and 64 years of age. This figure compares very well with the MEPS-IC premium. Of course, some differences are expected considering the nature of the data sources.

In addition, Blue Cross Blue Shield of Vermont kindly provided our team with the costs incurred by its group business, broken down by age and sex. This included both paid and allowed charges for medical care and pharmacy benefits for members covered under BCBS VT and The Vermont Health Plan, a wholly owned subsidiary of BCBS VT. According to these data, the yearly gross premium for members aged 18-64 years was estimated at about \$5,368. This premium is also consistent with the premium used by GMSIM, giving us confidence that the microsimulation model accurately represents the true costs of employer-sponsored health insurance in Vermont. The successful verification of consistency among the various sources of premium data also allowed us to confidently perform other estimation analyses using these data, as described below.

Estimation of actuarial ratios

A critical parameter in the design of insurance products is the actuarial ratio (AR), often also referred to as the actuarial value (AV). The actuarial ratio is defined as the percentage of total claims costs that is paid for by insurance (as opposed to out-of-pocket), and is calculated according to the formula $AR = \text{Total paid charges} / \text{Total allowed charges}$. In order to design new benefits packages and estimate their costs, our team first calculated the average actuarial ratio of current benefits in Vermont's private health insurance using the VHCURES dataset provided by BISHCA. This was done by summing up all the paid benefits and allowed charges for claims incurred by the largest six health insurers in Vermont, and then taking the ratio of the two values. An actuarial ratio of 88% was calculated separately for medical care benefits, while for pharmacy benefits only the actuarial ratio was estimated at 79%. A composite actuarial ratio was also calculated, with a value of approximately 87%. Moreover, a distribution of actuarial ratios across all enrollees with incurred claims in 2009 was produced by using the same procedure at an individual level, showing a large variation in 2009. Finally, the composite actuarial ratio in VHCURES was compared to the actuarial ratio of 85% estimated from the data provided by BCBS VT, with the two values showing very good consistency.

I. ESTIMATION OF TOTAL HEALTH CARE COSTS UNDER A SINGLE PAYER SYSTEM

We used our understanding of the costs and structure of current benefits in Vermont as a basis for estimating the additional cost of our proposed benefits changes. Since the GMSIM works with individual and family premiums, our initial intention was to estimate individual premium rates for the single payer plans. However, due to the lack of appropriate data, we used an approach based on aggregate values.

First, we assumed that Medicare and Medicaid benefits would continue to be covered at the current level, so current costs for the populations currently enrolled in these programs will remain unchanged. However, the funds dedicated to these programs would be absorbed into the single payer insurance fund if the needed waivers are granted by the federal government (see discussion of waivers under Option 1). Second, the current total health expenditure for the non-elderly privately insured and uninsured was estimated using the 2008 Vermont Health Expenditure Analysis Report [53] at about \$1,704,000,000. This value was used as a baseline cost of coverage for this population under the single payer options, for the benefits that are covered by the current system and the corresponding out of pocket spending. The analysis thus came down to estimating the additional costs to cover the changes in benefits. These additional costs were broken down into several components reflecting the key aspects of benefits design that our team introduced.

- ***Covering the uninsured.*** In 2009, Vermont had roughly 47,500 uninsured residents, according to the Vermont Household Health Insurance Survey. We estimated the cost to the state of covering these individuals using the adjusted average gross premiums for the largest six payers estimated using VHCURES, as provided by BISCHA, for the two cases with actuarial ratios of 87% for the essential benefits package, and 98% for the comprehensive benefits package, respectively. The premiums for medical and drug spending were \$4,670 and \$5,370, respectively. They were first adjusted down by a factor of 80% to account for the fact that the uninsured are on average younger and healthier than the insured population. The resulting premium of \$3,735, assuming an actuarial ratio of 0.87, was multiplied by the total number of uninsured to obtain the total cost of coverage under an essential benefits package. For a comprehensive package with an actuarial ratio of 0.98, the adjusted ratio of \$4,296 was similarly multiplied by the number of uninsured to obtain the total additional cost of covering the uninsured.
- ***Achieving uniform actuarial ratio.*** As mentioned above, although the average actuarial ratio of Vermont's privately insured residents is 87%, there is an uneven distribution across the population. Thus, while some residents have very generous coverage with minimal cost-sharing, others have actuarial ratios of 50% and below. This distribution is largely the result of high deductibles, whereby enrollees pay the full costs of their care under a certain threshold. Under a single payer system these residents would be brought up to an actuarial ratio equal to 87% for the essential benefits package, and 98% for the comprehensive package. This translates to an additional cost to the insurance fund to cover expenses that would otherwise be paid out-of-pocket.

Using VHCURES data, we computed the value of this cost to about \$65 million for the case with AR=87%. To achieve 98% actuarial ratio, the cost would be \$110 million just from shifting out-of-pocket expenses to insurance. However, the real cost is higher, because when care is paid for by a third party, enrollees use more services. This phenomenon, known as moral hazard, is due to individuals not feeling the direct cost of the services they seek, and its magnitude is still subject to some debate. The gold standard for estimating the elasticity

of demand in health care is the RAND Health Insurance Experiment [155]. As per the results of the experiment, we assumed an elasticity of demand of 20%, meaning that when greater coverage is provided, service utilization increases by 20%. This assumption resulted in an additional cost estimate of \$132 million.

- **Covering dental and vision care.** Most private insurance plans in Vermont currently cover only limited dental and vision care services. As per Act 128 requirements, our team has designed benefits packages with more generous dental and vision care coverage. Specifically, we have assumed a 60% actuarial ratio for dental and vision benefits for the essential benefits package and a 98% actuarial ratio for the comprehensive package, which is equivalent to zero out-of-pocket cost.

However, there is limited data on the costs of dental and vision care in Vermont. Although our team obtained premium costs from a number of dental plans, as well as vision care experience, we concluded that the data was not representative of the whole Vermont population. Thus we decided to use aggregate values from the Expenditure Analysis Report to estimate the cost of these benefits when covered by insurance. According to the Report, there was a total of about \$132 million in dental care services paid for out-of-pocket, and \$64 million paid for through private insurance on behalf of Vermont residents. Using an elasticity of demand factor of 40%, and a yearly inflation factor of 6.4%, we estimated that in 2009 dollars, covering dental care with an actuarial ratio of 60% would cost \$158 million while the cost would be \$264 million for an actuarial ratio of 98%.

The Expenditure Report also provides a total out-of-pocket cost of about \$49 million for vision care and durable medical equipment (DME). Thus, assuming an even split between the costs of vision care and DME, we estimated a cost of \$24 million for vision care in 2008. Although there was also some cost of vision and DME paid for by insurance, we assumed this cost accounted for the limited current benefits that are included in private plans and disregarded it in the calculation of additional costs. Therefore using a 6.4% inflation rate factor and an elasticity of demand factor of 20%, we estimated an additional cost of approximately \$19 million for AR=60% and \$31 million for AR=98%, respectively, in 2009.

While under the comprehensive benefits option we used the total additional cost calculated for these additional benefits of about \$295 million, under the essential benefits options we only allocated \$100 million to dental and vision care coverage. This decision was made based on our judgment that covering these benefits to an actuarial ratio of 60% would increase total cost in the system and would thus violate our principle of holding Vermont's budget harmless.

- **Covering long-term care.** Act 128 provides that at least one benefit package should include coverage of long-term care, including services provided by nursing homes and home health care. Therefore, our comprehensive benefits package has been designed to include long-term care. To estimate this cost, our team initially obtained premium rates from a Vermont insurance company specializing in long-term care plans. However, we realized that because the company was financing current costs partially through interest from an investment fund, the premium rates did not accurately represent true costs. Thus, we again decided to estimate the cost of providing long-term care coverage using aggregate numbers from the Expenditure Analysis Report. Most long-term care is currently paid for by Medicare and Vermont Medicaid, and we assumed that this care will continue to be provided by the single

payer system. The total additional cost would then result from shifting the long-term care paid out-of-pocket to insurance and allowing for higher utilization as a result of insurance coverage. We assumed an elasticity of demand factor of 98% for both nursing home care and home health care. The total additional cost of long-term care amounted to about \$202 million. This was broken down into \$168 million for nursing home care and \$34 million for home health care, with a 98% actuarial ratio.

Table 4: Additional Cost to Provide Universal Coverage under Essential and Comprehensive Benefit Package

Parameter	Essential Benefits Package	Comprehensive Benefits Package
	2009 (\$\$)	2009 (\$\$)
Actuarial ratio for medical and pharmacy benefits	0.87	0.98
Additional cost to cover benefits up to the new actuarial ratio	\$65,000,000	\$132,000,000
Additional cost to cover the uninsured	\$177,460,000	\$204,060,000
VHCURES average gross premium	\$4,670	\$5,370
Assumption for cost of uninsured as a percentage of a currently insured Vermonter	80%	80%
Premium assumed to cover the uninsured	\$3,735	\$4,296

Sources: Vermont Department of Banking, Insurance, Securities and Health Care Administration (BISHCA); Vermont Healthcare Claims Uniform Reporting and Evaluation System (VHCURES); author analysis.

- Establishing uniform payment rates.** We wanted to estimate the net change in costs that would result from creating a uniform payment level in Vermont, as would occur under a single payer system and was modeled in Options 1 and Option 3. Payment rates vary widely in Vermont, even for the same services rendered by the same providers as every payer has their own schedule. For example, consider CPT code 99213²⁶, which accounts for nearly half of all primary care visits paid for by private insurers [156]. This code is used for a mid-range office visit by an established patient. The table below shows reimbursement levels for Vermont's 3 major private insurers, Medicare, and Medicaid²⁷. Allowed charge is the contractual amount, prior to any patient cost-sharing.

Table 5: Allowable Charges for a Primary Care Visit

Carrier	Allowed Charge
MVP	\$76.99

²⁶ CPT codes copyright American Medical Association

BCBS	\$70.43
CIGNA	\$69.31
Medicare	\$58.55
Medicaid	\$51.29

Sources: BISHCA Provider Reimbursement Survey [156]; Medicaid fee schedule from DVHA; Medicare fee schedule from CMS

We assumed that the state would have to cover all costs of increased Medicare reimbursement. There are also limits to how much Medicaid can pay and still draw federal match, which is called the Upper Payment Limit (UPL). Any payment above these limits, which apply only to institutional payments (hospitals) and not professional payments (physicians and other professionals), would also have to be covered by the state in full.

- **Professional Services.** The simplest approach to look at repricing is through direct comparison of fee schedules. Using claims data supplied by BISHCA (commercial payers, VHCURES) and Medicaid, it is a fairly straightforward analysis to estimate how much, for example, private payers would have spent if they had used the Medicare fee schedule. Using 2008 data, we estimated that, based on the distribution of services paid for by commercial payers, commercial reimbursement for professional services (for which there are rates in both the Medicare and Medicaid fee schedules) is 16.3 percent higher than Medicare; Medicaid is 20.5 percent lower.

Using these relativities and data from the 2008 BISHCA “Expenditure Analysis” for physicians and “other professionals,” we compared spending at “all Medicaid,” “all Medicare,” and “all commercial” levels. Finally, to make an assumption about adequacy, we created an all-payer estimate that kept total spending at the same level as actual 2008, and used that to compare how much more or less each payer would have spent. Note that the federal government would assume liability for about 60 percent of increased Medicaid reimbursement for professional services.

Table 6. Professional Services Relative Pricing.

	At Selected Reimbursement Rate			At same rate same total	Change from current	Federal Share
	Commercial	Medicare	Medicaid			
Commercial	\$421,692	\$362,512	\$288,073	\$379,198	-\$42,494	
Medicare	\$148,694	\$127,826	\$101,578	\$133,710	\$5,884	
Medicaid	\$169,420	\$145,644	\$115,737	\$152,348	\$36,610	\$21,966
	\$739,805	\$635,981	\$505,388	\$665,255	\$0	

Sources: Vermont Department of Banking, Insurance, Securities and Health Care Administration (BISHCA), Vermont Healthcare Claims Uniform Reporting and Evaluation System (VHCURES), 2008 Health Care Expenditure Analysis and Three Year Forecast; Department of Vermont Health Access (DVHA), Medicaid Claims Files; CMS, Medicare Fee schedule.

- **Hospital Services.** A similar approach to hospital care is not possible, for a number of reasons. These include the variety of reimbursement systems (DRGs for nearly all inpatient

care, a similar prospective system for some outpatient care, other reimbursement mechanisms for the balance of outpatient care, and cost-based settlements by some payers to critical access hospitals), a lack of comprehensive utilization data (while the state's inpatient database is complete, it is not clear if anything is excluded from the outpatient database), and complications such as the treatment of bad debt and free care, "other operating revenue" (funds from non-medical operations such as cafeterias and parking), and non-operating revenue (funds from investments).

In order to produce an approximation, we elected to use a very simple, if imperfect, methodology. It is standard practice in hospital accounting to assume that costs are proportional to gross charges. What this means is that even though the actual amount collected is nearly always less than charges, there is a consistent relationship between charges and costs. For example, if charges to Medicare are 45 percent of all charges, we can assume that Medicare patients accounted for 45 percent of the costs of operating the hospital (after other operating and non-operating revenues).

We made an assumption that if net revenues (funds actually collected from payers) were proportional to gross charges, all payers would be reimbursing at the same level. While this may be a fairly good approximation, we recognize that it is just that – an approximation.

Table 7. Hospital Relative Pricing.

	Hospital Gross (\$)	Hospital Net (\$)	Share of Net = Share of Gross (\$)	Change (\$)	Federal Share (\$)
Medicare	1,068,737,878	495,416,539	589,932,634	94,516,095	
Medicaid	403,812,602	140,405,618	222,900,523	82,494,905	49,496,943
Private	1,189,579,704	833,647,116	656,636,115	(177,011,001)	
	2,662,130,184	1,469,469,273	1,469,469,273	0	

SOURCE: Hospital Budget data, as submitted to BISHCA

As mentioned above, the federal laws that govern the Medicaid program establish "upper payment limits" (UPL) for hospital payments. These limits constrain the amount that Medicaid can pay and still draw federal matching funds to no more than what Medicare would pay for the same services (measured on a hospital-by-hospital basis, aggregating all services).

Based on information provided by DVHA, current Medicaid hospital reimbursement is below UPL limits for all hospitals in Vermont (and for Dartmouth-Hitchcock Medical Center). Based on communications with DVHA, we estimated that there was approximately \$38 million in federal matchable additional payments before the state hits the UPL for hospital payments. The remainder would have to be totally state financed as are the additional payments to bring Medicare up to the uniform level.

C. GRUBER MICROSIMULATION MODEL (GMSIM)

The economic analysis will use the Gruber Microsimulation Model (GMSIM), which 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 recent health insurance reform proposals in that state. 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 few years, the model has been used in states such as California, Connecticut, Delaware, Kansas, Michigan, Minnesota, Oregon, Wisconsin, and Wyoming to model policy options in those states. GMSIM was also used extensively by both the Obama administration and the US Congress during the 2009-2010 debate over health care reform.

GMSIM takes as its base data three years of pooled Current Population Survey (CPS) data, which is the national standard data set for defining insurance coverage. By pooling the three most recent years, we are able to obtain a sufficiently large sample size for the state of Vermont of 3240 households, with 7075 individuals. These data are matched to information on health insurance premiums and health costs. Data on the premiums for employer insurance, and the distribution of premiums between employers and employees, comes from the Medical Expenditure Panel Survey-Insurance Component (MEPS-IC), the nation's largest data base of employer-provided insurance premiums. The MEPS-IC provides information on employer premiums by state and firm size that can be matched to the Vermont-specific model. For non-group premiums, we use the information on the existing non-group options available in Vermont.

These data are used to develop a micro-simulation model that computes the effects of health insurance policies on the distribution of health care spending and private and public sector health care costs. This model takes as inputs both the data sources described above and the detailed parameterization of reform options. The model first turns these policy rules into a set of insurance price changes; for example, if the policy intervention is a tax credit for non-group insurance, then 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 reviewed above, although there are many holes in this literature that must be filled in order to fully simulate policy effects.

A key aspect of modeling health insurance policy is appropriately reflecting the decisions of firms, since 90% of private health insurance is provided by employers. Economists tend to model firm decision-making as reflecting the aggregation of worker preferences within the firm. The exact aggregation function is unclear, as reviewed in Gruber (2002); in my model I assume that the mean incentives for the firm (e.g. the average subsidy rate for non-group insurance) is what matters for firm decision-making.

The fundamental problem faced by individual-based micro-simulation models is that data on individuals does not reflect the nature of their co-workers, so that it is impossible to exactly compute concepts such as the average non-group subsidy in a worker’s firm. 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, separately by firm size, region of the country, and health insurance offering status. Using these data, 99 individuals are randomly selected in the same firm size/region/health insurance offering cell as a given CPS worker in order to statistically replicate the earnings distribution for that worker’s earnings level. These 99 workers then become the co-workers in a worker’s synthetic firm.

These synthetic firms then face three decisions about insurance: offering (whether to offer if currently not offering or whether to cease if currently 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 (non-group insurance or public insurance) exert pressures on firm’s offering insurance to drop that insurance and to raise employee contributions; subsidies to employer spending on insurance cause firms that don’t now offer insurance to be more likely to offer, cause firms to pick up a larger share of the cost of insurance, and cause a rise in employer spending on insurance; and subsidies to employee spending on insurance also raise the odds that firms offer insurance, and raise employer spending on insurance, but they *lower* employer contributions to insurance.

Finally, a key assumption for this type of modeling is the assumption on the wage incidence of changes in employer-insurance spending. GMSIM make a mixed incidence assumption: any firm-wide reaction, such as dropping insurance or lowering employee contributions, is directly reflected in wages; yet any individual’s decision, such as switching from group to non-group insurance, is not

reflected in that individual's wages; rather, the savings to the firm (or the cost to the firm) is passed along on average to all workers in the firm.

Modeling Vermont Policy Options. We considered several different types of policy options for the state of Vermont. The first is modeling the effect of the Patient Protection and Affordable Care Act (ACA). To do so we include the many integrated features of the ACA, including:

- The expansion of Medicaid
- The introduction of tax credits for low income families
- The individual mandate – incorporating both penalties and the affordability exemption
- Tax credits for small businesses
- Penalties for businesses whose employees get federal tax credits
- Reformed insurance markets with modified community ratings 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 and coverage of preventive care with no patient cost sharing
- The introduction of a state insurance exchange

The integrated nature of GMSIM allows us to simultaneously model all of these policy changes. We produce as output the impact on population movements across types of insurance, changes in government spending and tax revenues, changes in firm wages and health insurance spending, and changes in household budgets.

The second policy we consider is the addition of a “public option” to ACA for the state of Vermont. The public option is modeled as a competing plan in the exchange. The public option plans offer the same actuarial value and benefit packages as the private plans, but are assumed to be 2% less expensive. To model take-up of the public option plan, we compute a probability of take-up for each household. Households are then assigned to the public option plan based on this probability.

The third policy we consider is system reform. Under system reform, we assume that through a variety of measures, Vermont will lower the cost of providing health care. The savings assumptions are described above. We model these savings as reductions in premiums, out-of-pocket costs, and government spending on public insurance programs. This has the result of encouraging ESI offering and improved benefit packages, lower premiums in the exchange, lower out-of-pocket costs, and lower Medicaid costs for both the Federal and State government.

The fourth policy we consider is single payer reforms. Under single payer reform, we assume that the entire private insurance market will be dissolved, and the entire population will be covered under the single payer system. We model two versions of the single payer system, the “high option”

and the “low option”. The “high option” has an actuarial value of 98%, covering all out-of-pocket costs. The “low option” has an actuarial value of 87%, covering 87% of out-of-pocket costs. Under the “low option”, individuals are responsible for the remaining 13% of out-of-pocket costs. The cost of moving the privately insured and uninsured population to the single payer system was provided by the Hsiao team. The publicly insured population will see their provider reimbursement rates increase by 16%.

The single payer system is financed by the combination of a Federal grant and a state payroll tax. The Federal grant equals the exchange subsidies and small business tax credits the state would have received under PPACA. It also includes the funding for the enhanced Federal match rate for childless adult Medicaid enrollees, as well as 60% of the increase in Medicaid provider reimbursement rates. The remaining cost is financed by a state payroll tax. Individual income up to the Medicare tax cap is subject to the payroll tax, and the incidence of the tax is split between employers and employees. We also model variations where certain low income groups are exempted from the tax.

D. MACROECONOMIC IMPACTS

Reforming the Vermont health care system will impact the state beyond the health sector. Indeed, changes to the state’s health financing scheme and service delivery system will shift public and private spending allocations. This will have important effects on several aspects of Vermont’s economy. These effects must be considered when evaluating the appropriateness of proposed reforms. Regional Economic Models, Inc. (REMI), a private company that specializes in macroeconomic impact modeling of health system reforms, developed several models to determine the effects of the proposed reforms on Vermont’s economy.

Basic assumptions of the REMI model. The REMI model is an input-output (IO) model. In IO models, the relationship between inputs and outputs is defined by a matrix of empirically derived multipliers. Varying the values of inputs in IO models to reflect expected reform activities produces changes in outputs that correspond to estimates of reform impact. Input-output models are used extensively to assess macroeconomic impacts for proposed projects in many industries.

The REMI model has four primary inputs, including (1) labor and capital demand; (2) populations and labor supply; (3) wages, prices, and profits; and (4) industry-specific market shares (Figure 1). The primary outputs in the REMI model are industry-specific production output, employment rates, and personal incomes.

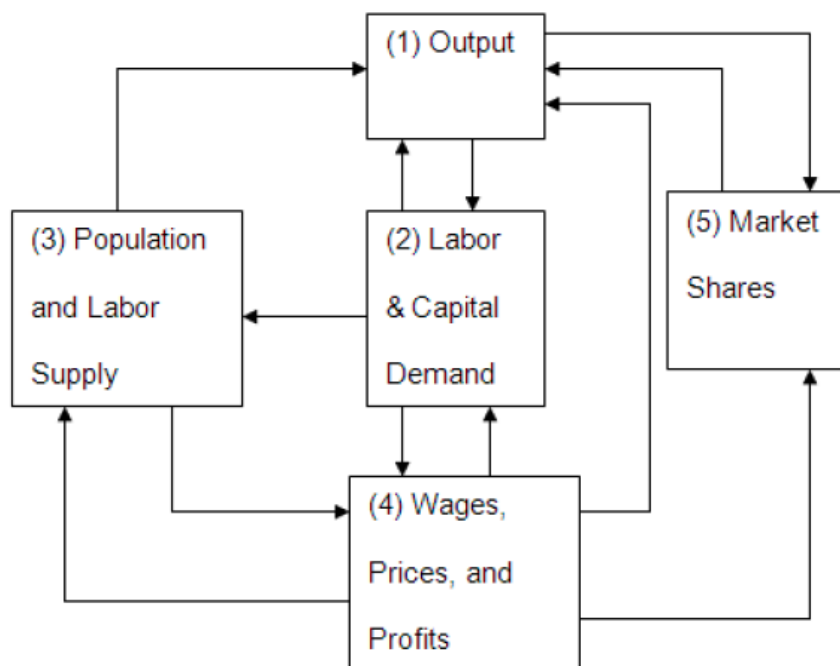


Figure 1. Components of REMI input-output model to determine the macroeconomic impact of proposed health system reforms.

The REMI model estimates three separate components of the impact of changes in inputs on changes in outputs: direct, indirect, and induced. Direct impacts are those that result from exogenous changes in economic activities. For example, a change in Medicare expenditures in Vermont as a result of reforms would constitute a direct impact. Indirect impacts are those that result from intermediate industry responses to direct impacts. For example, increased demand in hospital services resulting from changes in Medicare expenditure in the state would constitute an indirect impact. Finally, induced impacts are those generated through changes in output linked to personal consumptions. The REMI model derives induced impacts from changes in personal incomes generated from both direct and indirect impacts.

Tailoring the REMI model for health care reform in Vermont. Estimates of the economic impact of health care reforms on Vermont's economy are derived from three direct impacts: (1) changes in public health care spending, (2) changes in employer and employee health care spending, and (3) changes in household health care spending. These direct impacts were inputs into the REMI model. Values for these impacts were determined with GMSIM models, discussed above. Changes in public spending were disaggregated to their industrial components, whether for hospital care, ambulatory care, pharmaceuticals, nursing/home care, and administrative services. It was assumed that changes in employer and employee spending were ultimately addressed through changes in wages. Changes in household spending included purchase of non-group insurance and out-of-pocket expenditures, and were assumed to change the composition of household consumption.

The REMI model used in Vermont assumes that the proposed reforms in the state will result in two important changes in the efficiency of health services delivery. First, increased oversight and

greater administrative control of provider behavior will reduce overuse of health care services and thus reduce spending. Second, increased access to health care and improved administrative systems will result in more effective care. Further, by identifying patient illness and disease problems earlier than is presently done, higher cost care, treatment, and application of medical technology will be reduced. These efficiency changes are accounted for as indirect impacts in the REMI model.

REMI models were run for five potential scenarios for Vermont's future health system. The macroeconomic impact of each scenario is compared to a baseline scenario under which the Vermont health system continues to operate as it does today. For each scenario, the REMI model provides output estimates of state employment level, average personal income and gross state product for the years 2014-2024.

- Vermont's health system adheres to the PPACA legislation but pursues no additional state-level reforms.
- Option 1A: Government-run single payer with the comprehensive benefit package
- Option 1B: Government-run single payer
- Option 2: PPACA with a public option
- Option 3: Single payer governed by an independent board; essential benefits package.

5. PPACA IMPACTS

The major provisions of the Patient Protection and Affordable Care Act (PPACA) were described above in Section 2B. The section will outline the estimated impacts of the implementation of Federal reforms in Vermont. Please see Section 10 below for detailed comparison tables.

a. Impact on insurance coverage

Although an individual mandate to purchase health insurance coverage is included in PPACA, universal coverage will not be achieved in Vermont. Using the GMSIM micro-simulation model, we estimated that approximately 32,000 individuals will still lack coverage in 2015, one year after the most important provisions begin implementation. Even by 2019, when the Medicaid expansion and the Health Insurance Exchanges are expected to be fully phased in, Vermont will have 31,000 uninsured residents. The main reason for this is that health care coverage will be unaffordable to many individuals despite the introduction of federal subsidies and small business tax credits. Thus, individuals will choose not to purchase coverage and instead choose to pay the tax penalties provided under PPACA.

b. Impact on employer health costs

As discussed above, PPACA has a set of provisions that affect the financing of health care and the sharing of health expenditures between the federal government and state governments. However, our analysis of the law shows that PPACA would have a negligible effect on controlling health costs in Vermont, which will continue to grow at a rate of approximately 6% per year. But although PPACA will preserve and further reinforce the current system of employer-sponsored insurance, it will shift some of the cost to the federal government. Thus overall, employers' contributions towards their employees' health premiums will decrease by \$136 million in 2015 and by \$168 million in 2019. Moreover, the implementation of PPACA will result in an overall positive financial benefit to Vermont households.

c. Impact on federal funding for Vermont

Although it will not control health care costs, PPACA will nevertheless alleviate some of the fiscal burden on the states. According to our microsimulation analysis, the amount of federal funding for health care in Vermont will increase by about \$240 million in 2015 for the non-elderly population. About \$120 million will come in federal Medicaid matching dollars. This is a direct result of a higher matching rate for childless adults below 133% of FPL that Vermont is eligible for as an expansion state, as well as a surge in Medicaid enrollment caused by the federal mandate. Another \$120 million will flow in through sliding-scale subsidies to individuals eligible for purchasing insurance through the newly established exchanges and the tax credits to Vermont small businesses who offer health insurance to their employees. However, these values are estimated using the assumption of 60% enrollment in exchanges as a percentage of total eligible individuals. In 2019, these inflows of federal funds would thus increase as the exchanges reach 100% capacity. In that year, total federal funds for the non-elderly will increase to \$420 million, consisting of \$227 million in Medicaid funding and \$193 million in exchange subsidies and small business tax credits.

d. Employment

PPACA's impact on employment in Vermont is projected to be a positive one, mainly as a result of increased health care spending from federal sources as well as wage effects to employees receiving subsidies or those who become eligible for public insurance. By 2015, we estimate that about 1,700 new jobs would be created in the state. By 2019, this effect will increase to a total of about 2,300 new jobs created in comparison with the no-reform situation.

e. Gross state product (GSP)

Total economic output in Vermont under is expected to increase mainly as a result of the new influx of federal dollars, the expansion of public insurance, and the requirements to buy insurance. In total, we project a total increase in the state domestic product due to PPACA implementation of about \$125 million by 2015 and \$180 million by 2019, measured in 2010 dollars.

f. Migration

We expect the creation of new jobs by PPACA implementation to lead to an influx of people to the state. In total, by 2015 we project that about 500 individuals would relocate to Vermont. By 2019, new Vermont residents would reach about 1,400. Importantly, this effect would be seen simply because the new employment opportunities would make living in the state more attractive. We expect virtually no in-migration as a result of the changes in the health insurance market implemented under PPACA.

6. OPTIONS 1A & 1B: SINGLE PAYER

Option 1 was modeled as a government-run single payer system, with one insurance fund and a uniform benefit package. The system is financed through employer and employee payroll contributions from all Vermont wage earners, with exemptions from the contribution for low-wage workers. All eligible Vermont residents would be covered.

We modeled two benefit packages for this option: a comprehensive option, including medical services, mental health and substance abuse services, and drug benefits as well as full vision, dental and long-term care coverage, all with very little cost-sharing. This we refer to as Option 1A. We also modeled an essential benefits package, which covers medical services and mental health and substance abuse services and drugs, but with cost-sharing equal to the current average value out of pocket spending in Vermont (an actuarial ratio of .87, see Section 4B on Cost Estimations). This is Option 1B. The creation of this essential benefits package followed some of our major design principles: to avoid reducing average benefits, to promote prevention, early detection and treatment, and to finance all expansion of benefits to previously uninsured or underinsured must through the savings we generate through system reforms.

In addition to the administrative savings related to single payer itself, Option 1, like all our designs, builds on the Blueprint for Health advanced medical home concept and continues to push Vermont's health toward integrated delivery through the development of ACOs. It furthermore assumes a reform of the medical malpractice system and savings from reduced fraud and abuse. The specific savings assumptions are found above in Section 4B: Savings.

The models assume that Vermont will be able to receive a waiver in 2015 from the Exchange requirements and to receive, as a block transfer, Federal outlays related to the Exchange provisions (small business and premiums tax credits and cost-sharing subsidies) to contribute towards the single payer system. We furthermore assume that Vermont will be able to negotiate a Medicaid waiver similar to the current one that encompasses the expected increased enrollment after implementation of Exchanges; increasing the Medicaid payment rate to a uniform level; and a provision allowing the State to keep and reinvest any savings in the health system. To keep our estimates conservative, we did not assume that Vermont would be able to keep savings from Medicare expenditures as there is less precedent for this type of provision at the state level. However, the true results would be the product of negotiations. See 6F below for a more thorough discussion on waiver provisions.

A. ELIGIBILITY AND BENEFITS PACKAGE DESIGN

We propose that the single payer plan covers all Vermont residents. Residents must be either US citizens or documented legal immigrants and show proof of residence in Vermont as defined in the Vermont laws. However, those eligible for Medicare and/or Medicaid will not see their benefit packages change. Medicare beneficiaries will still receive Medicare benefits, not under the single payer plan. Those who are eligible to be covered under Medicaid shall continue to receive Medicaid benefits.

Medicare is governed solely by federal law. In addition to the basic benefits, there is a complex system of coverage that “wrap around” Medicare, including private insurance products such as MediGap policies, Medicaid for low-income individuals and insurance coverage as part of retirement benefits. Because of these complex factors, we recommend that the existing system be preserved, at least initially.

Medicaid is a joint federal-state program that provides coverage for low-income individuals and families and those with serious disabilities. The federal role in Medicaid is two-fold – to establish requirements associated with benefits and eligibility and to provide a significant portion of funding for the program. In Vermont, roughly 60% of the cost of the Medicaid program is paid for by the federal government. The state’s Global Commitment waiver expands scope of activities for which federal funds are available. In order to meet the goal of maximizing federal funds, we recommend that the Medicaid program be left unchanged, with one exception. For many Medicaid beneficiaries, existing benefits are already more comprehensive than the essential benefit package that we recommend, but for some, this may not be the case. We recommend identifying those programs which do not offer benefits that the essential benefit packages would offer and upgrade their benefits.

One of the challenges in establishing eligibility and ensuring adequate financing is border-crossing – those Vermont residents who work out of state (about 21,000 people in 2000)[157] and those residents of other states who work in Vermont (about 16,000 in 2000). We recommend that Vermont employers be allowed to “buy-in” their non-resident employees. We also recommend allowing out-of-state employers who offer insurance to their Vermont resident employees to buy-in to the Vermont system. We believe that the question of how to finance care for Vermont residents who work out-of-state for employers who do not offer coverage needs further study.

I. BENEFIT PACKAGE DESIGN PRINCIPLES

Act 128 requires the consultant to consider several designs of benefit package for the three options. We relied on the following principles in designing the benefit packages.

Principles in designing the benefit package:

- Benefit package is the major instrument to allocate resources.
- Benefits alter the financial incentive on patients by removing or reducing the financial cost when they seek health care; this impacts not only patient but provider decisions about when and how much care to seek or provide.
- Provide financial incentive for prevention, early detection and treatment before disease becomes acute
- Provide financial incentives to patients to substitute effective alternative treatments (generic drugs, medical treatment rather surgery, care at lower level rather at higher level). These incentives should complement provider payment incentives.
- Discourage the use of expensive high technology services that are not cost effective.
- Risk protection from impoverishment from health expenses

We rely on vast amount of evidence accumulated over the past several decades in designing a sound benefit package. The benefit package is the major instrument to allocate resources to different types of health services. Insurance coverage or non-coverage influences how much and where patients seek health care. For example, when a type of service such as primary care is paid by insurance, the cost of a visit is reduced for the patients and they would respond by increased demand for this service – a response call the elasticity of demand. When primary care is not covered but hospital services are covered, then patients demand more hospital services whenever it can substitute for primary care. While covered services reduce or remove financial barriers to these services, it could also influence patients to demand “unnecessary” services because they are free or nearly free. Often, we would hear physicians complain that patients demand unnecessary services, tests and drugs that pose a serious difficulty decision for physicians. In designing a benefit package, we have to balance the positive effects of insurance with the negative effects of potential overuse.

Another principle in our design of benefit package is to give financial incentives to patients to seek preventive services and early detection and treatment of diseases before they become acute and require more intense, and expensive, medical treatment. Moreover, prevention and early diagnose and treatment would improve the health of the population.

II. CURRENT BENEFIT PACKAGES IN VERMONT

Most of the current benefit designs have modest or large deductibles, but exempt several preventive services from cost-sharing. For example, the Catamount Health program requires no cost sharing for annual physicals, OB-GYN examinations, screening mammograms and colonoscopies, PSA tests, immunizations, and well-child examinations. High patient cost-sharing reduces demand for some “unnecessary” outpatient services, but creates disincentives for early diagnosis and treatment.

As described above (See Section 4B Methods: Cost Estimation), on average Vermonters with private insurance pay, on average, 13 percent of their total spending in out-of-pocket with the other 87 percent paid by insurance, which represents their actuarial ratio. In designing the benefit packages, we used the concept of actuarial ratio as our guide and make certain that the essential benefit package covers services at the present actuarial ratio or higher.

III. PROPOSED BENEFIT PACKAGE

We are guided by the principles stated above to design the benefit packages to promote prevention and primary care while insuring against catastrophic illnesses. This design is quite different from the current prevailing benefit packages which include a baseline deductible, usually \$500²⁸ or more, and copayment and coinsurance for amount spend over the baseline deductible. Such benefit design deters the use primary care and early detection and treatment of disease. Our approach to benefit design differs substantially from High Deductible Health Plans (which are usually offered in tandem with a Health Savings Accounts or HSA), which are based on large deductibles - between \$1,200 and \$5,950 for an individual policy and \$2,400 to \$11,900 for a family. The employers often contribute

²⁸ Certain preventive services such as mammogram are not subject to deductible or copay.

significant amounts to HSA. We believe that large deductibles discourage appropriate care and shift cost burdens from healthy individuals to those with health problems.

a. COMPREHENSIVE SINGLE PAYER BENEFIT PACKAGE (OPTION 1A)

For Option 1, Vermont Act 128 requires the consultant to consider a government-run single payer health insurance system that provides a comprehensive benefit package. Such a benefit package would include medical, mental health and substance abuse, drugs, vision care, dental, nursing home and homecare. We consider the various services and designed such a benefit package.

In designing the comprehensive benefit package, we aim to achieve approximately actuarial ratio of 97% for medical and mental health services, 90% for drugs and vision care, and 85% for dental, nursing homes and homecare. An example of such a benefit package that emphasizes prevention and primary care is illustrated in the table below.

Table 8. Example Comprehensive Benefit Package.

Covered Service	Co-payment, Coinsurance or Deductible	Limits
Overall		Capped at 5% of average Vermont wage
All Outpatient Services		
Preventive services	\$0	
Primary care physician services (community-based)	\$5	
Specialist care physician services (community-based)	\$8	
Other health professionals (Psychologist, chiropractic care; podiatrist)	\$8	
Urgent Care	\$10	
Outpatient visit: hospital based (non-surgical)	\$10	
Outpatient visit: hospital based (surgical)	\$20	
Emergency Room (non-emergency)	\$25	
Emergency Room (emergency)	\$0	
Family Planning	\$0	
All Inpatient Services		
Hospital Stay	5% coinsurance	

Rehabilitation Services	\$0	
Nursing Home Services	\$0	Limit \$200/day; max 3 years
Homecare	10%	
Dental – Non-orthodontia	\$10	
Dental - Orthodontia	20%	
Prescription Drugs	\$8 generic; 25% for brand name	
Vision Care	\$8	Limited to \$200 for eye glasses/contact lenses per year
Durable Medical Equipment/Supplies	5%	

b. ESSENTIAL BENEFIT PACKAGE (OPTION 1B)

For the Essential Benefit Package, we started by considering only benefit packages that would provide at least the actuarial ratios for medical and mental health services and drugs that the average Vermont private health insurance provides now. We added some additional coverage of vision and dental care services as permitted by the savings generated by the overall system reforms. The major difference in services covered between the essential and comprehensive benefit packages are the exclusion of nursing home and homecare, and limited vision care and dental services in the essential package. An example of such a benefit package that emphasizes prevention and primary care is illustrated below.

Table 9. Example Essential Benefits Package.

Covered Service	Co-payment, Coinsurance or Deductible	Limits
Overall		Capped at 10-12% of average Vermont wage
All Outpatient Services		
Preventive services	\$0	
Primary care physician services (community-based)	\$20	
Specialist care physician services (community-based)	\$30	
Other health professionals (Psychologist,	\$25	

chiropractic care; podiatrist)		
Urgent Care	\$40	
Outpatient visit: hospital based (non-surgical)	\$25	
Outpatient visit: hospital based (surgical)	\$50	
Outpatient surgical procedure	20%	
Emergency Room (non-emergency)	\$75	
Emergency Room (emergency)	\$40	
Family Planning	\$0	
All Inpatient Services		
Hospital Admission	Medicare deductible	
Hospital Stay	20%	
Rehabilitation Services	\$0	
Primary Dental Care for Children	\$20	Only for children; excludes orthodontia
Prescription Drugs	\$12 generic; 25% brand name	
Vision Care	\$20	One eye exam per year
Durable Medical Equipment/Supplies	10%	

B. BUDGETING PRINCIPLES

One of the imperatives in health care reform is sustainability – achieving a long-term balance between revenues and expenditures. This has proven challenging for many different reasons, including technological advances, provider and patient expectations, and the lack of a comprehensive control mechanism. Health care spending is a product of three components: price, quantity of services (or utilization) and intensity (or mix of services). Historically, efforts to control spending in the US have focused on only one of these. Single-factor controls are rarely effective. For example, there is substantial evidence that when faced with reductions in price, providers will respond with increases in the number of services they deliver.[158] One mechanism that can control all factors simultaneously is a budget, such as is used for hospital care in Canada. Under this

model, a fixed funding level is established, with minimal or no access to additional funds. Under this budget system, there is no mechanism to gain more revenue than the budget will allow.

Setting the total spending will be governed by the legislative budget process. The legislature will set both revenue, by setting the payroll tax rate, and expenditures, subject to the appropriation process. The two major contributors to total spending will be changes to the benefit packages – the major determinant of cost – and payment updates to providers.

This approach provides rigorous control, if it is an entirely political process there is a risk that one or another of the interested parties will not “buy in” to the limits of the budget process. The importance of participating members supporting a process has been identified as key to the success of the Maryland hospital rate-setting process.[159]

C. FINANCING

One of the major challenges in designing a health care financing scheme is the unpredictable nature of health care costs, both at the individual and population level. This uncertainty is often referred to as risk. At the individual level, it is almost impossible to know if one will become ill in the future, how serious that illness will be, what types of treatment will be received, and if those treatments will be successful. The same uncertainty translates to a population level, although as a statistical rule, the larger the population, the smaller the uncertainty relative to total spending.

Financing structure involves the methods to raise the funds for health, how the health risks are pooled and how the resources mobilized are allocated. The allocative mechanism is performed by the design of benefit packages. Decisions on how a health system is financed can affect how much funding can be generated, which can then influence the cost, quantity and quality of health care accessible to individuals. In addition to its direct effects on the health system, health financing has a broader impact on the overall economy, labor market and fiscal health of a country or state. Therefore, in developing the guiding principles for the financing of Vermont’s health care system we rely in large part on public finance theory. In order to move to a single-payer system that has sufficient and equitable financing, we suggest Vermont move away from direct premium financing. We rejected income tax financing which is explained below and recommend the implementation of a general payroll contribution. The five basic principles listed and described below provide the foundation for this recommendation:

- Equity
- Risk pooling
- Minimize adverse economic effects
- Work within federal tax laws
- Incentivize health promotion and healthy lifestyle choices
- Maximize federal funds

Equity

Under the equity principle, health care should be financed according to ability to pay. [160] This equity principle is translated into practice through progressive health financing strategies, in which wealthier households contribute a relatively larger share of their income or wages as compared with poorer households. The most equitable, or progressive, form of health care financing is direct tax financing through an income tax. Income taxes are formed in such a way that richer individuals pay a larger share of their income than poorer individuals, and therefore by using the overall income tax base to finance health care the same dynamics remain. However, if health is financed by an income tax, workers would lose their tax exemption currently in place under federal tax law for health premium payments (see next section on federal law). We therefore recommend the implementation of a payroll contribution instead. In terms of equity, a payroll contribution is far superior to the current health insurance premiums. In our employment-based group insurance, premium is paid on each worker or by individuals. The same premium rate is charged to all individuals, regardless of income level. Payroll contributions based on wages would be more equitable in that individuals with higher wages will pay more into the system than individuals with lower wages.

Risk pooling

An effective health financing system should pool the healthy and less healthy people together into one risk pool so that large and unpredictable individual risks are relatively predictable across the system and distributed across all members of the pool [161]. In doing so, individuals are protected from the potentially impoverishing effects of high health care expenditure resulting from extreme or prolonged illness. The higher risks of individuals who are more prone to illness or disease are balanced against the lower risks of healthier and often younger individuals. A description of mechanisms to partially offset the subsidy provided by low risk individuals to high risk individuals is provided below. This system of risk pooling ensures the financial well-being of the insurance system and maximizes citizens' overall health and wellbeing. In extending universal health insurance coverage to all Vermonters through a single-payer system, all eligible Vermonters would comprise the risk pool and risk would be distributed across the entire eligible population.

Minimize adverse economic effects

The method used to finance health care can have potentially adverse effects on the overall economy, labor market and household incomes. Therefore, in carefully designing a health financing system, these potentially detrimental effects should be taken into account and minimized. To diminish labor market distortions, individuals and their employers should on average not pay a greater share of their wages under the new health financing regime than they already dedicate to insurance premiums. While this will not be possible across the board, we have designed the financing structure so as to minimize potential negative impacts, including decreased employment and employers in the state, reduced initiative and motivation of workers, and lower wages [162]. The minimization of any potential excess losses associated with a payroll contribution-financed health system is an additional consideration. Additional excess burden or losses exist if the contribution rate is set in such a way that increased revenue is more than offset by losses in the economy or to an individual [163]. Similar to insurance premiums, the burden of payroll contributions tends to be borne by the worker [164, 165]. Therefore, we want the tax rate to be set in such a way that individuals are not incentivized to work less, make less money and consequently pay fewer taxes into the health system.

Work within federal tax laws

Under the tax code in the United State, employers' spending on health premiums is tax exempted. Additionally, the employee's share of the premium can also be tax exempt if an employer has a flexible spending account [166]. It is imperative that in introducing a new health financing structure in Vermont, this tax exemption remains in place for Vermont employers and workers. For this reason, we do not propose that Vermont should finance its health reform efforts with an income tax. Rather, a payroll contribution system enables employers' contributions to remain tax exempt. According to our consultations and review of tax laws, benefits for Vermonters under such a system would not be taxable—much like current Medicare benefits—and employers could deduct payroll contributions as business expenses.

If Vermont establishes an income tax financed universal health insurance, it would not be wise to increase the corporate income tax to finance it because that would negatively affect business investment and employment in Vermont. The full cost of coverage would then fall on the personal income tax. Workers would lose the tax expenditure (explained below) they would have gotten under the payroll tax scheme. In short, workers would pay significantly more in taxes. For these considerations of federal tax laws, we recommend a payroll tax financed universal health insurance.

We ascertained that, similar to an employer contribution toward pension and insurance premiums, the portion of the payroll contribution paid by employers would be deductible as business expense. Empirical research showed that the US employers would shift the cost of payroll contribution back to the employees and reduce their cash or other compensation (except these workers who at the minimum wage.) Meanwhile the amount paid by employer would not be included as taxable income for the workers for computing their federal income tax liability. Consequently, the workers would have a lower taxable income and pay a lower federal income tax.

For equity reasons, we recommend that low income workers and their employers would be exempted from the payroll contribution. Vermont already has experience with such exemptions (for example, in the current employer assessment for Catamount Health) and found they can be quite complicated to specify in a law. For the simulation of the costs of Option 1 and 3 we exempted from the payroll contribution – both the employer and employee share – of wages paid to workers earning 200% FPL. However, we recommend that Vermont follows the principle that workers paid below certain wage rate and their employers would be 100% exempted and the exemption be phased out gradually as the wage rate increases. For example, those earning below 180% of the FPL would be 100% exempted and the exemption is phased out at 220% of FPL.

The payroll contribution was capped at \$120,000.

D. ADDITIONAL INVESTMENTS

I. PRIMARY CARE RECRUITMENT AND RETENTION AND HEALTH CARE FACILITIES

Historically, neither primary care nor rural practice has attracted enough physicians, due to relatively low salary compared to specialty medicine, and to quality of life. Other disincentives to rural primary care practice include availability of the employment for spouses/partners, length of time needed to obtain a license to practice in VT, and administrative burdens of practicing in VT.[45] In order to obtain and retain adequate numbers of PCPs, Vermont must provide incentives to doctors to change or minimize the perceived disadvantages of rural primary care practice.

The state of Vermont is already aware of and responsive to its PCP shortage. In October 2010, the state released a preliminary 5-year plan to improve primary care in Vermont. It reports that both the VT Area Health Education Center Program (AHEC) and the VT DoH have identified a statewide shortage of general internal physicians.[45] This number, however, does not reflect regional variations.

Vermont has several initiatives to encourage primary care practice in place. Since 1995, Vermont has sponsored primary care loan repayment and forgiveness programs to help physicians and other health care workers pay off large, burdensome debt incurred in medical school. Primary care doctors, nurse practitioners, physician assistants and dentists are all eligible for the loan repayment program, which is administered by AHEC. The loan forgiveness program is administered by the Vermont Student Assistance Corporation (VSAC), and applies only to nurses.[167]

There are two types of AHEC repayment funds: recruitment for new doctors and retention for doctors currently practicing in eligible areas. Physicians must practice in one of the following disciplines: Family Practice, General Internal Medicine, Pediatrics, Obstetrics/Gynecology, and Psychiatry. They must work at least 20 hours per week, and must agree to accept Medicare, Medicaid, and to treat clients regardless of their ability to pay. AHEC indicates on their website that some employers or local areas may match their funds. Each individual may only receive the funds for six years. Physicians who also have a J-1 visa waiver are not eligible.[168] AHEC reports that 54% of all VT PCPs have been awarded funds to pay off their debts through this program.[45]

Some questions have been raised as to the efficacy of the loan repayment program; the average award granted in 2006 was just over \$4,000. This amount may not be sufficient to entice doctors who are hundreds of thousands of dollars in debt.[169]

J-1 Visa waivers are also granted each year to a limited number of non-resident physicians who agree to work in underserved areas of VT for three years. The visas are awarded to primary care doctors in different areas (gynecology, family medicine, etc.) that have “community need and shortage” designation in any particular year.[170]

Through the AHEC Freeman Physician Placement program, UVM College of Medicine and Fletcher Allen Residency Program encourage their students to gain exposure to rural Vermont areas in federally qualified health centers in the hopes that the students will continue on to practice medicine there.[171] Currently, about 35% of VT’s physician workforce trained at UVM and/or Fletcher Allen.[45] As of 2011, however, private funding for this program will end and only AHEC funding will remain. UVM also sponsors Primary Care Week, which essentially advertises primary care practice in VT to doctors and residents, and connects them with job opportunities in the state.

Another initiative currently in place is VT’s pilot ACO Model Project, underway in 3 communities that serve 10% of the population. In this pilot project, PCPS have received “enhanced” payments to compensate them for their administrative duties in creating a better network of care for their patients. This project is especially interesting because its aim is specifically to strengthen PCP practices to enact behavioral changes in their patients, and to coordinate patients’ care across different settings.[172]

The Bi-State Primary Care Association, a private, non-profit organization operating in Vermont and New Hampshire, plays an important role in VT’s efforts to recruit and retain primary care physicians. Its Vermont Recruitment Center coordinates national outreach to find and recruit PCPs.

AHEC runs complementary national outreach programs. The VT Department of Health provides some funding for these national outreach efforts.[45]

The Bi-State Primary Care Association works closely with Federally Qualified Health Centers (FQHCs). These FQHCs provide reasonable priced, easily accessible community-based primary care services to Vermonters who lack a medical home.[173]

The Office of Rural Health and Primary Care assists in designating areas and populations as underserved, which aids health care providers in taking advantage of state and federal assistance programs. Once a health center is designated as a Federally Qualified Health Center (FQHC), its doctors are eligible to apply for National Health Service Corps (NHSC) loan repayment awards. Bi-State Primary Care Association encourages residents and primary care doctors to apply for federal loan repayment through the NHSC. PCPs must apply on an annual basis to have a portion of their loans repayed. Physicians must work for two years in these areas before they are qualified to apply. The maximum amount awarded is \$50,000, but the website indicates that if a physician stays longer than 2 years, more support may be available.

Recognizing the importance of primary care physicians, in the PPACA the federal government has prioritized increasing the recruitment and retention of PCPs, with an emphasis on underserved communities. Effective 1/1/2011 to 12/31/2016, there will be a 10% bonus in Medicare payments to PCPs that have at least 60% of Medicare billing in the areas of office, nursing home and home care visits. From 1/1/13 to 12/31/14, the PPACA will raise Medicaid payments to Medicare rates for primary care physicians in the areas of evaluation and management services, as well as services related to immunization.

Additionally, the PPACA is set to increase funds to various programs that encourage primary care practice. National Health Service Corps funding is planned to rise from \$320M/year in 2010 to 1.15B/year in 2015. These funds are those used to help PCPs in high need areas pay back their debt. Title VII funds to family medicine residency programs and academic departments of family medicine have also been reauthorized. And as of January 1, 2011, funding for community health centers (such as the FQHCs mentioned above) will increase by \$11 billion.[174]

Unsurprisingly, the most important reason medical residents choose specialty practice over primary care practice is financial. Many new physicians going into primary care may actually face expenses higher than their income, between paying for relocation costs and student loan debts. For new physicians, this fact is a substantial disincentive for pursuing a career in primary care.[175] A solution to this problem, then, would be to make primary care more financially attractive to residents, especially in the beginning of their residencies/careers so that they are locked into that choice. Some possible solutions include:

- Continuing loan repayment programs, making the financial rewards significant
- Incentivizing continued practice of primary care through salary increases after set time increments (1 yr, 3 yrs, etc.)
- Bonus payments before and after residency for choosing primary care residencies[176]
- Providing other non-salary financial incentives to new PCPs, such as free or subsidized housing or extra time off

- Increasing payment to PCPs for basic services and chronic disease management
- Decreased, or payment for, administrative tasks such as referrals

Increased funding may come from federal, state or local sources. Partnerships between private practices and hospitals may even allow the practices themselves to provide better financial incentives for new and continuing doctors.

The literature suggests that the most effective strategy to get physicians to practice medicine in a rural setting is exposure to rural practice during medical school and residency. Continuing support and expansion for UVM and FAMC's pro-rural medicine programs would likely benefit the state. Partnerships with medical schools in upstate New York, New Hampshire, Boston, and the surrounding areas with the aim of exposing medical students to rural medicine in Vermont might also have positive impact.[177]

In conclusion, the main incentive to increase the number of primary care physicians will have to be financial. Securing the funding, and then making its availability widely known among new physicians (not only from VT but also surrounding states) is paramount. Exposing physicians in training to rural medicine, and assuring that the exposure is a well-organized, positive experience may also alleviate the problem.

As such, our models incorporate a \$50 million annual investment to be used both to recruit and retain physicians and to update health care facilities.

II. PROMOTING WELLNESS IN EMPLOYERS AND EMPLOYEES

Many Vermont employers have already introduced effective work-place health prevention programs such as biometric tests, in-house health coach, on-site health club and facility, tobacco cessation program, regular medical monitoring of employees with hypertension and diabetes. This type of health promotion both improves the overall health of the population and consequently reduces financial stress on the insurance system by lowering overall health care costs in Vermont. To encourage the employers to establish effective preventive programs, we recommend Vermont establish financial incentives to reward employers for programs. Credits should also be given to employees who show a commitment to healthy living and make alterations to their lifestyles to improve their overall mental and physical health. This practice can also help to cross-subsidize lower risks individuals in the overall population risk pool. These types of financing incentives can also target diverse workplaces or particularly innovative companies.

Many people's health can be improved by their diet and lifestyle. Ideally, financial incentives should be given to individuals who change their lifestyles and improve their health. However, the design and operation of such financial reward schemes are extremely complicated. We recommend Vermont to experiment with innovative schemes.

E. PAYMENT TO PROVIDERS

Besides professional ethics, payment methods and rates are the most effective instruments that we know to influence providers' behavior. Hospitals, health centers, and health professional offices are economic entities must generate revenues to survive and flourish. Payment methods establish the

incentive structure that influence providers' behavior to obtain optimal revenue. In short, a *payment system has significant effects on the cost of health care, the volume of services, choice of treatments, quality and efficiency of health care.*

Under any modern insurance system, insurance plans should be prudent purchasers of health services on behalf of their insured. Even a new term, "value-based insurance" has been coined to highlight this role. Besides selecting and contracting with the qualified providers, the insurance plan has to negotiate with providers and establish payment method and rates.

The design of an appropriate payment system is difficult because of two major reasons. First, patients and health professionals have unequal medical knowledge. This creates so-called market failures. Patients experience symptoms of illness and go to physicians and other professional practitioners for diagnosis and treatment because they possess superior medical knowledge. Patients want their providers to use this knowledge to act in their best interest. Meanwhile, the providers have their own economic and self-interest to look after. They are in a superior position and have greater influence over the type and volume of services given to patients. Sometimes, providers' and patients' interests may not coincide. Providers *can induce demand* and influence patients to accept inappropriate treatment or over-treatment. Second, patients lack knowledge to judge clinical quality of services. As result of these unequal positions of patients and providers, the paramount question becomes how we can create the appropriate incentives through a payment system that would induce the providers to deliver good quality and efficient health care to the patients?

The second challenge in designing an optimal payment method involves risk. Medicine is an uncertain science rooted in probabilities. Every patient is different - different genes, metabolism and immune systems. Patients with the same disease may exhibit different symptoms and respond differently to the same drug treatment. Thus diagnosis and treatment are embedded with uncertainty. Uncertainty creates treatment and financial risks for both patients and providers. Some of these risks can be reduced by health professionals, but not all. In designing a payment method, one has to consider what part of the financial risk should be placed with the provider and what part with the patient.

Who assumes this risk and under what circumstances are important design decisions. Many payment reform efforts in the past have focused on shifting risk from third party payers (insurers, public programs) to providers, under the theory that providers have a greater capability to actively manage this risk, but without the resources, management and information infrastructure, this may not be so.

Historical and Current Payment Systems

Historically, most providers in the US have been paid on a fee-for-service (FFS) basis and Vermont is no exception. Under FFS, payment is tied directly and solely to the quantity of service provided. When researchers discovered strong evidence that FFS promotes health cost inflation, waste and over-treatment, Medicare reformed its payment method in the early 1980's for inpatient hospital services from FFS to a prospective payment methods for both inpatient, the Diagnosis Related Group (DRG) and later for hospital outpatient services, the Ambulatory Patient Classification (APC) system. These payment methods try to group services for an episode of treatment rather pay for every item of service, test, drug, and supply. Prospective payment systems greatly reduce but do not eliminate the volume incentive.

Capitation is a payment approach that eliminates volume incentives by paying a fixed amount of money, usually on a monthly basis, for each individual for whom the provider assumes responsibility. Capitation can be flat – the same rate regardless of personal characteristics - or risk-adjusted - amount takes into account factors such as patient age and health status. Risk-adjusted capitation reduces the incentive for providers to “cherry pick” the healthiest patients. For example, the Medicare Advantage program pays managed care organization a risk-adjusted capitation to cover the expected costs of enrollees.

Vermont

Payment systems in Vermont are a mixture of all these mechanisms. Private insurance plans in Vermont have shifted the payment method for inpatient services to DRG, but not completely. Some hospitals remain paid the older discount off charges model. As for physician services, most private insurance plans pay on a negotiated fee schedule or discounted charges. Private insurance plans do pay some provider health organizations (PHOs) on a capitation basis. However, these PHOs often in turn pay their physicians on a FFS basis. In Vermont, the Department of Labor sets a unified fee schedule that is used by all Workers Compensation insurance carriers to pay professional providers. Vermont Medicaid program largely followed the Medicare payment methods but pay at a lower rate.

Each of these reimbursement systems creates a different financial reward and risk for the provider. The table below shows different reimbursement systems, ranked by the level of control and risk from the provider’s perspective.

Table 10. Payment methods and impact on provider control and risk.

Mechanism	Provider Control (in order of reducing control)	Provider Risk (in order of increasing risk)
Fee-for-service, charges	Providers can completely determine their income. Costs are unimportant.	Providers are not at any risk if patients require more care than expected
Fee-for-service, fee schedule	Providers can determine their income by varying how much care they provide	
Prospective payment system	Providers must balance income and costs	
Capitation	Providers can influence income only by the number of patients for whom they assume responsibility. Costs become more important.	
Budget	Providers have no control over income, so all attention is on costs	Providers are fully at risk for quantity of care required

Since the early 1970's, the US government and private foundations have funded billions of dollars of research on the impacts of different methods of paying providers. In the recent decade, many countries such as England, Australia, Thailand, China, and Rwanda have walked ahead of the USA and experimented with new methods of payment. Researchers consistently found fee-for-service payments promote cost escalation. Discounted charge also promotes cost escalation. The empirical evidence shows how payment methods and rates influence the practices of health professionals, hospitals, nursing homes, and pharmacies. According to global evidence, the preferred method to compensate primary care physicians is to pay them based on risk-adjusted capitation plus bonus based on performance, including patient satisfaction, and compensate specialists based on salary plus bonus based on performance. This method would encourage primary care physicians to emphasize prevention and early detection and treatment of diseases and rely on cost-effective treatments. Meanwhile specialists would not face incentives to pursue revenue-generating practices. However, most American physicians have been reluctant to accept these payment methods.

Our recommendations below draw on the vast reservoir of knowledge and evidence and choose the best payment and rates that would move Vermont to an integrated delivery system. Relying on the global evidence, we try to design payment reforms to achieve the following goals with these principles in mind:

- Enhance quality of care
- Promote allocative and technical efficiency
- Hold providers accountable for better health outcomes
- Improve supply to assure adequate and equal access.
- Promote the formation of ACOs to integrate health care delivery

Pay-for-Performance (P4P)

Assuring the quality of health care is a paramount concern for health professionals and patients. Besides regulations, incentive structure is a powerful instrument to influence quality of care. However, quality is difficult to define in a comprehensive and precise manner and also some quality dimensions are impossible to measure. Ideally, providers should be paid related to the health outcomes they produce.

Major P4P pilots began in the US in the early 2000s and have continued till present, including under PPACA. The UK's NHS implemented a grand-scale P4P program in 2004. Australia, Canada, New Zealand and Taiwan, Germany and the Netherlands all forayed into P4P in the late 1990s and early 2000s. These experiences represent P4P at different levels: hospital, practice and individual physician. P4P efforts can be placed within a major shift to patient-focused funding that includes DRGs and major market changes [178]. Overall, P4P has been subject to modestly rigorous evaluation finding some improvements in performance [179-181].

P4P requires the monitoring the performance of physicians and health professionals. Researchers generally find that US physicians dislike external oversight [182]. However, in one survey of suburban general internists, 75% of those surveyed supported the concept of financial rewards for quality service [183]. Interestingly, physicians already receiving financial incentives for quality

were more likely to favor of such incentives, suggesting that once introduced, such measures might be more palatable than they are *ex ante* [183]

Several cautions are warranted about P4P. Pay-for-performance (P4P) is not easy to administer and monitoring performance is difficult [184]. The fundamental questions revolved around what performance is controllable by the provider, at what levels to set performance benchmarks all couched by the realities of what can actually be measured reliably.

Measures are often divided into three dimensions of quality: structure, process and outcome. The difficulty is that structure of facilities and qualifications of practitioners do not necessarily produce better health outcomes nor do the processes. Under P4P, we need to isolate those structural elements and those processes that do have significant impact on health outcomes.

There is a vast body of literature already accumulated on P4P that have contributed several important principles. First, the performance should not be measured in absolute terms, but in terms of relative improvement from the baseline [185]. Second, performance should be based on measures that can be controlled or influenced by providers. Third, performance should be based on the health outcomes as much as possible. Fourth, management and monitoring efforts must accompany P4P, otherwise the non-measurable quality and outcomes will be neglected [186]. Lastly, linking money to behaviors can decrease providers' intrinsic motivation to perform well for the patient [184, 187, 188].

Payment System for the Transition Period in Vermont

Currently, every class of payer in Vermont has their own payment methods and rates. Rates differ among private insurers and often private insurers will maintain multiple fee schedules for different providers. We recommend a two stage approach for Vermont as it moves towards the establishment of ACOs. For a more detailed discussion of issues surrounding the creation of ACOs in Vermont, see Section 9: Implementation.

Ultimately, we suggest a risk-adjusted capitation rate + P4P in order to provide incentive to integrate care delivery. In the transition period, Vermont should establish a uniform payment method and uniform rates for all insurance plans, including the Workmen's Compensation program. This uniform payment method during the transition period could be:

- Pay ACOs a risk-adjusted capitation rate with a 20% of it based on performance (P4P). For non-ACOs, pay hospital inpatient based on Medicare DRGs with 20% of the DRG rates paid based on performance (P4P), outpatient on Medicare's Ambulatory Payment Categories (APC) which groups the services, tests, drugs and supply for the treatment into one unit of payment.
- Primary care physicians would be paid on risk-adjusted capitation + P4P whenever physicians are willing to accept this method of payment. For those who refuse this payment method, these primary care physicians would be paid on based on Medicare's RBRVS fee schedule.
- Specialists would be paid on the Medicare's RBRVS-based fee schedule.
- Outpatient drugs are paid based true acquisition costs with a dispensing fee.

The payment mechanisms above address the price of services and include incentives based on quality of care, but they do not, with the exception of capitation, incorporate a method to address concerns about volume - the number and mix of services provided. Most service-based payment

rates are based on the average cost to provide each service, but because some costs are fixed, the true cost declines as more services are produced. This gives a financial incentive to providers to produce more services, as long as the incremental cost is less than the average cost.

In order to address this issue, we are proposing a reimbursement system for hospitals that reduces the incentive to produce more services, but also attenuates the financial losses if the number of services drops. This is done by creating a revenue target that is computed using projected inpatient and outpatient volume and DRG / APC weights. If the target is exceeded, any subsequent payments will be made using a DRG / APC base that is reduced by 20%, until actual revenue exceeds target by 10%. At that point, no more payments will be made until the next fiscal year. Similarly, if revenues are below the target and falls between 90-100% of the target, 20% of this gap will still be paid based on DRG and APC base. If revenues fall more than 10% below the target, rates will return to original figures for any volume that falls below the 90%.

The important aspect is to set the payment rates *prospectively* and the providers can keep any profit they can make between the payment rate and their actual cost. Then providers would have strong incentive to innovate and manage their operation to produce the services in the most efficient manner. This approach emphasizes cost control, not profit control.

Payment System when ACOs are widely established

When Vermont is able to have ACOs established throughout the state, then the prevailing payment method would be risk-adjusted capitation + P4P since. The ACOs will negotiate with their employed or contract physicians and other health professionals as how they would be compensated. Nonetheless, we want to suggest that global experience shows that capitation plus P4P is the best method to pay primary physicians. Specialists and other health professionals would be best paid based on salary plus bonus based on performance.

F. WAIVER REQUIREMENTS AND ASSUMPTIONS

In order to achieve Option 1 as modeled, the state would need to seek several waivers from federal law, including waivers from certain requirements in Medicare, Medicaid, and the new PPACA health insurance exchange. The purpose of the waivers would be to provide the state flexibility to manage the federal funds and to reinvest savings in the health care system, including by insuring the uninsured, improving benefits for the underinsured, and the other suggested initiatives. The principle behind all of the waivers is the same:

- allow the state to obtain the federal funds for the eligible population and reinvest any savings from providing better, more efficient care in the health care system;
- provide the state flexibility in administration in order to align and integrate the federal reporting and claims processing and billing requirements of the three funding sources; and
- to the extent possible under federal law, align benefits with an essential benefits package to ensure an integrated system.

I. MEDICARE WAIVER(S)

The state may need to seek more than one Medicare waiver to create the single payer plan. These opportunities, discussed as well in the Federal Constraints Section, include:

- Seeking a waiver from the new Center for Innovation at the Centers for Medicare and Medicaid Services (CMS) under 42 USC §1315a;
- Seeking a more traditional Medicare waiver under 42 USC §1395b-1; or
- Seeking waivers to include Medicare in accountable care organizations 42 USC §1395jjj.

The Center for Innovation has broad authority to implement innovative ideas to reduce program expenditures and improve quality of care through payment reform. The state will achieve the most flexibility around payment by seeking a waiver under 42 USC §1315a through the Center for Innovation, perhaps combined with a waiver to create accountable care organizations (ACO). This type of waiver likely could be used alone to create a new Medicare payment and delivery system in the new single payer system. It is possible that to move to providing payments to an accountable care organization that the state would need to seek additional authority under 42 USC §1395jjj, which explicitly provides for ACOs.

The single payer plan does not address Medicare benefits. The state should seek a waiver, however, to change the way Medicare pays for services – from a fee for service model to a capitated payment to an ACO over time. The state should also seek to align and simplify the administration of Medicare, including claims payment and billing, quality control, and fraud processes through a waiver to ensure that there would be one set of administrative requirements in the single payer system. This does not mean that there would not be a quality control or fraud control process, for example, but that there would be one process used in the state, instead of multiple requirements. More analysis will be required to determine the scope of administrative integration into the single payer. The state would ask to administer (or contract with an entity to administer) Medicare payment and claims as well so that the claims and billing processes would flow through the single payer. Lastly, if the state decided to pursue an all-payer rate process, the state would want to include Medicare, which could be pursued under existing authority as provided to Maryland and other states.

In the Medicare waiver, the state could model the idea on Medicare Advantage plans (“Part C”). Medicare Advantage plans are plans that offer comprehensive benefits to Medicare beneficiaries through a managed care model, which allows the entity paying for services to keep the “savings” produced from providing evidence-based, quality care and reducing duplication of services. If the state was considered a Medicare Advantage plan, it would have additional flexibility in the use of Medicare funds as well.

Vermont is in the process of taking a first step in managing Medicare funds through a new waiver, which allows the payment of Medicare funds for community health teams in the Blueprint for Health. The next step for the state would be to pursue a waiver to manage costs for individuals who are eligible for both Medicare and Medicaid (“dual eligibles”) – which the state is in fact working towards. The concept behind the “dual eligible” project is that because neither Medicare nor Medicaid covers all medical expenses for dual-eligible beneficiaries, each program has a significant incentive to deny some patient care in an effort to get the services covered the other program

resulting in lower quality of care and higher administrative expenses. Successful coordination of care for dual-eligible beneficiaries requires integration of the competing financing streams. If the streams are combined such that a single entity is at financial risk for the care furnished to beneficiaries, these competing incentives are removed or greatly reduced.

II. MEDICAID

Section 1115 of the Social Security Act allows states great flexibility in the administration of the Medicaid program, although there are provisions of federal law which may not be waived. In order to include Medicaid in a single payer health care system, the state could use a model similar to the model currently used in the Global Commitment to Health waiver (“Global Commitment”).

Under the Global Commitment waiver, the state is considered a managed care entity and must comply with the Medicaid managed care rules in federal law. This model allows the state to negotiate an actuarially sound per member per month limit to pay for beneficiary benefits. If the state is able to provide benefits and stay under this limit, the state is able to use any additional funds for certain investments in the health care system, including:

- Reducing the rate of uninsured and/or underinsured in Vermont;
- Increasing the access of quality health care to uninsured, underinsured, and Medicaid beneficiaries;
- Providing public health approaches and other innovative programs to improve the health outcomes, health status and quality of life for uninsured, underinsured and Medicaid eligible individuals in Vermont; and
- Encouraging the formation and maintenance of public-private partnerships in health care, including initiatives to support and improve the health care delivery system.

Global Commitment for Health, Special Terms and Conditions, Term 58. This term appears to provide the state with flexibility in payment and participation in payment reform, including participation in an ACO. It is likely that the state may not need a different waiver to have Medicaid participate in a capitated model or an ACO.

The state has great authority to change the administration of the Medicaid program – especially around claims processing and billing. Additional analysis is needed to determine the flexibility in aligning or integrating the quality control and fraud requirements under federal law.

Lastly, Section 1115 allows the state flexibility in providing benefits as long as it meets minimal federal benefit requirements. The issue around aligning benefits in the Medicaid program with other benefits will be that there are certain types of nontraditional health benefits provided to Medicaid beneficiaries because they are traditionally low-income elders, individuals with disabilities, and children. For example, Medicaid provides payment for transportation to ensure adequate access to health services by this population. These benefits would continue to be provided for this population.

III. HEALTH INSURANCE EXCHANGE WAIVER

Section 1332 of the PPACA gives the federal Department of Health and Human Services (HHS) the authority to waive the federal requirements for the qualified health benefits plans, the health insurance exchanges, the cost-sharing in qualified health benefit plans, and the premium subsidies. HHS will require states seeking a waiver to have passed legislation and to have a proposal which:

- Provides benefit coverage as comprehensive as exchange;
- Provides coverage and cost-sharing protections against excessive out-of-pocket spending; and covers as many residents as would have been in the exchange.

Under this section, the state could obtain the federal premium and cost-sharing subsidies to fund a single payer system. While the parameters of the waiver provision are not entirely clear, because HHS has not yet issued federal regulations for this provision of statute, it seems likely that the state could be able to align the benefit packages and administration, given the broad nature of the statutory language. Because the exchange law assumes that coverage is provided by an insurer, it is left to the states (or the insurer) to determine administrative procedures to be used, including the quality control, fraud prevention, claims processing, and billing requirements. This would allow the state flexibility in aligning these requirements in the single payer.

The primary challenge for the state for including this funding stream in the single payer will be that this waiver is not available to states until 2017 and it is an untested area. The federal government will likely wish to see the state operate an exchange for a period of time prior to allowing a waiver in order to ensure there is a mechanism for comparing benefit coverage, cost-sharing protections, and the number of Vermonters receiving coverage through the exchange. Given our analysis, we assume that it may be possible to amend this and receive a waiver in 2015, after one year of implementation. However, this is uncertain. In addition, there is overall uncertainty whether the federal administration will be amenable to a single payer approach or will be using the exchange provisions to pursue a market-based approach.

G. IMPACTS

I. OPTION 1A – COMPREHENSIVE BENEFIT PACKAGE

All figures below are in 2010 dollars. Please see Section 10 below for detailed comparison tables.

a. Impact on insurance coverage

The government-run single payer system designed under Option 1A will achieve universal insurance. All Vermont residents would be covered under this system with a uniform benefits package and will have their medical costs paid for through a single public insurance fund. Among eligible residents, there will be no uninsured individuals.

b. Impact on employer health costs

Under reform Option 1A, Vermont will establish a single payer system with a comprehensive benefit package. Implementing these reforms, as compared to only PPACA reforms would increase employers' total spending by \$340 million in 2015. This translates to an increase in the average per employee health spending of \$855. The increase in employer cost will be \$225 million in 2019,

representing a per-employee health cost that will be \$566 higher than under PPACA. The burden of increased cost will also be felt by households, who have to pay more payroll contribution than what they would pay with no reform.

c. Impact on federal funding for Vermont

The amount of federal money that Vermont would receive under a single payer is highly uncertain and depends on the state's ability to negotiate waivers. In our microsimulation analysis, we have assumed that Vermont would receive a lump sum waiver amounting to what it would otherwise be entitled to under PPACA. Thus, our design would have a neutral impact on the amount of health insurance subsidies and tax credits projected to be received by Vermont.

Our single payer system design under Option 1A would also provide for uniform payment rates. This results in a net increase of payment rates for the population eligible for Medicaid under PPACA. We assumed that a share of the total cost increase as a result of this payment rate increase would be covered by the federal government (See Section 4B: Methods Cost Estimations).

d. Employment

The single payer system with a comprehensive benefits package is projected to produce a substantial impact on Vermont employment. We estimate a total net increase in new jobs of about 8,500 jobs by 2015, and about 7,000 by 2019, in comparison to PPACA implementation only.

e. Gross state product (GSP)

The impact on gross state product will be most substantial under this option. Our macroeconomic analysis projects that GSP would be about \$340 million higher in 2015 and \$250 million higher in 2019 than it would be under PPACA. This effect is mainly produced by higher health care spending due to the introduction of very comprehensive benefits.

f. Migration

Option 1A single payer would lead to a relatively large influx of people to the state. In total, by 2015 we project that about 2,000 individuals more would relocate to Vermont in comparison to PPACA. By 2019, 7,000 more individuals would move to Vermont than would have under PPACA. Importantly, this effect would be seen simply because the new employment opportunities would make living in the state more attractive. We expect virtually no in-migration as a result of the changes in the health insurance market implemented under this option.

OPTION 1B – ESSENTIAL BENEFITS PACKAGE

All figures in 2010 dollars. Please see Section 10 below for detailed comparison tables.

a. Impact on insurance coverage

The government-run single payer system designed under Option 1B will achieve universal insurance coverage. All Vermont residents would be covered under this system with a uniform, essential benefits package and will have their medical costs paid for through a single public insurance fund. Among eligible residents, there will be no uninsured individuals.

b. Impact on employer health costs

Under reform Option 1B, Vermont will institute a single payer system with an essential benefit package. Implementing these reforms, as compared to only PPACA reforms, will decrease employers' spending by about \$50 million in 2015, representing an approximate per-employee decrease of \$100. By 2019 employer contributions will be \$190 million lower under option 1B as compared to PPACA. This translates to a per-employee cost that will be \$450 less than that estimated under PPACA. Moreover, when these savings are translated into higher wages and lower costs, we have projected that Vermont households will see a positive financial benefit compared to a federal reform scenario.

c. Impact on federal funding for Vermont

The amount of federal money that Vermont would receive under a single payer is highly uncertain and depends on the state's ability to negotiate waivers. In our microsimulation analysis, we have assumed that Vermont would receive a lump sum waiver amounting to what it would otherwise be entitled to under PPACA. Thus, our design would have a neutral impact on the amount of health insurance subsidies and tax credits projected to be received by Vermont.

This single payer system design under Option 1B would also provide for uniform payment rates. This results in a net increase of payment rates for the population eligible for Medicaid under PPACA. We assumed that a share of the total cost increase as a result of this payment rate increase would be covered by the federal government (See Section 4B: Methods Cost Estimations).

d. Employment

Option 1B single-payer with an essential benefits package is projected to have a less pronounced impact on Vermont employment than if a comprehensive package was introduced. Specifically, we estimated that by 2015, Option 1B would produce about 5,000 additional new jobs in Vermont in comparison to under only PPACA implementation. By 2019, the total number of additional jobs created in the state would be approximately 4,000.

e. Gross state product

Option 1B would also increase the gross state product. According to the macroeconomic modeling we performed, the implementation of this option would produce a total of about \$190 million of additional economic output by 2015 compared to PPACA. By 2019, this additional output would be about \$130 million.

f. Migration

The Option 1B single payer would lead to an influx of people to the state. In total, by 2015 we project that about 1,000 individuals more would relocate to Vermont in comparison to under PPACA. By 2019, approximately 3,500 new individuals would move to Vermont than would have under PPACA. Importantly, this effect would derive simply because new employment opportunities would make living in the Vermont more attractive. We expect virtually no in-migration as a result of the changes in the health insurance market implemented under this option.

7. OPTION 2: THE PUBLIC OPTION

A. OVERVIEW AND MODELING ASSUMPTIONS

We modeled the Public Option as a choice for consumers purchasing individual insurance through Vermont's Health Insurance Exchange. The Public Option could also be made available to the small group market. However, we excluded the small group market for the purposes of the modeling owing to the dwindling size of this market in Vermont and the concurrent rise of the Association Plan market.²⁹ Whether to include the Association Plan Market in the small group market in the Exchange would be an explicit policy decision for the state.

We estimated that marketing and underwriting costs contribute 2-4% to premiums and could be saved if administered by a public or quasi-public entity. However, there would still likely be some marketing costs to attract enrollment, so we used the lower bound of 2% savings compared to existing individual market products. Further savings could be possible Vermont chose to reimburse providers significantly lower than current private levels. However, we did not assume any cost differential based on reduced payments. Such payment differentials, as already exist in Medicare and Medicaid) could ultimately impact enrollees' access to providers in the state (See Section 2E: Constraint on Human Resources and Health Care Capacity). As for all options, we suggest a movement towards ACOs with risk-adjusted capitation payments.

Under this Option, we further modeled that all claims payment and administration, regardless of payer, would be funneled through a single channel. This would significantly reduce the administrative burden on providers (see Section 4A: Estimation of Savings) though not as dramatically as would a single insurance fund, owing to the continued existence of varied benefit packages. We did not assume a uniform payment rate level for all payers, though this would be another policy option available under Option 2, see further discussions under Budgeting Principles and Payment to Providers below.

B. GOVERNANCE AND ORGANIZATION

The requirements set forth in Act 128 state that the public option shall be a government-administered plan that competes with private insurance in the market place. However, the market place of the future will be shaped largely by the existence and requirements of the PPACA Exchanges. In order for the Public Option to effectively compete with other health plans in the State of Vermont, it must be offered through the Exchange to allow individuals to access the tax credit and cost sharing subsidies. As discussed in Section 2B, participation in the Exchanges is largely limited to state-licensed plans. Barring a waiver, this means that the Public Option must become a state licensed insurance product.

²⁹ BISHCA publishes the Annual Statement Supplement Report (ASSR) Market shares each year; in 2009 there were 19,201 lives in the small employer market and 79,491 in the Association Plan market.

Connecticut, in designing its public Sustinet Plan, has face similar issues in dealing with the compliance of their plan with the Exchanges. In their January 8th 2011 report, the Sustinet Health Partnership Board of Directors concluded that indeed their plan would need to become a state licensed insurance product and that this should be possible: “Publicly administered health plans at the county level in California have operated with insurance licenses for many years, even though capital requirements for licensure are much higher in that state than here.”

As such the state would need to create some sort of free-standing Public Option Entity. In order become licensed as an insurer, the new entity must comply with the requirements set out in Title 8 and in BISHCA regulations. Of biggest import would be obtaining the capital necessary to meet the reserve and solvency requirements necessary for licensure.

C. BENEFIT PACKAGE AND FINANCING

The benefit plan modeled is after the average value and scope of benefits currently available on the individual market. The design of the benefit package, as well as the cost, is the primary mechanism through which this plan will compete with existing private insurers. The current private individual market is largely comprised of high deductible plans and those with medium deductibles - \$250/\$500 or \$500/\$1000 for individual/family. We do not think that this is the optimum design to encourage early detection and treatment of disease. However, individuals in the private market are accustomed to these designs. If the Public Option were to deviate greatly from these basic designs, it might not be able to get the maximum number of enrollees. If, however, the Public Option can be competitive with different benefits packages, we recommend that the benefit package should be designed according to the principles and following the features of the Essential Benefits Package as outlined under Option 1. The Public Option will be financed by direct premium payments to the Public Option Entity.

D. BUDGET AND COST CONTAINMENT PRINCIPLES

The Public Option deviates little from the basic structure of the current private market. As such it is similarly limited in its ability to control overall system cost (See Section 6B: Budgeting and Cost Containment Principles). This structure preserves the multi-payer system, there will still be opportunities to “cost shift” exist when some reimbursement is set unilaterally and other reimbursement is negotiated. For example, in Vermont, the Department of Banking, Insurance, Securities and Health care Administration estimated that during FFY 2009, Medicare shifted \$86.8 million and Medicaid shifted \$91.8 million of their costs onto private payers

Cost shifting occurs when in an effort to offset low reimbursement by one payer, a provider increases charges to another. Note that the ability to shift costs requires the ability to negotiate payments. While reducing reimbursement can save funds for an individual payer, it has minimal impact on total spending, may lead to access problems, and raises equity issues among payers. Reimbursement rates under private coverage are most often established through negotiation (although this is often not the case for individual practitioners or small practices).

The Public Option could be granted the ability to unilaterally set reimbursement in the same way that Medicare and Medicaid do now. But, as noted above, this could create access issues for Public Option enrollees and reduce provider buy-in to the program, who already cite low reimbursements

from public payers as a major issue of concern both currently and with regards to future reforms (See Section 2D: Stakeholder Analysis).

One more comprehensive solution cost-control solution for the Public Option would be to engage in an all payer rate-setting scheme. For example, Maryland has for many years used a flexible all-payer rate setting program for hospital payments, including Medicaid and Medicare.³⁰ By controlling rates for all-payers they eliminate the ability of providers to cost shift. However, this would require significant additional state spending to increase Medicaid and Medicare rates to the uniform standard (for details see Section 4B: Methods Cost Estimations). Hence, we did not model uniform rate-setting for the Public Option.

E. PAYMENT TO PROVIDERS

Our recommendations for payment to providers are largely identical for all options – a move towards risk-adjusted capitation payments including pay for performance to be accepted by Accountable Care Organizations. For a full discussion of the reasoning behind the design and further details, please see Section 6B under Option 1.

However, as previously mentioned, Option 2 has not been modeled with a uniform rate schedule. As such, during the transition period, as well as the full ACO implementation period, there would still be individual provider and payer negotiations. As previously mentioned, Vermont could choose to create an all-payer rate setting system to facilitate the a uniform payment system, with the caveat that this would require an additional source of financing to bring up both Medicare and Medicaid to the new, uniform average. Conversely, private payers would see a significant drop in the payment rates and premiums.

F. WAIVER REQUIREMENTS

Assuming the Public Option can become a state licensed insurance product the state will not need to seek a waiver from the PPACA Exchange requirements. However, in order to create the single channel system of payment, the state will still need to seek waivers from federal law regarding both Medicare and Medicaid.

As described earlier, there is great flexibility around payment reform through the new waiver available from the Center of Innovation. The purpose of the waivers would be to provide the state flexibility to manage the federal funds and to reinvest savings in the health care system, including by insuring the uninsured, improving benefits for the underinsured, and the other suggested initiatives. The principle behind all of the waivers is the same:

- allow the state to obtain the federal funds for the eligible population and reinvest any savings from providing better, more efficient care in the health care system;

³⁰ Achievement, Access and Accountability: A Guide to Hospital Rate Regulation in Maryland. Maryland Hospital Association, January 2002.

- provide the state flexibility in administration in order to align and integrate the federal reporting and claims processing and billing requirements of the three funding sources

For a detailed discussion of these waivers, refer to Section 6F under Option 1.

G. IMPACTS

All figures are in 2010 dollars. Please see Section 10 below for detailed comparison tables.

a. Impact on insurance coverage

Because it would be implemented as a public plan offered in the Health Insurance Exchanges established under PPACA, Option 2 is expected to have a marginal impact compared to PPACA. However, the cost of purchasing coverage will still decrease as a result of the single-channel payment reforms that will achieve certain efficiencies in the provision and administration of health care services. Under Option 2, approximately 30,000 Vermonters are projected to lack health insurance coverage in 2015. Option 2 reduces the number of uninsured by 2,000 more individuals that would have otherwise lacked coverage under PPACA. In 2019, the number of uninsured Vermonters would reach approximately 28,000, with a net effect of -3,000 as compared to PPACA.

b. Impact on employer health costs

Under reform Option 2, Vermont will develop a public health insurance option. The public option reform would decrease employers' contributions towards their employees' health premiums by \$100 million in 2015 and by \$140 million in 2019, as compared to only PPACA reforms. This translates to a drop in per-employee costs of about \$264 in 2015 and \$356 in 2019. Moreover, households will see a significant and positive financial benefit under this reform as compared to under PPACA.

c. Impact on federal funding for Vermont

Upon implementation, the public option would have a minimal impact on the amount of federal funding for health care that Vermont is eligible to receive. However, these estimates have been made under a very high degree of uncertainty. Because Option 2 would produce system-wide savings, it is possible that these savings would decrease the influx of federal money. Our microsimulation analysis projects that Vermont could receive between \$0 and \$15 million less from federal sources in 2015. Up to \$5 million would be lost under Medicaid, while about \$10 million would represent lower subsidies and tax credits. In 2019, the federal share of spending could reach approximately \$90 million less compared to PPACA, with the losses being split evenly by Medicaid dollars and subsidies and credits.

d. Employment

The implementation of a public option is projected to have a negative impact on Vermont employment relative to PPACA. Specifically, we estimated that by 2015, Option 2 would result in a loss of about 1,200 jobs in comparison to PPACA implementation. By 2019, the total loss of jobs in the state would be approximately 3,000.

e. Domestic state product

Option 2 would also decrease the state domestic product. According to the macroeconomic modeling we performed, the implementation of this option would result in a lower economic output by about \$90 million by 2015 compared to PPACA. By 2019, this output would be about \$230 million lower under the public option net of PPACA.

f. Migration

Based on our macroeconomic analysis, the public option would lead to a net loss of residents to the state. In total, by 2015 we project that Vermont's population would be lower by about 500 individuals in comparison to PPACA. By 2019, the number of Vermont residents would be lower by 2,200 than under PPACA. Importantly, this effect would be caused by the net loss of jobs, which would make living in the state less attractive. We expect virtually no in- or out-migration as a result of the changes in the health insurance market implemented under this option.

8. OPTION 3: PUBLIC/PRIVATE SINGLE PAYER

A. OVERVIEW

The public/private single payer we designed for Option 3 shares many of the features of Option 1B, the government-run single payer with the Essential Benefit Package as described in Section 6B. In terms of Eligibility, Financing, Additional Investments in physician workforce and health care facilities, Payment to Providers and Waiver requirements, Option 1 and Option 3 are identical. Like Option 1, Option 3 creates a single insurance fund and a uniform benefit package. The system is financed through employer and employee payroll contributions from all Vermont wage earners, with exemptions from the contribution for low-wage workers. All eligible Vermont residents would be covered.

The main distinguishing feature of this Option is the governance and management structure of the Single Payer entity. Instead of being purely government-administered, under this option, the Single Payer Entity would be governed by an Independent Board representing all the major payers, including, employers, state government and consumers, as well as the beneficiaries or recipients of benefits and payments, including providers and consumer groups.

The major role of the Independent Board will be to negotiate updates to the benefit packages and payment rates to providers. These two factors together would determine the next year's expenditures and also the revenues of providers. We believe that this approach is an improvement over the budget system in Option 1 because it is largely insulated from the Legislative process and will produce substantially more buy-in by all parties than a budget that is developed in the Legislature.

Additionally, Option 3 preserves a limited role for private insurance in the area of claims administration and provider relations. The Independent Board will contract out, through a competitive bidding process, the claims administration for the entire single payer system. As described in Section 4A: Savings, international experience suggests that this governance structure will also impact the potential savings and health care expenditure growth rate. We expect competition over claims administration to provide incentives to innovate and increase efficiency.

There are certain functions, however, that must remain with the state, including eligibility determination and means testing for subsidies and contribution exemptions. The development and reorganization of these capacities and functions is further discussed in Section 9: Implementation.

B. IMPACTS

All figures are in 2010 dollars. Please see Section 10 below for detailed comparison tables.

a. Impact on insurance coverage

The public-private single payer system designed under Option 3 will achieve universal insurance coverage. All Vermont residents would be covered under this system with a uniform benefits package and will have their medical costs paid for through a single public insurance fund. Among eligible residents, there will be no uninsured individuals.

b. Impact on employer health costs

Under reform option 3, Vermont will institute a single payer system with an essential benefit package. Implementing these reforms, as compared to only PPACA reforms, will decrease employers' spending by \$75 million in 2015. This means that employers are projected to spend about \$169 less per employee in that year than they would have under PPACA. By 2019 employer contributions will be approximately \$215 million lower under Option 3 as compared to PPACA. The per-employee cost in that year would decrease by about \$507. Meanwhile, wages and health costs will also decrease for households, who will see a large and positive financial benefit under this reform scenario compared to PPACA implementation.

c. Impact on federal funding for Vermont

The amount of federal money that Vermont would receive under a single payer is uncertain and depends on the state's ability to negotiate waivers. In our microsimulation analysis, we have assumed that Vermont would receive a lump sum waiver amounting to what it would otherwise be entitled to under PPACA. Thus, our design would have a neutral impact on the amount of health insurance subsidies and tax credits projected to be received by Vermont.

The single payer system design under Option 3 would also provide for uniform payment rates. This results in a net increase of payment rates for the population eligible for Medicaid under PPACA. We assumed that a share of the total cost increase as a result of this payment rate increase would be covered by the federal government (See Section 4B: Methods Cost Estimation).

d. Employment

Option 3 is projected to have a positive impact on Vermont employment. Specifically, we estimated that by 2015, Option 3 would produce about 5,000 additional new jobs in comparison to PPACA implementation only. By 2019, the total number of additional jobs created in the state would be approximately 4,000.

e. Gross state product

Option 3 would also increase the state domestic product. According to the macroeconomic modeling we performed, the implementation of this option would produce a total of about \$180 million of additional economic output by 2015 compared to PPACA. By 2019, this additional output would be about \$110 million.

f. Migration

Option 3 single payer would lead to an influx of people to the state. In total, by 2015 we project that about 1,000 individuals more would relocate to Vermont in comparison to PPACA. By 2019, approximately 3,500 new individuals would move to Vermont than would have under PPACA. Importantly, this effect would be seen simply because the new employment opportunities would

make living in the state more attractive. We expect virtually no in-migration as a result of the changes in the health insurance market implemented under this option.

9. IMPLEMENTATION

There are several issues related to the implementation of health system reforms in Vermont that should be considered regardless of which reform option the state decides to pursue. Vermont will need to reorganize existing systems and develop new administrative capacities to manage an integrated, single-payer health system. In addition, the state will need to institute a regulatory apparatus to oversee the functioning of the system.

Vermont health system administrators will need to establish capacities for responsibilities related to payment, including determining enrollee eligibility, billing and collection, adjudicating claims appeals, credentialing and contracting, negotiating payment rates, and analyzing provider quality and efficiency. Moving to an integrated system will require the state to establish capacities for responsibilities related to service delivery, including managing health information and addressing customer service concerns and demand for out-of-network care.

In addition to developing administrative capacities, Vermont will need to institute new regulations to govern the future health system in the state. In particular, legislators will need to address issues related to the minimum benefit package, tax collection processes, ACO eligibility requirements and patient protection.

A rough, proposed timeline for implementation follows:

- In the 2011-2012 biennium, the Vermont legislature should draft and pass a health care reform law that institutes a single payer system with integrated service delivery.
- Also during 2011, work should continue on developing an insurance exchange as dictated by PPACA. Vermont should continue expanding the medical homes programs legislated by the Blueprint for Health.
- In 2012, Vermont must begin developing a state agency to act as the single payer for the health system.
- In 2014, the state should establish an Insurance Fund and prepare the appropriate state health agencies for going online with the fully reformed, single payer system in 2015.

A. IMPLEMENTATION OF A SINGLE-PAYER SYSTEM

Health system administrators in Vermont will need to reform current institutions and develop new capacities as the state moves toward a single payer system. At present, several different groups determine health insurance enrollee eligibility in Vermont. Employers determine eligibility for employee programs, government agencies determine eligibility for public programs and premium subsidies, and private insurance companies determine eligibility for non-group programs. This fragmentation contributes to administrative waste. Under a single-payer system, all Vermont residents would be eligible for coverage. This greatly simplifies the administrative capacities required for determining eligibility and should lead to administrative savings.

As with eligibility determination, many disparate groups handle billing and collection in Vermont. For employer-based plans, insurance companies send bills to employers who collect part of the cost of coverage from their employees. Each insurance company has its own billing method and each employer has its own manner of cost recovery. For non-group plans, insurance companies bill and collect from enrollees directly. This fragmented billing structure will disappear under the single-payer system and be replaced by a more efficient uniform structure. However, Vermont administrators need to develop new capacities to run a uniform single-payer billing and collection system.

When patients in Vermont seek to appeal insurance company coverage decisions, they most often must first deal with a review committee internal to the company, and then proceed to an external, quasi-judicial review board. This general framework will likely persist under the single-payer system. However, under single-payer, the payer itself will be at least a quasi-public entity. As such, steps must be taken to ensure that internal and external reviews are independent. That is to say, the single-payer organization must develop a first-line review committee to address appeals. Then, the state billing adjudication body that currently operates in the state should be reformed to address appeals that cannot be properly addressed by the single-payer organization.

Public capacities for credentialing and contracting with providers will be necessary under the single-payer system. Historically, each payer in the state conducted an independent review process with potential providers. In the past several years, the Department of Banking, Insurance, Securities and Health Care Administration (BISHCA) has worked to standardize that process, at least to the level of using common forms. However, providers must still be credentialed by each payer with which they hope to contract. A similar system will be maintained in the future, but establishing credentials for a single payer will sharply reduce the burden on providers. Further, it is likely that a greater proportion of providers will be hired as employees of provider organizations while fewer will work under independent contract relationships. This will reduce the frequency with which credentialing and contracting activities will be required.

Under a government run single payer system in Vermont, state representatives will need to negotiate payment rates with providers. Under the current, fragmented payment system, negotiations between insurance companies and providers can be contentious and require tremendous resources, particularly when both the payer and the provider organization are in strong positions with control of substantial market share. Moving to a purely public single-payer will place the state in a strong position for all negotiations. However, the state will need to develop leadership capacities to handle these negotiations in an appropriate manner. It is important for state representatives to engage with provider organizations during negotiations in a manner that gives providers an opportunity to buy into the state system. Experiences with payment rate negotiations between public payers and private providers in other states suggest that mutual respect between sides during negotiations contributes to a successful payment system.

Public agencies in Vermont must develop the capacity to analyze health system data related to provider quality and efficiency. Vermont has taken a major step forward with its initial implementation of the VHCURES system, but at present that system only includes claims paid by private entities. Work must continue on incorporating Medicare and Medicaid claims into a common database. As essential as this common database is, it is not sufficient. The state must develop the human resources necessary to conduct sophisticated analyses in support of provider and system performance evaluation, quality improvement, capitation development, and risk

adjustment. Perhaps the most important new tool Vermont needs to develop for data analysis and management is a “smart card” system similar to the one used in Taiwan’s national health insurance program. A smart card is like a credit card that holds health-related information and can easily be read by electronic readers installed at all health facilities. Smart cards issued to all Vermonters are vital for improving the integration of care, reducing administrative costs, and rooting out waste and abuse.

In addition to developing these capacities, Vermont must institute regulations to govern the single-payer system. For example, under the government-run single payer, the state needs to develop a mechanism to design the benefit package and also regulate the tax program used to finance the health system. Vermont should determine a benefit package that meets their stated goals. However, the state must recognize that resources for health care are limited, and only those services that can be afforded should be included in the minimum benefit package. We have presented a package that we believe the state can afford with savings realized by our reforms. However, the resources available for health care in Vermont will likely change over time, and processes need to be in place to adjust the minimum benefit package as appropriate. The benefit package includes those services that are to be financed by the state.

The number of services included in the benefit will determine the funding that Vermont’s health system will require to remain solvent. Tax collection processes dedicated to funding the state’s health system should be designed with the flexibility and legislative power to fully cover expenses without deficit spending.

B. IMPLEMENTATION OF AN ACO SERVICE DELIVERY SYSTEM

The transition to the ACO model of integrated service delivery will require that administrators in Vermont reorganize state systems and further develop capacities. The Vermont legislature has recently committed to establishing a robust HIT infrastructure as part of the Blueprint for Health.[118] Efforts to construct an operational HIT system are ongoing, and should be continued and expanded. If Vermont is going to commit fully to integrated service delivery, all provider organizations in the state must have access to the following HIT capacities: (1) a network of server systems with sufficient storage space to house essential data, (2) a data security apparatus to ensure patient privacy, (3) a uniform electronic medical record (EMR) system, accessible at all locations of service delivery (it may be effective to build EMR and security capacity with smart card technology[189]), (4) a centralized administrative database containing all payment claims, and (5) a report generating apparatus that provides timely, useful information to organization managers and state regulators.[190] State agencies must take the lead in instituting these technologies to ensure the development of unified systems across the state. Federal funding is available to support Vermont in adopting these health information technologies.[191]

In addition to HIT implementation, there are several critical questions that must be answered before ACO development can begin. First, how will capitations be established? Second, will risk be shared and if so, how? Third, how will the connection between populations and ACOs be created?

The third question presents a number of challenges. Under traditional managed care plans, each person covered by the plan was required to designate a primary care provider. One of the ways that the proposed ACO model differs from traditional managed care is in not requiring this designation. Instead, ACO populations are created using attribution – individuals are assigned to ACOs based on

where they get the predominance of their primary care. This approach has been used successfully in the Medicare population for research purposes. However, recent analysis of VHCURES data for the Health Care Reform Commission in Vermont has identified a major issue when this approach is taken with a younger population. That analysis found that approximately 40 percent of covered individuals do not have any contact with a primary care physician in a one-year period. If this finding is accurate, it raises the question of how to attribute those individuals. Further, if those individuals are not attributed and seek care, who will be financially responsible? How should their claims experience (if any) be used in calculation of premiums? These questions will need to be resolved as soon as possible. As an alternative to attribution, it may be appropriate to adopt a system in Vermont where patients choose the ACO to which they would like to be affiliated.

Vermont will need to develop a system to address demand for out-of-network care. All ACOs are responsible for ensuring that patients have access to the full continuum of health services. However, patients may wish to seek health care from a provider unaffiliated with their ACO, even when a particular service is available through ACO channels. Vermont must regulate how ACOs discourage this behavior. For example, the state may need to limit cost-sharing when out-of-network care is obtained. The state may also have a role in overseeing the payment process when a member of one ACO seeks care from a provider not affiliated with that ACO (e.g. prompt payment).

The ACO model of health service delivery has been broadly recognized as having the potential for substantial cost savings and increased quality of care. However, the most effective ACO structure has not yet been determined. The Vermont health care system's transition to the ACO model will require a flexible regulatory framework that is adaptable over time. Complicating matters, the period of transition to the ACO model in Vermont will coincide with a transition from a multi- to single-payer system. ACO regulations in the state will need to function in both payment environments.

I. FACILITATING THE CREATION OF ACOS IN A MULTI-PAYER ENVIRONMENT

While Vermont remains a multi-payer environment, the primary incentives for health care providers to align themselves as ACOs will come from the new Medicare ACO program, described in Section 3022 of the Patient Protection and Accountable Care Act (PPACA) and initiatives by the new Innovation Center in CMS.[192] Additional incentives may be built around the way that risk is shared. For example, if potential ACOs are initially protected against down-side risk, they may be more willing to take the necessary steps. Vermont can also take steps to prepare providers in the state to engage with these federal programs. Research suggests that the primary care medical home (PCMH) model of health service delivery can spur initial provider integration and prepare organizations for the adoption of ACO responsibilities. Further, the ACO model requires that provider organizations have robust health information technology (HIT) infrastructures, including electronic medical records to track patients across the full continuum of care and a central claims database to inform organizational planning activities.[190] The recent Vermont Blueprint for Health legislation has recognized both the PCMH model and HIT infrastructure as fundamental parts of the state's evolving health system.[118] However, the Blueprint has not yet been fully implemented. During the period of transition to the single-payer system, Vermont should focus on strengthening Blueprint systems with an eye toward how that can lay a foundation for a future ACO system.

Federal regulations related to the newly legislated Medicare ACO program are not yet available—the Centers for Medicare and Medicaid Services (CMS) will publish draft regulations within the next couple of months and the first programs are scheduled to begin January 1, 2012. Once these regulations are made available, it will be incumbent upon Vermont to begin coordinating local regulations with federal regulations to ensure a well functioning ACO system in the state.

II. MINIMUM REQUIREMENTS FOR ACO STATUS

Payment system incentives are the primary means for spurring ACO formation and integrating health service delivery. As such, when Vermont has completed the transition to a single-payer system and assumed full responsibility for payment, the state will also assume full responsibility for managing the ACO system. The state should develop clear regulations with regard to which health care delivery organizations are eligible to become ACOs. Recent federal legislation, the Patient Protection and Affordable Care Act (PPACA), outlines minimum requirements for ACO status.[192, 193] ACOs must have the capacity to perform four important responsibilities: (1) provide the full continuum of health services, (2) handle administrative operations, (3) evaluate and report on key indicators, and (4) manage risk and remain solvent. These requirements do not automatically disqualify any single type of provider organization—whether physician groups, community health centers, or community or tertiary hospitals. Rather, each organization should be assessed independently in its application for ACO status. Indeed, a goal of public policy should be to encourage diverse types of organizations to become ACO's.

ACOs must provide patients access to the full continuum of health services. This continuum includes preventive services, primary care, inpatient hospital care, and specialist services. Services can either be supplied by ACO-employed providers or by contracted non-ACO provider organizations. While the ACO is responsible for ensuring access to care for patients, either the ACO or the payer can negotiate service contracts. However, questions remain as to whether a particular minimum set of services should be provided by the ACO itself. For example, it may be appropriate to require that ACOs provide a full range of primary care services in-house to minimize substitution of these services with more expensive specialty services.[194]

ACOs must be able to handle a range of administrative operations. The ACO model of health service delivery places a greater administrative burden on provider organizations than do fragmented models. As discussed above, ACOs must have a strong (HIT) infrastructure. This includes electronic medical records to track patient care across the full range of services and a centralized claims database to inform organizational evaluation and planning processes. In the case of Vermont, the state should assume responsibility for developing HIT infrastructure to ensure a uniform system.

In addition to handling internal administrative processes, ACOs must be able to meet reporting responsibilities. Capitation payments and bonuses will be directly determined by ACO performance as measured by a standard set of quality indicators. Therefore, all ACOs must be able to collect data to accurately determine these indicators, and report these data in a timely manner.

Finally, ACOs must be able to manage risk and remain solvent. Capitation payment systems place risk on providers. Capitation rates are based on average risk-adjusted costs. However, in any given capitation period, patient care costs may exceed projected costs, leading to net losses for ACOs. However, larger ACO patient populations have lower risks of net losses, because losses from outlier

patients with higher than expected costs in these larger populations will constitute a smaller proportion of the full ACO budget. The PPACA legislation suggests that at a minimum an ACO should be able to accommodate 5,000 Medicare patients.[192]

III. ACOS MODELS LIKELY TO WORK IN VERMONT

Vermont should work to smooth the transition to the ACO model of health service delivery by building on the organizational structures of providers that currently practice in the state. The current make-up of health service delivery organizations in Vermont suggests that five specific models of ACO design may be most appropriate: (1) independent practice associations (IPAs), (2) community health centers, (3) community hospitals, (4) tertiary hospitals, and (5) physician hospital organizations (PHOs). Each of these models of ACO design has strengths and weaknesses, and at present it is not clear which model would work best in Vermont. In addition, different regions of Vermont are at different stages of readiness for becoming ACOs and different models might be appropriate in different areas owing to existing capacities, geography, and market structure.[190]

Independent practice associations and community health centers provide a broad range of health services. However, these organizations focus largely on primary care. If these organizations were to assume ACO responsibilities, to the exclusion of community and tertiary hospitals, it would likely move the Vermont health care system toward greater focus on community-based primary care, a goal of the state's legislature. However, these organizations may lack the capacity to assume the full responsibilities of an ACO, as described above. Alternatively, community and tertiary hospitals are likely to have systems in place to handle the complex administrative duties, service contracting, and data reporting responsibilities required of ACOs. However, the management structures in these higher-level facilities are often comprised of specialist providers who are oriented to using high technology. As such, empowering hospitals as ACOs, to the exclusion of smaller provider organizations, may move the Vermont health care system away from a primary care focus. Vermont has 3 PHOs with multiple years of experience with risk sharing contracts with commercial insurers (Vermont Managed Care, Central VT PHO, and United Health Alliance in Bennington). These organizations are the most likely starting points for ACO's in Vermont.

Ultimately, Vermont will have to experiment with ACO models to determine what works best in the state. ACO regulations in Vermont should be flexible and allow for innovation.[193] Further, Vermont should look to experiences in other states for guidance. At present, there are numerous ACO pilot projects being conducted throughout the country in an effort to determine "best practices" with regard to ACO operations.[195]

IV. PATIENT PROTECTION

Vermont should address issues of patient protection that may result from the ACO model of health system delivery. Of particular concern is the fact that the ACO system of capitation payment may create provider incentives to undersupply health services or provide low quality of care. Under capitation payment systems, providers' incomes are determined by the difference between the

capitation rates they receive and the costs of patient care they are responsible to pay. Therefore, providers have clear incentives to reduce the cost of patient care, i.e., undersupply health services, to maximize their incomes. Much of the resistance to the managed care model of health service delivery, popular in the US in the 1990s, resulted from concerns over provider incentives to undersupply services. Similarly, capitation payment does not produce provider incentives to supply good quality health care. Their income is unaffected by service quality. However, proper regulation can remove perverse incentives to undersupply care and also create incentives to provide high quality care. One way to achieve these goals is to conduct periodic reviews of provider supply patterns with subsequent penalties for inappropriate behaviors. Reviews can either be conducted by an external governing body or by empowered provider professional organizations. Alternatively, bonus payments based on indicators of appropriate care can reduce undersupply and increase quality (See Payment section??). If providers make more money from bonus payments than they lose in capitation for providing the appropriate, high quality care, they will behave accordingly. Finally, regulations that allow patients to easily transfer enrollment from one ACO to another can create incentives for providers to supply appropriate, high quality services. Providers receive capitation payments in proportion to the number of patients they have enrolled. Transfers directly reduce provider incomes. In order to reduce transfers, providers are likely to provide appropriate, high quality services that meet patients' expectations.

10. COMPARISONS AND RECOMMENDATIONS

TABLE 11: ESTIMATED INCREMENTAL IMPACTS OF THE THREE REFORM OPTIONS

		Option 1		Option 2	Option 3
Benefits package		Essential	Comprehensive	Multiple	Essential
Number of uninsured individual	2015	-32,000	-32,000	-2,000	-32,000
	2019	-31,000	-31,000	-3,000	-31,000
Total employer spending*	2015	-\$50 million	\$340 million	-\$100 million	-\$75 million
	2019	-\$190 million	\$225 million	-\$140 million	-\$215 million
Per employee health spending*	2015	-\$101	\$855	-\$264	-\$159
	2019	-\$450	\$566	-\$356	-\$507
Number of jobs created	2015	5,000	8,500	-1,200	5,000
	2019	4,000	7,000	-3,000	4,000
Number of individuals migrating into Vermont	2015	1,000	2,000	-500	1,000
	2019	3,700	7,000	-2,200	3,500
Gross State Domestic Product Change*	2015	\$190 million	\$340 million	-\$90 million	\$180 million
	2019	\$130 million	\$250 million	-\$230 million	\$110 million

***In 2010 Dollars**

TABLE 12: ESTIMATED PAYROLL CONTRIBUTION RATES

		No reform*	Option 1 - Essential BP	Option 1 - Comprehensive BP	Option 2	Option 3
Total	2015	17.5%	14.7%	19.3%	17.5%	14.5%
	2019	18.5%	12.1%	16.3%	18.5%	11.9%
Employer Contribution	2015	12.0%	11.1%	14.5%	12.0%	10.9%
	2019	12.9%	9.1%	12.2%	12.9%	8.9%
Employee Contribution	2015	5.5%	3.7%	4.8%	5.5%	3.6%
	2019	5.6%	3.0%	4.1%	5.6%	3.0%

Margin of error $\pm 15\%$; *No reform is the estimated current premium contribution as a percent of payroll given no systemic reforms under PPACA implementation in 2015.

TABLE 13: RECOMMENDED USE OF THE SAVINGS UNDER DIFFERENT OPTIONS

	Essential benefit package (Same for Options 1 and 3)	Comprehensive benefit package
To cover uninsured	\$189 million	\$217 million
To increase benefits for underinsured	\$69 million	\$141 million
Investments in primary care and community hospitals	\$50 million	\$50 million
Additional dental and vision benefits	\$106 million	\$314 million
Long-term care benefits	-	\$215 million

2010 US Dollars; Margin of error $\pm 15\%$

We designed three options for health system reform in Vermont. The impacts above indicate that Option 3, the Public/Private Single Payer, will provide the greatest cost-savings to the state, savings that stem from the unique governance structure and management of the single payer entity. Unlike Option 2, which maintains the current multi-payer system, and Option 1, which creates a strictly government-administered program, Option 3 proposes a single payer structure overseen by an independent board with representatives from employers, patients, providers and responsible government agencies. Board members will be charged with establishing a budget for the single payer, recommending updates to the payment rates and benefit packages based. Option 3 further proposes that claims administration and provider relations be awarded through competitive bidding process.

Option 3 proposes to cover only the Essential Benefit Package. This benefit package was designed to provide at least as good coverage as the average Vermonter has now and to promote primary and preventive care. Unlike the Comprehensive Benefit package, however, it provides for limited coverage of vision and dental benefits. We recommend that when and if savings are realized in sufficient quantity, Vermont should consider expanding coverage for these benefits. Long-term care, however, is a more difficult issue that would require detailed and comprehensive study in its own right. International experience suggests that successful social models of long-term care insurance are constructed as separate programs from health benefits program, for example those of

Germany and Japan, as long term care provision is so fundamentally different from medical services.

But beyond the greater cost-savings, we believe that Option 3 is the most feasible because it is likely to be accepted by the broadest cross-section of stakeholders in Vermont. Through discussions with more than 100 stakeholders we gained a critical understanding of what various competing interests would tolerate, their issues, concerns and hopes, where they disagreed and where they landed on common ground. Political opposition to single payer systems is often rooted in concerns over transparency and accountability. We designed Option 3 to address those issues and to operate with the express input of a broad base of stakeholders. In sum, we believe that Option 3 provides benefits to patients, providers and the system at large, in keeping with both the equity, coverage and sustainability goals of Act 128.

REFERENCES

1. Sanford, G., *Aunt Serena Tackles Health Care Costs*, V.S. Archives, Editor. 2006, Vermont Office of the Secretary of the State.
2. Carrigan, J.E., *Cooperative Extension Work in Agriculture and Home Economics*. 1914, College of Agriculture, UVM, and US Dept. of Agriculture: Burlington, VT.
3. Sherman, M. and Snelling Center for Government, *Vermont State Government Since 1965*. 1999.
4. Benjamin, G., R. Gould, and R. Tuckson, *America's Health Rankings 2010 Report*. 2010, United Health Foundation.
5. US Census Bureau, *Health Insurance Coverage Status by State for All People*, Current Population Survey, Editor. 2009.
6. Dartmouth Atlas, *Surgical Discharges Tables*. 2005, Dartmouth Atlas.
7. Kaiser Family Foundation (2008) *Hospital Admissions per 1,000 Population*. **Volume**,
8. Center for Medicare and Medicaid Services, *National Health Expenditures 2009 Highlights*, H.R. National Health Expenditure Accounts, Editor. 2009.
9. Center for Medicare and Medicaid Services, *Health expenditures by state of residence: Medicaid Summary Tables, 1991-2004* H.R. National Health Expenditure Accounts, Editor. 2007.
10. Robertson, B., J. Maurice, and P. Madden, *Vermont Household Health Insurance Survey: Comprehensive Report*. 2009, Vermont Department of Banking, Insurance, Securities and Health Care Administration.
11. Sommers, B.D. and A.M. Epstein, *Medicaid Expansion — The Soft Underbelly of Health Care Reform?* N Engl J Med, 2010. **363**: p. 2085-2087.
12. *Act 128: An act relating to health care financing and universal access to health care in Vermont*. 2010.
13. Vermont Department of Health, *Green Mountain Care Enrollment Reports*. 2009, Agency of Human Services.
14. Lake Champlain Chamber of Commerce, *2010 Member Survey Results*. 2010: Burlington.
15. Baker, C., *Technological Change and the Growth of Health Care Spending*, C.B. Office, Editor. 2008.
16. Hagland, M. (2010) *Where healthcare reform meets HIE*. Healthcare Informatics **Volume**,
17. *2008 Vermont Physician Provider Survey*, V.D.o. Health, Editor. 2008.
18. *2008 VT Health Care Expenditure Analysis*, BISHCA, Editor. 2010: Montpelier.
19. *Unified Health Care Budget*, in REG-H-Rule-7.000 BISHCA, Editor. 2001.
20. *Chapter 123: NONPROFIT HOSPITAL SERVICE CORPORATIONS*, in *Statute 8, V*. Legislature, Editor. 1995, Vermont Statutes Online.
21. BISHCA, *Vermont Health Care Cost Shift Analysis*, H.R. Operations, Editor. 2009: Montpelier. p. 7.
22. Joint Fiscal Office, *General Fund Budget Gap Picture*. 2011, Vermont Legislature.

23. BISHCA, *Vermont Community Hospital Financial and Statistical Profiles: 2011 Hospital Actuals* 2011, BISHCA.
24. *ERISA: An Act to provide for pension reform.*, in 88 Stat. 829, U.S. Congress, Editor. 1974.
25. US Supreme Court, *Shaw V. Delta Air Lines*, in 463 US 85, U.S. Court, Editor. 1983.
26. Butler, P., *ERISA Implications for State Health Care Access Initiatives: Impact of the Maryland 'Fair Share' Act Court Decision*. 2006, National Academy for State Health Policy: Portland, ME.
27. US Supreme Court, *New York State Conference of Blue Cross & Blue Shield Plans v. Travelers Insurance Co, et al*, in 514 U.S. 645, U.S. Court, Editor. 1995.
28. United States Court of Appeals, *Retail Industry Leaders Association v. Fielder*, in 475 F.3d 180, F. Circuit, Editor. 2007.
29. United States Court of Appeals, *Golden Gate Restaurant Association v. City and County of San Francisco*, in 546 F.3d 639 N. Circuit, Editor. 2009.
30. Institute of Medicine Committee on the Consequences of Uninsurance, *Insuring America's Health: Principles and Recommendations*. 2004, Board on Health Care Services.
31. Musgrave, R. and P. Musgrave, *Public Finance in Theory and Practice*. 1973, New York: McGraw-Hill.
32. Borzi, P.C., *There's "private" and then there's "private": ERISA, its impact, and options for reform*. J Law Med Ethics, 2008. **36**(4): p. 660-9, 608.
33. Butler, P., *Memo from Butler to Authors*, W. Hsiao and A. Gosline, Editors. 2010: Boston.
34. Butler, P., *Memo to Vermont House Health Care Committee*. 2008: Montpelier.
35. CBO, *Selected CBO Publications Related To Health Care Legislations, 2009-2010*. 2010.
36. Peterson, C. and H. Chaikind, *Summary of Small Business Health Insurance Tax Credit Under PPACA (P.L. 111-148)*. 2010, Congressional Research Services.
37. Jost, T., *Health Insurance Exchanges and the Affordable Care Act: Eight Difficult Issues*. 2010, The Commonwealth Fund.
38. Paul-Shaheen, P.A., *The states and health care reform: the road traveled and lessons learned from seven that took the lead*. J Health Polit Policy Law, 1998. **23**(2): p. 319-61.
39. Reich, M., *Political Mapping of Health Policy: A Guide to Managing the Political Dimension of Health Policy*. 2004, Harvard School of Public Health: Boston, MA.
40. Brugha, R. and Z. Varvasovszky, *Stakeholder analysis: a review*. Health Policy Plan, 2000. **15**(3): p. 239-46.
41. Leichter, H.M., *Health care reform in Vermont: the next chapter*. Health Aff (Millwood), 1994. **13**(5): p. 78-103.
42. Wright, R., *Inside the Statehouse: Lessons from the Speaker*. 2005: Washington DC.
43. Kaiser Family Foundation, *Vermont: Estimated Underserved Population Living in Primary Care Health Professional Shortage Areas (HPSAs)*, in statehealthfacts.org. 2008.
44. BISHCA, *Health Resource Allocation Plan: Chapter 2, Ambulatory Care Services*. 2009, BISHCA.
45. Department of VT Health Access, *Primary Care Workforce Report and Five-Year Plan*. 2010, State of VT Dept. of VT Health Access: Williston, VT.

46. Department of VT Health Access, *VT Health Information Technology Plan (VHITP)*. 2010, VT State Agency of Human Services.
47. BISHCA, *Hospital Capital Indicators*, in *Hospital Pricing and Hospital Financial Reports*. 2006-2010, BISHCA.
48. Woolhandler, S., T. Campbell, and D.U. Himmelstein, *Costs of Health Care Administration in the United States and Canada*. New England Journal of Medicine, 2003. **349**(8): p. 768-775.
49. Kahn, J.G., et al., *The Cost Of Health Insurance Administration In California: Estimates For Insurers, Physicians, And Hospitals*. Health Affairs, 2005. **24**(6): p. 1629-1639.
50. Glied, S., *Single Payer as a Financing Mechanism*. Journal of Health Politics Policy and Law, 2009. **34**(4): p. 593-615.
51. Collins, S.R., et al., *How Health Care Reform Can Lower the Costs of Insurance Administration*. 2009, The Commonwealth Fund.
52. Schoen, C., D. Helms, and A. Folsom, *Harnessing Health Care Markets for the Public Interest: Insights for U.S. Health Reform from the German and Dutch Multipayer Systems*. 2009, The Commonwealth Fund and Academy Health.
53. BISHCA, *Health Plan Administrative Cost Report I*. Department of Banking, Securities & Health Care Administration, Editor. 2009: Montpelier.
54. Merlis, M., *Simplifying Administration of Health Insurance*. 2009, National Academy of Social Insurance and Robert Wood Johnson Foundation.
55. Casalino, L.P., et al., *What Does It Cost Physician Practices To Interact With Health Insurance Plans?* Health Affairs, 2009. **28**(4): p. w533-w543.
56. Blanchfield, B., et al., *Saving Billions Of Dollars-And Physicians' Time-By Streamlining Billing Practices*. Health Affairs, 2010. **29**(6): p. 1248.
57. Sakowski, J.A., et al., *Peering Into The Black Box: Billing And Insurance Activities In A Medical Group*. Health Affairs, 2009. **28**(4): p. w544-w554.
58. McKay, N.L. and C.H. Lemak, *Analyzing Administrative Costs in Hospitals*. Health Care Management Review, 2006. **31**(4): p. 347-354.
59. Iglehart, J.K., *Finding money for health care reform--rooting out waste, fraud, and abuse*. N Engl J Med, 2009. **361**(3): p. 229-31.
60. Kalb, P.E., *Health care fraud and abuse*. JAMA, 1999. **282**(12): p. 1163-8.
61. Federal Bureau of Investigation, *Financial Crimes Report to the Public*. Available at: http://www.fbi.gov/publications/financial/fcs_report2007/financial_crime_2007.htm#health. 2007.
62. Morris, L., *Combating fraud in health care: an essential component of any cost containment strategy*. Health Aff (Millwood), 2009. **28**(5): p. 1351-6.
63. Health Resources and Services Administration, *Press release: HHS budget makes smart investments, protects the health and safety of America's families*. Available at: <http://www.hrsa.gov/about/news/pressreleases/100201a.html>. 2010.
64. Love, D., W. Custer, and P. Miller *All-payer claims databases: state initiatives to improve health care transparency*. The Commonwealth Fund, 2010.
65. Kahn, D., *Presentation: Vermont Healthcare Claims Uniform Reporting & Evaluation System*. Available at: <http://www.academyhealth.org/files/SQII/StateQIKahn.pdf>. 2009.
66. Broder, M.S., et al., *The appropriateness of recommendations for hysterectomy*. Obstet Gynecol, 2000. **95**(2): p. 199-205.

67. Balas, E.A., et al., *Effect of physician profiling on utilization. Meta-analysis of randomized clinical trials.* J Gen Intern Med, 1996. **11**(10): p. 584-90.
68. United States Government Accountability Office, *Medicare: Focus on physician practice patterns can lead to greater program efficiency.* Available at: <http://www.gao.gov/new.items/d07307.pdf>. 2007.
69. Bentley, T.G., et al., *Waste in the U.S. Health care system: a conceptual framework.* Milbank Q, 2008. **86**(4): p. 629-59.
70. Chassin, M.R. and R.W. Galvin, *The urgent need to improve health care quality. Institute of Medicine National Roundtable on Health Care Quality.* JAMA, 1998. **280**(11): p. 1000-5.
71. Fuchs, V.R., *Eliminating "waste" in health care.* JAMA, 2009. **302**(22): p. 2481-2.
72. Kelley, B. and R. Fabius, *A path to eliminating \$3.6 trillion in wasteful healthcare spending.* Available at: http://www.ihealthtran.com/pdf/TR-8173PhaseIIWhitePaper_FINAL_06_14_10.pdf. 2010.
73. Fisher, E. and et al., *Health Care Spending, Quality, and Outcomes: More Isn't Always Better in Dartmouth Atlas Project Topic Brief.* 2009, The Dartmouth Institute for Health Policy & Clinical Practice.
74. Fisher, E.S., et al., *The implications of regional variations in Medicare spending. Part 1: the content, quality, and accessibility of care.* Ann Intern Med, 2003. **138**(4): p. 273-87.
75. Fisher, E.S., et al., *Fostering accountable health care: moving forward in medicare.* Health Aff (Millwood), 2009. **28**(2): p. w219-31.
76. Pricewaterhouse Coopers' Health Research Institute (2008) *The price of excess: identifying waste in healthcare spending. Volume,*
77. Blackwell, S.A., et al., *Applying the 2003 Beers update to Medicaid/Medicare enrollees.* International Journal of Pharmaceutical and Healthcare Marketing, 2008. **2**(4): p. 257-272.
78. Blackwell, S.A., et al., *Applying the 2003 Beers update to Medicaid/Medicare enrollees.* International Journal of Pharmaceutical and Healthcare Marketing,, 2008. **2**(4): p. 257-272.
79. Golden, A.G., et al., *Inappropriate medication prescribing in homebound older adults.* J Am Geriatr Soc, 1999. **47**(8): p. 948-53.
80. Bates, D.W., et al., *The costs of adverse drug events in hospitalized patients.* Jama, 1997. **277**(4): p. 307.
81. Vermont Department of Health, *Patient safety, surveillance, and improvement system: report to the legislature on Act 215 (2006), 18 V.S.A.* Available at: <http://www.leg.state.vt.us/reports/2009ExternalReports/240156.pdf>. 2008.
82. Halfon, P., et al., *Measuring potentially avoidable hospital readmissions.* J Clin Epidemiol, 2002. **55**(6): p. 573-87.
83. Medicare Payment Advisory Commission, *Reforming America's health delivery system.* Available at: http://www.medpac.gov/documents/20090401_WM_Testimony_DeliveryReform.pdf. 2009.
84. System, C.o.a.H.P.H., *State Scorecard Data Tables: Supplement to Aiming Higher: Results from a State Scorecard on Health System Performance.* 2007, The Commonwealth Fund.

85. Wennberg, J.E., et al., *Extending the P4P agenda, part 2: how Medicare can reduce waste and improve the care of the chronically ill*. Health Aff (Millwood), 2007. **26**(6): p. 1575-85.
86. Merenstein, D., G.L. Daumit, and N.R. Powe, *Use and costs of nonrecommended tests during routine preventive health exams*. Am J Prev Med, 2006. **30**(6): p. 521-7.
87. Iglehart, J.K., *The new era of medical imaging--progress and pitfalls*. N Engl J Med, 2006. **354**(26): p. 2822-8.
88. Cascade, P.N., E.W. Webster, and E.A. Kazerooni, *Ineffective use of radiology: the hidden cost*. AJR Am J Roentgenol, 1998. **170**(3): p. 561-4.
89. Weiner, S.N. and M. Komarow, *Utilization management and noninvasive diagnostic imaging*. Manag Care Interface, 2005. **18**(5): p. 34-8.
90. Isaacs, D.M., J. Marinac, and C. Sun, *Radiograph use in low back pain: a United States Emergency Department database analysis*. J Emerg Med, 2004. **26**(1): p. 37-45.
91. Anderiesz, C., et al., *Whole-body computed tomography screening: looking for trouble?* Med J Aust, 2004. **181**(6): p. 295-6.
92. Dillman, R.O. and S. Chico, *Radiologic tests after a new diagnosis of breast cancer*. Eff Clin Pract, 2000. **3**(1): p. 1-6.
93. van Walraven, C. and C.D. Naylor, *Do we know what inappropriate laboratory utilization is? A systematic review of laboratory clinical audits*. JAMA, 1998. **280**(6): p. 550-8.
94. Insinga, R.P., A.G. Glass, and B.B. Rush, *Pap screening in a U.S. health plan*. Cancer Epidemiol Biomarkers Prev, 2004. **13**(3): p. 355-60.
95. Koroukian, S.M., B. Trisel, and A.A. Rimm, *Estimating the proportion of unnecessary Cesarean sections in Ohio using birth certificate data*. J Clin Epidemiol, 1998. **51**(12): p. 1327-34.
96. Flum, D.R., et al., *Has misdiagnosis of appendicitis decreased over time? A population-based analysis*. JAMA, 2001. **286**(14): p. 1748-53.
97. Onpoint Health Data, *Tri-state variation in health service utilization & expenditures in northern New England: commercially insured population under age 65 in Maine, New Hampshire, & Vermont*. Available at: <http://www.bishca.state.vt.us/sites/default/files/Act49-Tri-State-Commercial-Variation.pdf>. 2010.
98. Wilson, J.F., *Vermont health care reform aims for more coverage, less expense, and better care*. Ann Intern Med, 2008. **148**(10): p. 797-800.
99. Leichter, H.M., *State model: Vermont. Health care reform in Vermont: a work in progress*. Health Aff (Millwood), 1993. **12**(2): p. 71-81.
100. Douglas, J., *Comprehensive health care reform in Vermont: a conversation with Governor Jim Douglas*. Interview by James Maxwell. Health Aff (Millwood), 2007. **26**(6): p. w697-702.
101. Merlis, M. *Health policy brief: Accountable Care Organizations*. 2010 [cited; Available from: http://www.healthaffairs.org/healthpolicybriefs/brief_pdfs/healthpolicybrief_20.pdf].
102. Evashwick, C. and A. Meadors, *Defining Integrated Delivery Systems*. AHSR FHRS Annu Meet Abstr Book, 1994. **11**: p. 31-2.
103. McCarthy, D. and K. Mueller, *Organizing for higher performance: case studies of organized delivery systems*. New York: The Commonwealth Fund, 2009.

104. Baicker, K. and A. Chandra, *A Trillion-Dollar Geography Lesson*. Health Affairs, 2009. **28**(5): p. 1448-1451.
105. Tollen, L., *Physician Organization in Relation to Quality and Efficiency of Care: A Synthesis of Recent Literature*. 2008: The Commonwealth Fund.
106. Sterns, J.B., *Quality, Efficiency, and Organizational Structure*. Journal of Health Care Finance, 2007. **34**(1): p. 100-107.
107. Chuang, K.H., H.S. Luft, and R.A. Dudley, *The Clinical and Economic Performance of Prepaid Group Practice*, in *Toward a 21st Century Health System: The Contributions and Promise of Prepaid Group Practice*, A.C. Enthoven and L.A. Tollen, Editors. 2004, Jossey-Bass: San Francisco. p. 45–60.
108. Institute for Healthcare Improvement. *The Triple Aim: best health care for populations*. 2011 [cited; Available from: <http://www.ihl.org/IHI/Programs/StrategicInitiatives/TripleAim.htm>].
109. Klein, S. and D. McCarthy, *Genesys HealthWorks: Pursuing the Triple Aim Through a Primary Care-Based Delivery System, Integrated Self-Management Support, and Community Partnerships*. 2010, New York: The Commonwealth Fund.
110. Levin-Scherz, J., N. DeVita, and J. Timbie, *Impact of pay-for-performance contracts and network registry on diabetes and asthma HEDIS® measures in an integrated delivery network*. Medical Care Research and Review, 2006. **63**(1 suppl): p. 14S.
111. Jha, A.K., et al., *Use of Electronic Health Records in U.S. Hospitals*. New England Journal of Medicine, 2009. **360**(16): p. 1628-1638.
112. Poissant, L., et al., *The impact of electronic health records on time efficiency of physicians and nurses: a systematic review*. Journal of the American Medical Informatics Association, 2005. **12**(5): p. 505-516.
113. Goldzweig, C., et al., *Costs and benefits of health information technology: new trends from the literature*. Health Affairs, 2009. **28**(2): p. w282.
114. Orszag, P. *Evidence on the Costs and Benefits of Health Information Technology*. Testimony before the Subcommittee on Health of the US House Ways 2008 [cited 9 January 2011]; Available from: <http://www.cbo.gov/ftpdocs/95xx/doc9572/07-24-HealthIT.pdf>.
115. Fletcher Allen Health Care. *Chronic Care (The Community Care Team)*. 2011 [cited 8 January 2011]; Available from: http://www.fletcherallen.org/services/primary_care/specialties/chronic_care/.
116. Onpoint Health Data, *Tri-State Variation in Health Services Utilization & Expenditures in Northern New England: Commercially Insured Population Under Age 65 in Maine, New Hampshire, & Vermont*. 2010: Manchester, ME.
117. The Dartmouth Institute for Health Policy & Clinical Practice. *The Dartmouth Atlas of Health Care*. 2011 [cited; Available from: <http://www.dartmouthatlas.org>].
118. Vermont Department of Health, *Vermont Blueprint for Health: 2009 Annual Report*. Available at: http://healthvermont.gov/prevent/blueprint/documents/Blueprint_AnnualReport_2009_0110rev.pdf. 2010.
119. Rittenhouse, D.R. and S.M. Shortell, *The patient-centered medical home: will it stand the test of health reform?* JAMA, 2009. **301**(19): p. 2038-40.

120. Reid R J, et al., *The Group Health Medical Home At Year Two: Cost Savings, Higher Patient Satisfaction, And Less Burnout For Providers*. Health Aff, 2010. **29**(5): p. 835-843.
121. McCarthy, D., K. Mueller, and J. Wrenn, *Geisinger Health System: Achieving the Potential of System Integration Through Innovation, Leadership, Measurement, and Incentives*. June 2009, The Commonwealth Fund.
122. Leff, B., et al., *Guided care and the cost of complex healthcare: a preliminary report*. The American journal of managed care, 2009. **15**(8): p. 555.
123. Community Care of North Carolina. *Disease & Care Management Initiatives*. 2007 [cited 1/10/2011]; Available from: http://www.communitycarenc.com/PDFDocs/Entire_2007Update.pdf.
124. Mercer Consulting. *CCNC/ACCESS Cost Savings - State Fiscal Year 2005 and 2006 Analysis*. 2007 [cited; Available from: http://www.communitycarenc.com/PDFDocs/Mercer%20SFY05_06.pdf.
125. Fields, D., E. Leshen, and K. Patel, *ANALYSIS & COMMENTARY Driving Quality Gains And Cost Savings Through Adoption Of Medical Homes*. Health Aff, 2010. **29**(5): p. 819-826.
126. Grumbach, K. and J.W. Mold, *A Health Care Cooperative Extension Service*. JAMA: The Journal of the American Medical Association, 2009. **301**(24): p. 2589-2591.
127. Jaen, C.R., et al., *Patient outcomes at 26 months in the patient-centered medical home National Demonstration Project*. Ann Fam Med. **8 Suppl 1**: p. S57-67; S92.
128. Grumbach, K. and P. Grundy, *Outcomes of Implementing Patient Centered Medical Home Interventions: A Review of the Evidence from Prospective Evaluation Studies in the United States*. 2010, Patient-Centered Primary Care Collaborative: Washington, DC.
129. Studdert, D.M., M.M. Mello, and T.A. Brennan, *Medical malpractice*. N Engl J Med, 2004. **350**(3): p. 283-92.
130. Hickson, G.B., et al., *Obstetricians' prior malpractice experience and patients' satisfaction with care*. JAMA, 1994. **272**(20): p. 1583-7.
131. Hickson, G.B., et al., *Patient complaints and malpractice risk*. JAMA, 2002. **287**(22): p. 2951-7.
132. Levinson, W., et al., *Physician-patient communication. The relationship with malpractice claims among primary care physicians and surgeons*. JAMA, 1997. **277**(7): p. 553-9.
133. Studdert, D.M., et al., *Claims, errors, and compensation payments in medical malpractice litigation*. N Engl J Med, 2006. **354**(19): p. 2024-33.
134. Brennan, T.A., C.M. Sox, and H.R. Burstin, *Relation between negligent adverse events and the outcomes of medical-malpractice litigation*. N Engl J Med, 1996. **335**(26): p. 1963-7.
135. Burstin, H.R., et al., *Do the poor sue more? A case-control study of malpractice claims and socioeconomic status*. JAMA, 1993. **270**(14): p. 1697-701.
136. Elmendorf, D., *Letter to Orrin G. Hatch*, C.B. Office, Editor. 2009: Washington, DC.
137. Mello, M.M., et al., *National costs of the medical liability system*. Health Aff (Millwood), 2010. **29**(9): p. 1569-77.
138. Thomas, K., *Defensive medicine and medical malpractice*. Hosp Technol Ser, 1994. **13**(15): p. 10, 12-3.
139. Kessler, D. and M. McClellan, *Do Doctors Practice Defensive Medicine?* National Bureau of Economic Research, 1996.

140. Bishop, T.F., A.D. Federman, and S. Keyhani, *Physicians' views on defensive medicine: a national survey*. Arch Intern Med, 2010. **170**(12): p. 1081-3.
141. Carrier, E.R., et al., *Physicians' fears of malpractice lawsuits are not assuaged by tort reforms*. Health Aff (Millwood), 2010. **29**(9): p. 1585-92.
142. Massachusetts Medical Society, *Investigation of Defensive Medicine in Massachusetts*. 2008.
143. The Vermont Malpractice Study Committee, *Medical Malpractice Liability Insurance in VT*. 2005, VT General Assembly.
144. Baicker, K., E.S. Fisher, and A. Chandra, *Malpractice liability costs and the practice of medicine in the Medicare program*. Health Aff (Millwood), 2007. **26**(3): p. 841-52.
145. Summerton, N., *Positive and negative factors in defensive medicine: a questionnaire study of general practitioners*. BMJ, 1995. **310**(6971): p. 27-9.
146. Studdert, D.M., et al., *Defensive medicine among high-risk specialist physicians in a volatile malpractice environment*. JAMA, 2005. **293**(21): p. 2609-17.
147. Thomas, J.W., E.C. Ziller, and D.A. Thayer, *Low costs of defensive medicine, small savings from tort reform*. Health Aff (Millwood), 2010. **29**(9): p. 1578-84.
148. Lakdawalla, D. and S. Seabury, *The Welfare Effects of Medical Malpractice Liability* NBER Working Paper Series, 2009. **w15383**.
149. Bismark, M. and R. Paterson, *No-fault compensation in New Zealand: harmonizing injury compensation, provider accountability, and patient safety*. Health Aff (Millwood), 2006. **25**(1): p. 278-83.
150. Accident Compensation Corporation, *2008 Annual Report, New Zealand*. 2008.
151. Davis, P., et al., *Compensation for medical injury in New Zealand: does "no-fault" increase the level of claims making and reduce social and clinical selectivity?* J Health Polit Policy Law, 2002. **27**(5): p. 833-54.
152. World Health Organization, *Annual Health Systems Report*. 2009: Geneva.
153. Bismark, M., et al., *Accountability sought by patients following adverse events from medical care: the New Zealand experience*. CMAJ, 2006. **175**(8): p. 889-94.
154. Kachalia, A.B., et al., *Beyond negligence: avoidability and medical injury compensation*. Soc Sci Med, 2008. **66**(2): p. 387-402.
155. Brook, R., et al., *The effect of coinsurance on the health of adults*, in *Results from the RAND Health Insurance Experiment*. 1984, RAND Corporation: Sherbourne CA,.
156. BISHCA, *2008 Provider Reimbursement Report: Primary Care Services*. 2008, BISHCA Division of Health Care Administration.
157. US Census Bureau, *County-To-County Worker Flow Files*. 2000.
158. Tai-Seale, M., T.H. Rice, and S.C. Stearns, *Volume responses to Medicare payment reductions with multiple payers: a test of the McGuire-Pauly model*. Health Econ, 1998. **7**(3): p. 199-219.
159. Riley, W.A. and W.A. Schneckenburger, *The Maryland experience and a practical proposal to expand existing models in ambulatory primary care*. JAMA, 1991. **266**(8): p. 1118-22.
160. Wagstaff, A. and E. van Doorslaer, *Equity in the finance of health care: some international comparisons*. Journal of Health Economics, 1992. **11**: p. 361-387.
161. Gottret, P. and G. Schieber, *Health Financing Revisited*. 2006, Washington, DC: The World Bank.

162. Baicker, K. and A. Chandra, *The Labor Market Effects of Rising Health Insurance Premiums*. 2006.
163. Mayshar, J., *On measures of excess burden and their application*. Journal of Public Economics, 1990. **43**(3): p. 263-289.
164. Gruber, J., *The Incidence of Mandated Maternity Benefits*. The American Economic Review, 1994. **84**(3): p. 622-641.
165. Musgrave, R.A., *The theory of public finance*. 1959.
166. John, S. and H. Randall, *The Cost Of Tax-Exempt Health Benefits In 2004*. Health Affairs, 2004: p. W4.
167. Vermont Department of Health. *Rural Health and Primary Care Programs*. 2010 [cited 2010 12-26]; Available from: <http://healthvermont.gov/rural/programs.aspx>.
168. UVM Medical College. *UVM Medical College, 2011 Primary Care Educational Repayment Loan Application*, . 2011 [cited 2010 12-26]; Available from: <https://www.med.uvm.edu/ahec/TB8+BL+I.asp?SiteAreaID=94>.
169. Baribault, T. (2008) *Vermont's Primary Care Woes*. Vermont Business Magazine **Volume**,
170. Carll, S. *Vermont Healthcare Recruitment*. 2010 [cited 2010 212-26]; Available from: <https://www.3rnet.org/Locations/default.aspx?state=Vermont>.
171. Caswell, B.B., *Doctor shortage ails Vermont*, in WCAX.COM. 2010: Burlington VT.
172. Hester, J., Jr., *Designing Vermont's pay-for-population health system*. Prev Chronic Dis, 2010. **7**(6): p. A122.
173. Barton, D., *Access Across Vermont: Advancing a Medical Home Model for Vermonters*. 2009, Bi-State Primary Care Association.
174. Allen, D.W., *What are transaction costs*. Research in Law and Economics, 1991. **14**(0): p. 1-18.
175. Palmeri, M., et al., *Economic impact of a primary care career: a harsh reality for medical students and the nation*. Acad Med, 2010. **85**(11): p. 1692-7.
176. Dezee, K.J., et al., *Effect of Financial Remuneration on Specialty Choice of Fourth-Year U.S. Medical Students*. Acad Med, 2010.
177. Barrett, F.A., M.S. Lipsky, and M. Nawal Lutfiyya, *The Impact of Rural Training Experiences on Medical Students: A Critical Review*. Acad Med, 2010.
178. CMA, *Patient focused funding and pay-for-performance: a discussion of the concepts and experience*. 2007, Candian Medical Association ad hoc working group on patient-focused funding.
179. Chassin, M., *Does paying for performance improve the quality of health care?* Med Care Res Rev, 2006. **63**(1).
180. Nicholson, S., et al., *Getting real performance out of pay-for-performance*. The Milbank Quarterly, 2008. **86**(3).
181. Damberg, C., et al., *Taking stock of pay for performance: a candid assessment from the front lines*. Health Affairs, 2009. **28**(2).
182. Hafferty, F. and D. Light, *Professional dynamics and the changing nature of medical work*. Journal of Health and Social Behavior, 1995. **11**.
183. Casalino, L., et al., *General internists' views on pay-for-performance and public reporting of quality scores: a national survey*. Health Affairs, 2007. **26**(2).
184. Meyer, H., *The pay for performance dilemma*. Organizational dynamics, 1975.

185. Rosenthal, M.B., et al., *Early experience with pay-for-performance: from concept to practice*. JAMA, 2005. **294**(14): p. 1788-93.
186. Basinga, P., et al., *Paying Primary Health Care Centers for Performance in Rwanda*. 2010, The World Bank Human Development Network Chief Economist's Office Africa Region Health, Nutrition & Population Unit.
187. Ariely, D., *Predictably irrational*. 2008, New York City: HarperCollins Publishers.
188. Buetow, S., *Pay-for-performance in New Zealand primary health care*. Journal of Health Organization and Management, 2008. **22**(1).
189. Neame, R., *Smart cards--the key to trustworthy health information systems*. BMJ, 1997. **314**(7080): p. 573-7.
190. Hester, J., Lewis, J, McKethan, A., *The Vermont Accountable Care Organization Pilot: A Community Health System to Control Total Medical Costs and Improve Population Health*. 2010, The Commonwealth Fund.
191. American Medical Association, *H.R. 1, the "American Recovery and Reinvestment Act of 2009": Explanation of health information technology (HIT) provisions*. Available at: <http://www.ama-assn.org/ama1/pub/upload/mm/399/arra-hit-provisions.pdf>. 2010.
192. *The Patient Protection and Affordable Care Act of 2010*. Available at: <http://www.gpo.gov/fdsys/pkg/PLAW-111publ148/content-detail.html>.
193. Lieberman, S.M. and J.M. Bertko, *Building regulatory and operational flexibility into accountable care organizations and 'shared savings'*. Health Aff (Millwood). **30**(1): p. 23-31.
194. Goldsmith, J., *Accountable care organizations: the case for flexible partnerships between health plans and providers*. Health Aff (Millwood). **30**(1): p. 32-40.
195. Devore, S. and R.W. Champion, *Driving population health through accountable care organizations*. Health Aff (Millwood). **30**(1): p. 41-50.