



Bending the Health Care Cost Curve in New York State: Options for Saving Money and Improving Care

Modeling Results Technical Appendix

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I. Estimating Baseline Spending for New York State

The first step in estimating the effect of these cost containment proposals was to develop projections of health spending in New York under current law. In particular, we needed estimates of total health spending by type of service and source of payment for 2011 through 2020. These data are important to estimating the effects of policies where the impacts will vary across service providers (e.g., hospitals, physicians, etc.) and payers (Medicaid, private health insurance, etc.). These data are also crucial to estimating savings by payer group.

Unfortunately, data of this type are not collected in sufficient detail at the state level. The most recent comprehensive assessment of state-wide spending was developed for 2004 by the Centers for Medicare and Medicaid Services (CMS). However, it provides only very limited detail by source of payment (Medicare, Medicaid and “other”). Although there are more recent spending data for some services and programs, a comprehensive accounting of health spending in New York is not available. In this analysis, we combined the data from these disparate sources using the Lewin Group Health Benefits Simulation Model (HBSM), which is designed to provide detailed information on health spending by source of payment and demographic group.

In this section, we present our estimates of health spending for New York for 2011 through 2020. We also describe the methods used to integrate data from several sources into a comprehensive estimate of health spending in the State.

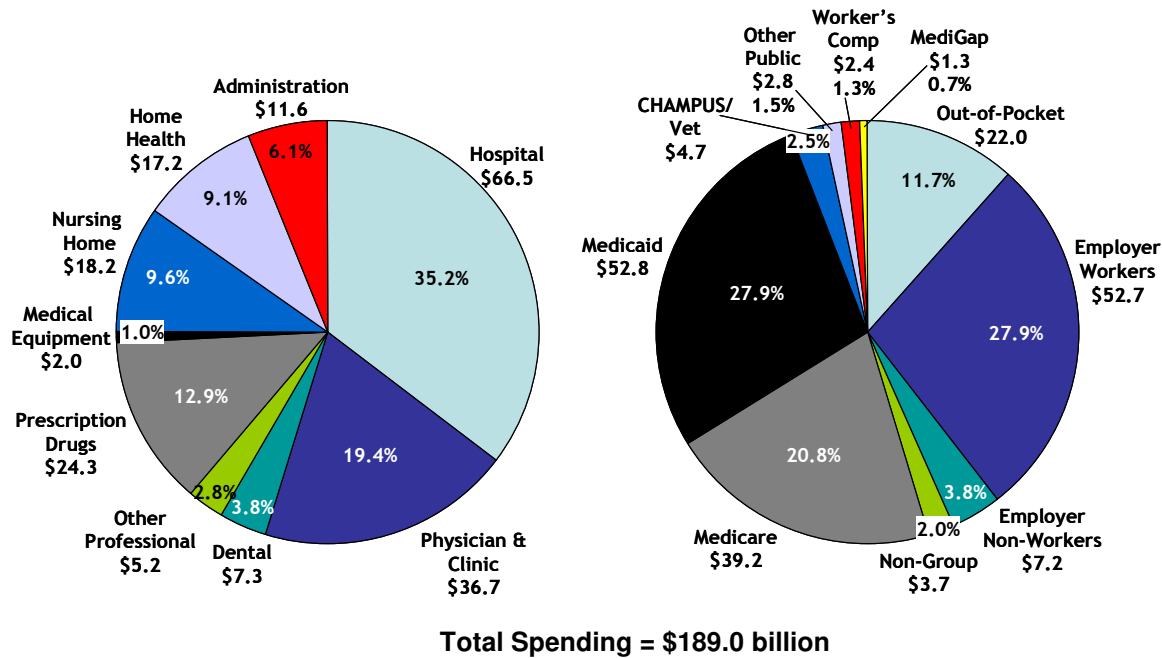
A. Health Spending In New York

The CMS estimates that total personal health care spending for New York residents was \$126.1 billion in 2004. Of this, \$22.8 billion was paid by Medicare, \$40.1 billion by Medicaid, and \$63.2 billion was covered by other sources including private insurance, other public programs, and out-of-pocket spending for families. Hospital care accounted for 36 percent of spending with physician care accounting for 20.1 percent of expenditures (Discussed below).

We estimate that spending in New York would grow to \$189.0 billion in 2011 under current law (*Figure 1*). This includes total spending by all payer groups for New York residents including payments to health care providers and the cost of administration for insurance and public programs (excludes public health research and construction).¹ Of this \$66.5 billion would be for hospital care and \$36.7 billion would be spent on physician care.

Long term care spending would be \$35.4 billion in 2011 including nursing home care, home health, and “personal services.” New Yorkers will spend about \$35.4 billion on outpatient prescription drugs, which is equal to about 12.9 percent of total spending. The cost of administration for private insurance and public programs would be \$11.6 billion, which is 6.1 percent of total spending.

Figure 1
Projected Spending in New York by Type of Service and Source of Coverage in 2011



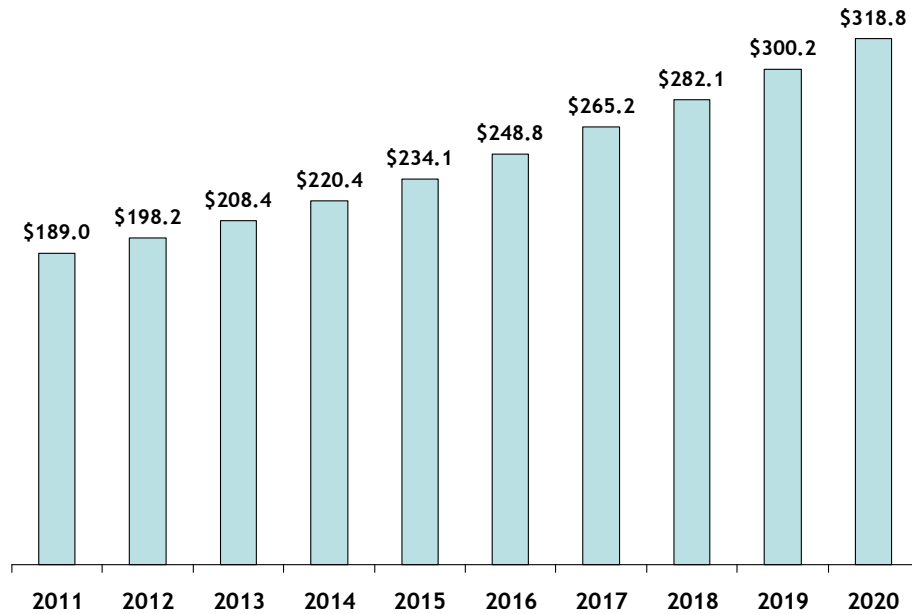
Source: Lewin Group estimates using data provided by the Office of the Actuary of the Centers for Medicare and Medicaid Services (CMS).

We projected the growth in health spending through 2020 based upon CMS historical and projected spending growth data. The CMS projects that national health spending will grow at roughly 6.3 percent per year over the next decade. However, separate spending projections for New York are not available.

We developed long-term spending projections for New York based upon the historical spending growth information provided by the CMS. The CMS provides historical data on the rate of growth in health spending by state for 1991 through 2004. These data show that the rate of growth in health spending for New York has been on average about 0.4 percentage points lower than the national average rate of growth. Based upon this historical trend, we projected health spending in New York would be equal to national growth rate of 6.3 percent less 0.4 percent for an assumed growth rate of 5.9 percent.

Using these data, we estimate that health spending in New York will grow from \$189.0 billion in 2011 to \$318.8 billion in 2020 (*Figure 2*).

Figure 2
Projected Total Health Spending in New York for 2011 through 2020



Source: Lewin Group estimates using CMS spending growth estimates.

B. New York Health Spending Data

The most comprehensive data available on health spending in New York were compiled by the CMS for 2004 and prior years. They provide information on spending for nine health service groups which together comprise all spending for health services in the State. For each of these service groups, they provide estimates of the amount paid under Medicare, Medicaid, and a third group called “other” payers. Spending for 2004 was \$126.1 billion in 2004 (*Figure 3*).

Figure 3
Estimated Spending for Personal Health Care Services in New York for 2004 (billions) ^{a/}

	Total	Medicare	Medicaid	Other
Total Personal Health Care	\$126.1	\$22.8	\$40.1	\$63.2
Hospital Care	\$45.6	\$12.9	\$13.7	\$19.0
Physician & Clinical Services	\$25.6	\$6.0	\$2.5	\$17.1
Other Professional Services	\$3.6	\$1.1	\$0.2	\$2.3
Dental Services	\$5.4	\$0.0	\$0.4	\$5.1
Home Health Care	\$6.0	\$0.8	\$3.6	\$1.6
Drugs and Other Medical Nondurables	\$17.7	\$0.3	\$4.8	\$12.6
Durable Medical Equipment	\$1.7	\$0.4	\$0.0	\$1.3
Nursing Home Care	\$13.4	\$1.3	\$9.3	\$2.7
Other Personal Health Care	\$7.0	\$0.0	\$5.5	\$1.5

a/ The CMS does not provide state-level estimates of spending for private insurance administration, public program administration or public health activities.

Source: Office of the Actuary (OACT) of the Center for Medicare and Medicaid Services (CMS).

An important limitation to these data is that they do not show how spending for “other” providers is distributed across public and private payers. The “other” category encompassed employer health insurance, individual coverage, Medicare supplemental coverage, workers compensation, and safety-net programs in the state. These data also do not include the cost of insurance and public program administration. Thus, it was necessary to disaggregate these spending amounts in greater detail and to estimate administrative costs.

C. Health Spending for Public Programs

The state Medicaid program provides information on Medicaid spending in New York by type of service for 2008. These data show that the program serves an average of about 4.0 million people (average monthly enrollment) at a total cost of \$43.0 billion, excluding program administrative costs. These data include several service categories including hospitals, physician and clinic services, prescription drugs, home health, and nursing home care (includes ICF/MR spending). These data also show that the state paid about \$7.9 billion in capitated payments for those covered under the state’s Medicaid managed care program (*Figure 4*).²

Figure 4
New York Spending for Medicaid by Type of Service and Eligibility Group in 2008

	Total	Aged	Blind & Disabled	Children	Adults	Other
Average Monthly enrollment (thousands)						
Enrollment	4,067	385	688	1,615	1,378	611
Health Spending (millions)						
Total Spending	\$43,041	\$10,305	\$20,519	\$4,514	\$7,015	\$689
Capitated Care	\$7,879	\$883	\$1,545	\$2,036	\$3,399	\$16
Inpatient Hospital	\$5,733	\$418	\$2,384	\$845	\$1,603	\$482
Outpatient Hospital	\$1,223	\$79	\$692	\$132	\$301	\$20
Physician and Clinic	\$1,667	\$95	\$885	\$241	\$421	\$25
Dental Services	\$408	\$35	\$119	\$146	\$102	\$6
Other practitioners	\$28	\$11	\$14	\$0.6	\$1	\$0.3
Lab and X-rays	\$125	\$18	\$64	\$7	\$33	\$4
Prescription Drugs	\$3,358	\$80	\$1,823	\$452	\$999	\$5
Home Health and Personal	\$5,573	\$2,607	\$2,598	\$289	\$50	\$30
ICFMR/Nursing Home	\$10,775	\$5,335	\$5,280	\$29	\$46	\$86
Mental Health Facility	\$496	\$89	\$255	\$137	\$7	\$7
Other care	\$5,778	\$654	\$4,861	\$201	\$55	\$7

Source: The Medicaid Statistical Information System (MSIS).

We projected this spending to 2011 levels based upon actual data on program growth between 2008 and 2010. We assumed the rate of growth in 2011 would be the same as the average rate of growth in the program between 2008 and 2010. We also projected the Medicare health spending

estimates to 2011 based upon CMS data on Medicare spending by service after 2004 and into their projection period for 2011.

We also include data on spending for state safety-net programs and health benefits under the workers compensations program. We based these estimate on a detailed assessment of federal, state, and local government spending in New York that we performed in an earlier study for the United Hospital Fund (UHF).

D. Private Employer Health Insurance Spending

The CMS data provides only very limited information on private health spending. For example, even at the national level, the CMS data do not show how spending is distributed across various payer groups including employer insurance, individual coverage, Medicare supplemental coverage, and workers compensation. Consequently, it was necessary for us to incorporate other data on spending for these sources.

Our first step was to project state spending for “other” sources from the 2004 data to 2011. We did this based upon CMS estimates of how spending for the “other” payer group increased in their historical data and in their projections to 2011. We then used other data sources to disaggregate this spending into more detailed payer groups.

We began this process by developing an estimate of spending under employer sponsored health insurance in New York. We based this estimate on the New York sub-sample of the MEPS employer survey data. These data showed average premiums per worker by firm size and for state and local workers. Premium estimates are provided for individual coverage and family coverage.

We then estimated total employer health spending in the state based upon these average premiums and data on the number of covered workers in each firm size and policy type group in New York. These data were estimated from the New York sub-sample of the March 2009 current population survey (CPS) conducted annually by the Bureau of the Census. We projected employer spending in 2011 based upon the CMS projection of spending for private health insurance nationally. We estimate that there will be about 4.9 million workers with employer-sponsored health insurance covering \$45.8 billion in health services for workers and dependents (*Figure 5*).

Figure 5
Derivation of Employer Health Spending Estimates for New York in 2011

Firm Size	Projected Covered Workers 2011 ^{a/}	Per Worker Premium 2008 ^{b/}	Projections to 2011 ^{c/}			Total Employer Benefits Costs (millions)
			Per Worker Premium	Insurer Administration ^{d/}	Benefits Costs (i.e. pure premium)	
Worker Individual Coverage						
Under 10 workers	278,311	\$4,872	\$5,754	\$1,766	\$3,987	\$1,110
10 to 24 workers	214,556	\$5,167	\$6,102	\$1,495	\$4,607	\$988
25-99	321,565	\$4,261	\$5,032	\$886	\$4,147	\$1,333
100-499	308,461	\$4,892	\$5,777	\$757	\$5,021	\$1,549
500-999	127,421	\$4,892	\$5,777	\$566	\$5,211	\$664
1000-4999	197,034	\$4,456	\$5,263	\$289	\$4,973	\$980
5000 & over	497,166	\$4,456	\$5,263	\$289	\$4,973	\$2,472
Federal Government	49,814	\$5,548	\$6,552	\$360	\$6,192	\$308
State and Local Government	468,592	\$4,759	\$5,620	\$309	\$5,311	\$2,489
Worker Family Coverage						
Under 10	238,822	\$12,127	\$14,322	\$4,397	\$9,925	\$2,370
10 to 24 workers	178,760	\$13,565	\$16,020	\$3,925	\$12,095	\$2,162
25-99	268,814	\$12,015	\$14,190	\$2,497	\$11,692	\$3,143
100-499	311,646	\$12,117	\$14,310	\$1,875	\$12,436	\$3,875
500-999	135,583	\$12,117	\$14,310	\$1,402	\$12,908	\$1,750
1000-4999	195,619	\$13,230	\$15,625	\$859	\$14,765	\$2,888
5000 & over	545,334	\$13,230	\$15,625	\$859	\$14,765	\$8,052
Federal Government	71,255	\$16,471	\$19,453	\$1,070	\$18,383	\$1,310
State and Local Government	528,341	\$14,130	\$16,687	\$918	\$15,769	\$8,332
Total	4,937,094					\$45,777

a/ Estimates of covered workers are taken from the New York sub-sample of the March 2009 current population survey data which we adjusted for population growth through 2011.

b/ Estimates are from the New York sub-sample of the Medical Expenditures Survey of employers for 2008.

c/ These are the 2008 estimates adjusted to 2011 based upon CMS estimates of private insurance cost growth over the 2009 through 2011 period.

d/ Based upon Lewin Group estimates of administrative costs as a percentage of total premium by firm size (ranges between 30 percent of benefits costs for firms with fewer than 10 workers, to 5.5 percent of benefits costs among firms with 10,000 or more workers).

E. Other Private Spending

At this point in the analysis, we had estimated health spending for public programs and private employer health insurance. However, there are several other categories of spending that are required for this study. These include coverage under individual non-group policies, employer sponsored retiree benefits, Medicare supplemental coverage, and family out-of pocket spending.

We estimated spending for these categories using the Lewin Group Health Benefits Simulation Model (HBSM). HBSM is a micro-simulation model of the health sector designed to produce state-level estimates. The core of the model is a sample of households surveyed in MEPS that provides detailed information on sources of insurance coverage, health spending by payer source, income, and other demographic information. These data include this information for each member of all of the households interviewed.

Because the MEPS household data are not reportable at the state level, we must develop a representation of the New York population and health system. We start by adjusting sample weights in these data to replicate the distribution of people in New York across 300 separate characteristics including source of insurance coverage, demographic characteristics, and workforce variables.³ The result is a data file that simultaneously replicates an extensive array of population characteristics for New York that also provides information on health spending and source of payment for these groups.

We then adjust the spending reported for individuals in the household data to replicate our projections of spending by type of service and source of payment for public programs, employer coverage, and “other payers.” The distribution of spending in the “other” category is then taken directly from the reweighted household data for New York. This assumes that the distribution of “other” payer spending across the remaining groups is the same as reported in the adjusted and reweighted MEPS data.

This provides us with estimates of out-of-pocket spending and payments from individual coverage, employer retiree coverage, Medicare supplemental coverage and individual non-group coverage. People were allocated to managed care plans based upon published market share data for New York.⁴ These include private HMOs, Medicare Advantage plans, and Medicaid health plans. *Figure 6* presents our estimates of health spending by type of service and source of payment.

The household data were used in this study to identify spending for groups of people and/or services potentially affected by individual cost containment options. These groups of potentially affected people are described in the description of our methods in the technical appendix.

Figure 6
Projected Health Spending by Type of Service and Source of Payment for New York in 2011 (millions)

	Total Spending	Hospital	Physician & Clinic	Dentist	Other Prof.	Presc. Drugs	Medical Equip.	Nursing Home	Home Health	Insurer & Program Admin.
Out-of-pocket	\$22,170	\$1,715	\$3,451	\$3,001	\$1,076	\$4,051	\$1,150	\$3,868	\$3,858	\$0
Employer-Workers	\$52,665	\$18,284	\$16,260	\$3,300	\$1,331	\$7,369	\$200	\$0	\$0	\$5,920
Employer-Retirees	\$7,160	\$2,368	\$1,989	\$233	\$204	\$1,757	\$36	\$0	\$0	\$572
Non-Group Insurance	\$3,698	\$1,055	\$971	\$119	\$64	\$491	\$21	\$0	\$0	\$977
Medicare	\$39,249	\$19,579	\$8,018	\$27	\$1,842	\$3,569	\$522	\$2,322	\$1,649	\$1,722
Medicaid	\$52,750	\$17,600	\$3,219	\$515	\$257	\$6,180	\$0	\$11,974	\$11,693	\$1,312
TRICARE/VA	\$4,687	\$2,900	\$759	\$0	\$0	\$785	\$0	\$0	\$0	\$244
Other Public	\$2,824	\$1,809	\$757	\$47	\$42	\$18	\$13	\$0	\$0	\$139
Workers Compensation	\$2,409	\$744	\$834	\$0	\$328	\$75	\$20	\$0	\$0	\$408
MediGap	\$1,347	\$450	\$489	\$18	\$71	\$0	\$0	\$0	\$0	\$319
TOTAL	\$188,959	\$66,503	\$36,747	\$7,260	\$5,215	\$24,295	\$1,963	\$18,164	\$17,201	\$11,613

Source: Lewin Group estimates. Numbers may not add to totals due to rounding.

II. Promoting Accountable Care Organizations

Accountable Care Organizations (ACOs) have been proposed as an opportunity for health care providers to band together to coordinate care and share in the savings that can be realized through improvements in the quality and efficiency of care. Health care providers receive a portion of the resulting savings in the form of bonuses for achieving quality targets and reducing overall spending growth for a defined group of patients. A portion of the savings is retained by health plans resulting in lower premiums for private insurance and reduced spending under public programs.

The ACO model creates incentives for providers to emphasize primary care, prevention, and adherence to evidence-based guidelines. This can take the form of a medical home model, a disease management program, and coordination of care for patients with multiple health conditions. It is also compatible with value-based benefit design which encourages the use of cost-effective services by reducing the copayments associated with that care. In addition, the ACO model reduces incentives to acquire new technology that would add to service volume, thus reducing potential bonus income.

ACOs are a new approach to health care delivery that has yet to be demonstrated. The Brookings Institute will be jointly sponsoring a pilot ACO project with the Dartmouth Institute for Health Policy and Clinical Practice beginning in 2010. Starting in 2012, the recently enacted Patient Protection and Affordable Care Act (PPACA) will allow providers that are organized in ACOs to share in the cost savings they achieve for the Medicare program (provided that they meet quality thresholds).

There are several varieties of the ACO model that have been discussed. In general, the ACO proposals give providers an opportunity to share in savings from efficiencies without actually going “at risk” for patient costs. However, the concept could be modified so that providers are capitated for at least some portion of the care provided to patients, which is likely to enhance savings. Providers could also accept bundled payments for individual episodes of care which could be awarded to ACO-like organizations on the basis of competitive bidding.⁵

A recent report from the Medicare Payment Advisory Commission (MedPAC) outlined two alternative ACO models including a “mandatory” model and a “voluntary” model. Under the mandatory model all physicians are assigned to an ACO that includes at least one hospital, while the voluntary model gives providers the option of forming an ACO. Patients are assigned to the ACO to which their primary care provider is assigned. The voluntary model has limited savings potential because the bonus must be high enough to attract providers to the program. By comparison, the mandatory model can set lower bonus levels and can actually impose penalties for poor performance. In both the mandatory and voluntary models, patients have the option of obtaining care from any provider, including those not participating in the ACO.

In this analysis, we estimated the effect of implementing these two versions of the ACO model in New York, including one that is mandatory and one that is voluntary. We present the data and methods used to estimate their cost effects below.

A. Mandatory ACO

Under a mandatory model, physicians and other providers are assigned to newly formed ACOs. Patients are then assigned to the ACO that includes the physician(s) they most frequently use. Providers continue to be paid on a fee-for-service (FFS) basis with a portion withheld until the end of the year. ACOs that meet quality targets and control costs would receive their withhold amounts and would qualify for bonuses, while ACOs that perform poorly would be penalized by forfeiting some or all of their withhold amount. However, because participation is compulsory, the program can set bonuses at whatever level necessary to create an incentive for efficiency.

1. Forming Mandatory ACOs

Under this model, providers would be formed into ACOs around one or more hospital(s). Ideally, each ACO would include at least one hospital. Physicians would be assigned to the hospitals that are in the same geographic region and/or the hospitals where they most often practice. The assignment to ACOs also could be designed to assure that an adequate number of specialists are included in each ACO so that a cost control program created by the ACO can be applied to potentially all of the care provided to patients covered under the ACOs.

A mandatory program simply requires providers to participate. Because it is mandatory, the program does not need to set potential bonus amounts at levels required to give hospitals and physicians an incentive to form the ACO. This differs from the voluntary model discussed below that requires bonuses to be set at a high enough level to induce hospitals and physicians to form ACOs.

Once ACOs are formed, patients are assigned to the ACO that includes the provider they most frequently access. For example, most people would be included in the ACO to which their primary care physician is assigned. However, it is possible for the ACO to include the patient's primary care provider, but not include one or more of the specialist providers they are seeing, such as a cardiologist. These specialists may also use hospitals other than the one(s) included in the patient's ACO. Unlike an HMO, the ACO would not be empowered to require member patients to use only providers participating in the ACO.

These "mismatches" of providers and patients would diminish the cost containment potential of the program. To be effective, all of the providers within an ACO need to work together to implement cost containment strategies. These cost controls could include a "medical home" model and bundled payment systems for hospitals. However, it is difficult to control costs if some patients are receiving care from outside providers who are not involved in the ACO. In fact, physicians would continue to have a strong incentive to maximize service volume for patients that are not in their own ACO.

One way of dealing with these factors is to include all providers and all patients operating in a given geographic area in a single ACO. This would minimize instances where patients in one ACO are receiving care from providers in a different ACO. However, the "mismatch" problem would persist for patients who come from other geographic areas to use hospitals or specialists in a given geographic area. This would include patients living in rural areas who come to the city for specialty care that is not available in their own geographic region.

However, the formation of so many providers into a single economic unit would create anti-trust issues. Also, individual providers in very large ACOs may find that their own efforts to control costs will have little impact on the bonus amount received. In these cases, the provider may see increasing service volume as the only way to increase/maintain income, thus reducing the cost containment effect of the program.

There are many implementation issues with adopting a mandatory ACO model. For example, the ACO assignment algorithm would need to take advantage of existing provider relationships that exist across providers or else risk breaking up existing networks with their own existing cost containment programs. It is also unclear how this could be implemented in a system where people are covered by many separate public and private sources of insurance, each with their own data systems. For example, there is no centralized repository of claims data that could be used to assign patients and physicians to ACOs or monitor spending for all ACO participants.

It is much more feasible to construct an ACO program for the Medicare FFS population only because the program has the information required to make these assignments and monitor costs. Thus, development of standardized data formats permitting the aggregation of cost and performance measures will be critical to extending the ACO model to the non-Medicare population.

From the consumer's perspective, there are a host of potentially significant issues. Many consumers may feel that they are being compelled to enroll in a form of managed care with provider incentives they may not trust. It is also unclear how a patient in one ACO would access a specialist or another provider who is in another ACO. Is the patient prohibited from doing so? If not, how does the ACO manage costs while allowing access to providers who are not participating in the ACO?

2. Cost Control Program

The program would set spending growth targets on a per patient basis each year. These targets could be set at levels corresponding to expected growth in costs. Alternatively, these amounts could be set at lower than expected levels as part of a policy to restrain the growth in health spending. Under this model, withholding and bonuses would be set at the levels required to limit health spending growth to the target amounts. Thus, the ACO model would provide a mechanism for restraining system-wide spending growth with administratively determined payment levels within a system that rewards quality and efficiency.

Providers would continue to be paid on a fee-for-service basis under existing payment mechanisms. The program would withhold a portion of FFS payments (e.g. 10 percent) during the year. ACOs that meet quality and spending targets would receive the amount of their withholding at the end of the year. Those that exceed quality standards while reducing spending would receive their withholding amount plus a bonus. Those that do not achieve their targets would forfeit their withhold amounts. ACOs demonstrating poor quality and greater cost growth would forfeit some or all of their withhold amounts and would not receive a bonus. This creates a system of financial incentives and penalties designed to promote quality and cost containment.

The ACO model will in many cases reduce incentives for acquisition of new capital such as a Magnetic Resonance Imaging (MRI) system. This is because any new stream of revenues that it generates would be offset against the bonus while adding the cost of the system to provider expenses. These reductions in capital investment could slow the actual rate of growth in health spending, resulting in steadily increasing savings over time. However, the program could increase incentives for acquiring new technology in cases where acquiring the machine is less costly than continuing to have these services provided by a third party provider.

The role of reimbursement policy on provider incentives has been widely studied. For example, one study showed that the diffusion of new MRI technology is reduced in areas with higher HMO market share.⁶ This supports the theory that capitation creates incentives to reduce costs while FFS medicine creates incentives for providers to establish new streams of revenues by acquiring new technology.⁷ Similarly, payment systems have been designed to encourage the adoption of new health information technology (HIT). For example, proposals have emerged recently that would create reimbursement penalties as incentives for providers to adopt HIT.⁸

The reimbursement model could be structured in a way that addresses the wide variation in costs across geographic areas. Fisher et al. have documented that there are wide variations in per-capita spending across geographic areas with no measurable differences in health outcomes.⁹ A recent article by Gottlieb et al. found that these differences are only partially explained by geographic differences in provider payment levels.¹⁰ Most of the difference is associated with differences in the level and type of services used suggesting that much of health spending under Medicare could be eliminated without negatively impacting health among beneficiaries.

One approach to addressing these geographic disparities is to set the dollar amount of the spending target to be the same throughout the State (adjusted by population demographics), regardless of geography. Thus, while the dollar amount of the target is uniform throughout the State, the percentage increase in costs is lower for people in high cost areas and higher for providers in low cost areas. This effectively rewards lower-cost areas while penalizing high-cost areas. The effect would be to strengthen cost control incentives in high-cost geographic areas.

Savings under such a program would be largely dictated by the structure of the bonus and penalties. For example, one approach would be to set the bonus at levels which result in no net change in health spending. Total bonus payments would be set equal to the total amount of FFS payment withholds. The amounts received by individual ACOs would be higher among those that control costs and improve quality while lower in ACOs with poorer quality and high cost growth. It could also reduce geographic variation in costs if implemented as described above.

The system could result in system-wide savings by effectively sharing savings between the ACOs and the health plan or program covering the individual. For example, the CMS Physician Group Practice demonstration gave 80 percent of the savings back to providers in the form of bonus payments while the program retained the remaining 20 percent of savings. The mandatory ACO bonus would not need to be as large because the bonus does not need to be set high enough to attract enrollment as in a voluntary model.

However, bonuses would still need to be large enough to overcome the FFS incentive to maximize service volume for there to be savings. If the prospect for bonus payments losses

credibility, providers could respond by increasing service volume to replace income perceived to be lost through the withholding of fees.

3. Estimated Impacts

Because ACOs are a new concept that has never been implemented, there are no data available for estimating its likely impact. Consequently, we have estimated potential savings based upon the experience in Independent Practice Association (IPA) HMOs. IPAs are similar in structure to ACOs in that providers continue to be paid on a FFS basis, typically with a program of withholds and bonuses similar to that proposed for ACOs. While IPAs could form the basis of ACOs, there is nothing about the ACO model that would make it more effective than an IPA HMO. Therefore we assume no additional savings for people now in an HMO.

To illustrate the savings potential of a mandatory ACO, we estimated the cost impacts of adopting an ACO program that applies to all individuals and all providers in the State of New York. Existing networks of providers would be permitted to form their own ACO. We assume that the State then creates ACOs throughout New York from those providers who have not formed an ACO of their own. We assume that each ACO includes at least one hospital and enough physicians to form an ACO with at least 10,000 people. We also assume that physicians are allocated to ACOs in a way that includes a cross-section of specialist providers.

This implicitly assumes that the State would obtain the provider information required to allocate providers and their patients to ACOs. We also assume that data systems are developed to monitor quality and spending for all New York residents. This would require collecting data from any insurer or third-party administrator (TPA) operating in the state. In fact, creating such a system would require a substantial investment in data collection and processing systems.

We assume that the program would have a 10 percent withhold for FFS claims. The bonus payments would be equal to half of the savings realized by the ACO. The remaining half of the savings would be retained by the payers, resulting in reduced costs to public programs and reduced health insurance premiums. Only the portion of savings that is translated into reduced premiums for consumers or reduced public program spending is counted as a reduction in health expenditures. We counted the remainder as provider income.

We modeled the effect of the ACO model based upon studies of cost savings in HMOs. As discussed above, the ACO model is similar in structure to the Independent Practice Association (IPA) HMO. In the IPA model, physicians agree to see patients covered by an HMO, although they may also see patients under other types of health plans. IPA physicians agree to cooperate with the plan in implementing the ACO's cost control program.

Physicians bill the plan on a FFS basis. Like the ACO model, a portion of their FFS fees are withheld. If the plan meets spending targets at the end of the year, physicians receive their withhold amounts and share in bonus payments. If the plan exceeds spending targets, the physicians are at risk for losing their withhold amount. This is very similar to the terms of the mandatory ACO model.

Although dated, there is literature documenting savings in HMOs even after adjusting for any bias in the demographic and health status characteristics of people who enroll. The data from

the health insurance experiment showed up to 40 percent lower hospital utilization for groups assigned to the HMO than those in FFS plans, of which little could be explained by differences in enrollee health status.¹¹ Miller and Luft, et al. found that HMOs reduce costly hospital inpatient utilization by up to 30 percent or more, but that these savings are partially offset by an increase in hospital outpatient and physician visits.¹²

A more recent study by Baker, et al. showed that total costs for employer health plans were 10 percent lower in markets in which HMO market share exceeds 45 percent than in areas with HMO enrollments of less than 25 percent. Another study by Stapleton, et al. showed that IPA HMO costs were about 12 percent lower than for preferred provider organization (PPO) health plans, which are now the most common form of FFS plan in the US.¹³ Of the 12 percentage points of savings, 4 percentage points were due to reduced health services utilization while 8 percentage points were due to negotiated discounts.

There are also several studies showing that increases in managed care enrollment result in a sustained, long-run reduction in the rate of growth in health spending throughout the community. These studies concluded that each 10 percent increase in managed care penetration results in a reduction in the rate of growth in health spending of between 0.6 to 1.3 percentage points.^{14,15,16}

Based upon these studies, we made the following assumptions:

- We assumed that savings would be the same as the estimated reduction in utilization under the IPA model HMO of 4.0 percent. We reduced these savings by one third to reflect that the ACOs cannot control out-of-ACO utilization;
- We do not explicitly model bonus payments under the plan because the IPA savings estimate is net of any bonus or withhold provided under existing IPA plans;
- We assume no changes in spending for people already in HMO plans, because it will have no impact upon existing cost management programs;
- Because the program does reduce incentives for providers to acquire new capital, we assume that the annual rate of growth in health spending for affected groups would be reduced by about 0.6 percentage points per year. We chose the low end of the range in the literature (0.6 to 1.3 percentage points) to reflect that ACOs have no control over out-of-network (i.e., out of ACO) utilization, which likely reduces the cost savings effects; and
- We assume that these savings phase in over a period of 4 years.

We estimate that the total amount of health spending in New York affected under the mandatory ACO model would be about \$1.1 trillion over the 2011 through 2020 period (*Figure 7*). This includes covered health spending for acute care for all State residents covered under FFS insurance over that period (excluding long-term care services). We estimate that under the assumptions listed above, the mandatory ACO model would reduce spending by \$49.8 billion over that 10-year period.¹⁷ *Figure 8* presents estimated savings from the Mandatory ACO across payer groups.

Figure 7
Estimated Savings from a Mandatory ACO model for New York: 2011 - 2020 (billions)

	Affected Spending	Savings under ACO
2011	\$79.58	\$0.86
2012	\$85.07	\$2.01
2013	\$90.96	\$2.79
2014	\$97.26	\$3.46
2015	\$104.01	\$4.26
2016	\$111.25	\$5.16
2017	\$119.01	\$6.16
2018	\$127.33	\$7.26
2019	\$136.25	\$8.49
2020	\$145.82	\$9.35
2011-2020	\$1,096.56	\$49.80

a/ Includes benefit payments for acute care services only for Medicare, Medicaid, and private FFS insurance. Affected spending excludes Medicare supplemental coverage and people in HMOs.
 Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Figure 8
Estimated Savings from a Mandatory ACO model for New York by Payer Group: 2011 - 2020 (billions)

	Total Savings	Federal Government	State & Local Government	Private Employer Health Plans	Households
2011	\$0.86	\$0.36	\$0.17	\$0.21	\$0.12
2012	\$2.01	\$0.85	\$0.40	\$0.49	\$0.27
2013	\$2.79	\$1.18	\$0.56	\$0.67	\$0.38
2014	\$3.46	\$1.47	\$0.69	\$0.84	\$0.47
2015	\$4.26	\$1.81	\$0.85	\$1.03	\$0.57
2016	\$5.16	\$2.19	\$1.03	\$1.25	\$0.70
2017	\$6.16	\$2.61	\$1.23	\$1.49	\$0.83
2018	\$7.26	\$3.08	\$1.45	\$1.75	\$0.98
2019	\$8.49	\$3.60	\$1.70	\$2.05	\$1.14
2020	\$9.35	\$3.96	\$1.87	\$2.26	\$1.26
2011-2020	\$49.80	\$21.12	\$9.95	\$12.02	\$6.71

a/ Includes benefit payments for acute care services only for Medicare, Medicaid, and private FFS insurance. Affected spending excludes Medicare supplemental coverage and people in HMOs.
 Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

B. Voluntary ACO

The voluntary ACO model is similar to the physician group practice demonstration described above. Providers participating in an ACO would continue to bill insurers for services on a fee-for-service basis as under the current system. Payments for services would be the same as for non-participating providers. Providers would receive a bonus if total actual health spending for ACO-participating patients is less than expected risk-adjusted spending for this group.

The voluntary ACO model is voluntary for both providers and patients. Providers who decide not to form an ACO would continue to be paid under the FFS payment system. In addition, only patients that agree to participate would be in the ACO. Thus, participating physicians would continue to serve non-ACO patients on a FFS basis.

To realize bonuses, the providers must unite to adopt a cost containment strategy that ultimately reduces the volume of services used for participating patients. This can take the form of improved primary care through improved disease management and coordination of care that avoids complications and reduces hospitalizations and other high cost services.

The voluntary ACO model is similar to an HMO in that there are incentives for providers to eliminate unnecessary utilization and reduce costs. However, unlike HMOs, the ACO can not require patients to use only providers participating in the ACO. This diminishes the ACO's ability to reduce costs.

1. ACO Formation

Bonus payments under the voluntary ACO model would need to be substantial to attract providers to the program. The bonus must also be large enough to overcome the FFS incentive to maximize billable service volume. As discussed below, we assume that physicians would receive 80 percent of estimated savings in bonus payments with payers retaining the remaining 20 percent. There is no penalty for failing to achieve savings under the voluntary model. We assume that all of the savings to the payer are returned to the consumer as reductions in premiums, while providers retain their bonus as income. Thus, only the payer share of savings can be categorized as a reduction in health spending.¹⁸

We assume that ACOs are required to include at least 10,000 patients as a condition of participation. This is necessary so that ACO enrollment is great enough to reliably predict what spending would have been in the absence of the ACO program. Studies have shown that smaller groups will show random variations in illness and costs from year-to-year that can not be attributed to changes in patterns of medical practice. A recent assessment of the ACO model from MedPAC indicates that group size must be at least 5,000 people for Medicare or 15,000 for privately insured patients.¹⁹

Managed care plans with established networks of hospitals and physicians will often be best positioned to adopt the ACO model. These plans already include the providers required to coordinate the full range of care that patients may require. They also have the infrastructure required to administer the ACO and distribute incentive payments. Savings may be limited for this group because managed care plans already have cost control incentives. However, many providers who participate in a managed care plan see other patients on a FFS basis. This would

effectively extend the cost control model used by these plans for their own patients to the FFS population.²⁰

ACOs could also evolve from hospitals, particularly those that own physician practices. Hospitals could also recruit physicians who already practice at their hospital as part of their ACO “network.” They would need to recruit enough primary care providers to give them the desired number of patients and to provide the primary and preventive care needed to reduce utilization of higher-cost services.

Physician groups could also form ACOs. However, these groups could be handicapped if they do not include a hospital that shares in the ACO incentive structure. ACOs that do not include hospitals would operate just as they do under the CMS PGP demonstration discussed above.

2. Cost Control Program

Cost control under an ACO is dependent upon the ACO’s ability to work collaboratively with other ACO providers to implement a cost control program. As discussed above, existing managed care networks are poised to do this because they already have care management plans in place. Other freshly formed groups may be less capable of designing and implementing a cost control program.

As under the mandatory ACO model, the potential to control costs is diminished in cases where patients assigned to the ACO use providers that are not in that ACO. For example, a patient seeing an ACO participating primary care physician may still access a non-participating specialist who may use a hospital outside the ACO. Integrated delivery systems such as HMOs are able to direct patients to use only providers in the plan’s network. But there is nothing in the ACO model that restricts patients from using non-ACO providers. This lack of control over patient access limits the cost savings potential for the ACO under both the voluntary and mandatory models.

There are other factors that could affect savings. For example, only physicians who expect to earn bonuses are likely to enroll. Poorly performing providers face no penalty, which dampens the cost containment incentives. Also, patients with high cost conditions could be encouraged to shift to another provider, resulting in some favorable selection into the program causing the program to overstate savings. A related effect is that patients who expect to require health services may object to participating in a plan where their provider has incentives to restrict the patient’s utilization of services.

3. Estimated Impacts

The first step in analyzing the impact of this model was to estimate the number of ACOs that would form. Because this ACO model is voluntary, we needed to estimate the proportion of providers that would be willing and able to form and participate in an ACO. We then estimated the savings resulting from improvements in care for the population that they serve.

In arriving at these estimates we made the following assumptions:

- Physicians and hospitals would assemble their own ACOs;

- Each ACO is required to include one hospital;
- The ACO includes some minimum share of primary care and specialist physicians who practice with the ACO hospital(s);
- Each participating physician's patients agree to participate in the program;
- As in the PGP demonstration, providers are rewarded with bonuses for meeting both quality measures and reducing health spending; and
- The program returns 80 percent of savings to providers in the bonus.

We estimate savings under the ACO model based upon estimated savings under the IPA HMO model developed by Stapleton (4 percent), which we used in our analysis of the mandatory ACO model discussed above. Our key assumptions include the following:

- We used the AMA estimate of the percentage of New York physicians who now have capitation contracts (28.8 percent) as a proxy for the share of physicians who would be able to form into ACOs;
- Estimated savings based upon the percentage reduction in utilization in IPA HMOs of 4 percent (Stapleton) which we reduced by one-third to 2.7 percent to reflect that the ACO cannot control care provided by non-ACO providers;
- Further reduced savings to 2 percent reflecting that bonuses will need to be higher than in typical IPA HMOs to entice providers to establish ACOs;
- We did not need to estimate the cost of administering the program separately because our savings assumption is based upon a study showing savings net of administrative costs (Stapleton);
- Assume that the rate of growth in health spending for the affected population would be reduced by 0.6 percentage points per year to reflect the impact of reduced incentives for the acquisition of new capital under the program;
- Assume no savings for New York residents who are already enrolled in HMOs, which already have a similar structure; and
- Assume that savings phase in over a period of 4 years.

Our savings assumption is about 50 percent greater than under the CMS PGP demonstration (i.e., 1.8 percent). This seems appropriate because, unlike the PGP demonstration, the hospitals are also eligible for bonus payments under the ACO model. This creates new incentives for them to improve efficiency, which should result in additional savings.

As discussed above, we estimate that the total amount of health spending in New York affected under the ACO model would be about \$1.1 trillion over the 2011 through 2020 period (*Figure 9*). This includes covered health spending for acute care for all State residents covered under FFS insurance over that period (excluding long-term care services). We estimate that under the assumptions listed above, the voluntary ACO model would reduce spending by \$10.7 billion over that 10-year period.

Figure 9
Estimated Savings from a Voluntary ACO model for New York: 2011 - 2020 (billions)

	Affected Spending	Savings under ACO
2011	\$79.58	\$0.18
2012	\$85.07	\$0.43
2013	\$90.96	\$0.59
2014	\$97.26	\$0.74
2015	\$104.01	\$0.91
2016	\$111.25	\$1.10
2017	\$119.01	\$1.31
2018	\$127.33	\$1.55
2019	\$136.25	\$1.81
2020	\$145.82	\$2.10
2011-2020	\$1,096.56	\$10.71

a/ Includes benefit payments for acute care services only for Medicare, Medicaid, and private FFS insurance. Affected spending excludes Medicare supplemental coverage and people in HMOs. Numbers may not add to totals due to rounding.

Figure 10 presents estimated savings from the Mandatory ACO across payer groups.

Figure 10
Estimated Savings from a Voluntary ACO model for New York by Payer Group: 2011 - 2020 (billions)

	Total Savings	Federal Government	State & Local Government	Private Employer Health Plans	Households
2011	\$0.18	\$0.08	\$0.04	\$0.04	\$0.02
2012	\$0.43	\$0.18	\$0.09	\$0.10	\$0.06
2013	\$0.59	\$0.25	\$0.12	\$0.14	\$0.08
2014	\$0.74	\$0.31	\$0.15	\$0.18	\$0.10
2015	\$0.91	\$0.39	\$0.18	\$0.22	\$0.12
2016	\$1.10	\$0.47	\$0.22	\$0.27	\$0.15
2017	\$1.31	\$0.56	\$0.26	\$0.32	\$0.18
2018	\$1.55	\$0.66	\$0.31	\$0.37	\$0.21
2019	\$1.81	\$0.77	\$0.36	\$0.44	\$0.24
2020	\$2.10	\$0.89	\$0.42	\$0.51	\$0.28
2011-2020	\$10.71	\$4.55	\$2.14	\$2.59	\$1.45

a/ Includes benefit payments for acute care services only for Medicare, Medicaid, and private FFS insurance. Affected spending excludes Medicare supplemental coverage and people in HMOs.
 Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

C. Assumptions on Actionable Steps

The effect of promoting the development of ACOs in New York without federal intervention would be limited because the State cannot require Medicare or ERISA plans to adopt such reforms. Thus, for illustrative purposes, we assume that the State requires adoption of ACOs for all State and local workers not already in an HMO, and the FFS Medicaid population. We assume no change for integrated delivery systems such as HMOs, because they are already serving people under capitated health plans.

As shown in *Figure 11*, total potential savings under a mandatory ACO model would be \$49.8 billion over the 2011 through 2020 period. Of this, \$14.6 billion could be realized by requiring its use for Medicaid FFS patients and State and local worker benefits programs.

Figure 11
Potential and Actionable Savings under the ACO Model for New York: 2010-2020 (billions) ^{a/}

	Mandatory ACO Model		Voluntary ACO Model	
	Potential Savings	Actionable Savings	Potential Savings	Actionable Savings
2011	\$0.86	\$0.25	\$0.18	\$0.05
2012	\$2.01	\$0.58	\$0.43	\$0.12
2013	\$2.79	\$0.81	\$0.59	\$0.17
2014	\$3.46	\$1.00	\$0.74	\$0.21
2015	\$4.26	\$1.24	\$0.91	\$0.26
2016	\$5.16	\$1.50	\$1.10	\$0.32
2017	\$6.16	\$1.79	\$1.31	\$0.38
2018	\$7.26	\$2.11	\$1.55	\$0.45
2019	\$8.49	\$2.46	\$1.81	\$0.52
2020	\$9.35	\$2.86	\$2.10	\$0.61
2010-2020	\$49.80	\$14.59	\$10.71	\$3.11

a/ “Potential” savings are the amounts that could be saved if all public and private payers were to adopt these programs. “Actionable” steps include savings that could be realized through state action under Medicaid or state and local government worker Health benefits programs.

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

The ACO’s capacity for savings is limited by the fragmented nature of the health care system. There may be few hospitals that are sufficiently well integrated with physician practices that they could coordinate care at the level required to affect costs. Also, ACOs may not be able to achieve the level of savings realized by IPA HMOs during the 1990s because much of the IPA savings are based upon changes in hospital utilization which have since been widely achieved in the current system. Other reforms in primary care will be necessary to achieve additional savings through ACOs.

III. Modernizing Primary Care

We estimated the impact of adopting a collection of overlapping initiatives designed to expand upon the use of primary care, with particular emphasis on the chronically ill. These initiatives include requiring people to have a primary care “medical home,” paying the primary care provider to coordinate care for patients with complex health needs, and administering evidence-based disease management for people with chronic conditions. We also examined a pay for performance program that rewards providers who show positive health outcomes.

CMS has implemented several demonstrations that measure the effect of care coordination, disease management and pay for performance. Preliminary analyses have shown mixed results. While some of the demonstrations support the cost savings potential for these ideas, some of the results suggest that while they may improve health outcomes, they will not necessarily lead to actual savings. Even where the demonstrations show savings, it is unclear whether we can extrapolate these savings to the non-Medicare population. Thus, we have focused on defining specific primary care reforms where there is a basis for projecting savings.

We assume that the universe of health spending potentially affected by changes in primary care includes benefits payments for all primary and acute care services covered under Medicare, Medicaid and private insurance. These include doctor office visits, inpatient care, hospital outpatient care and emergency room care for these payers. This excludes spending under these programs for nursing homes, home health, public health and medical non-durable goods other than prescription drugs (e.g., aspirin, cough syrup, bandages etc.).

We estimate that spending for primary and acute care in New York would be \$117.4 billion in 2011 and would reach \$1.6 trillion over the 2011 through 2020 period (*Figure 12*). These estimates are derived from state spending estimates by payer from the Office of the Actuary of the Centers for Medicare and Medicaid Services (CMS), which we projected to 2011 based upon New York Medicaid spending data and CMS projections of spending growth by payer nationally.

Our assumptions concerning these primary care reforms are presented below:

A. Medical Home

The medical home initiative would require people to identify a primary care provider as their “medical home,” who would be paid to provide coordinated evidence-based care. The emphasis on primary care is intended to promote prevention and management of care that will minimize costly avoidable complications. However, at this time, there is insufficient evidence to conclude whether these savings would be enough to pay for the additional primary care services that would be provided by medical home providers.

CMS will be initiating a demonstration of the medical home concept that will begin in 2010 for Medicare patients. This means it may be several years before we have evidence on its cost impacts, and then only for the aged population. New York State is also working to implement two medical home demonstrations including a statewide Medicaid program and a multi-payer program in the Adirondacks. However, the multi-payer program is in its very early stages and the start of the Medicaid program is pending CMS approval of a State Plan Amendment.

Therefore, our estimates of the net cost impacts of these proposals must be based upon conceptually similar programs implemented elsewhere in the system. The methods we used in this study are similar to those used in Lewin’s earlier analyses of the medical home for the Commonwealth Fund at the national level.

Figure 12
Total Primary and Acute Care Spending by Payer in New York (billions) ^{a/}

	Total Primary and Acute Care Spending	Medicare	Medicaid ^{b/}	Private Insurance
2011	\$117.39	\$33.52	\$27.78	\$56.09
2012	\$125.54	\$36.17	\$30.15	\$59.23
2013	\$134.28	\$39.02	\$32.71	\$62.54
2014	\$143.64	\$42.11	\$35.49	\$66.05
2015	\$153.68	\$45.43	\$38.51	\$69.75
2016	\$164.45	\$49.02	\$41.78	\$73.65
2017	\$176.00	\$52.89	\$45.33	\$77.78
2018	\$188.39	\$57.07	\$49.18	\$82.13
2019	\$201.67	\$61.58	\$53.36	\$86.73
2020	\$215.93	\$66.45	\$57.90	\$91.59
2011-2020	\$1,620.97	\$483.25	\$412.19	\$725.53

a/ Includes benefits payments for all Primary and Acute care services covered under Medicare, Medicaid and private insurance. This excludes spending under these programs for nursing homes, home health, public health and medical non-durable goods other than prescription drugs (e.g., aspirin, cough syrup, bandages etc.).

b/ These estimates exclude the portions of Medicaid spending for nursing home and home health spending (i.e., long-term care).

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

4. Defining the Medical Home Model

As a relatively new concept, there are several different definitions of what a medical home is. The American Academy of Family Physicians defines the medical home as follows:²¹

“A patient-centered medical home integrates patients as active participants in their own health and well-being. Patients are cared for by a physician who leads the medical team that coordinates all aspects of preventive, acute and chronic needs of patients using the best available evidence and appropriate technology. These relationships offer patients comfort, convenience, and optimal health throughout their lifetimes.”

The American Academy of Pediatrics (AAP) defines a medical home as a setting where:²²

“The primary health care professional can help the family/patient access and coordinate specialty care, educational services, in and out of home care, family support, and other public and private community services that are important to the overall health of the child/youth and family.”

The Commonwealth Fund defines the medical home as:²³

“A health care setting that provides patients with timely, well-organized care, and enhanced access to providers.” It is designed to provide access to “needed care, receipt of routine preventive screenings, and management of chronic conditions.”

Experience with the medical home model has shown it can be a team oriented approach as well. For example, the Geisinger medical home model involves nurse practitioners and physician assistants to provide ongoing monitoring of patients and their adherence to prescribed drugs and other health maintenance processes.

However, these definitions generally do not include the kind of operational detail required to evaluate the cost impacts of such a system. For purposes of this analysis, we developed two operational variations on the medical home including restrictions on patient access outside the medical home and payments to providers for delivering medical home services.

The most stringent form of the medical home is the “gatekeeper” model used in managed care plans and under state Medicaid primary care case management (PCCM) programs throughout the country. Patients can select the primary care provider they would use as their medical home. Alternatively, plans can assign patients to a primary care provider, which is usually the physician they have most recently seen. Providers are then paid a fee to assure that patients receive all appropriate primary and preventive care as well as coordination of care across multiple physicians. A key feature of the gatekeeper model requires patients to obtain a referral from the primary care provider to see a specialist or obtain other health services.

The purpose of the program is to assure the use of primary care services to improve health and to prevent avoidable complications. This can avoid unnecessary utilization of specialist services, which are often more costly due to the use of more extensive diagnostic services. Studies are available on potential savings with this approach that show typical savings of about four percent.

While the gatekeeper model has been shown to result in savings, it involves a level of control over patient access that does not exist in most fee-for-service health plans. Usually, only HMOs can restrict access to specialists in this way. Therefore we developed estimates of potential savings under two variations on the medical home model.

In the first scenario, we assume the gatekeeper model where patients are required to access care through a primary care provider. The provider is paid to emphasize primary and preventive care and coordinates access to other specialists. We call this a “mandatory” medical home model. We estimated savings for the first variant based upon available research on the performance of primary care case management (PCCM) programs in Medicaid and studies of the cost impacts of independent practice association (IPA) model HMOs.

In the second scenario, we assume that all residents are enrolled in a medical home without the gatekeeper features. Instead, it would use financial incentives to encourage patients to access their primary care provider. We assume that under this scenario, copayments would be waived for services delivered by their medical home primary care provider. We call this the

“voluntary” medical home model. This approach is likely to result in fewer savings than the more stringent gatekeeper model because patients would still be able to access specialty care without referral.

5. “Mandatory” Medical Home

Under a mandatory medical home model we assume that percentage savings could be achieved similar to a PCCM program. Our savings assumptions are based on a study of savings under a Medicaid PCCM program in Iowa by Momany et al. The study estimated savings per member under the program over the 1989 through 1997 period.

The Momany study found that the effects of the PCCM program appeared to grow stronger over time with net savings increasing from 1.5 percent in 1991 to 9.8 percent in 1998. The average annual net savings over the study period was 3.8 percent.²⁴ These savings are net of payments to physicians for care management services. Based upon cost data provided in this article, we estimate that gross savings (i.e., before offsetting savings for management fees) were 4.2 percent, which is what we used in our analysis to estimate gross savings.

The North Carolina Medical Home Pilot provided a mandatory medical home program to children with special needs in their Medicaid program.²⁵ Savings were estimated to be \$162 million in 2005. The State has extended the program to cover the aged and disabled as well, suggesting broad applicability of the approach.

This program is also similar to Geisinger’s “patient-centered medical home” initiative which is designed to deliver value by improving care coordination and optimizing health status for each individual. A primary target outcome for the medical home initiative has been reduced hospital use. Preliminary data from the first-year experience at two pilot sites show a 20 percent reduction in all-cause hospital admissions and seven percent total medical cost savings.²⁶ However, about 40 percent of Geisinger’s patients are enrolled in the Geisinger HMO, which gives it some of the features of a mandatory medical home model.

In addition, we examined other medical home models such as the Patient Centered Primary Care Collaborative (PCPCC). The PCPCC is a coalition of major employers, consumer groups, patient quality organizations, health plans, labor unions, hospitals, physicians and many others who have joined together to develop and advance the patient centered medical home. However, little information is available on the cost impacts of this approach.

We modeled the impact of the mandatory medical home model based upon the study by Momany which, as discussed above, estimated gross savings averaging 4.2 percent per year. We used the average savings over the 9 years studied by Momany. This was necessary to reflect that there will be turnover among covered populations resulting in a mix of short-time and long-time members at any point in time once fully phased in

There is little objective basis for setting the monthly fee for providing these services. We assumed that the fee would be set at \$8.00 per month, compared with \$2.00 per month as under the Medicaid program analyzed by Momany. Our assumption of \$8.00 per month equals nearly \$100 per year per patient, which is roughly equal to the average charge for a single physician

visit (excluding tests etc.). This seems adequate given that many patients do not require extensive monitoring.

Key assumptions include:

- We estimated savings based upon the Momany PCCM study showing gross savings averaging by about 4.2 percent per year (net savings averaged 3.8 percent per year);
- Gross savings are reduced by half for people already covered under HMOs where some degree of benefits management is already in place. This a “judgment” based assumption reflecting that these plans typically include their own cost control programs that probably are realizing a portion of these potential savings;
- We assume a medical management fee of \$8.00 per person per month, rather than \$2.00 per month paid under the Iowa Medicaid program studied by Momany;
- We assume that the program is implemented by both public and private health plans in the State; and
- We assume that savings from the medical home would phase-in over 4 years.

We assume that the universe of health spending potentially affected by changes in primary care includes benefits payments for all primary and acute care services covered under Medicare, Medicaid and private insurance. These include doctor office visits, inpatient care, hospital outpatient care and emergency room services for these payers. This excludes spending under these programs for nursing homes, home health, public health and medical non-durable goods other than prescription drugs (e.g., aspirin, cough syrup, bandages etc.).

As discussed above, we estimate that total spending for primary and acute care services in New York would reach \$1.6 trillion over the 2011 through 2020 period. We estimate that the mandatory medical home model would reduce health spending in New York State by \$33.7 billion over the 2011 through 2020 period (*Figure 13*). *Figure 14* shows how net savings are distributed by payer.

Figure 13
Potential Savings from Adopting a Mandatory Medical Home Program for All Payers in New York
(billions) ^{a/}

	Total Primary and Acute Care Spending ^{b/}	Savings from Medical Home Program	Medical Home Fees	Net Change in Health Spending
2011	\$117.39	\$1.96	\$1.84	\$0.11
2012	\$125.54	\$3.67	\$1.86	\$1.80
2013	\$134.28	\$4.32	\$1.88	\$2.44
2014	\$143.64	\$5.05	\$1.90	\$3.15
2015	\$153.68	\$5.38	\$1.92	\$3.46
2016	\$164.45	\$5.72	\$1.94	\$3.78
2017	\$176.00	\$6.10	\$1.96	\$4.13
2018	\$188.39	\$6.49	\$1.98	\$4.51

	Total Primary and Acute Care Spending ^{b/}	Savings from Medical Home Program	Medical Home Fees	Net Change in Health Spending
2019	\$201.67	\$6.92	\$2.01	\$4.92
2020	\$215.93	\$7.38	\$2.03	\$5.35
2011-2020	\$1,620.97	\$52.99	\$19.33	\$33.66

a/ We estimate savings occur among all three payer groups in Both FFS plans and Managed care plans. Savings in managed care plans are reduced by half.

b/ Includes benefits payments for all Primary and Acute care services covered under Medicare, Medicaid and private insurance. This excludes spending under these programs for nursing homes, home health, public health and medical non-durable goods other than prescription drugs (e.g., aspirin, cough syrup, bandages etc.).

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Figure 14
Potential Savings from Adopting a Mandatory Medical Home Program for All Payers in New York (billions)^{a/}

Year	Federal Government	State and local Governments	Private Employers	Families	Total Savings
2011	\$0.05	\$0.02	\$0.03	\$0.01	\$0.11
2012	\$0.77	\$0.35	\$0.48	\$0.21	\$1.80
2013	\$1.05	\$0.47	\$0.64	\$0.27	\$2.44
2014	\$1.37	\$0.61	\$0.82	\$0.35	\$3.15
2015	\$1.52	\$0.68	\$0.89	\$0.38	\$3.46
2016	\$1.67	\$0.74	\$0.96	\$0.41	\$3.78
2017	\$1.84	\$0.81	\$1.03	\$0.44	\$4.13
2018	\$2.03	\$0.89	\$1.11	\$0.48	\$4.51
2019	\$2.24	\$0.97	\$1.20	\$0.51	\$4.92
2020	\$2.45	\$1.06	\$1.29	\$0.55	\$5.35
2011-2020	\$14.99	\$6.61	\$8.45	\$3.61	\$33.66

a/ We estimate savings occur among all three payer groups in Both FFS plans and Managed care plans. Savings in managed care plans are reduced by half.

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

6. “Voluntary” Medical Home

We assume that all covered individuals who are not already in an HMO are assigned to a medical home provider, but incentives are provided to encourage patients to use the medical home provider rather than requiring it. As under the mandatory model, the provider receives a payment to coordinate care for people with complex medical problems and to assure that care for the chronically ill is provided according to evidence-based medical guidelines. However, rather than requiring patients to access care through their primary care provider, the program encourages use of primary care by eliminating cost-sharing for care provided by their medical home provider.

We assume that under this model, patients would substitute primary care services for some specialty care. We estimated the effect based upon published research on the impact of changes in price on the utilization of health services.²⁷ We then estimated savings from the services they do substitute based upon the cost impact data used to simulate the impact of a mandatory gatekeeper model as described above.

Although this model would be less effective in controlling costs, the voluntary model could still result in savings. By focusing on improving clinical outcomes of the patient population, medical homes have shown promise in reducing costs by encouraging people to obtain primary and preventive care and to provide a mechanism for reducing duplicative and unnecessary services. Primary care physicians and nurse practitioners typically have lower charges than specialty physicians partly because they use fewer expensive diagnostic services than do specialists.

The growing literature on “value-based health benefits” provides evidence that may apply in evaluating the voluntary medical home model. Under this model, copayments for prescription drugs for patients with chronic health conditions are eliminated or reduced when such medications prevent medical complications that diminish health and increase costs. Studies have shown that increased prescription drug spending is roughly offset by reductions in utilization of other services.²⁸ However, there is no evidence that this approach changes total system-wide health expenditures.²⁹ System-wide savings may develop as this approach becomes more widely accepted.

Due to a lack of data and research on the “voluntary” medical home, we are unable to model its impacts based upon available evidence. Instead, we estimated savings based upon the experience in Medicaid PCCM programs as estimated by Momany et al, assuming the program’s effectiveness is reduced due to its voluntary nature. As discussed above, Momany projected net savings that increased from 1.5 percent in 1991 to 9.8 percent in 1998. The average annual savings in health spending over the period of their estimates was 3.8 percent. However, because the voluntary medical home permits access to specialists without referral, we assume that the effectiveness of the program is reduced by about 50 percent.

Our key assumptions include:

- 95 percent of people elect to participate in the medical home program;
- Savings measured by Momany for the PCCM model are reduced by half to reflect the less stringent utilization controls under a voluntary medical home program. This a “judgment” based assumption reflecting that these plans typically include their own cost control programs that may already be realizing a portion of these potential savings. Actual data on Medical home savings within HMOs is not available;
- Savings are further reduced by half for people who are already enrolled in HMOs, where some degree of utilization control already exists. This implicitly assumes that cost control within the HMO is enhanced by adopting the Medical home model; and
- A monthly patient management fee of \$8.00 per patient, which is the same as we assumed in our analysis of the mandatory medical home as discussed above; and
- That savings from disease management would phase-in over 4 years.

We estimate that the voluntary medical home model would reduce health spending in New York State by \$9.1 billion over the 2011 through 2020 period (*Figure 15*). *Figure 16* shows how these savings are distributed by payer.

These estimates are speculative because they are not based upon actual demonstrations of the voluntary aspect of the program. However, because our estimates for both the mandatory and the voluntary medical home models are tied to the Momany study, these estimates provide a basis for evaluating the relative impacts of shifting from the mandatory to the voluntary medical home models.

Figure 15
Potential Savings from Adopting a Voluntary Medical Home Program for All Payers in New York (billions) ^{a/}

	Total Primary and Acute Care Spending ^{b/}	Savings from Medical Home Program	Medical Home Fees	Net Change in Health Spending
2011	\$117.39	\$1.15	\$1.75	-\$0.60
2012	\$125.54	\$1.96	\$1.77	\$0.19
2013	\$134.28	\$2.28	\$1.79	\$0.49
2014	\$143.64	\$2.62	\$1.81	\$0.81
2015	\$153.68	\$2.79	\$1.83	\$0.96
2016	\$164.45	\$2.95	\$1.84	\$1.11
2017	\$176.00	\$3.13	\$1.86	\$1.27
2018	\$188.39	\$3.32	\$1.88	\$1.44
2019	\$201.67	\$3.53	\$1.90	\$1.63
2020	\$215.93	\$3.74	\$1.93	\$1.81
2011-2020	\$1,620.97	\$27.47	\$18.36	\$9.11

a/ We estimate savings occur among all three payer groups in both FFS and managed care plans. Savings in managed care plans are estimated at half the rate of FFS.

b/ Includes benefits payments for all Primary and Acute care services covered under Medicare, Medicaid and private insurance. This excludes spending under these programs for nursing homes, home health, public health and medical non-durable goods other than prescription drugs (e.g., aspirin, cough syrup, bandages etc.).

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Figure 16
Potential Savings from Adopting a Voluntary Medical Home Program for All Payers in New York
(billions) ^{a/}

Year	Federal Government	State and local Governments	Private Employers	Families	Total Savings
2011	-\$0.25	-\$0.12	-\$0.16	-\$0.07	-\$0.60
2012	\$0.08	\$0.04	\$0.05	\$0.02	\$0.19
2013	\$0.21	\$0.10	\$0.13	\$0.06	\$0.49
2014	\$0.35	\$0.16	\$0.21	\$0.09	\$0.81
2015	\$0.42	\$0.19	\$0.25	\$0.11	\$0.96
2016	\$0.49	\$0.22	\$0.28	\$0.12	\$1.11
2017	\$0.57	\$0.25	\$0.32	\$0.14	\$1.27
2018	\$0.65	\$0.28	\$0.36	\$0.15	\$1.44
2019	\$0.74	\$0.32	\$0.40	\$0.17	\$1.63
2020	\$0.83	\$0.36	\$0.43	\$0.19	\$1.81
2011-2020	\$4.09	\$1.79	\$2.26	\$0.97	\$9.11

a/ We estimate savings occur among all three payer groups in both FFS and managed care plans. Savings in managed care plans are estimated at half the rate of FFS. Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

B. Care Coordination

About 75 percent of all health spending is attributed to people with chronic health conditions. Many of these patients have multiple health conditions and are often in the care of several specialists at once.³⁰ Under the coordinated care model, the primary care physician coordinates the care provided by these multiple specialists to avert negative outcomes such as drug-to-drug interactions and duplicative tests and services. Physicians are paid a fee for providing these care coordination services.

CMS studied the effect of the coordinated care models in the Medicare Coordinated Care Demonstration, consisting of 15 sites. These 15 sites all had experience operating disease management or case management programs that had been shown to reduce hospitalizations or costs for some groups of patients. The program was voluntary for Medicare beneficiaries that resided in the catchment area and had a selected chronic illness.

The evaluation of the demonstration program showed that only one of the 15 sites reduced the number of hospitalizations over the first 2 years and there were no reductions in Medicare expenditures for any of the sites.^{31,32} The evaluation, performed by Mathematica, documented that the program resulted in a net increase in spending of 11 percent.³³ While the program did reduce hospitalizations by about 4.5 percent, none of the 15 sites participating had savings that exceeded the payments to providers for care coordination. However, two sites improved quality of care without increasing costs.

The authors suggested continued evaluation of the programs used at these two sites, but concluded that there is no evidence to suggest that this coordinated care model would reduce program expenditures. Based on these findings, we assumed that widespread adoption of this

version of the coordinated care model would not result in net savings, although quality may improve.

C. Disease Management

Disease management includes programs designed to assure that patients with chronic health conditions are treated according to evidence-based guidelines. Disease management includes a range of programs to assure that chronic care patients receive required preventive care to avoid medical complications. Chronic disease management typically serves to assure that clinical practice guidelines are implemented. It is also used to coordinate care for patients receiving care from several different physicians. Disease management can be the responsibility of both primary care providers and specialists.

Disease management programs are widely used in private health insurance plans. The Kaiser Family Foundation survey of employers found that nationally, about 26 percent of firms offering health insurance had disease management programs. This includes 25 percent of firms with 3 to 199 employees and 59 percent of firms with 200 or more workers (data are not available at the state level). Medicare does not have disease management programs (except for demonstrations described below), nor does the New York Medicaid program unless provided through a health plan.³⁴

Since 1999, CMS has conducted seven Disease Management demonstrations in 35 sites. Final evaluations of these demonstrations found that only seven sites (20 percent) showed evidence of cost savings that were near budget neutrality, net of fees. Reported cost savings generally resulted from reduced hospitalizations, although these did not always result in reduced Medicare Part A and B costs.³⁵ However, the evaluations have not shown net savings from these initiatives.

The Congressional Budget Office (CBO) conducted a review of the evidence on disease management programs including over 100 evaluations, systematic reviews and meta-analyses.³⁶ The review found consistent evidence that these programs can control disease and improve health care quality. Some also showed evidence of reduced hospital utilization. However, The CBO concluded that there is not enough evidence to show whether savings from DM exceed the cost of providing DM services. A literature review conducted by the RAND Corporation showed similar results.³⁷

The chief limitation of the existing research is that few of these studies actually address the question of cost savings. Some studies have shown savings from chronic DM for certain health conditions. However, these studies have also been criticized for flawed methods and the lack of randomized control trial (RCT) studies measuring the impact of these programs.^{38,39}

Some private health plans report that they have had success in reducing costs with disease management programs in more traditional FFS commercial health plans. Blue Cross and Blue Shield of Minnesota (BCBSMN) implemented a program that uses predictive modeling to identify people with multiple chronic conditions who can be expected to require relatively high levels of medical care. These individuals are then asked to enroll in an expanded disease management program covering 17 chronic conditions, in which they receive proactive interventions designed to prevent conditions from becoming acute.⁴⁰

The BCBSMN model differs from traditional disease management programs in several respects:

- It uses predictive modeling to identify individuals prone to developing high-cost illnesses and complications;
- The program addresses 17 chronic conditions while typical disease management programs focus on 4 to 6 conditions only;
- Patients with multiple conditions are managed through a single point of contact that takes a more holistic approach to managing patients with multiple chronic conditions; and
- The program uses continually updated clinical practices and has strong academic support.

These 17 conditions included account for 12 percent to 15 percent of BCBSMN's commercial population and account for between 40 percent and 45 percent of all claims costs. By comparison, typical disease management programs reach about 3 percent of the population. These features suggest a more rigorous disease management model which could result in higher savings. Total benefits costs under the BCBSMN disease management model were between 2 percent and 3 percent lower than for the reference group.⁴¹

Disease management programs have been found effective for people with diabetes in managed care organizations (MCOs). A study of disease management programs for diabetics found that costs for full-year participants were 8.1 percent less in the pre-post analysis and 24.7 percent less in the parallel group comparison per diabetic member per month when compared to non-participants. The study also showed a 22 to 30 percent reduction in hospitalizations. Another study by Rubin et al. showed similar results for a diabetes disease management program within an HMO. However, these results apply to MCOs where there are controls on patient utilization that may make the plans more effective than FFS plans.^{42,43}

Thus, the literature provides substantial evidence that typical disease management programs do not result in net savings, except when implemented through an HMO. However, the BCBSMN program provides evidence that disease management can result in substantial savings when holistic management is provided to people with a broader range of chronic conditions using advanced predictive modeling methodologies.

For purposes of this analysis, we estimated the effects of applying the BCBSMN advanced DM approach to the New York population. We made the following assumptions:

- We assume that health plans that adopt this approach would see savings averaging 2.5 percent of health benefits costs for groups covered under participating plans. This is the midpoint of the percentage savings estimated for the BCBSMN program (i.e., 2 percent to 3 percent);
- We assume that savings would be half that amount in HMOs and fully insured groups that already have at least some disease management program(s). This a “judgment” based assumption reflecting that these plans typically include their own cost control programs that may already be realizing a portion of these potential savings. Actual data on Disease Management savings within HMOs is not available;

- Due to the lack of net savings in numerous Medicare DM demonstrations, we assume no savings to FFS Medicare or the FFS Medicaid programs. We effectively assume that the savings occur only in private health plans where the insurer or sponsoring employer is at-risk for losses and thus faces financial incentives to control spending. This includes Medicare and Medicaid beneficiaries covered through private health plans;
- We assume that physician disease management fees would be \$8.00 per month for people participating in the DM program. Thus, there are no fees for people who are not candidates for DM; and
- Due to the required investment in predictive modeling and data analysis, we assume that potential savings from the use of this advanced DM approach phase-in over a period of seven years.

We estimate that the Disease Management model would reduce health spending in New York State by \$10.7 billion over the 2011 through 2020 period (*Figure 17*). *Figure 18* shows how these savings are distributed by payer.

Figure 17
Potential Savings from Adopting an Advanced Disease Management Model for All Payers in New York (billions) ^{a/}

	Total Primary and Acute Care Spending ^{b/}	Savings from Disease Management	Disease Management Fees	Net Change in Health Spending
2011	\$117.39	\$0.15	\$0.21	-\$0.06
2012	\$125.54	\$0.47	\$0.21	\$0.26
2013	\$134.28	\$0.67	\$0.21	\$0.45
2014	\$143.64	\$1.06	\$0.21	\$0.85
2015	\$153.68	\$1.34	\$0.22	\$1.13
2016	\$164.45	\$1.54	\$0.22	\$1.32
2017	\$176.00	\$1.76	\$0.22	\$1.53
2018	\$188.39	\$1.86	\$0.22	\$1.64
2019	\$201.67	\$1.98	\$0.23	\$1.75
2020	\$215.93	\$2.10	\$0.23	\$1.87
2011-2020	\$1,620.97	\$12.92	\$2.18	\$10.74

a/ Based upon the available research, we estimate savings occur only on private health plans, including managed care plans under Medicare and Medicaid. Savings in managed care plans are reduced by half.

b/ Includes benefits payments for all Primary and Acute care services covered under Medicare, Medicaid and private insurance. This excludes spending under these programs for nursing homes, home health, public health and medical non-durable goods other than prescription drugs (e.g., aspirin, cough syrup, bandages etc.).

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Figure 18
Potential Savings from Adopting an Advanced Disease Management Model in New York by Payer
(billions) ^{a/}

Year	Federal Government	State and local Governments	Private Employers	Families	Total Savings
2011	-\$0.01	-\$0.01	-\$0.02	-\$0.01	-\$0.06
2012	\$0.05	\$0.06	\$0.11	\$0.05	\$0.26
2013	\$0.09	\$0.10	\$0.18	\$0.08	\$0.45
2014	\$0.18	\$0.18	\$0.34	\$0.15	\$0.85
2015	\$0.24	\$0.24	\$0.45	\$0.19	\$1.13
2016	\$0.28	\$0.28	\$0.53	\$0.22	\$1.32
2017	\$0.33	\$0.33	\$0.61	\$0.26	\$1.53
2018	\$0.36	\$0.36	\$0.64	\$0.27	\$1.64
2019	\$0.39	\$0.38	\$0.68	\$0.29	\$1.75
2020	\$0.43	\$0.41	\$0.72	\$0.31	\$1.87
2011-2020	\$2.36	\$2.33	\$4.24	\$1.81	\$10.74

a/ Based upon the available research, we estimate savings occur only on private health plans, including managed care plans under Medicare and Medicaid. Savings in managed care plans are reduced by half. Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

D. Pay for Performance (P4P)

Under the P4P model, physicians are rewarded for keeping people healthy and for obtaining favorable health outcomes. Under this program, data is collected on providers and compared with various performance benchmarks to measure the relative quality of patient health, outcomes, and costs. Physicians who exceed these performance benchmarks receive a bonus.⁴⁴

We estimated the impact of a P4P program for physician care based upon the results of the CMS Physician Group Practice (PGP) Demonstration. In this demonstration, 10 large physician groups were selected to receive bonus payments for realizing savings for the Medicare patients they serve. Each of the groups included had at least 200 physicians, and included freestanding group practices, faculty group practices and physician networks including small and individual practices.

Under the demonstration, physician groups continued to be paid for Medicare services under the existing fee-for-service program. However, they can receive bonus payments for up to 80 percent of any savings they realize for their patients. At the end of each year, the program computes total Medicare Part A and Part B per capita spending for their patients. Practices with beneficiary costs that are 2 percent or more below their comparison groups receive a bonus. The comparison group is based upon other patients in the same area.⁴⁵ Providers are also evaluated on the basis of performance against 32 separate quality measures.

The evaluation found that, at the end of the third year, all 10 participating physician groups had achieved benchmark quality markers for 28 out of 32 quality measures for patients with diabetes, coronary artery disease, congestive heart failure, hypertension and cancer screening.

A number of groups (grouped by disease) had lower Medicare spending growth rates than the average for their local markets.⁴⁶

Five of the 10 sites shared in savings of about \$32.3 million, of which \$25.3 million were paid to physician groups as performance payments. The demonstration comprised about 5,000 physicians and 220,000 Medicare patients. Savings average about \$7,000 per physician, or about \$160 per beneficiary.⁴⁷ This implies a savings of about 1.8 percent for participating beneficiaries.

There is also evidence of potential P4P savings for the non-Medicare population. Excellus health plan in upstate New York entered into a five-year pay for performance agreement with an Independent Practice Association (IPA) HMO.⁴⁸ The purpose was to expand upon the existing practitioner incentive program to include performance measures of care for chronic diseases. The program measured provider behaviors that have been shown to impact outcomes for three chronic diseases including diabetes, health disease and asthma. Physicians were rated on the basis of performance in providing preventive care, patient satisfaction and cost of care.

The cost of the program was \$1.2 million yearly. Savings for diabetes alone in 2003, the first post-intervention year, were \$1.9 million. Second-year (2004) savings against the two-year rolling trend were \$2.9 million. For 2003, the resulting ROI was 1.6:1, and for 2004, it was 2.5:1. The largest savings came from reducing hospitalizations. Physician costs, pharmacy, and outpatient spending were also reduced. Interestingly, these savings were achieved within an existing HMO, suggesting that savings could be achieved even with patients already enrolled in managed care.

We estimated the impact of implementing this P4P model throughout New York using an approach that reflects the progression of savings over time as observed in the Excellus study. Thus it shows a ramping-up of savings over the ten-year period. However, it was necessary to assume that the program applies only to either large physician practices, or physicians participating in large provider networks (the P4P model could be implemented for either large practices or physician networks). This is because there is enough random variation in costs that savings can be reliably estimated for only larger groups of patients.

A crucial issue in implementing such a program will be to identify physician groups with a large enough panel of patients to be able to reliably measure changes in costs due to changes in medical practice.⁴⁹ The CMS demonstration included physician practices and physician networks with 200 or more physicians. By contrast, surveys of physicians by the American Medical Association show that only about 9.4 percent of New York physicians are in a practice with 8 or more physicians.⁵⁰ To involve more physicians and patients it will be important to include physician networks that combine many small physician practices to form sufficiently large groups.

The AMA estimates that about 85.5 percent of New York physicians have managed care contracts, and about 28.8 percent have capitated contracts (i.e., physician accepts risk for patient costs). We used the estimated percentage of physicians with capitated contracts (28.8 percent) as a proxy measure of the percentage of physicians who are in practices and/or networks with a large enough panel of patients to be able to reliably compare actual costs under the P4P program against expected costs under current trends.⁵¹ We chose this measure even though only 9.4 percent of physicians in New York are in a practice of 8 or more physicians. Here we

are assuming that enough smaller practices participate in capitated networks that would be large enough to participate in the program.

We made the following assumptions:

- We assume that 28.8 percent of physicians are in physician practices or networks of physician practices that are large enough to participate in the program;
- We assume that the percentage savings in New York would be the same as average savings under the CMS PGP demonstration, which we calculate to be about 1.8 percent of spending;
- We assume that savings are reduced by 50 percent for people already enrolled in HMOs. This a “judgment” based assumption reflecting that these plans typically include their own cost control programs that may already be realizing a portion of these potential savings. Actual data on savings for the P4P models within HMOs is not available; and
- We assume that participation and savings phase-in beginning in 2011 over a period of three years. (Both the PGP demonstration and the Excellus program showed increasing savings over two or three years.)

Using these assumptions, we estimated the amount of savings resulting from a physician pay for performance program for New York for 2011 through 2020. We estimate total savings of \$6.6 billion (*Figure 19*). The participating physicians would receive bonus payments of \$5.3 billion (i.e., 80 percent) with payers retaining \$1.3 billion. While we assume that savings to payers represent net reductions in total health spending, physicians are assumed to retain the bonus payments as income. Thus, the program reduces health spending in New York by \$1.3 billion over the 2011 through 2020 period.

Figure 19
Potential Savings from Adopting a Physician Pay for Performance Program for All Payers in New York
(billions) ^{a/}

	Total Primary and Acute Care Spending	Savings from Pay for Performance	Physician Share of Savings (80%)	Payer Share of Savings (20%)
2011	\$117.39	\$0.20	\$0.16	\$0.04
2012	\$125.54	\$0.44	\$0.35	\$0.09
2013	\$134.28	\$0.58	\$0.47	\$0.12
2014	\$143.64	\$0.62	\$0.50	\$0.12
2015	\$153.68	\$0.67	\$0.53	\$0.13
2016	\$164.45	\$0.71	\$0.57	\$0.14
2017	\$176.00	\$0.76	\$0.61	\$0.15
2018	\$188.39	\$0.82	\$0.65	\$0.16
2019	\$201.67	\$0.88	\$0.70	\$0.18
2020	\$215.93	\$0.94	\$0.75	\$0.19
2011-2020	\$1,620.97	\$6.63	\$5.30	\$1.33

a/ We estimate savings occur among all three payer groups in both FFS and managed care plans. Savings in managed care plans are estimated at half the rate of FFS.

b/ Includes benefits payments for all Primary and Acute care services covered under Medicare, Medicaid and private insurance. This excludes spending under these programs for nursing homes, home health, public health and medical non-durable goods other than prescription drugs (e.g., aspirin, cough syrup, bandages etc.).

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Figure 20 shows how total savings are distributed by payer (including provider and plan share).

This illustrates the limitations in what can be saved with a bonus incentive model. The share of the savings that goes to the physician must be large enough to overcome fee-for-service incentives to increase utilization. The CMS PGP program required the payer to return to the physician 80 percent of the savings. Only savings that are returned to the consumer in the form of lower prices and premiums can be counted as an actual reduction in health spending. The need to set bonuses high enough for physicians to cooperate greatly limits the savings to consumers that can be realized through this approach.

Figure 20
Potential Savings from Adopting a Physician Pay for Performance Program in New York by Payer Including Provider and Payer Shares
(billions) ^{a/}

Year	Federal Government	State and local Governments	Private Employers	Families	Total Savings
2011	\$0.08	\$0.04	\$0.05	\$0.02	\$0.20
2012	\$0.19	\$0.09	\$0.12	\$0.05	\$0.44
2013	\$0.25	\$0.11	\$0.15	\$0.07	\$0.58
2014	\$0.27	\$0.12	\$0.16	\$0.07	\$0.62
2015	\$0.29	\$0.13	\$0.17	\$0.07	\$0.67
2016	\$0.31	\$0.14	\$0.18	\$0.08	\$0.71
2017	\$0.34	\$0.15	\$0.19	\$0.08	\$0.76
2018	\$0.37	\$0.16	\$0.20	\$0.09	\$0.82
2019	\$0.40	\$0.17	\$0.21	\$0.09	\$0.88
2020	\$0.43	\$0.19	\$0.23	\$0.10	\$0.94
2011-2020	\$2.94	\$1.30	\$1.67	\$0.72	\$6.63

a/ We estimate savings occur among all three payer groups in both FFS and managed care plans. Savings in managed care plans are estimated at half the rate of FFS.

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Although we have focused on the cost savings potential of P4P, the program is designed to improve the quality of care as well. As discussed above, under the PGP demonstration, providers were required to improve quality as measured by 30 or more quality measures to qualify for a bonus. These improvements in care are likely to be associated with the P4P program we have modeled here.

E. Combining Proposals

We considered forming a new model of primary care that includes elements of the medical home, disease management, coordinated care and the P4P program. However, there is such overlap among these approaches that it is not clear how one would integrate them. These approaches tend to be substitutes for each other because they are designed to induce the same changes in medical practice.

For example, the medical home model is already designed to encourage both disease management and coordination of care. It would not make sense to pay a physician both a medical home fee and a disease management fee for an individual patient since both programs are designed to induce exactly the same changes in medical practice for any given patient. Double paying physicians would add to costs with little or no increase in savings.

Also, savings to consumers actually would be reduced by adding P4P to the medical home or DM models. This is because the savings resulting from the medical home or DM would become part of the savings counted in computing P4P bonuses. This would return 80 percent of medical home and DM savings to the physician rather than reducing prices to consumers, thus reducing net savings in health spending.

The P4P program does include incentives that are not included in the medical home and disease management models. P4P creates a financial incentive for physicians to reduce utilization of high-cost medical services while the DM and medical home models do not. This could mean more system savings under P4P, although DM and Medical Home are expected to reduce hospitalizations and other costs due to improvements in primary care. However, it is unclear what increment of reduced utilization could be achieved by adding P4P to the DM or medical home models.

Consequently, we do not know of a way to combine these approaches that would increase net savings to consumers beyond the levels we estimated above for the individual initiatives. Finding a way to integrate multiple approaches to improve savings potential will be a major task in designing a new model of primary care. A CMS demonstration of an integrated approach would be very instructive.

Assumptions for Actionable Steps

The estimates presented above are the potential savings from adopting these primary care programs. They assume that all payers in the State adopt these programs, including all employers in the State and all of those covered under Medicaid and Medicare. In fact, the State legislature has little control over most health spending in the State. States are prohibited from regulating private self-funded health plans under the Employee Retirement Income Security Act (ERISA), which encompass about 55 percent of employer coverage. In addition, as a federal program, Medicare benefits are not subject to State control.

However, the State does have control over spending for Medicaid and the health benefits programs covering state and local government workers, so that there are “actionable” steps the State legislature can take to implement these programs. For illustrative purposes, we estimated the impact of these programs assuming that the State requires use of these primary care models in all State sponsored health plans. *Figure 21* presents our estimates of total potential savings (as

estimated above) and the amounts that could be saved through actionable steps available to the State legislature.

All of these scenarios assume that a sufficient number of primary care physicians and practitioners will be available to provide the medical home and disease management services discussed here. This could be a significant barrier for the Medicaid population due to the relatively lower payment levels for physician services under the program. The policies described in this proposal should dovetail with overall State workforce policy. Workforce supply will not be analyzed through this specific scenario, but may be explored more during the implementation planning phase in 2010.

Figure 21
Potential and Actionable Savings under Alternative Primary Care Models for New York: 2010-2020
(billions) ^{a/}

	Mandatory Medical Home		Voluntary Medical Home		Advanced Disease Management		Physician Pay for Performance			
	Potential Savings	Actionable Savings	Potential Savings	Actionable Savings	Potential Savings	Actionable Savings	Potential Savings		Actionable Savings	
							Total Savings	Savings net of Bonus	Total Savings	Savings net of Bonus
2011	\$0.11	-\$0.20	-\$0.60	-\$0.84	-\$0.06	-\$0.03	\$0.20	\$0.04	\$0.07	\$0.01
2012	\$1.80	\$0.46	\$0.19	-\$0.29	\$0.26	\$0.08	\$0.44	\$0.09	\$0.15	\$0.03
2013	\$2.44	\$0.71	\$0.49	-\$0.08	\$0.45	\$0.14	\$0.58	\$0.12	\$0.20	\$0.04
2014	\$3.15	\$0.99	\$0.81	\$0.15	\$0.85	\$0.27	\$0.62	\$0.12	\$0.21	\$0.04
2015	\$3.46	\$1.12	\$0.96	\$0.25	\$1.13	\$0.35	\$0.67	\$0.13	\$0.23	\$0.05
2016	\$3.78	\$1.26	\$1.11	\$0.36	\$1.32	\$0.40	\$0.71	\$0.14	\$0.25	\$0.05
2017	\$4.13	\$1.41	\$1.27	\$0.48	\$1.53	\$0.47	\$0.76	\$0.15	\$0.26	\$0.05
2018	\$4.51	\$1.56	\$1.44	\$0.61	\$1.64	\$0.50	\$0.82	\$0.16	\$0.28	\$0.06
2019	\$4.92	\$1.74	\$1.63	\$0.73	\$1.75	\$0.54	\$0.88	\$0.18	\$0.31	\$0.06
2020	\$5.35	\$1.93	\$1.81	\$0.88	\$1.87	\$0.58	\$0.94	\$0.19	\$0.33	\$0.07
2010-2020	\$33.66	\$10.99	\$9.11	\$2.25	\$10.74	\$3.30	\$6.63	\$1.33	\$2.28	\$0.46

a/ “Potential” savings are the amounts that could be saved if all public and private payers were to adopt these programs. “Actionable” savings include those that could be realized through State action under Medicaid or state and local government worker Health benefits programs.

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

IV. Expanding Palliative Care

It is estimated that about 27.4 percent of health spending under Medicare occurs at the end of life.⁵² This has stimulated interest in palliative care consultation programs designed to allow the patient greater control over the kind of care they receive when seriously ill or dying. Palliative care programs have been shown to improve physical and psychological symptom management, care-giver well-being, and family satisfaction.⁵³ It also has been shown to result in lower health spending.

Palliative care is a process where patients and families meet with a physician to identify patient goals at a given stage of illness and to adopt a treatment plan that is consistent with these goals. The process typically results in “advance directives” which identify the type of life prolonging care that a patient is willing to receive. For example, a patient may specify a “no resuscitate” order or other instruction to limit life prolonging care such as forgoing radiation therapy. Palliative care also includes developing a plan for “pain management” and other instructions designed to improve quality of life. Palliative care is often provided in hospitals, but can be provided in the community as well.

In this section we examine a policy option that would require hospitals to establish a palliative care program to assist patients in end of life planning where appropriate. Studies have shown that when given the choice, patients nearing end of life will often decline costly and invasive treatments that hospitals may be inclined to provide. As presented below, studies have also shown that these programs reduce costs.

A. Literature on Palliative Care

A 2001 *Health Affairs* study showed that about 27.4 percent of health spending under Medicare occurs at the end of life.⁵⁴ These costs often include care for multiple severe illnesses typically present near death. The study shows that end of life spending is only about 30 percent greater than costs for survivors of similar health conditions (adjusted for age and diagnosis).⁵⁵ However, this care can include intensive and costly treatments that postpone death for only a short time while creating considerable pain and discomfort for the patient.

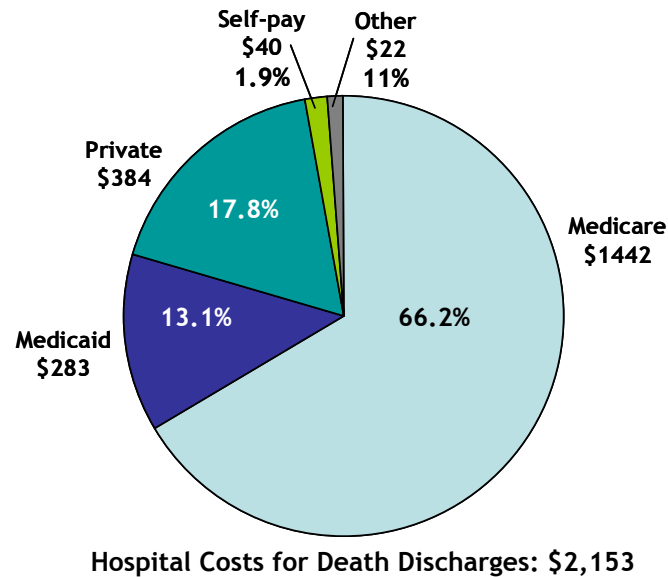
Less intensive modes of care are available for patients at end of life. The study suggests that some of this care is appropriate. The study showed that hospice is now used by half of Medicare cancer decedents and 19 percent of Medicare decedents overall. About 38 percent of beneficiaries have some nursing home stay in the year of their death.

The New York Hospital Discharge data indicate that there were about 59,100 discharges from New York Hospitals in 2007 that ended with the death of a patient (excludes deaths occurring in the emergency room). These include 41,100 people on Medicare, of whom 8,400 were covered by both Medicare and Medicaid (i.e., dual eligible). Another 5,600 were covered under Medicaid only, excluding dual eligible beneficiaries.

People who died while in the hospital accounted for about \$2.15 billion in hospital costs (*Figure 22*).⁵⁶ Medicare accounted for 66.2 percent of costs for these patients. Medicaid covered about 13.1 percent of hospital costs for people who die in the hospital. This includes cost for people

with Medicaid as their primary source of coverage and costs covered by Medicaid for people dually eligible for Medicare and Medicaid (i.e., Medicaid payments for Medicare copayments).⁵⁷

Figure 22
Distribution of Hospital Costs for Discharges in New York Hospitals Ending in Death for 2007
 (millions)



Source: The Lewin Group analysis of New York hospital discharge data.

Palliative care consultation programs have been shown to reduce costs for both decedents and survivors of high cost illnesses, while improving the quality of care provided at the end of life.⁵⁸ For example, a program at Gunderson Lutheran Health System in LaCrosse Wisconsin, won national recognition for increasing the number of people with advance care directives, leading to lower health care costs. Ninety percent of people who die in LaCrosse County have a written plan for their end-of-life care at the time of their death, compared with about 50 percent nationally.

Medicare pays an average of \$18,359 for medical care in the last two years of patients' lives in LaCrosse, compared with a national average of \$25,860, which is likely to be due, at least in part, to the high share of advanced directives.⁵⁹ However, these estimates are not conclusive because they do not account for confounding factors that could also explain the difference in costs. Cost could differ due to differences in prices or other regional variations in medical practice that may also account for the difference in spending levels.

Though the purpose of the PC program was to ensure that doctors and families knew how people wanted to die, the program reduced health care costs. This is because many people, when asked, do not choose aggressive treatment if they are dying. These results are consistent with studies showing that those who receive hospice care have lower average expenditures at end of life than Medicare beneficiaries who did not use hospice.⁶⁰

One study of the impact of palliative care on costs was conducted by Morrison (2008).⁶¹ The study analyzed data from eight hospitals with established palliative care (PC) programs for the years 2002 through 2004. The study compared costs for patients receiving PC and those receiving usual care (UC), which they standardized for severity of illness and demographic characteristics. The analysis included patients age 18 or older with a hospital length of stay (LOS) of between 7 and 30 days. Patients with less than a seven day stay were excluded because they were unlikely to receive PC consultation, while stays of 30 days or more were assumed to be outliers.

The PC patients who were discharged alive had an adjusted net savings of \$1,696 (15.2 percent) in direct costs per admission (\$279 per day), including significant reductions in laboratory and intensive care unit (ICU) costs compared with UC patients. The PC patients who died had an adjusted net savings of \$4,908 (21.7 percent) in direct costs per admission (\$374 per day). This savings included significant reductions in pharmacy, laboratory, and ICU costs when compared with UC patients. When we adjust these savings to 2011 spending levels, the average savings per consult is \$2,714 for live discharges and \$7,852 for discharges ending in death.

After adjusting for the cost of the palliative care team (less revenues), net savings were about 13.4 percent for patients discharged alive and 19.1 percent for those who died in hospital.⁶² These results are consistent with studies showing that those who receive hospice care have lower average expenditures at the end of life than Medicare beneficiaries who do not use hospice.⁶³ The Morrison study indicates that among live discharges with an LOS of seven to 30 days, about 6.8 percent received palliative care consultation.⁶⁴ About 50.5 percent of patients with that LOS who died in the hospital received PC.

Dr. Morrison estimates that about 10 percent of all hospital discharges should receive a palliative care consult. He also estimates that only about 2.5 percent of discharges actually receive a consult.⁶⁵ This is partly because only about 57 percent of hospitals in New York have a palliative care program. It also reflects that, even in hospitals that have these programs, PC is underutilized. In fact, the NYSHF has funded a program at Mt. Sinai hospital to promote the use of palliative care. Presumably, savings could be increased by expanding use of PC consulting in hospitals that already have a program.

There were several limitations to the Morrison study. First, the study documented reduced costs within an admission but did not show savings over time due to data limitations. Second, while the study documented savings it did not show that these savings actually translated into savings to the payer.

Meier documented the impact of palliative care on costs and patient satisfaction at Mount Sinai hospital. The study showed cost savings for Medicare beneficiaries in 2001 of \$757,500 per year for patients with a length of stay (LOS) greater than 14 days, and \$455,900 per year for patients with a LOS greater than 28 days. When costs were compared, savings were about 4.3 times the cost of providing palliative consultation, which is a return on investment of 4.3:1. The study also reports a high level of satisfaction for patients and family members.⁶⁶

Palliative care can be provided in the community as well. The Kaiser Permanente Palliative Care Project is a multidisciplinary care management approach for home-based end of life care and treatment. The program is designed to facilitate the transition from acute to palliative care

during the last 12 months of life with the goal of improving quality of life through the provision of symptom control, pain relief, emotional and spiritual support, and patient education.

A study of this program showed that those enrolled in PC care averaged a 45 percent decrease in costs as compared to UC patients.⁶⁷ This reduction reflects significantly fewer emergency department visits, hospital days, skilled nursing facility days, and physician visits than those in the comparison group. The study also found that PC patients had increased satisfaction with services after 60 days of enrollment. Patients enrolled in the PC program were more likely to die at home than UC patients.

Palliative care does not always show savings. One study of dementia patients found no savings from palliative care for these patients.⁶⁸ The author theorizes that patients with advanced dementia present unique barriers to palliative care providers such as perceived uncertainty of prognosis, difficulty assessing comfort level, and perceptions about tube feeding.

B. Estimates of Savings from Expanding the use of Palliative Care

We estimated potential savings resulting from expanded use of palliative care. Specifically, we assumed that all hospitals in the State are required to adopt a palliative care program. We also assume that hospitals are required to obtain certification that PC is offered to all patients treated for chronic illness. Thus, we model both the increase in the number of hospitals with PC programs and an increase in the proportion of patients in hospitals that receive these consults.

The first step was to project the percentage of patients who would receive PC consults under current law over the next ten years. Morrison estimates that about 2.5 percent of hospital discharges include a PC consult. We project that this will grow to about 3.2 percent of discharges by 2020 under current policy.

We developed this estimate based upon a recent study showing that the percentage of hospitals with palliative care programs nationally doubled between 2000 and 2008 to 53 percent of all hospitals. About 57 percent of hospitals in New York have a palliative care program.⁶⁹ We assumed that the percentage of discharges with a PC consult will increase over the 2011 through 2020 period in proportion to the rate of growth in the number of hospitals with a PC program observed over the 2000 through 2008 period.

We assume that this policy option would result in an increase in the percentage of discharges with a consult. We assume that the percentage receiving these services would increase from its current level of 2.5 percent to 9.5 percent. This is based upon the Morrison research suggesting that the optimum level is 10 percent of all discharges, which we discounted to 9.5 percent as the “achievable” rate of PC consults. We assume that this increase would phase in over the first four years of the requirement.

We estimated the cost impact of these requirements by assuming that costs would be reduced for patients in hospitals receiving these services in proportion to the savings estimated by Morrison. As discussed above, the Morrison study showed net savings of 13.4 percent for live discharges and 19.1 percent for those who died in the hospital, which accounts for the costs of the palliative care team less revenues for providing these services.

We estimated savings per consult based upon hospital cost data for people likely to be eligible for PC consults using the New York State hospital discharge data. These data include information for each hospital discharge in the State including hospital charges, length of stay (LOS) and type of discharge (i.e., live, death). In keeping with the Morrison analysis, we selected hospital stays for people over age 18 with a length of stay of 7 to 30 days. We estimated costs for each discharge using the cost to charge ratio reported for each hospital taken from the Medicare cost report data for New York hospitals.⁷⁰

We estimated the cost of hospitalizations for people over age 18 with 7 to 30 day stays directly from the New York Hospital Discharge data.⁷¹ We adjusted these data to 2011 based upon CMS projections of health care cost growth. Using this approach, we estimated that hospital inpatient revenues in New York will be \$41.1 billion in 2011, of which about \$17.0 billion is attributed to people over age 18 with a hospital stay of 7 to 30 days. The hospital discharge data reports that live discharges represented 92.8 percent of hospital costs and about 7.2 percent were attributed to people who die in the hospital. We present these data in *Figure 23*

Figure 23
Hospital Discharges for New York Hospitals in 2007

Payer Source	All Hospital Discharges				Discharges over age 18 with LOS of 7 to 30 days			
	Discharges	Total Days (1,000's)	Total Charges (millions)	Total Costs (millions)	Discharges	Total Days (1,000's)	Total Charges (millions)	Total Hosp Costs (millions)
Live Discharges								
Medicare	885,318	6,030	\$27,834	\$14,552	277,945	3,307	\$13,861	\$7,247
Medicaid	630,535	3,606	\$12,400	\$6,483	106,891	1,383	\$4,560	\$2,384
Private	830,642	3,466	\$17,691	\$9,249	103,036	1,195	\$5,606	\$2,931
Self-pay	144,295	602	\$1,996	\$1,044	18,105	217	\$660	\$345
No charge	3,990	34	\$81	\$42	894	12	\$27	\$14
Other	54,706	256	\$1,190	\$622	8,807	102	\$402	\$210
Total	2,549,486	13,994	\$61,191	\$31,991	515,678	6,218	\$25,116	\$13,130
Death Discharges								
Medicare	41,088	508	\$2,741	\$1,433	17,725	253	\$1,360	\$711
Medicaid	5,622	95	\$525	\$274	2,291	34	\$205	\$107
Private	9,872	124	\$734	\$384	3,795	55	\$324	\$169
Self-pay	1,720	16	\$76	\$40	529	7	\$35	\$18
No charge	90	2	\$4	\$2	33	1	\$1	\$1
Other	737	7	\$39	\$20	226	3	\$17	\$9
Total	59,129	754	\$4,119	\$2,153	24,599	354	\$1,941	\$1,015

Source: The Lewin Group tabulations of the New York hospital discharge data. Numbers may not add to totals due to rounding.

We then calculated hospital cost savings using the percentage savings estimated by Morrison (13.4 percent live; 19.1 percent death) for people receiving PC. As discussed above, these estimates of percentage savings from PC consultation includes savings net of the cost of providing the PC services.

We also estimated reductions in spending for physician care other than that provided by hospital staff (which is included in hospital costs), including costs for the attending physician and physician consults while in the hospital. Unfortunately, the New York hospital discharge data does not include these physician costs. For this study, we estimated physician costs while in the hospital costs based upon the Medical Expenditure Panel Survey (MEPS) data, which includes the cost of physician charges associated with each hospital admission.⁷² We assumed that savings in physician care would be in proportion to the Morrison estimates of savings in hospitals.

Using these assumptions, discussed above, we estimate that this policy option would reduce health spending by \$11.9 billion over the 2011 through 2020 period (*Figure 24*). This includes savings in hospital and physician services less the cost of implementing the PC program. We estimated the distribution of these savings across payers in proportion to the source of payment reported in the New York Hospital Discharge data for the proportion of hospital admissions that we assume would receive palliative care (*Figure 25*).⁷³

Figure 24
Estimation of Net-Savings from Requiring Hospitals to Have a Palliative Care Program: 2011-2020

	Percent of Hospitals with Palliative Care Program	Percent of Discharges Receiving Consults	Percent Receiving Consults under Program	Number of New Consults	Net savings Per Consult	Net Savings from Requiring use of Palliative Care (millions)		
						Hospital Savings	Physician Savings	Total Savings
2011	59.9%	2.5%	2.8%	7,826	\$6,162	\$43	\$5	\$48
2012	62.8%	2.6%	5.0%	64,464	\$6,437	\$370	\$45	\$415
2013	65.7%	2.6%	6.5%	104,158	\$6,758	\$627	\$77	\$704
2014	68.6%	2.7%	8.0%	145,201	\$7,128	\$921	\$113	\$1,035
2015	71.5%	2.8%	9.0%	173,617	\$7,518	\$1,162	\$143	\$1,305
2016	74.4%	2.9%	9.5%	188,684	\$7,929	\$1,332	\$164	\$1,496
2017	77.3%	3.0%	9.5%	189,652	\$8,363	\$1,412	\$174	\$1,586
2018	80.2%	3.1%	9.5%	190,522	\$8,821	\$1,496	\$184	\$1,681
2019	83.1%	3.1%	9.5%	191,287	\$9,303	\$1,585	\$195	\$1,780
2020	86.0%	3.2%	9.5%	191,939	\$9,813	\$1,677	\$206	\$1,883
2011-2020	n/a	n/a	n/a	n/a	n/a	\$10,625	\$1,308	\$11,933

a/ Estimates equal savings less the cost of administering the palliative care program.
Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Figure 25
Savings from Requiring Hospitals to Have Palliative Care Programs by Payer: 2011-2020 (millions)

Year	Federal Government	State and local Governments	Private Employers	Families	Total Savings
2011	\$34	\$5	\$5	\$4	\$48
2012	\$295	\$45	\$41	\$34	\$415
2013	\$501	\$76	\$70	\$58	\$704
2014	\$737	\$111	\$102	\$85	\$1,035
2015	\$929	\$140	\$129	\$107	\$1,305
2016	\$1,065	\$161	\$148	\$122	\$1,496
2017	\$1,129	\$170	\$157	\$130	\$1,586
2018	\$1,196	\$180	\$166	\$138	\$1,681
2019	\$1,267	\$191	\$176	\$146	\$1,780
2020	\$1,341	\$202	\$186	\$154	\$1,883
2011-2020	\$8,493	\$1,282	\$1,181	\$977	\$11,933

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

C. Actionable Steps

In this scenario, we assume that all hospitals in the State are required to have a palliative care program. This policy would apply to all care provided in these hospitals regardless of payer source. The service would be provided by the hospital regardless of whether health plans provide separate payments for palliative care services. Thus, we assume that all patients would receive the services regardless of payer.

V. Implementing Mandatory Managed Care for Medicaid Dual-Eligible Population

This section estimates the impact of enrolling New York’s Medicaid/Medicare dual eligibles into a fully integrated coordinated care setting. Under this model, dual eligibles would be mandatorily enrolled into capitated managed care organizations (MCOs). These MCOs would be at full financial risk for the entire Medicaid and Medicare benefits package for their enrolled dual eligibles. This model would require a partnership between CMS and New York State, and we assume that under this partnership Medicare and Medicaid funds for dual eligibles would be pooled, with the overall savings achieved split 50/50 between the federal government and New York State.

A. Background

Figure 26 presents baseline CY2008 costs for dual eligibles along with estimates of these costs through CY2020. The Medicaid long-term care cost figures for CY2008 were derived from a data set provided to Lewin by New York State.⁷⁴ Remaining Medicaid costs for dual eligibles were obtained by tabulating CMS website data from the Medical Statistical Information System (MSIS) State Summary Datamart using the “FY2008 Quarterly Cube” database. Medicare costs for New York’s dual eligibles were estimated using other CMS data sources.

All costs were trended at an annual rate of 8 percent per year – this trend assumption is intended to capture both population growth and per capita cost growth.

Figure 26
Baseline Dual Eligible Cost Estimates in New York State without Programmatic Changes (millions) ^{a/}

Cost Category	2008	2011	2015	2020
Nursing Home Transition Waiver	\$0.1	\$0.2	\$0.2	\$0.3
SNF	\$6,104	\$7,689	\$10,461	\$15,370
Adult Day Care	\$376	\$473	\$644	\$946
Personal Care	\$2,251	\$2,836	\$3,858	\$5,668
Home Health	\$1,224	\$1,541	\$2,097	\$3,081
Long Term Home Health	\$633	\$797	\$1,085	\$1,594
Assisted Living	\$89	\$112	\$152	\$223
Subtotal Medicaid LTC (from NYS data)	\$10,676	\$13,448	\$18,296	\$26,883
Total, All Other Medicaid (based on MSIS data)	\$8,573	\$10,800	\$14,693	\$21,588
Medicaid Total	\$19,249	\$24,248	\$32,989	\$48,471
Medicare Parts A & B	\$5,336	\$6,722	\$9,146	\$13,438
Medicare Part D	\$2,641	\$3,327	\$4,527	\$6,652
Medicare Total	\$7,979	\$10,050	\$13,672	\$20,089
Duals Total (Medicaid + Medicare)	\$27,226	\$34,297	\$46,661	\$68,560

Source: The Lewin Group’s analysis of state Medicaid long term care service use and payment data for 2000 and 2008 and Medicaid Statistical Information System (MSIS) data.

Estimated impacts of the coordinated care model in each medical cost category and year are shown in *Figure 27*. These estimates assume that the coordinated care program is implemented

beginning in CY2011. SNF cost savings will be very low initially (given that the opportunities for discharge are limited). However, nursing home savings are expected to accumulate very favorably over time as nursing home diversion opportunities are identified and are successfully implemented. A 25 percent savings is assumed on the nursing home costs that are deemed “impactable,” with already institutionalized persons and future persons who enroll in Medicaid after already becoming institutionalized (and “spending down”) not being deemed as “impactable.” In the initial year of implementation (CY2011), only 5 percent of dual eligibles’ nursing home costs are deemed to be impactable, although this figure increases to 46 percent as of Year 10 (CY2020).

Figure 27
Estimated Percentage Medical Cost Impacts of Coordinated Care Model

Cost Category	Percent Savings Coordinated Care Model Will Yield in Medical Costs Relative to Baseline, 2011	Percent Savings Coordinated Care Model Will Yield in Medical Costs Relative to Baseline, 2015	Percent Savings Coordinated Care Model Will Yield in Medical Costs Relative to Baseline, 2020
Nursing Home Transition Waiver	1.3%	6.3%	11.0%
SNF	1.3%	6.3%	11.0%
Adult Day Care	0.0%	0.0%	0.0%
Personal Care	0.0%	0.0%	0.0%
Home Health	-1.3%	-6.7%	-12.4%
Long Term Home Health	-1.3%	-6.7%	-12.4%
Assisted Living	-1.3%	-6.7%	-12.4%
All Other Medicaid Services (non-LTC)	7.5%	7.5%	7.5%
Medicare Parts A & B	17.5%	17.5%	17.5%
Medicare Part D	17.5%	17.5%	17.5%

Source: The Lewin Group estimates.

Net costs for adult day care and personal care are assumed to be unaffected by the coordinated care program. There may be substantial opportunities to reduce existing usage of these services, but the shift away from nursing homes could increase the usage of these community-based services.

Net costs for home health and assisted living are assumed to increase at roughly the same proportion that nursing home costs will decrease. It is assumed that the efforts made to divert persons who would otherwise have become nursing home residents will cause some “spillover” cost increases in these medical cost categories.

There is extensive evidence that managed care for the dual-eligible population reduces spending. For example inpatient impacts on dual eligibles, Lewin found that the inpatient usage rate bed/days per 1,000 beneficiaries per year for Medicare dual eligibles Special Needs Plans (SNPs) was 25 percent below the usage rate for dual eligibles served in the fee-for-service

setting, despite the fact that the average risk score for the dual eligibles SNPs was nine percent higher (suggesting the SNPs had attracted and enrolled a particularly high-need subgroup).⁷⁵ Also, in a recent New York-specific assessment of coordinated care impacts involving a high-need subgroup of Medicaid HIV-infected persons Lewin found that inpatient per member per month costs were reduced 44 percent - 52 percent.⁷⁶

Based upon these data, we assumed savings of 7.5 percent for all other (non-LTC) Medicaid services. This category includes services such as inpatient and outpatient hospital care, where much larger percentage savings are likely achievable – but also physician and clinic services where little or no savings are likely to occur.

We also assume that Medicare costs will be reduced by 17.5 percent. Medicare per capita costs for dual eligibles are quite high in areas that are typically deemed to be strongly impactable by a well-designed coordinated care model – inpatient hospital, outpatient hospital, diagnostic services, durable medical equipment, and pharmacy.

Lewin has also directly found that large-scale savings are achievable on prescription drug mix and volume. An assessment of the Medicaid capitated model found the mix of medications to create a six percent savings in overall PMPM pharmacy costs; and that a reduction of 15 percent - 20 percent also occurred in the volume of prescriptions versus the FFS Medicaid setting for similar population subgroups.⁷⁷ The 17.5 percent savings assumption used in the pharmacy area is thus conservative regarding the level of savings that can occur in a well-designed coordinated care setting.

B. Estimating Savings

Figure 28 presents the estimated statewide medical costs by year and category of service if all New York dual eligibles were transitioned into a fully-integrated capitation model of coverage beginning in CY2011.

Figure 28
Estimated Dual Eligible Costs in New York State (Under Statewide Coordinated Care Program)

Cost Category	2011	2015	2020
Nursing Home Transition Waiver	\$0.2	\$0.2	\$0.3
SNF	\$7,588.9	\$9,801.6	\$13,679.4
Adult Day Care	\$473.2	\$643.7	\$945.9
Personal Care	\$2,835.6	\$3,857.8	\$5,668.3
Home Health	\$1,561.7	\$2,238.0	\$3,462.1
Long Term Home Health	\$807.8	\$1,157.6	\$1,790.7
Assisted Living	\$113.1	\$162.1	\$250.8
Subtotal Medicaid LTC (from data file sent to Lewin)	\$13,380.4	\$17,861.1	\$25,797.4
Total, All Other Medicaid (based on MSIS data)	\$9,989.5	\$13,590.7	\$19,969.1
Medicaid Total	\$23,369.9	\$31,451.7	\$45,766.5
Medicare Parts A & B	\$5,545.9	\$7,545.1	\$11,086.2
Medicare Part D	\$2,745.1	\$3,734.7	\$5,487.6
Medicare Total	\$8,291.0	\$11,279.8	\$16,573.8
Duals Total (Medicaid + Medicare)	\$31,660.9	\$42,731.5	\$62,340.3

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Figure 29 derives the net savings from the coordinated care initiative. Medical cost impacts are derived by subtracting the coordinated care costs in *Figure 28* from the baseline costs in *Figure 26*. An allocation of seven percent of the MCOs' estimated medical costs is included for the health plans administrative expenses (5%) and risk margin (2%). This may be a seemingly low allocation on a percentage basis, but is quite a large allocation on a per member per month basis. It is also worth noting that the MCOs will have negligible marketing costs under this program design, which assumes that a mandatory enrollment approach is utilized.

Net savings are projected to occur immediately and to compound favorably over time due to the increasing savings derived via nursing home diversion efforts.

Figure 29
Net Savings from Statewide Implementation of Coordinated Care Approach
(millions)

Cost Category	2011	2015	2020	5 and 10-Year Total Savings	
				2011-2015	2011-2020
Nursing Home					
Transition Waiver	\$0.0	\$0.0	\$0.0	\$0.0	\$0.2
SNF	\$100	\$659	\$1,691	\$1,792	\$8,215
Adult Day Care	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Personal Care	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Home Health	-\$20	-\$141	-\$381	-\$377	-\$1,806
Long Term Home Health	-\$11	-\$73	-\$197	-\$195	-\$934
Assisted Living	-\$2	-\$10	-\$28	-\$27	-\$131
Subtotal Medicaid LTC from data file sent to Lewin	\$68	\$435	\$1,085	\$1,192	\$5,345
Total, All Other Medicaid (based on MSIS data)	\$810	\$1,102	\$1,619	\$4,751	\$11,734
Medicaid Total	\$878	\$1,537	\$2,705	\$5,944	\$17,078
Medicare Parts A & B	\$1,176	\$1,601	\$2,352	\$6,901	\$17,042
Medicare Part D	\$582	\$792	\$1,164	\$3,416	\$8,436
Medicare Total	\$1,758	\$2,393	\$3,516	\$10,318	\$25,478
Duals Total (Medicaid + Medicare)	\$2,636	\$3,930	\$6,220	\$16,261	\$42,556
MCO Administration & Profit	\$2,216	\$2,991	\$4,364	\$12,946	\$31,801
Net Savings From Model	\$420	\$939	\$1,856	\$3,315	\$10,755
Percent Savings From Model	1.2%	2.0%	2.7%	1.6%	2.2%

Source: The Lewin Group estimates. Savings estimates assume that 100 percent of dual eligibles are enrolled in the coordinated care program. Numbers may not add to totals due to rounding.

Given the unlikelihood that an ambitious, fully-integrated model for dual eligibles could be implemented statewide, *Figure 30* demonstrates the impacts of limiting the program to various proportions of New York's dual eligible population. For example, if 30 percent of New York's dual eligibles were enrolled in this model, it is estimated that total savings over the first five years of implementation (State and Federal savings combined) would be approximately \$1 billion.

The large size of New York's dual eligible population (approximately 650,000 persons, currently) and the very high per capita costs in this sector create opportunities for large-scale savings to occur via a well-designed and operated coordinated care program. It is important to

note that funding for Medicare and Medicaid is traditionally completely separate. Without a shared-savings approach, the program administrative costs would largely be borne by Medicaid, limiting the total \$10.8 billion in savings to Medicaid savings of approximately \$1.2 billion over 10 years (*Figure 31*), while Medicare would realize nearly \$9.6 billion in savings (*Figure 32*). There are other potential approaches to improved care coordination for dual eligibles, but all approaches that require state administration would require shared-savings between Federal and state governments to be cost effective and feasible.

Making MCO enrollment mandatory for Medicare beneficiaries would, of course, also require the consent of Federal policymakers and a change in Federal statute, and thus presents a potential barrier to implementation. Another possibility might be an automatic enrollment with the option for enrollees to opt-out, though this introduces potential for adverse selection and reduced savings. The need for Federal consent, combined with the need to share savings with Medicare, mean that none of the potential savings for this option are truly “actionable” by New York State alone. However, CMS has appeared to be increasingly receptive to coordinated models, and the PPACA includes the creation of a new office dedicated to coordination for dual eligibles between the Federal government and states.

Figure 30
Net Savings from Coordinated Care Approach with Less than Statewide Implementation (millions)

Percentage of Statewide Duals Enrolled In Coordinated Care Program	Projected Savings Across Medicare and Medicaid Pooled Funds			
	Projected Total Savings, 2011	5 Year Total, 2011-2015	5 Year Total, 2016-2020	10 Year Total, 2011-2020
10%	\$42	\$332	\$744	\$1,076
20%	\$84	\$663	\$1,488	\$2,151
30%	\$126	\$995	\$2,232	\$3,227
40%	\$168	\$1,326	\$2,976	\$4,302
50%	\$210	\$1,658	\$3,720	\$5,378
60%	\$252	\$1,989	\$4,464	\$6,453
70%	\$294	\$2,321	\$5,208	\$7,529
80%	\$336	\$2,652	\$5,952	\$8,604
90%	\$378	\$2,984	\$6,696	\$9,678
100%	\$420	\$3,315	\$7,440	\$10,755

Source: The Lewin Group estimates.

Figure 31
Medicaid Savings from Coordinated Care Approach with Less than Statewide Implementation
(millions)

Percentage of Statewide Duals Enrolled In Coordinated Care Program	Projected Savings for Medicaid			
	Projected Total Savings, 2011	5 Year Total, 2011-2015	5 Year Total, 2016-2020	10 Year Total, 2011-2020
10%	-\$23	-\$53	\$171	\$118
20%	-\$46	-\$106	\$341	\$236
30%	-\$69	-\$159	\$512	\$353
40%	-\$92	-\$212	\$681	\$471
50%	-\$115	-\$265	\$854	\$589
60%	-\$138	-\$318	\$1,024	\$707
70%	-\$161	-\$371	\$1,195	\$825
80%	-\$184	-\$423	\$1,366	\$942
90%	-\$207	-\$476	\$1,537	\$1,060
100%	-\$230	-\$529	\$1,707	\$1,178

Source: The Lewin Group estimates.

Figure 32
Medicare Savings from Coordinated Care Approach with Less than Statewide Implementation
(millions)

Percentage of Statewide Duals Enrolled In Coordinated Care Program	Projected Savings For Medicare			
	Projected Total Savings, 2011	5 Year Total, 2011-2015	5 Year Total, 2016-2020	10 Year Total, 2011-2020
10%	\$65	\$384	\$573	\$958
20%	\$130	\$769	\$1,147	\$1,915
30%	\$195	\$1,153	\$1,720	\$2,873
40%	\$260	\$1,538	\$2,293	\$3,831
50%	\$325	\$1,922	\$2,866	\$4,789
60%	\$390	\$2,307	\$3,440	\$5,746
70%	\$455	\$2,691	\$4,013	\$6,704
80%	\$520	\$3,076	\$4,586	\$7,662
90%	\$586	\$3,460	\$5,160	\$8,619
100%	\$651	\$3,844	\$5,733	\$9,577

Source: The Lewin Group estimates.

VI. Adopting Bundled Payment Methods

In this section, we analyze a program of “bundled” payments that would provide a single prospective payment to a provider covering all facets of care provided for individual episodes of care. These single bundled payments would encompass the full range of services provided to someone for inpatient care, physician services while hospitalized, and post-acute care services including short-term skilled nursing facility (SNF) and home health care. The bundled payment provides strong financial incentives for hospitals, physicians and other health care providers to benefit from reducing complications and hospital readmissions in particular. It also provides greater flexibility in allocating resources to meet each patient’s individual needs.

Current payment methods tend to reimburse hospitals on a per discharge basis and physicians on a per service basis. Although hospitals have a financial incentive to manage a patient’s care during the hospital stay there is little or no incentive to manage a patient’s condition following discharge. Physicians are usually paid for each service they provide, thus there is little financial incentive for them to manage utilization of ancillary tests and services for a patient while in the hospital or manage a patient’s care after being discharged from the hospital to help avoid preventable readmissions.

Bundled payments, however, would consist of a single payment for all services provided to a patient during an episode of care for hospital and physician care, while in the hospital and in the post-acute phase, regardless of the amount of services provided. These payment amounts are usually based on the average cost of providing this care, less some allowance for efficiencies and reductions in adverse events, or negotiated between the providers and the payer. These bundled payment rates should be adjusted for the severity of the patient’s illness in order to account for the additional resources required to treat sicker patients. The payments can be made to the hospital or some managing entity that then distributes the funds to all the parties involved. How the bundled payments are distributed among the hospital and physicians is usually left up to the providers.

Since bundled payments are usually based on an average of what it currently costs to provide the full range of services for an episode, hospital and physician groups could profit if they can reduce adverse events and control costs to below the average. Groups that cannot lower costs will lose money under the system. Thus, the bundled payment method provides incentives for hospitals and physicians to work together to manage a patient’s care throughout an entire episode of care. This may require major changes in physician practice patterns and hospital operation as well as investments in different strategies to reduce adverse events and preventable readmissions.

There are alternative bundled payment methodologies that have been designed and some that are currently being used for payment purposes. These methodologies differ in the conditions and procedures that are covered under the bundled payment system, the duration of the episode, the type of services that are included in the bundled payment (e.g., pharmacy, outpatient physician, etc.), and payment discount methodology. This analysis is based on one possible bundled payment methodology in order to show the magnitude of potential savings impacts. Other bundled payment systems could show different savings estimates, and this report is not intended to advocate for any one single system.

A. Background

An evaluation of the Medicare Participating Heart Bypass Demonstration, which was one of the largest bundled payment demonstration programs, found that it saved the Medicare program an average of 10 percent for bypass surgery patients in demonstration hospitals compared with the predicted Medicare payments in the absence of the demonstration.⁷⁸ These savings resulted from negotiated discounts between Medicare and the participating sites (86 percent of the savings), reduced post-discharge utilization (5 percent of the savings) and market shifts as patients moved to the lower cost demonstration facilities (9 percent of the savings).

The study also found that three of the four original hospitals were able to make major changes in physician practice patterns and hospital operations that generated significant cost reductions over a three year period of 18 to 40 percent, before adjusting for inflation. The three hospitals with savings experienced declines in direct intensive care unit expenses, routine nursing expenses, pharmacy costs per case and laboratory costs. However, one of the hospitals experienced cost increases of 10 to 24 percent, depending on the DRG.

The cost reductions measured in the study did not account for cost inflation. Thus, the savings would be even greater if they were measured as the difference from what costs for these services would have been in the third year assuming standard hospital cost inflation of about 3 percent. Finally, the study found that all hospitals in the demonstration had increased variable margins for these services so that the bundled payments more than covered the cost of the services. The study also reported improvements in hospital mortality rates for the participating hospitals and that the bundling of the hospital and physician payments did not have a negative impact on the post-discharge health improvements of the patients.

The Geisinger Health System in Pennsylvania implemented a bundled payment program for non-emergency CABG procedures (ProvenCare) in 2006. The bundled services included hospital and professional fees, pre-operative evaluations and post-acute care and management of any complications that occur for the 90 day period following surgery. A study of slightly more than 100 patients found that hospital costs had dropped by five percent compared to the year prior to the program.⁷⁹

The New York State Medicaid program has been moving in the direction of bundled payments and, in December 2008, implemented hospital outpatient prospective payment for outpatient surgeries and visits. This is a type of bundled payment system for hospital services provided during a single outpatient visit. This is similar to the DRG payment system for inpatient care. However, these payment systems provide only limited incentives for hospitals and physicians to work together to create efficiencies and manage a patient's care throughout a complete episode of illness.

B. Bundled Payment Policy

In this study, we estimated the potential savings resulting from the use of bundled payment methodologies throughout the health care system for all payers. We assumed hospitals would be paid a single bundled rate that covers hospital inpatient stays and any readmissions occurring within 30 days of admission. The payment amount would also include post-acute rehabilitation, skilled nursing, home health services, hospital outpatient services and payment

for the attending physician and all consults. We did not include physician office visits other than those that would be included in the surgical global period and pharmacy claims because it is likely that some of these may not be related to the initial stay. These costs also tend to be small relative to the inpatient and post acute care costs for individual episodes.

We selected specific types of conditions and procedures to be included in the bundled payment model. The selection was based on groups of closely related diagnosis related groups (DRGs) using the following criteria:

- Selected DRGs with the highest total costs in New York State among private payers and Medicaid, based on the State Inpatient Database (SID) for 2007 which was constructed from the New York State Department of Health's Statewide Planning and Research Cooperative System (SPARCS) Master File;
- Mental health and substance abuse DRGs, as requested by the Foundation;
- Services now included in the Medicare Acute Care Episode (ACE) demonstration that is testing the effects of bundling for Medicare and items included in other bundled payment systems such as the Geisinger Health System; and
- Admissions that were concentrated in a limited number of specialties. For instance, our cardiac value DRG group includes DRGs both with and without cardiac catheterization.

Figure 33 lists the services selected for this analysis, which consisted of 74 different DRGs. The selected conditions and procedures account for about 29 percent of all New York hospital discharges and 26 percent of total hospital costs in 2007 (*Figure 34*). We selected high volume services that were specific to privately insured and Medicaid patients so the portion of hospital discharges are higher for these groups (32 and 35 percent respectively) than for Medicare (23 percent).

Figure 33
Services selected for Bundled Payment Analysis

ALCOHOL AND DRUG ABUSE
ALCOHOL & DRUG DEPENDENCE W REHAB OR REHAB/DETOX THERAPY
ALCOHOL ABUSE & DEPENDENCE
COCAINE ABUSE & DEPENDENCE
DRUG & ALCOHOL ABUSE OR DEPENDENCE LEFT AGAINST MEDICAL ADVICE
OPIOID ABUSE & DEPENDENCE
OTHER DRUG ABUSE & DEPENDENCE
CARDIOLOGY - MEDICAL
ACUTE MYOCARDIAL INFARCTION
CARDIOLOGY - SURGICAL
CARDIAC DEFIBRILLATOR & HEART ASSIST IMPLANT
CARDIAC VALVE PROCEDURES W CARDIAC CATHETERIZATION
CARDIAC VALVE PROCEDURES W/O CARDIAC CATHETERIZATION
CORONARY BYPASS W CARDIAC CATH OR PERCUTANEOUS CARDIAC PROCEDURE
CORONARY BYPASS W/O CARDIAC CATH OR PERCUTANEOUS CARDIAC PROCEDURE
PERCUTANEOUS CARDIOVASCULAR PROCEDURES W AMI

PERCUTANEOUS CARDIOVASCULAR PROCEDURES W/O AMI
DIGESTIVE SYSTEM - MEDICAL
MAJOR ESOPHAGEAL DISORDERS
MAJOR GASTROINTESTINAL & PERITONEAL INFECTIONS
NON-BACTERIAL GASTROENTERITIS/NAUSEA & VOMITING
OTHER ESOPHAGEAL DISORDERS
DIGESTIVE SYSTEM - SURGICAL
MAJOR SMALL & LARGE BOWEL PROCEDURES
FEMALE REPRODUCTIVE SYSTEM
UTERINE & ADNEXA PROCEDURES FOR NON-MALIGNANCY EXCEPT LEIOMYOMA
UTERINE & ADNEXA PROCEDURES FOR NON-OVARIAN & NON-ADNEXAL MALIG
UTERINE & ADNEXA PROCEDURES FOR OVARIAN & ADNEXAL MALIGNANCY
HIP & KNEE REPLACEMENT
HIP JOINT REPLACEMENT
KNEE JOINT REPLACEMENT
INFECTIOUS DISEASES
SEPTICEMIA & DISSEMINATED INFECTIONS
MENTAL DISEASES
MAJOR DEPRESSIVE DISORDERS & OTHER/UNSPECIFIED PSYCHOSES
PREGNANCY
CESAREAN DELIVERY
VAGINAL DELIVERY
VAGINAL DELIVERY W COMPLICATING PROCEDURES EXC STERILIZATION &/OR D&C
VAGINAL DELIVERY W STERILIZATION &/OR D&C
RESPIRATORY SYSTEM
ASTHMA
BRONCHIOLITIS & RSV PNEUMONIA
OTHER PNEUMONIA

Figure 34
Number of New York Hospital Discharges by Condition and Expected Payer Source in 2007 ^{a/}

Condition	Commercial Insurance	Medicaid	Medicare	All Other	Total
Cardiology - Medical	3,691	1,687	15,521	1,158	22,057
Cardiology - Defibrillator Implant	2,249	792	5,419	263	8,723
Cardiology - Valve Procedures	2,348	632	4,511	193	7,684
Cardiology - CABG Surgery	3,830	988	5,409	388	10,615
Cardiology - Percutaneous Procs	19,614	5,565	25,052	1,840	52,071
Alcohol and Drug Abuse	12,148	54,618	8,931	13,461	89,158
Digestive System - Medical	26,157	17,516	32,149	6,301	82,123
Digestive System - Surgical	5,846	1,391	8,364	693	16,294
Female Reproductive System	23,642	5,015	5,133	1,908	35,698

Condition	Commercial Insurance	Medicaid	Medicare	All Other	Total
Infectious Disease	4,859	3,610	27,214	1,004	36,687
Mental Health	2,945	4,783	1,444	2,102	11,274
Hip and Knee Replacement	16,338	1,808	27,538	2,271	47,955
Pregnancy	124,871	94,309	1,613	19,928	240,721
Respiratory Diseases	22,487	28,192	40,256	7,792	98,727
Total Selected Conditions	271,025	220,906	208,554	59,302	759,787
Total for all DRGs	836,679	633,033	918,310	116,990	2,593,089
Percent in Selected Conditions	32%	35%	23%	51%	29%

a/ Includes all hospital stays including initial hospitalizations and readmissions.
Source: The Lewin Group analysis of 2007 State Inpatient Database for New York Hospitals.

C. Estimating Current Spending Per Episode for Selected Services

In order to estimate savings under the bundled payment model, we first estimated the current spending for all services that would be included in the per episode rate for each of the selected services. For private insurance, we used a proprietary claims database from Ingenix, Inc. which includes about one million UnitedHealth Group covered lives in New York State in 2008. For Medicaid, we used calendar year 2008 fee-for-service claims data. We excluded all Medicaid patients age 65 and over because Medicare would be the primary payer and thus total payment amounts would reflect Medicare reimbursement instead of Medicaid.

The database construction first involved identifying an “anchor” hospital admission to a short term general hospital for one of the conditions listed above. Payments for the anchor admission included payments for all inpatient accommodation and ancillary services as well as all physician services occurring during the stay.

The second step involved identifying all additional services that occurred within 30 days from the time the patient was discharged from the hospital. These additional services included all readmissions to the same hospital or another short term general hospital, admissions to a rehabilitation hospital or skilled nursing facility, home health services, physician services incurred during these inpatient stays and services occurring in a hospital outpatient department.

For this analysis, we included in the episode costs only hospital readmissions that are related to the anchor admission. We estimated the portion of all hospital readmissions that are related to the anchor admissions using the results of a study that analyzed readmissions using a potentially preventable readmission (PPR) methodology and administrative claims data.⁸⁰ The methodology for judging preventability was based on the clinical relationship between the reason for the anchor admission and the reason for the readmission based on the following five criteria:

- A medical readmission for a continuation or recurrence of the reason for the initial admission, or for a closely related condition;

- A medical readmission for an acute decomposition of a chronic problem that was not the reason for the initial admission, but was plausibly related to care either during or immediately after the initial admission;
- A medical readmission for an acute medical complication plausibly related to care during the initial admission;
- A readmission for a surgical procedure to address a continuation or recurrence of the problem causing the initial admission; and
- A readmission for a surgical procedure to address a complication resulting from care during the initial admission.

The study indicated that about 87 percent of readmissions for four specific medical conditions were clinically related to the initial admission and about 92 percent of readmissions for four specific surgical procedures were related to the initial admission.⁸¹

We applied the Goldfield, et al. study estimates of the percent of readmissions that are potentially preventable to our calculations of total readmission costs (hospital plus physician) to get an estimate of the costs for only potentially preventable readmissions for each condition. The conditions and procedures in the Goldfield study did not exactly match those used in this analysis. So for all medical conditions, we applied the average percentage for the four medical conditions from the Goldfield study. We used the Goldfield estimates for CABG, angioplasty, hip replacement and major small and large bowel procedures to the readmission costs for the same procedures in this study. For all other surgical procedures, we applied the average percentage for the four surgical procedures from the Goldfield study.

Figure 35 shows the average commercial insurance payment over a 30-day period for each of the conditions included in the bundled payment model and *Figure 36* shows the average Medicaid episode payment. The table shows the breakdown of episode costs for the anchor admission, related readmissions, post acute care and any hospital outpatient department visits.

D. Producing Savings Estimates

Under this program, we assume that bundled payment rates are set at the average current spending for the bundle of services. This is different from other bundled payment programs that set the rates equal to that average cost less some allowance for expected reductions in adverse events. We estimated savings from this program assuming that hospitals and physicians are able to reduce costs for all these services similar to what was found under the Medicare Participating Heart Bypass Demonstration (which we estimate was about 15 percent) and Geisinger's ProvenCare model (about five percent). For this analysis, we assumed the more conservative five percent cost savings and assumed that these savings would be passed on to insurers and eventually to consumers in the form of lower payment rate increase for these services over time. We assume that it would take about three years for the full effect of these savings to materialize.

We estimated system-wide savings assuming that the bundled payment methodology is implemented in 2011 by all commercial insurers as well as the Medicare and Medicaid programs. The savings estimates assume that the bundled program would be phased in over three years. To determine state-wide savings, we applied the savings amount per episode (five

percent of the current episode costs) from the commercial data to the number of 'anchor' inpatient discharges for each of the conditions by payer group (i.e., commercial insurance, Medicare, and other) and applied the savings amount per episode from the Medicaid data to the all Medicaid 'anchor' inpatient stays including fee-for-service and managed care. We assume that the bundled payment rates would be increased each year based on the currently projected rate of growth in health care spending.

Based on this methodology, we estimate that total savings from the bundled payment program would be \$6.3 billion over the 2011 to 2020 time period (*Figure 37*). However, nearly half of the total savings would be realized by the Federal government for savings to Medicare, Medicaid and federal employees. The State and local governments would see savings of \$0.9 billion due to savings to the Medicaid program and employee health benefit programs. Private employers would see savings of \$1.0 billion for employee health benefits. Households would see savings of about \$1.5 billion in reduced out of pocket spending and reduced premiums.

Figure 35
Average Payments per Episode of Care for Private Insurance for Selected Conditions

Condition	Anchor Admission		Related Readmissions			Other Services within Episode			Total Episode
	Hospital	Physician	Related Readmission Rate	Hospital	Physician	Post Acute Care ^{a/}	Hospital Outpatient	Physician	
Cardiology - Medical	\$6,525	\$69	13.5%	\$1,973	\$287	\$749	\$129	\$49	\$9,781
Cardiology - Defibrillator Implant	\$60,938	\$349	7.2%	\$1,982	\$120	\$90	\$155	\$34	\$63,668
Cardiology - Valve Procedures	\$54,155	\$438	7.8%	\$874	\$73	\$954	\$59	\$37	\$56,591
Cardiology - CABG Surgery	\$36,975	\$373	3.7%	\$296	\$47	\$93	\$105	\$32	\$37,921
Cardiology - Percutaneous Procs	\$27,378	\$170	3.7%	\$510	\$205	\$1,315	\$144	\$48	\$29,770
Alcohol and Drug Abuse	\$7,187	\$101	34.6%	\$1,082	\$72	\$55	\$200	\$58	\$8,755
Digestive System - Medical	\$7,194	\$122	3.9%	\$794	\$148	\$1,028	\$103	\$49	\$9,439
Digestive System - Surgical	\$22,657	\$515	6.8%	\$1,138	\$175	\$338	\$162	\$69	\$25,053
Female Reproductive System	\$9,390	\$699	6.8%	\$1,433	\$207	\$114	\$200	\$59	\$12,103
Infectious Disease	\$12,647	\$75	6.2%	\$1,098	\$144	\$1,176	\$212	\$44	\$15,396
Mental Health	\$10,002	\$112	8.3%	\$645	\$101	\$0	\$290	\$51	\$11,202
Hip and Knee Replacement	\$19,462	\$584	3.1%	\$318	\$168	\$745	\$86	\$24	\$21,387
Pregnancy	\$5,991	\$1,769	0.7%	\$60	\$168	\$104	\$76	\$34	\$8,201
Respiratory Diseases	\$7,901	\$91	3.5%	\$568	\$149	\$949	\$130	\$42	\$9,831

a/ Includes inpatient rehabilitation, skilled nursing facility and home health.

Source: The Lewin Group analysis of private insurer claims data for New York state members. Numbers may not add to totals due to rounding.

Figure 36
Average Payments per Episode of Care for Medicaid for Selected Conditions

Condition	Anchor Admission		Related Readmissions			Other Services within Episode			Total Episode Costs
	Hospital	Physician	Readmission Rate	Hospital	Physician	Post Acute Care	Hospital Outpatient	Physician	
Cardiology - Medical	\$9,834	\$214	11.5%	\$1,967	\$131	\$5,011	\$158	\$22	\$17,336
Cardiology - Defibrillator Implant	\$32,487	\$410	10.6%	\$1,179	\$50	\$1,947	\$120	\$14	\$36,206
Cardiology - Valve Procedures	\$38,403	\$855	9.9%	\$1,731	\$64	\$572	\$65	\$32	\$41,721
Cardiology - CABG Surgery	\$26,377	\$722	11.1%	\$1,623	\$43	\$3,667	\$95	\$30	\$32,557
Cardiology - Percutaneous Procs	\$12,224	\$241	10.3%	\$1,139	\$60	\$950	\$111	\$14	\$14,741
Alcohol and Drug Abuse	\$5,505	\$15	22.5%	\$2,276	\$8	\$649	\$103	\$6	\$8,562
Digestive System - Medical	\$5,630	\$91	10.8%	\$1,127	\$43	\$435	\$105	\$14	\$7,445
Digestive System - Surgical	\$18,738	\$432	10.4%	\$1,449	\$61	\$976	\$141	\$24	\$21,821
Female Reproductive System	\$6,535	\$67	4.7%	\$384	\$13	\$106	\$60	\$4	\$7,169
Infectious Disease	\$15,433	\$415	12.7%	\$2,197	\$118	\$2,865	\$134	\$35	\$21,198
Mental Health	\$6,867	\$34	14.3%	\$1,526	\$14	\$619	\$145	\$7	\$9,212
Hip and Knee Replacement	\$15,501	\$429	3.2%	\$330	\$81	\$2,166	\$88	\$11	\$18,607
Pregnancy ^{a/}	\$3,836	\$0	1.5%	\$68	\$0	\$23	\$17	\$23	\$3,967
Respiratory Diseases	\$5,564	\$53	7.6%	\$713	\$25	\$419	\$69	\$7	\$6,849

a/ Physicians are paid a global fee for all pregnancy care. We assume this method would continue and thus physician care is excluded from the bundled payment rate.

Source: The Lewin Group analysis of calendar year 2008 Medicaid fee-for-service claims data from NYS/DOH/OHIP Datamart & NYS eMedNY Metadata Datawarehouse.

Figure 37
Estimated Savings by Stakeholder Group 2011-2020 (millions)
 (assumes bundled payments are implemented across all payers)^{a/}

Year	Federal Government	State and Local Governments	Private Employers	Households	Total Statewide Health Savings
2011	\$91	\$29	\$32	\$47	\$199
2012	\$215	\$69	\$77	\$112	\$473
2013	\$253	\$81	\$91	\$132	\$557
2014	\$270	\$86	\$96	\$140	\$592
2015	\$287	\$92	\$102	\$149	\$630
2016	\$306	\$98	\$109	\$159	\$673
2017	\$326	\$104	\$117	\$170	\$717
2018	\$348	\$111	\$124	\$181	\$764
2019	\$370	\$118	\$132	\$193	\$813
2020	\$394	\$126	\$141	\$205	\$866
2011-2020	\$2,860	\$913	\$1,022	\$1,489	\$6,284

a/ Estimates assume that episode savings are similar for Medicare and Medicaid patients and similar to privately insured patients within the same initial hospitalization DRG.

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

E. Assumptions for Actionable Steps

Given the way that New York State and New York City parse out MCO physician and hospital payments for State and City employees, it may prove difficult to bundle payments. For this analysis, we assume the State will modify its payment methodology in order to effectively bundle payments for state employee programs. Furthermore, Medicare and private ERISA plans cannot be required to use specific payment methodologies. We therefore assume the policy is implemented such that the State requires use of bundled payment methods in state insurance plans covering individuals participating in Medicaid, CHPlus, and state and local government and retiree health insurance programs, as follows:

- Providers are required to accept these forms of payments to serve people covered under state and local government worker health plans who are not otherwise enrolled in integrated delivery systems;
- Payments for patients in fee-for-service health plans including indemnity plans, preferred provider organizations (PPOs) and point of service plans (POS). Patients enrolled in integrated delivery systems such as health maintenance organizations (HMOs, Medicaid and other) are exempt from the requirement;
- Data and methodology are made available to other payers who wish to adopt the approach voluntarily; and
- Program is fully implemented in 2011.

- Based on these assumptions, we estimated total state-wide savings of \$1.6 billion over the 10-year period from 2011 to 2020. *Figure 38* shows that the federal government would save \$537 million under the program due to the 50 percent federal matching rate for Medicaid. The State and local governments would see savings of \$913 million due to savings to the Medicaid program and employee health benefit programs. Households with a family member covered through the state or local government employee benefit programs would see about \$109 million in savings.

Figure 38
Estimated Savings by Stakeholder Group 2011-2020 (millions)
 (assumes bundled payments are implemented for Medicaid and state and local government health benefit programs)

Year	Federal Government	State and Local Governments	Households	Total Statewide Health Savings
2011	\$17	\$29	\$3	\$50
2012	\$40	\$69	\$8	\$117
2013	\$48	\$81	\$10	\$138
2014	\$51	\$86	\$10	\$147
2015	\$54	\$92	\$11	\$156
2016	\$57	\$98	\$12	\$167
2017	\$61	\$104	\$12	\$178
2018	\$65	\$111	\$13	\$190
2019	\$69	\$118	\$14	\$202
2020	\$74	\$126	\$15	\$215
2011-2020	\$537	\$913	\$109	\$1,560

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

F. Discussion

In this study, we estimated the effect of implementing a bundled payment system for conditions that together represent about 26 percent of hospital costs in the State. These include the most commonly provided hospital services plus the services that will be included in the upcoming CMS bundled payment demonstration. In fact, bundled payments could be devised for all services involving a hospitalization. If bundling reduces spending by 5 percent, as we assumed above, total savings could reach \$24.2 billion assuming bundled payments are implemented across all payers and \$6.2 billion if implemented for Medicaid and public employees over the 2011 to 2020 time period. However, it would take some time to develop payment systems for each individual hospital service.

The basis for the savings estimates in this analysis is from evaluations of prior programs that bundled payments for heart bypass surgery and assumes that similar levels of savings (as a percent of baseline spending) can be achieved for the other services that we included, such as

pregnancy, mental health and substance abuse. However, actual achievable savings may be higher or lower, which will effect the overall cost savings estimates.

The study also assumes that the bundled payment model is implemented statewide and for every hospital. Implementation of a bundled payment model may be easier done in hospitals that already have collaborative relationships with physicians and other post acute providers, such as integrated delivery systems. However, this may be more difficult for other hospitals that would need to ensure a network of physician specialties to perform all the services within the bundle. The hospital or some managing entity would need to establish contracts, billing and distribution of the payments for all the parties involved. Thus, this may not be possible to implement the program at every hospital right from the start and may take several years for all hospitals to develop the required infrastructure.

The bundled payment program creates incentives for hospitals and physicians to reduce the number of tests and other services a patient receives during an episode period. So there are concerns about the quality and care that a patient receives when incentives are to provide fewer services. In order to assure that quality of care is not jeopardized, the bundled payment model could be implemented with a P4P program to assure that evidence based standards of care are met.

While bundling creates incentives for providers to perform individual services in the most cost-efficient manner possible, it does nothing to reduce incentives to maximize the total volume of services provided. This is because provider revenues increase as the number of services provided increases, regardless of the fact that the payment for each service is bundled. Thus, while bundling improves efficiency in providing a service, it does nothing to reduce services that are unnecessary or avoidable.

As discussed above, Geisinger and others are developing bundled payment methodologies that would apply to the full range of services provided for individuals patients, based upon patient health conditions. Patients would designate a physician as their medical home who would then receive the bundled payment to meet the patient's health care needs. This approach would effectively capitate providers for providing the full range of care required by an individual patient. This approach creates an incentive for providers to avoid unnecessary episodes of hospitalization, in addition to creating incentives to deliver those services that are necessary in the most cost-efficient manner possible.

This approach has not been implemented long enough to evaluate its effects. The cost containment potential for this approach is somewhat reduced by the fact that the bundled payment concept does not include a commitment from the patient to see only the providers affiliated with the physician receiving the payment. Patients are free to go to any provider they chose, including physicians and hospitals that are unaffiliated with the physician receiving the bundled payment. For example, a patient who develops a cardiac condition could select any cardiologist they like.

This is less of a problem with bundling on an episode basis (as we have modeled) because the payment is made only after the patient has selected the physician performing the procedure, which usually determines the hospital to be used as well. Thus, bundling on a per-patient basis will require thorough testing before it can be recommended as a system-wide change.

VII. Imposing a Tax on Sugar-Sweetened Beverages

A. Background

One out of every three Americans is obese, with one out of the remaining two being overweight.⁸² The percentage of adults in New York State who are overweight or obese increased from 42 percent in 1997 to 60 percent in 2008, and obesity among children and adolescents has tripled in the past three decades. Low-income populations, those with low educational attainment, and communities of color experience higher rates of obesity.

Obesity causes serious health problems such as Type 2 diabetes, heart disease, high blood pressure, high cholesterol, cancer, and osteoarthritis. The Surgeon General estimated that obesity is associated with 112,000 deaths each year and poor diet and physical inactivity cause up to an additional 365,000 deaths per year.⁸³

Obesity also imposes a serious and substantial economic burden. According to a recent study, the nation could be spending up to \$147 billion (in 2008 dollars) per year in treating health conditions caused by obesity.⁸⁴ This is more than 10 percent of all medical spending. We estimate that New York State will spend about \$9.9 billion on adult obesity-related health problems in 2011 and \$136.3 billion over the ten-year period from 2011 to 2020 (*Figure 39*). This accounts for about 5.6 percent of statewide health spending with approximately 80 percent of this cost paid through publicly-funded health care programs such as Medicare and Medicaid.

Figure 39
State-wide Health Spending Attributed to Adult Obesity-Related Health Problems 2011-2020 (billions)

Year	Statewide Health Spending ^{a/}	Expenditures Attributable to Obesity ^{b/ c/}					Total State Health Spending
		Federal Government	State and Local Governments	Private Employers	Households		
2011	\$189.0	\$4.87	\$3.04	\$0.77	\$1.22	\$9.90	
2012	\$198.2	\$5.19	\$3.20	\$0.81	\$1.30	\$10.50	
2013	\$208.4	\$5.61	\$3.47	\$0.85	\$1.37	\$11.30	
2014	\$220.4	\$5.97	\$3.68	\$0.90	\$1.45	\$12.00	
2015	\$234.1	\$6.44	\$4.00	\$0.94	\$1.53	\$12.90	
2016	\$248.8	\$6.86	\$4.28	\$1.02	\$1.65	\$13.80	
2017	\$265.2	\$7.41	\$4.59	\$1.06	\$1.74	\$14.80	
2018	\$282.1	\$7.96	\$4.92	\$1.14	\$1.88	\$15.90	
2019	\$300.2	\$8.64	\$5.29	\$1.18	\$2.00	\$17.10	
2020	\$318.8	\$9.24	\$5.65	\$1.22	\$2.09	\$18.20	
2011-2020	\$2,465.1	\$68.04	\$42.11	\$9.93	\$16.22	\$136.30	

a/ State health expenditure for New York from CMS were inflated from 2004 through 2020 based on national health spending trends.

b/ The percentage of medical expenditures attributed to obesity-related health problems in New York is based on: Kinkelstein et al., "State-Level Estimates of Annual Medical Expenditures Attributable to Obesity". Obesity Research, January 2004. This percentage is applied to the CMS state health

expenditure data

c/ Baseline projections assume there is no increase in the prevalence of obesity over this period, which is based on the study by Fligel, K et al, "Prevalence and Trends in Obesity Among US Adults 1999-2008", JAMA, January 20, 2010.

Source: Lewin Group analysis. Numbers may not add to totals due to rounding.

Consumption of sugar-sweetened beverages (SSB) has drastically increased since the early 1970s and is likely contributing to the growing obesity epidemic in the U.S.^{85,86,87} The link between obesity and SSB has been well documented in scientific literature but, despite growing concern, consumption of SSB remains high.^{88,89,90,91,92,93} The potential benefits from reduced consumption of SSB include decreased incidence of chronic diseases and hence decreased health care costs.^{8,94,95,96} The Centers for Disease Control (CDC) recommends reducing the amount of sugar-sweetened beverages as one way for people to reduce their intake of added sugars and to help manage their weight.¹⁰

A recent meta-analysis confirmed a positive association between SSB consumption and increased energy intake and body weight, although effect sizes varied based on study methodology. Soft drink intake also was associated with lower intakes of milk, calcium, and other nutrients and with an increased risk of several medical problems (e.g., diabetes).⁸ Studies refuting this evidence also exist; however, the methodology and funding sources of such studies have been called into question repeatedly. The association between SSB consumption and energy intake is pronounced across study types (cross-sectional studies, prospective observational studies, and randomized trials) and funding sources (food industry vs. others). The evidence for the association between SSB and body weight is less consistent. This is likely because the relatively small weight impact from SSB consumption is confounded by other variables (such as energy intake from undocumented sources) and random errors in measuring body weight (e.g., body weight can vary up to two pounds each day).

In this study, we combine recent literature and a published nutrition impact model to evaluate the potential health and economic benefits of taxing SSB in New York State.⁹⁷

B. Methodology

Modeling Scenario: In this scenario we estimate the potential impact of a policy option designed to reduce obesity and related health costs. There are a series of modeling assumptions that are required to produce health care cost reduction estimates due to specific policy options that were designed to reduce intake of soft drinks or trans-fats. For this analysis, we will assume that an 0.9 cents per ounce excise tax is imposed on sugar-sweetened beverages (this equates to about an 18 percent sales tax) in New York State in addition to the current state and county sales taxes in New York (these sales taxes total 8.875 percent in New York City and average approximately 8.0 percent across the rest of the State). This proposal is similar to an item in Governor Paterson's proposed 2010-2011 budget, which included an excise tax on non-diet sodas and fruit drinks that contained less than 70 percent natural fruit juice.

Similar to the Governor's proposal, we designed this option using an excise tax on manufacturers instead of a sales tax. The objective of the tax is to increase the price of sugar-sweetened soft drinks relative to alternative beverages, which creates incentives for people to purchase healthier alternatives. The use of a sales tax would enable the State to target the exact products to tax.

However, people purchasing SSBs with food stamps are exempt from the sales tax. Also, a sales tax is not shown on the posted price of the product so the difference in prices between sugar-sweetened soft drinks and alternatives are not apparent at the time the consumers are making their decisions. These factors lessen the intended effects of the tax.

An excise tax on manufacturers of sugar-sweetened beverages is assumed to be an increase in their production costs which would be passed on to consumers as increased prices for their products. The increased prices would affect the posted price of the product and people using food stamps would not be exempt from the excise tax. However, manufacturers could apply the increased cost of the tax across all their products, which would eliminate the intended effects of creating higher prices for sugar-sweetened soft drinks relative to healthier alternatives. Therefore, under this policy option, manufacturers would be required to apply the increased cost of the excise tax across only sugar-sweetened soft drinks.

This study reviewed existing scientific evidence on price elasticity for SSB, SSB consumption patterns among U.S. adults, the relationship between energy balance and body weight, and associations between body weight and health outcomes. We quantified the impact of the tax increase through the following steps, which are summarized in *Figure 40*.

Figure 40
Step-by-Step Example of the Estimation Approach and Parameters Used

Model Steps	Description	Parameters used	Calculation	Source
Price Increase	Tax increase on sugary drinks	Prevailing tax =8% New tax =26%	$(1.26 - 1.08) / 1.08 - 1 = 17\%$	NY state proposal
SSB Consumption	Drop in daily consumption	Price elasticity of -0.8	$(17\%)*(0.8) = 13\%$	Brownell et al. 2009
Caloric Intake Reduction ^{a/}	Drop in average daily caloric intakes through sugary drinks in typical American diet	175 calories per day	$(13\%)*(175) = 23$ calories	Popkins, 2009
Body Weight Reduction	For middle aged males who are obese	0.14 lb weight loss per calories energy intake reduction	$(0.14 \text{ lb/calories})*(23 \text{ calories}) = 3.2 \text{ lb}$	Dall, et, al., 2009
Disease Risk Reduction	e.g., 20% sample are at risk for diabetes	1% reduction in diabetes risk per 1 lb reduction in body weight	$20\% * 1\% * 3.2 = 0.65\%$	Dall, 2009
Medical Savings	e.g., elevated medical cost per year per person for averted diabetes cases	\$8,000	$\$8,000 * 0.65\% = \52	Dall, 2009

Note: Numbers are rounded for illustration purpose.

a/ Assume that resulting energy deficit is not compensated by other energy intake from other food sources.

Price Elasticity and Sugary Drink Consumption: To quantify how a tax increase would reduce SSB consumption, we used the conservative estimates from a recent meta-analysis, where the price elasticity for all soft drinks was estimated to be in the range of -0.8 to -1.0.⁹⁸ An elasticity of -0.8 suggests that for every 10 percent increase in price, there would be a decrease in

consumption of 8 percent. For this analysis, we used the lower range elasticity of -0.8. Based on this information, we estimate that sugary drink consumption will decline by 13 percent due to the 17 percent price increase. We also assume the price elasticity is independent of body weight status. This is likely to be a conservative assumption since some studies⁹⁹ have suggested that obese individuals may have higher elasticity, meaning that they will reduce SSB consumption further as a response to price increase.

Calorie intake reduction: To quantify the energy intake reduction due to SSB reduction, we first estimate the energy intake from SSB based on 2005–2006 National Health and Nutrition Examination Surveys (NHANES) data. According to NHANES, adults in the United States consume about 175 calories daily per capita from SSB.⁶ A detailed breakdown by age group is shown in *Figure 41*. Note that this estimate is lower than the commonly cited 200 calories in the previous literature. We rely on the more recent data, which we believe may reflect a recent trend for consumers’ substituting SSB with diet beverages that contain fewer calories. We assume that energy intake reduction through reduced SSB consumption is not compensated by increased energy intake from other food sources. Many studies have actually found that an increase in SSB consumption has a “spill-over” effect thus boosting energy intake from other food sources as well as SSB consumption.⁷ However this relationship still remains unclear, hence; we did not include any spill-over effect in this study.⁸

Figure 41
U.S. Patterns of Daily Beverage Consumption by Age, 2005-2006
(Energy from beverages in calories per capita)

	Age Groups					
	2-6	7-12	13-18	19-39	40-59	60+
Unsweetened coffee and tea	0	0	0	2	6	6
Low fat milk	26	30	27	24	19	29
Diet drinks	1	1	1	3	6	4
Juices	75	37	48	39	33	39
Whole fat milk	160	121	106	59	51	49
Alcohol	0	0	15	139	130	62
Soda/fruit drinks	87	140	242	207	122	60
Other beverages providing energy	17	18	27	58	61	33
Total energy from beverages	367	348	466	533	428	283

Source: Popkins, 2010.

Weight loss estimate: To quantify potential weight loss induced by an energy deficit, we used equations describing the estimated energy requirement (EER) for men and women of a given age, weight, height, and physical activity level (PAL) published in 2005 by the Institute of Medicine (IOM). Energy deficit is defined as the difference between EER that sustains current body weight and a new energy intake that deviates from EER due to change in lifestyle. In this study, we assume that energy take from reduced SSB consumption constitutes the energy deficit. We modeled the impact of such a sustained reduction in daily energy intake until new weight equilibrium was reached.^{16, 18}

The calculation follows the following rationale: a starting energy deficit will reduce body weight; as body weight reduces the energy deficit decreases as well due to diminishing energy requirement for maintaining a lower body weight. As energy deficit reduces to zero, the weight loss process stops and the body weight reaches a new equilibrium where the lowered energy intake is just about to sustain the new body weight. According to IOM and Dall et al., the process for weight loss triggered by small energy deficit can reach a new steady state during the course of several months, after which there is no further weight loss.

Health outcomes: This step is built on a published simulation model that predicts disease prevalence and medical expenditures under the hypothetical and prevailing SSB tax. The model includes 15 major obesity related conditions including cardiovascular disease, diabetes, kidney disease, liver disease, respiratory conditions, sleep apnea, and cancers.¹⁶ For this study, the adult population was divided into 30 unique risk groups across 3 dimensions: age - 18-44, 45-54, 55-64, 65-74, 75+, gender - male and female, and four weight categories defined using body mass index (BMI) – normal weight ($18.5 < \text{BMI} < 25$), overweight ($25 \leq \text{BMI} < 30$), obese ($\text{BMI} \geq 30$).

It is important to identify the overweight and obese population since they will potentially see health benefits from weight loss. Using data from NHANES and 2000-2004 Medical Expenditure Panel Survey (MEPS), we estimated the prevalence rates for an array of chronic conditions to establish the health risk profile for each unique risk group under prevailing SSB consumption pattern. Ultimately, the change in disease cases that would occur with a defined energy intake reduction was quantified by modeling the proportional change in baseline disease prevalence rates for each unique risk group associated with change in body weight.

Economic benefits: The annual cost savings per averted disease case was estimated by multivariate regression analysis using the Expenditure Panel Survey (MEPS) (See Appendix for OLS regression specification and results used to estimate annual medical cost by condition and age group in Dall, et. al.). The resulting disease rates and costs were extrapolated to the projected 2010 U.S. population by demographic group, and converted to 2010 dollars using the consumer price index medical component.¹⁰⁰

New York State population: We applied the average savings per person within each risk group based on national data to the corresponding population by risk group in New York State, which is identified by using 2005 New York State Behavioral Risk Factor Surveillance Survey (BRFSS) data. BRFSS is the world's largest, on-going telephone health survey system, tracking health conditions and risk behaviors in the United States yearly since 1984. Currently, data are collected monthly in all 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam. To get 2010 population estimate, we further grow the 2005 population to benchmark with Census Bureau 2010 population projections for New York State. We used the same population growth rate for all subgroups. This implicitly assumes that overweight and obese groups have the same growth as their normal weight counterparts over time and may underestimate the size for overweight and obese groups over time since obesity rate have been increasing rapidly during the past 20 years.

Only the adult population is included in the estimate. Children and adolescents are excluded in the cost analysis largely due to the lack of reliable data on disease risks. Since the prevalent cases for major health conditions are extremely low among children, the potential impact on health care costs will be minimal in the near future.

C. Results

According to Census Bureau population projections, there are an estimated 15.0 million adults aged 18 and older residing in New York State in 2010. Body weight distribution in 2005 New York State BRFSS data suggests that 60 percent are heavier than their ideal body weight, including 5.7 million overweight (body mass index (BMI) of 25 to 30) and 3.3 million obese individuals (BMI greater than or equal to 30).

Our analysis suggests that the 18 percent tax increase will translate into a 16.7 percent price increase in SSB. Based on a conservative price elasticity of -0.8, consumption of SSB on average is estimated to drop by 13.4 percent. Under the assumption that this energy intake reduction is not compensated for through other food sources, it will lead to an energy deficit of 23 calories on a daily basis, that is, 13.4 percent of the estimated average daily energy intake of 175 from SSB.

Based on a published simulation model by Dall, et al., a 23 calories energy deficit will shift body weight towards a long term weight loss of an estimated 3.3 pounds, which can be fully realized for an individual within a couple of weeks. Such a sustained weight loss will reduce health risk for developing a wide array of obesity related chronic conditions for overweight and obese individuals, ranging from a risk reduction of 0.82 percentage points in both hypertension and hyperlipidemia to 0.18 percentage points in diabetes and coronary heart disease, and 0.07 percentage points in cancers (*Figure 42*). However, for an adult population of 15 million in New York State, even small changes quickly accrue to significant public health benefits in term of the disease cases averted statewide.

Figure 42
Risk Reduction and Disease Cases Averted for New York State Associated with SSB Tax (assumes program reaches optimum effect in 2010)

Chronic Conditions	Reduced Risk (percentage point)	Averted Cases per Year ^{a/}
Hypertension	0.82%	123,878
Hyperlipidemia	0.82%	123,130
Arthritis	0.02%	2,865
Cancer	0.07%	10,467
Cerebrovascular Disease	0.06%	8,655
Coronary Heart Disease	0.23%	34,102
Diabetes	0.18%	26,937
Esophagus/Stomach	0.02%	3,243
Gallbladder Disease	0.02%	2,713
Gynecological Conditions	0.01%	2,234
Kidney and Other Urinary	0.00%	566
Other Cardiovascular Disease	0.10%	14,795
Respiratory Problems	0.02%	3,751
-	0.06%	9,225
Sleep Apnea	0.09%	13,051

^{a/} Disease cases that would not have developed at a given year if the overweight and obese population were leaner due to less SSB consumption. Estimates are based on adult population in 2010. Estimates are based on Nutrition Impact Model published by Dall et. al.

The prevalence of chronic conditions associated with excess weight would decline, such that statewide medical expenditures would be approximately \$1.29 billion (*Figure 43*) lower than current spending levels (assuming the program reaches its optimum effect in 2010). Per capita savings increase with age, ranging from an estimated \$16 among age group 18 – 44 to \$226 among those 65 and above. The model also suggests that the average per person savings for the overweight group is similar to that for the obese group. We assume there is no health benefit for normal weight groups. Females lose more body weight in response to energy deficit, hence they will enjoy greater health risk reduction, which amounts to greater economic savings.

Figure 43
Estimated Potential Savings Associated with SSB Tax for New York State
(assumes program reaches optimum effect in 2010)

Population Group	Adult Population (thousands)	Per Capita Savings	Total Estimated Savings (millions)		
			Male	Female	Both Gender
By Age Group					
18 - 44	7,558	\$16	\$44	\$77	\$121
45 - 54	2,738	\$92	\$80	\$174	\$253
55 - 64	2,091	\$167	\$165	\$184	\$349
65 -74	1,343	\$215	\$106	\$182	\$288
75+	1,292	\$220	\$59	\$225	\$284
By Body Weight Category					
Normal Weight (BMI < 25)	6,020	NA	NA	NA	NA
Overweight (25 <= BMI < 30)	5,661	\$142	\$289	\$514	\$803
Obese (BMI >= 30)	3,340	\$147	\$165	\$327	\$492
All Groups Combined					
Total	15,022	\$86	\$454	\$841	\$1,295

Estimates are based on adult population in 2010. Numbers may not add to totals due to rounding.

Figure 44 shows the annual impact of the program through 2020, assuming that the tax is implemented in 2011. We estimate that the 18 percent increased tax on sugary drinks will result in a \$5.6 billion reduction in New York state health spending over the 2011 to 2020 period. Minimal savings of about \$79 million would be realized during the first year but the annual savings would grow to about \$1.2 billion by 2020.

This estimate is based on available epidemiological literature and we conducted additional simulation analyses to understand how the dynamic relationship between disease incidence (new cases) and prevalence rates (accumulation of existing cases) determines the full potential from body weight loss that could be realized at a population level. We found that in the first year immediately after the policy change, only about eight percent and three percent of the potential health benefit can be realized for pre-Medicare and Medicare populations, respectively. This is because the population is starting to depart from the current health state and moving towards a healthier equilibrium. At the tenth year, up to 62 and 30 percent of the potential benefits would have been realized for each population segment, respectively. By the 20th year, about 80 and 60 percent of full potential can be achieved.

Figure 44
Projected Health Savings in New York State Due to 0.9 Cents per Ounce SSB Excise Tax 2011-2020

Year	Personal Health Spending Growth	Phase-in Factor		Annual Savings (millions)			Tax Revenue (millions)
		Below Age 65	Age 65+	Below Age 65	Age 65+	Total	
2011	5.50%	8%	3%	\$61	\$18	\$79	\$527
2012	5.80%	15%	6%	\$121	\$38	\$159	\$503
2013	6.20%	22%	9%	\$188	\$61	\$249	\$495
2014	6.60%	29%	12%	\$265	\$87	\$352	\$487
2015	6.90%	35%	15%	\$342	\$116	\$458	\$479
2016	7.00%	41%	18%	\$428	\$149	\$577	\$472
2017	7.20%	47%	21%	\$526	\$186	\$712	\$464
2018	7.20%	52%	24%	\$624	\$228	\$852	\$457
2019	7.20%	57%	27%	\$733	\$275	\$1,008	\$450
2020	7.20%	62%	30%	\$855	\$328	\$1,183	\$442
2011-2020				\$4,143	\$1,487	\$5,629	\$4,777

Source: The Lewin Group estimates using the Health Promotion Micro-simulation Model (HPMM). Numbers may not add to totals due to rounding.

In addition to the reduced medical costs, the tax will generate additional revenue to the state of about \$4.8 billion over the 10-year period. The revenue estimates were based on information from the Rudd Center for Food Policy and Obesity, which estimates that about 518 million gallons of soft drinks will be consumed in New York State in 2010. We used a price elasticity of demand of -0.8 and assumed the full effect would be realized over two years. (Elasticity is a measure of the sensitivity of consumption to changes in price. An Elasticity of -0.8 means that a one percent increase in price is associated with a 0.8 percent reduction in consumption) The revenue projections also reflect that per-capita soft-drink sales have been declining at a rate of about 2 percent per year since 2000.

We estimated the change in health spending by stakeholder group in New York due to the reduced medical costs and tax revenues generated by the sugary drink tax. *Figure 45* shows that statewide health spending would decline by \$5.6 billion over the 10-year period. The federal government would see savings of \$2.8 billion due to savings in Medicare, Medicaid and federal employee health spending. The State and local governments would see savings in Medicaid and state and local government employee health benefit costs, as well as additional revenues from the sugary drink tax. In total, the State and local governments would see savings and increased revenue of \$6.5 billion. Private employers would see savings of \$401 million in reduced premiums for employees.

Although households would see savings from reduced out of pocket spending and reduced premiums, this would be more than offset by the additional tax on sugary drinks. Thus, spending for households would increase by \$4.1 billion over the 2011 to 2020 period.

Figure 45
Estimated Savings by Stakeholder in New York State Due to 0.9 Cents per Ounce SSB Excise Tax 2011-2020^{a/}

Year	Federal Government	State and Local Governments	Private Employers	Households	Total Statewide Health Savings
2011	\$39	\$24	\$6	\$10	\$79
2012	\$79	\$49	\$12	\$20	\$159
2013	\$124	\$77	\$19	\$30	\$249
2014	\$175	\$108	\$26	\$42	\$352
2015	\$227	\$142	\$34	\$55	\$458
2016	\$287	\$179	\$42	\$69	\$577
2017	\$356	\$221	\$51	\$84	\$712
2018	\$428	\$264	\$60	\$100	\$852
2019	\$509	\$313	\$69	\$117	\$1,008
2020	\$600	\$366	\$80	\$136	\$1,183
2011-2020	\$2,823	\$1,743	\$401	\$663	\$5,629

a/ Tax revenue collected from the sugary drink tax, as well as the cost to households to pay the tax, are excluded from this table.

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

D. Caveats

This study attempted to reduce the complex relationships between tax policy, diet, clinical health measures, disease prevalence, health care use, and cost into a manageable set of relationships that can be quantified and analyzed to estimate the potential health benefits of taxing SSB. The parameters for the Nutrition Impact Model were based on authoritative peer-reviewed studies and analysis of widely used national databases. We identified no studies in the literature that document changes in medical expenditures associated with SSB tax. Our model is based on studies that show an association between dietary change and change in BMI, studies that show an association between these clinical measures and disease risk, and original analysis that shows an association between disease presence and annual medical expenditures.

Although simulation models are powerful tools for understanding complex sets of relationships and also for informing policy decisions, one must understand the limitations of modeling and interpret the results accordingly.

This simulation model estimates potential benefits by comparing estimates of current medical expenditures to hypothetical equilibriums. The model provides information on health and expenditures under these different equilibriums, but does not explicitly model how long it will take before these annual potential savings are realized. Even though the modest weight loss in this study can be achieved in a matter of weeks, the health benefits will be small immediately after a policy change since many of the damages from excess weight have been done and it simply takes time to reverse these damages, if they are reversible at all. However, the benefit will

grow over time towards its full potential, as healthier individuals replenish the population, i.e., younger age cohorts entering their later life stage with lower disease risk, resulting in a healthier population. Note that the energy intake from SSB is far greater among young age cohorts than older cohorts; hence weight loss among young age cohorts as a response to tax hike is very likely to be greater on an absolute scale, which has far-reaching effect on population health throughout their lifespan.

Children are not included in this study since their health risks of chronic conditions remain low, even while the rates of chronic diseases (e.g., Type II diabetes and hypertension) -- much of which can be attributed to obesity and overweight -- have been growing among adolescents at a significant rate. Moreover, the adolescent population has been the focus of research and intervention and prevention studies because other studies have shown that unhealthy body weight in childhood will adversely affect health and significantly increase the risk for adulthood obesity.^{101,102,103} The reduction of unnecessary energy intake from SSB among youth would have a long-term effect on public health that is not captured in this analysis.

This study only projects healthcare savings within 10 years, hence excluding children leads to a small downward bias in total savings; however, if we were to model lifetime savings, then it would be imperative to include children since they will ultimately define the health profile for population when they enter their prime age in 30, 40, and 50 years down the road. The health promotion initiatives they receive during their childhood will perceivably benefit their entire lifespan and cumulate into sizable economic benefits.

The modeled cost represents only medical expenses. This study excludes intangible costs – e.g., negative perception of appearance, pain and suffering by people with chronic health problems and reduced quality of life both by people with chronic conditions as well as their families and friends. A separate analysis suggests that additional economic benefit of up to \$650 million annually can be potentially gained from improved productivity.¹⁰⁴

Reduced excess body weight and corresponding disease risk will prolong life. Prolonged life will lead to additional healthcare spending. It remains unclear to what extent prevention can accrue cost savings while curbing the health impact from chronic conditions.^{105,106} This study did not include additional healthcare spending incurred during prolonged life since we believe the value of prolonged life, which is excluded in this study, will significantly out-weigh the healthcare expense that is needed to sustain it.

Conservative assumptions were used throughout the analysis; hence the reported potential benefits of improved diet are likely understated. To investigate the impact of modeling assumptions, we also conducted a first order sensitivity analysis on the major parameters employed. For example, if price elasticity of -1.0 was used in the model instead of -0.8, the total economic benefit would be 25 percent greater, amounting to an additional \$320 million savings above and beyond the current estimate of \$1.3 billion. In addition, we assume the absolute scale of energy intake reduction in response to price hike is independent of body weight status. This is a conservative assumption since the absolute reduction is likely to be 20 percent to 40 percent greater among overweight and obese individuals than their normal weight peers respectively. This is because overweight and obese individuals are likely to consume more energy from SSB, mirroring their higher energy intake from other food sources, which is about 20 percent and 40

percent higher respectively. This will amount to up to another \$270 to \$500 million (assuming the program reaches its optimum effect in 2010).

Similarly, the amount of the excise tax would affect the state-wide health care savings estimates. Although the relationship between the size of the tax and the reduction in state-wide health care costs are not perfectly linear, a rule of thumb would be that state-wide health spending could be reduced by \$312 million (over ten years) for each one percentage of excise tax.

We assume overweight and obese individuals respond to potential SSB taxes similarly. However, the tax is regressive and it is very likely to disproportionately affect those who are low-income and obese as suggested by Brownell et al. In addition, earmarking the SSB tax revenue for investments in obesity prevention could directly benefit these populations. Both features make a tax potentially even more effective in fighting obesity among such population segments that bear the most health disparity.

In this study, we assume physical activity and diet are constant while SSB consumption is not constant. We make these assumptions to tease out the net effect of introducing SSB taxes. However, in the real battle against the obesity pandemic, there is no silver bullet. Research shows that 80 percent of obesity is caused from excess calorie intake and 20 percent is the result of physical inactivity. Interventions targeting physical activity and diet have to be combined to maximize the sustained weight loss. This signifies the importance of directing the revenue generated from an SSB tax to other types of weight loss programs to achieve the best possible results.

VIII. Expanding Hospital Pay for Performance

This proposal would provide hospitals with bonus payments for improvements in the quality of care for patients receiving selected services based upon quality measures of health outcomes for these services. Under such a system, data would be compiled by providers for their patients that receive selected health services. The results would be adjusted for the severity of illness and compared with benchmark measures of outcomes for these services. Providers with favorable results would be rewarded with higher payment in a program called “pay for performance” (P4P).

Our analysis is based on the results of the CMS Hospital Quality Incentive Demonstration (HQID) pay for performance program. This demonstration collected data on participating hospitals’ performance against several quality measures for selected procedures. Hospitals showing improvements in quality received a bonus. The demonstration showed that financial incentives can stimulate improvements in quality.

However, the demonstration did not measure the effect that these changes in quality have on costs. This is an important limitation because the literature is divided on whether improved quality in hospital care results in savings as suggested by the “Total Quality Improvement” (TQI) model as in other industries. Some studies show that hospital quality is largely unrelated to cost performance, while others show that higher quality appears to result in higher costs. Thus, the key assumptions in this analysis relate to the effects of quality improvement on costs.

A. The Hospital Pay for Performance Model

In this option, we assume that the CMS Hospital Quality Incentive Demonstration (HQID) pay for performance program is implemented for hospitals in New York. The demonstration initially enrolled 276 hospitals across the U.S. to participate in the program. The HQID program initially applied to five medical services. *Figure 46* presents these five services and shows that New York Hospitals provided 228,800 discharges for all patients and payer groups for these services in 2007 and they accounted for about 14 percent of total hospital costs.

Figure 46
Number of Inpatient Discharges and Total Hospital Costs in New York in 2007 ^{a/}

Condition	Number of Discharges (1,000s)	Total Hospital Costs (millions)	Percent of Costs for All Cases
Acute myocardial infarction (AMI)	36.4	\$957	2.8%
Community acquired pneumonia (CAP)	65.6	\$860	2.5%
Isolated coronary artery bypass graft (CABG)	14.3	\$851	2.5%
Heart Failure (HF)	66.7	\$1,175	3.4%
Hip and Knee Replacement Surgery	46.0	\$925	2.7%
Total: For Above Conditions	228.8	\$4,767	14.0%
All Other Conditions	2,379.8	\$29,375	86.0%
Total: All Conditions	2,608.6	\$34,142	100.0%

a/ Includes all patients and all payer groups.

Source: The Lewin Group analysis of New York State Hospital Cost and Utilization Project (HCUP) data for 2007. Numbers may not add to totals due to rounding.

The HQID demonstration creates financial incentives for hospitals to demonstrate higher quality in the acute care conditions listed above. Bonuses depend upon attaining a minimum level of performance. The incentive system would reward hospitals in the 90th percentile with a two percent bonus on their payment for the clinical area. Hospitals that achieve the 80th percentile depending on their prior year performance would receive a one percent bonus. The demonstration included 613 hospitals over a period of two years. Hospitals performing at or below the 20th percentile received a one percent penalty. Hospitals performing in the bottom decile received a two percent penalty. Eligibility for all bonuses relies on attaining a minimum level of performance in the two years prior to the payment year. The bonuses are fully funded with reduced payments for hospital services in a fashion that results in net savings to the payer.

The demonstration showed that hospitals in the program showed greater improvements than the hospitals in the control group. Lindenauer, P. et al (2007) showed overall improvement in the quality for the hospitals participating in the public reporting system.¹⁰⁷ They showed that hospitals participating in the pay for performance program showed slightly greater improvement than the control group. They showed improvements of 16.1 percent for hospitals in the lowest quartile of baseline performance and improvements of 1.9 percent for those in the highest quartile of baseline performance on the quality measures.

For this analysis, we assume that the P4P program initially includes the five medical procedures covered under the HQID demonstration and is expanded to additional services over time. So that by 2020, the services covered under the P4P program account for about 42 percent total hospital costs (3 times the initial amount). However, this would include only about 6 percent of all hospital conditions or procedures (28 diagnostic related groups). This would require implementing about three new conditions per year in the P4P program.

We also assume that the program provides financial incentives for hospitals to demonstrate higher quality in the conditions covered by the program. Bonuses will be structured the same as those in the HQID demonstration program and will depend upon attaining a minimum level of performance. The incentive system would reward hospitals in the 90th percentile with a two percent bonus on their payment for the clinical area. Hospitals that achieve the 80th percentile would receive a one percent bonus. The program is not designed to penalize hospitals that fall into the bottom of the distribution.

B. Estimating the Impact on Quality for New York

We estimated the impact of the program based upon the Lindenauer evaluation of results from the demonstration and data provided by CMS Hospital Compare program. Hospital Compare was developed to provide public reporting of quality measures for acute care hospitals and is maintained by the Centers for Medicare and Medicaid Services (CMS). About 98 percent all acute care hospitals participate in the program.¹⁰⁸

We used these data to establish the baseline quality scores for hospitals in New York using data from the Hospital Compare archive. This database has the quality scores for each quality measure

for heart failure, acute myocardial infarction, community-acquired pneumonia, and surgical infection prevention (applied to coronary artery bypass graft and hip/knee surgery) for each reporting hospital in the database. We created a composite quality score using the process of care measures for each clinical area at a hospital by calculating the average score in each clinical area weighted by the number of patients treated for the measure.¹⁰⁹ *Figure 47* shows that the composite quality scores for New York hospitals improved dramatically for each measure since the beginning of the Hospital Compare reporting period even though no incentive payments were tied to performance, but only that the information would be publically reported.

Improvement in quality scores across hospitals have been attributed to implementing quality initiatives and providing awareness of guidelines among staff, improved hospital processes to create better support for meeting guidelines, improved staff documentation of procedures, and developing staff practices that are more consistent with guidelines.¹¹⁰

Figure 47
Improvement in Composite Quality Scores for New York Hospitals 2005 - 2008 ^a

Year of Data	Heart Attack	Heart Failure	Pneumonia	Surgical Infection Prevention
2005	93.3%	78.7%	80.3%	70.3%
2006	94.9%	82.8%	84.8%	80.4%
2007	95.5%	87.6%	89.5%	88.5%
2008	96.8%	92.3%	90.3%	94.1%

a/ Hospital Compare data for 2008 includes data on 190 New York Acute Care hospitals. Source: The Lewin Group analysis of CMS Hospital Compare database for New York State hospitals. Composite scores were computed using a consistent set of process of care quality measures only and based on a consistent panel of hospitals over the period.

Based upon an evaluation of the HQID demonstration, Lindenauer found the annual improvement (solely as a consequence of the financial rewards) for AMI to be 2.5 percent, 3.0 percent for Heart Failure, and 2.3 percent for CAP. We used the rate of improvement for AMI as the rate of improvement for CABG. Since Lindenauer did not report an annual improvement for Hip/Knee we estimated an improvement rate as follows. We used the annual improvement reported by Premier for Hip/Knee in demonstration hospitals and subtracted the improvement rate for Hip/Knee found in the Hospital Quality Alliance (HQA) data for non-demonstration hospitals. Our net estimate of annual improvement for Hip/Knee is 3.0 percent annual improvement.¹¹¹

Under the P4P program, we assume that New York hospitals can improve their quality scores for these initial five services by the amount estimated above from the Lindenauer study. However, since the quality scores for these services have already improved dramatically since 2005 there is very little room for additional improvement.

Expanding the P4P program to additional hospital services would incentivize New York hospitals to improve quality through financial rewards/penalties and due to public reporting of the information for the new services covered under the program. Thus, we would expect to see

improvements similar to those seen for the Hospital Compare services plus the additional improvements due to financial incentives as reported by Lindenauer.

We projected the improvement in quality scores from 2011 to 2020 for New York hospitals under the P4P program as follows:

- First, we assume the program is implemented in 2011 and initially includes the five medical procedures covered under the HQID demonstration, which accounts for about 14 percent of hospital costs in New York. We also assume that quality scores for these services can be increased by the amounts estimated from the Lindenauer study (2.3 to 3.0 percent) due to financial incentives.
- Second, we assume the program is expanded in future years to include additional services. So that by 2020, the services covered under the P4P program accounts for about 42 percent of total hospital costs (or 3 times the initial amount).
- We assume that the quality scores for each additional service covered under the P4P program increases at the same rate as measured under the Hospital Compare program from 2005 through 2008 (17 percent over the 4-year period) plus an additional 2.6 percent due to financial incentives (average from Lindenauer study across all services).

Using these assumptions, we estimate that hospital quality would improve by 2.6 percent in 2011 to 12.7 percent by 2020 for services covered under the P4P model.

C. Savings from Improved Quality

The next step is to estimate the impact that these improvements in quality have on costs. It is widely believed that improvements in quality will actually reduce costs by eliminating avoidable complications, reducing readmissions and reducing hospital length of stay. The notion that improvements in quality ultimately reduce costs is consistent with the total quality measurement (TQM) model used in other industries, which stresses reduced production costs through improved quality. However, there is limited evidence that this actually occurs in health care.

For example, a study of the trade-offs between hospital costs and quality showed that each 1.0 percent increase in the quality indicators they studied was associated with a 1.34 percent increase in costs.¹¹² However, this study is old (1983) and the author stresses the importance of data limitations. A more recent study measured the association of hospital costs and quality of care in hospitals for patients with myocardial infarction and congestive heart failure.¹¹³ This study found that low-cost hospitals had modestly lower quality scores on process of care measures for patients with these two common health conditions. They concluded from the analysis that better care management will not necessarily lead to both lower costs and higher-quality care.

However, there are a number of studies demonstrating that lower-cost hospitals often rate high on quality. A study by Fisher showed that “better quality hospital care does not cost more.”¹¹⁴ They found no evidence that cost-efficient hospitals trade-off quality performance to achieve savings. Other studies have examined the relationship between hospital quality and cost and found that even after risk adjustment for severity of illness, many hospitals exhibit high quality outcomes yet are low cost providers.¹¹⁵

These studies show that the likelihood of achieving high-quality/low-cost performance is related to organizational and market characteristics. For example, the likelihood of being a high-quality/low-cost provider increases for-profit ownership or system measurement.¹¹⁶ Highly competitive markets and markets with a significant HMO presence were also correlated with high-quality/low cost status. This suggests that financial incentives such as for-profit status or competitive pressures can be associated with both increased quality and reduced costs.¹¹⁷

Another study of the relationship between quality and costs for radical prostatectomy cases showed that quality was driven by factors under the control of physicians such as operating room time, units of blood transfused, anesthesia time and surgical time.¹¹⁸ This showed that physicians have considerable control over factors that can improve quality while driving down costs. For this reason, we feel it is reasonable to assume that hospital quality improvements can be associated with lower costs.

Premier, Inc., which participated in the HQID demonstration, has estimated the savings realized as a result of quality improvements made in response to the HQID bonuses. They base these savings estimates on the reductions in hospital readmissions and length-of-stay for the procedures studied.¹¹⁹ The HQID demonstration included approximately 230 hospitals throughout the nation, including 17 hospitals in New York State. However, management commitment, available infrastructure, and physician practice patterns for these participating hospitals may be different from many of the other hospitals in New York State, which may ultimately impact results in both quality improvements and cost reductions. *Figure 48* shows the average cost savings per patient and their HQID composite quality score improvements estimated by Premier.¹²⁰ Based on these data, we estimated the cost savings per patient for every 1-percent improvement in quality. These savings ranged from \$202 for heart attack patients to \$26 per pneumonia patient.

Figure 48
Average Cost Savings Per Patients and Composite Quality Score Improvements for Premier Hospitals 2003 - 2006

Condition	Average Cost Savings Per Patient ^{a/}	Improvement in Quality Score (2003 to 2005) ^{b/}	Per Patient Cost Savings for Every 1% Improvement in Quality ^{c/}	Average Cost Per Case ^{d/}	Percent Cost Savings for Every 1% Improvement in Quality ^{e/}
Heart Attack	\$1,599	7.9% (89.9% - 97.0%)	\$202	\$26,296	0.8%
CABG Surgery	\$1,579	15.2% (85.1% - 98.0%)	\$104	\$59,654	0.2%
Pneumonia	\$811	31.4% (70.0% - 93.0%)	\$26	\$13,104	0.2%
Heart Failure	\$1,181	40.4% (64.1% - 90.0%)	\$29	\$17,633	0.2%
Hip Replacement	\$744	15.2% (85.1% - 98.0%)	\$49	\$21,761	0.2%
Knee Replacement	\$463	15.2% (85.1% - 98.0%)	\$30	\$18,812	0.2%

a/ Per patient cost savings information from Premier based on the HQID demonstration, “History and Future Outlooks for Hospital P4P”.

b/ Trends in composite quality scores for Premier hospitals under the HQID demonstration

c/ Computed as average per patient cost savings divided by quality score improvement from Premier hospitals.

d/ Average cost per case is based on the State Inpatient Data for New York Hospitals in 2007

e/ Computed as the per patient cost savings for every one percent increase in quality divided by the average hospital cost for the condition.

Source: The Lewin Group analysis. Numbers may not add to totals due to rounding.

We compared the savings per one-percent quality improvement to the average cost per case in New York hospitals for each of the procedures. The savings ranged from 0.8 percent for heart attack cases to 0.2 percent for each of the other procedures, with an average of 0.3 percent. Thus, for this analysis we will assume that every one percent improvement in quality translates to a 0.3 percent reduction in costs.

Based on these assumptions, we estimated the total gross savings under the P4P model assuming the program is implemented throughout New York for all payers, including Medicare, Medicaid, commercial insurers, and other government programs (i.e., TriCare and Worker’s Compensation). We estimate that total spending for hospital inpatient care for New York residents will be \$40.3 billion in 2011 and \$546.3 billion over the 2011 to 2020 period (*Figure 49*). As described above, we assume that the P4P model will be phased in starting with the initial HQID services, which would be about 14 percent of inpatient spending for all included payer groups in 2011, and increased so that 42 percent (\$30.4 billion) is covered under the program by 2020.

Figure 49
Inpatient Hospital Spending Under Current Law for New York Hospitals and Estimated Savings Under the P4P Model 2011 - 2020
(millions)

Year	Baseline Spending for Inpatient Hospital Care	Inpatient Spending Covered Under P4P Program	Projected Quality Improvements for P4P Covered Services	Savings Associated With Quality Improvements	Total Gross Savings
2011	\$40,329	\$5,646	2.6%	0.8%	\$44
2012	\$42,827	\$7,328	3.4%	1.0%	\$74
2013	\$45,624	\$9,226	4.9%	1.5%	\$135
2014	\$48,536	\$11,325	6.5%	2.0%	\$221
2015	\$51,721	\$13,677	8.1%	2.4%	\$334
2016	\$55,201	\$16,315	9.4%	2.8%	\$462
2017	\$59,044	\$19,288	10.5%	3.1%	\$607
2018	\$63,161	\$22,597	11.3%	3.4%	\$769
2019	\$67,564	\$26,275	12.1%	3.6%	\$952
2020	\$72,274	\$30,355	12.7%	3.8%	\$1,156
2011-2020	\$546,281	\$162,033			\$4,753

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Figure 49 also shows our projection of quality improvements for P4P covered services. The quality improvement assumptions were informed by the historical trend in quality improvements for New York Hospitals under Hospital Compare plus the additional improvements that would

occur due solely to P4P from the Lindenauer study. We assume it takes about five years for the quality processes to be fully implemented by the hospitals and reach the optimum level. The quality improvement projections take into account that two phase-ins are occurring simultaneously. First, new conditions under the P4P program are added each year and second the quality improvements for each newly added set of conditions takes 5 years to achieve full impact.

The savings associated with the quality improvements is based on the assumption of a 0.3 percent cost reduction for every 1.0 percent quality improvement. The projected quality improvement of 2.6 percent in 2011 would generate a cost reduction of 0.8 percent in that year (2.6 percent * 0.3 = 0.8 percent). Total gross savings under the program was estimated by multiplying total spending for P4P covered services by the savings percentage in each year. Using these data, we estimate total gross savings of \$4.8 billion under the P4P program in New York over the 2011 to 2020 period.

Total gross savings under the P4P program would be offset by the costs to administer the program and the incentive payments to high achieving hospital. We estimate that the net reduction in health spending in New York would be \$3.9 billion over this period (*Figure 50*).

Figure 50
Estimated Net Potential and Actionable Savings for New York Hospitals Under the P4P Model 2011 - 2020 (millions)

Year	Total Gross Savings		Administrative Costs		Incentive Payments		Net Savings	
	Potential	Actionable	Potential	Actionable	Potential	Actionable	Potential	Actionable
2011	\$44	\$10	\$0	\$0	\$17	\$4	\$27	\$6
2012	\$74	\$19	\$8	\$2	\$22	\$6	\$45	\$11
2013	\$135	\$38	\$16	\$5	\$27	\$8	\$91	\$26
2014	\$221	\$67	\$25	\$8	\$33	\$10	\$163	\$49
2015	\$334	\$106	\$35	\$11	\$40	\$13	\$260	\$82
2016	\$462	\$152	\$45	\$15	\$48	\$16	\$369	\$121
2017	\$607	\$205	\$56	\$19	\$56	\$19	\$494	\$167
2018	\$769	\$265	\$68	\$23	\$65	\$23	\$636	\$219
2019	\$952	\$333	\$81	\$28	\$76	\$27	\$795	\$278
2020	\$1,156	\$410	\$95	\$34	\$88	\$31	\$974	\$346
2011-2020	\$4,753	\$1,605	\$427	\$144	\$472	\$155	\$3,854	\$1,307

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Administering the P4P program and quality improvement efforts involves collecting, analyzing and submitting vast amounts of patient care data associated with quality and patient safety and/or pay for performance methodologies. A recent national study estimated that hospitals spent about \$334 million collecting data, transmitting data to the hospital’s vendor, aggregating the data, calculating results and validating the data for the 21 HQA-approved quality measures required by CMS and Joint Commission on Accreditation of Healthcare Organizations’ (JCAHO)

in 2006.¹²¹ We estimate that about \$27 million was spent by New York hospitals, based on the fact that New York hospital spending accounts for 8.2 percent of hospital spending nationally.

We projected the cost to hospitals of administering the program for the additional quality measures that would be required under the P4P model over the 2011 to 2020 period. This was based on the average cost to administer the current measures (\$27 million for measures that cover 14 percent of care) extrapolated to services that would cover 42 percent of hospital inpatient care, plus accounting for wage inflation of about 4 percent per year. We estimate that hospitals would have to spend about \$427 million over the 2011 to 2020 period to administer the P4P model.

The P4P program will provide financial incentives to hospitals that demonstrate higher quality in the conditions covered by the program, which would be an offset to the savings generated by the program. Bonuses are paid by each payer and will depend upon hospitals attaining a minimum level of performance and the incentive system would reward hospitals in the 90th percentile with a two percent bonus on their payment for the clinical area. Hospitals that achieve the 80th percentile would receive a one percent bonus. We assume that the program is not designed to penalize hospitals that fall in the bottom of the distribution. We estimate the incentive payments would be about \$472 million on ten years.

For this analysis, we assume that savings generated by reduced hospital readmissions are realized by payers and public programs through reduced utilization of these hospitalizations. The remaining net savings for hospitals are assumed to be passed on to payers and public programs through lower negotiated rates and lower DRG payments over time. Hospitals are assumed to keep the bonus payments as profits. Finally, commercial payers are assumed to pass their share of savings on to consumers in the form of lower premiums.

As described above, we estimated savings under the P4P model assuming the program is implemented throughout New York for all individuals and all payers. *Figure 51*, shows the estimated amount of inpatient spending that would be covered under the P4P model over the 2011 to 2020 period by payer group. The original HQID services were mostly relevant for Medicare beneficiaries since it was a Medicare demonstration program. As the P4P model is expanded to cover additional services, we assume that they will be targeted more toward services used by privately insured and Medicaid beneficiaries.

Figure 51 also shows the net savings estimate from 2011 through 2020 by payer group. We estimate that \$1.4 billion of the net savings would go to the federal government for Medicare patients as well as half of the Medicaid savings (\$500 million). Thus, half of the total program savings would be realized by the federal government.

Figure 51
Inpatient Hospital Spending for P4P Covered Services and Net Savings by Payer Group 2011 - 2020
(millions)

Year	Medicare	Medicaid / CHIP	State and Local Gov Employees	Other Private Insurance	Other Public ^{a/}	Total
Amount of Spending for P4P Model Covered Services						
2011	\$2,887	\$889	\$353	\$1,201	\$316	\$5,646
2012	\$3,408	\$1,420	\$470	\$1,602	\$427	\$7,328
2013	\$3,996	\$2,020	\$603	\$2,054	\$553	\$9,226
2014	\$4,646	\$2,684	\$750	\$2,554	\$691	\$11,325
2015	\$5,375	\$3,427	\$914	\$3,114	\$847	\$13,677
2016	\$6,192	\$4,261	\$1,099	\$3,742	\$1,022	\$16,315
2017	\$7,113	\$5,200	\$1,307	\$4,450	\$1,218	\$19,288
2018	\$8,138	\$6,246	\$1,538	\$5,238	\$1,437	\$22,597
2019	\$9,278	\$7,408	\$1,795	\$6,113	\$1,680	\$26,275
2020	\$10,542	\$8,698	\$2,081	\$7,085	\$1,950	\$30,355
2011-2020	\$61,576	\$42,253	\$10,910	\$37,151	\$10,142	\$162,033
Net Savings Under the Program						
2011	\$14	\$4	\$2	\$6	\$2	\$27
2012	\$21	\$9	\$3	\$10	\$3	\$45
2013	\$40	\$20	\$6	\$20	\$6	\$91
2014	\$67	\$39	\$11	\$37	\$10	\$163
2015	\$102	\$65	\$17	\$59	\$16	\$260
2016	\$140	\$97	\$25	\$85	\$23	\$369
2017	\$182	\$133	\$34	\$114	\$31	\$495
2018	\$229	\$176	\$43	\$147	\$40	\$636
2019	\$281	\$224	\$54	\$185	\$51	\$795
2020	\$338	\$279	\$67	\$227	\$63	\$974
2011-2020	\$1,413	\$1,045	\$261	\$890	\$244	\$3,854

a/ Includes TriCare and Worker’s Compensation.

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

D. Assumption on Actionable Steps

For this analysis, we assume that the State would require the use of this P4P program in all state and municipal employee health benefits programs and the Medicaid program. Hospitals would be required to accept the program as a condition of serving people covered under State programs. In the wake of the New York Attorney General lawsuit regarding “preferred providers,” legally tenable methods for steering volume must be considered. To the extent possible, value-based benefit designs will be considered as a means to encourage consumers to use medical services more efficiently.

Under this scenario, we estimate the P4P model would produce savings of about \$1.3 billion over the 2011 to 2020 period assuming that savings is realized for only Medicaid and State and municipal employee health programs. *Figure 52* shows that the federal government would save \$523 million under the program due to the 50 percent federal matching rate for Medicaid. The

State and local governments would see savings of \$729 million and households would see about \$55 million in savings.

Figure 52
Net Savings Under the P4P Model by Stakeholder Group 2011 - 2020
 (assumes program implemented for Medicaid and State and Local Government employees only)
 (millions)

Year	Federal Government	State and Local Government	Private Employers	Households	Total Statewide Health Savings
2011	\$2	\$4	\$0.0	\$0.4	\$6
2012	\$4	\$7	\$0.0	\$0.6	\$12
2013	\$10	\$15	\$0.0	\$1	\$26
2014	\$19	\$28	\$0.0	\$2	\$49
2015	\$33	\$46	\$0.0	\$4	\$82
2016	\$48	\$68	\$0.0	\$5	\$121
2017	\$67	\$93	\$0.0	\$7	\$167
2018	\$88	\$122	\$0.0	\$9	\$219
2019	\$112	\$155	\$0.0	\$11	\$279
2020	\$140	\$192	\$0.0	\$14	\$346
2011-2020	\$523	\$729	\$0.0	\$55	\$1,307

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

IX. Realizing Administrative Simplification through Health Information Technology

Data compiled by the actuaries of the Centers for Medicare and Medicaid Services (CMS) indicate that insurer overhead and profit accounts for about 11.7 percent of private insurance revenues nationally. We estimate that, of this, about 86 percent is attributed to administration and 14 percent is attributed to profits. Studies show that about 10.0 percent of physician revenues and about 8.7 percent of hospital revenues are devoted to billing and insurance-related (BIR) functions.¹²² Based upon these data, we estimate that about \$18.2 billion will be spent on BIR functions by providers and insurers (excluding profits) in New York during 2011.

The main focus of this set of cost containment initiatives is to reduce the administrative burden on health care providers and insurers alike. We begin by summarizing our estimates of BIR related costs for New York. We then present estimates of two options for reducing BIR costs through standardization and improved use of health information technology.

We originally planned to include an option that would promote standardized electronic systems that would be used to facilitate transactions between providers and health plans concerning eligibility billing and authorization for health services. However, the Patient Protection and Affordable Care Act (PPACA), recently signed into law by President Obama, includes a series of administrative simplification requirements designed to automate these transactions through health information technology. Instead, we include a discussion of the effects of this new legislation.

We also examined two additional approaches to reducing administrative costs that the State could implement including:

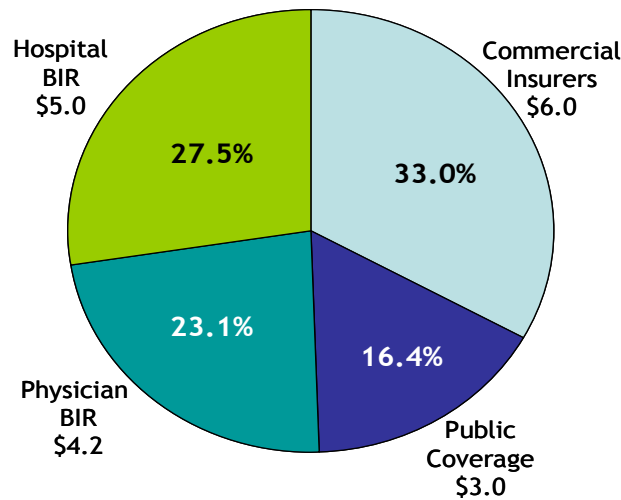
- Streamline and Standardize the Growing Demand for the Collection and Reporting of Clinical Information for Quality Measures; and
- Consolidate and Streamline the Process for Establishing the Professional Competency and Scope of Practice Credentials of Health Care Providers.

A. Billing and Insurance-Related (BIR) Costs in New York

Due to a lack of detailed data on BIR costs in New York, we had to estimate these costs from a variety of data sources. We estimate that total BIR costs in New York will be about \$18.2 billion in 2011 (*Figure 53*). This includes the cost of administering all transactions between insurers and providers, including billing, payment, confirmation of patient eligibility, utilization review functions and certification.

We estimate that, in New York, commercial insurers account for \$6.0 billion in BIR costs and Medicare and Medicaid account for about \$3.0 billion. We estimate that BIR costs will be about \$4.2 billion for physicians and \$5.0 billion for hospitals. BIR administrative costs account for about 12.5 percent of all health spending for New York residents covered under these programs (excluding long-term care). For commercially insured people, BIR represents about 22 percent of total premiums.

Figure 53



Estimated Billing and Insurance-Related Costs for New York in 2011 (billions)

Total Billing and Insurance-Related Costs in New York: \$18.2 billion.

Source: The Lewin Group estimates.

BIR administrative costs for public coverage will be about \$3.0 billion in 2011 including \$1.7 billion for Medicare and \$1.3 billion for Medicaid. We base these estimates on data from the actuaries of the Centers for Medicare and Medicaid Services (CMS) report that administrative costs for Medicare equal about 5.0 percent of Medicare spending, which we estimate to be about \$35.4 billion for New York in 2011, as well as program data from the New York Medicaid program indicate that administrative costs are equal to about 2.9 percent of program costs.¹²³ These estimates exclude costs for the administration of long-term care services.

Data from the United Hospital Fund show that insurer administrative costs for private insurers in 2008 were about \$3.8 billion.¹²⁴ This amount includes the cost of administration for Medicaid and Medicare beneficiaries enrolled in private health plans. However, these data do not include information on the cost of administering self-funded ERISA plans. The Agency for Healthcare Research and Quality (AHRQ) estimates that about 40.5 percent of New Yorkers with employer coverage were covered under a self-funded health plan.¹²⁵ We estimated administrative costs for self-funded plans based upon industry data showing that administrative costs for these plans are equal to about 5.5 percent of benefits payments.

We estimate total private insurer BIR cost will be \$6.0 billion in 2011, excluding insurer profits. We estimated the distribution of administrative costs by function based upon a study of BIR costs developed by Kahn et al. (*Figure 54*).¹²⁶ Estimates are shown separately for commercial insurance, Medicaid HMO enrollment and enrollees in Medicare Advantage program health plans.

Figure 54
Distribution of Insurer and Program BIR Costs as a Percentage of Total Premium by Administrative Function^{a/}

Expense Category	Commercial Insurers	Medicaid Health Plans	Medicare Health Plans
General Administration	0.8%	0.9%	0.3%
Claims Billing/Payment	1.6%	1.8%	1.2%
Sales and marketing	1.5%	1.2%	0.6%
Finance	1.2%	1.4%	0.4%
Membership & Billing	0.2%	0.3%	0.1%
Credentialing ^{b/}	0.3%	0.3%	0.1%
Other Provider Services	0.3%	0.3%	0.1%
Customer Service	0.6%	0.7%	0.3%
Information Systems	1.1%	1.2%	0.4%
Utilization Review	0.1%	0.2%	0.1%
Case Management	0.1%	0.2%	0.1%
Medical Director	0.2%	0.3%	0.1%
Other Services	0.4%	0.6%	0.1%
Total BIR Percent	8.4%	9.4%	3.8%
Total BIR (millions)	\$5,182.4	\$532.8	\$240.7

a/ Excludes insurer profits and non BIR administrative costs.

b/ We assume that 50 percent of costs reported as “provider services and credentialing” are attributed to certification.

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

In a *Health Affairs* article, Sakowski et al. showed that BIR is equal to about 10 percent of physician revenues.¹²⁷ The cost to medical groups was \$85,276 per physician FTE in 2008, including physician time devoted to these tasks. When weighted to reflect physician revenues in New York, we estimate total BIR costs for physicians in New York will be about \$4.2 billion in 2011. *Figure 55* presents our estimate of physician BIR expenditures by administrative function.

Figure 55
Estimated Distribution of Physician BIR costs in New York by Administrative Function ^{a/}

Expense Category	Percentage of Revenues Physician BIR	Physician BIR Spending in New York (billions)
Patient Relations	2.3%	\$0.9
Payer Relations	0.2%	\$0.1
Care Management and Service Authorization	1.2%	\$0.5
Managed Care	0.8%	\$0.3
Reimbursement and Clinical Coding	0.6%	\$0.3
Claims Filing	1.0%	\$0.4
Receiving and Posting Payments	1.4%	\$0.6
Follow-up and Payment Reconciliation	1.4%	\$0.6
Management and decision Support	0.7%	\$0.3
HIT Support	0.4%	\$0.2
Total BIR	10.0%	\$4.2
Total Physician Revenues	100.0%	\$41.8

Source: The Lewin Group estimates based upon Sakowski et al. "Peering into the Black Box: Billing and Insurance Activities in a Medical Group," *Health Affairs*, May 2009.

In a second *Health Affairs* article, Casalino et al. estimated physician BIR costs to be about \$68,300 in 2006, although the author cautions that some expenses were not included (facilities costs, etc.). These data provide additional detail on the cost of specific administrative functions related to credentialing, formulary compliance, and quality reporting.¹²⁸ *Figure 56* presents the average dollar value of hours spent per physician per year on BIR.

Figure 56
Estimated Physician Spending Attributed to Billing and Insurer Related Functions, 2006

	Authorization	Formulary	Claims	Credential	Contracting	Reporting	Total
Average Dollar Value of Hours Spent per Physician per Year on Insurance Related Administration							
Physician	\$5,170	\$6,720	\$3,102	\$310	\$258	\$207	\$15,767
Nursing Staff	\$15,004	\$4,123	\$2,634	\$23	\$0	\$11	\$21,796
Clerical Staff	\$4,310	\$0	\$19,156	\$1,389	\$89	\$96	\$25,040
Senior Admin.	\$0	\$0	\$3,215	\$15	\$190	\$102	\$3,522
Lawyer/ Accounting	\$0	\$0	\$0	\$0	\$2,149	\$0	\$2,149
Total	\$24,484	\$10,844	\$28,107	\$1,737	\$2,686	\$416	\$68,274
Distribution of Billing and Insurance Related Costs by Functional Area							
New York State	35.9%	15.9%	41.2%	2.5%	3.9%	0.6%	100.0%

Source: The Lewin Group calculation based upon data reported in: Lawrence Casalino et al., "What Does it cost Physician Practices to Interact with Health Insurance Plans," *Health Affairs*, May 14, 2009.

The Medicare Hospital Cost Report data for 2008 indicate that administrative costs account for 15.4 percent of hospital revenues in New York hospitals. However, this estimate includes many functions that are unrelated to BIR, such as cafeteria, housekeeping and other general administrative services.

We estimate the portion of spending attributed to BIR functions based upon a study of hospital administrative costs for hospitals in California. These data indicate that about 8.7 percent of hospital revenues are dedicated to interactions with insurers. These include patient accounting, credit and collections, admitting, data processing and communications costs. About 10 percent of these insurance related costs are attributed to utilization management functions such as discharge planning, prior authorization and retrospective utilization review. When adjusted to reflect hospital incomes in New York, we estimate that BIR related costs in New York hospitals will be \$5.0 billion in 2011.¹²⁹

Figure 57
Estimated Hospital Spending for Billing and Insurance Related Functions for New York in 2011

Expense Category	Percent of Total Revenues ^{a/}	New York Hospital Spending in 2011 (billions)
Hospital Administration	3.5%	\$2.4
Patient Accounting	1.3%	\$0.9
Credit and Collections	0.8%	\$0.5
Admitting	0.5%	\$0.4
Data Collection	0.4%	\$0.3
General Accounting	0.1%	\$0.1
Utilization Management	0.5%	\$0.3
Credentialing ^{b/}	0.2%	\$0.1
Total BIR Costs	7.3%	\$5.0
Total Hosp Revenues	100.00%	\$68.5

a/ Based upon Medicare cost report data for New York and analysis of hospital financial data reported by the California Office of Statewide Health Planning and Development (OSHPD). See: Kahn, J., et al., “The Cost of Health Insurance Administration in California: Estimates for Insurers, Physicians and Hospitals,” Health Affairs, 24, no. 6(2005)

b/ Hospital credentialing costs are not shown separately. We estimated hospital credentialing costs based upon the percentage of physician insurance related costs attributable to insurer administration. Source: The Lewin Group estimates.

Standardize and Improve Access to Up-to-Date Eligibility and Enrollment, Benefits, Coverage, and Cost Sharing Information

When this project began, we were planning to estimate the impact of three options, including one to give providers access to up-to-date information on patient coverage, eligibility for services, and cost sharing information. An automated system with coverage data in a standardized format for all New York residents would largely eliminate the need for telephone confirmation of coverage for individual services, resulting in lower costs for providers and payers. However, we eliminated this option because the recently passed federal health reform bill already includes a program for developing such systems nationwide.

In this section we describe these administrative simplifications and present estimates of the effect these provisions will have on administrative cost in New York.

1. Administrative Simplification under the PPACA

The PPACA recently signed into law by President Obama includes administrative simplification provisions designed to reduce administrative costs through expanded use of health information technology (HIT). The legislation addresses the need for an automated system that will simplify the process of communicating transactions between providers and health plans.

Health plans and providers communicate regularly throughout the process of providing care to patients. Each of these communications, called “transactions,” typically involves medical staff in the provider’s office communicating by telephone with health plans for the following purposes:

- Confirmation of enrollment in the health plan;
- Eligibility for specific services;
- Referrals and authorizations for services
- Amount of patient responsibility;
- Claims and encounter data; and
- Claims payment status.

These processes are time consuming but are necessitated by the wide variation in coverage across insurers and changes in sources of coverage for patients. Medical staff must typically screen patients for information on the patient’s source of coverage. They also obtain information from the insurer on the eligibility for specific services and the amount of the patient co-payment to collect from the patient. Providers also submit claims for services and communicate with insurers to check payment status and appeal denied claims.

One of the more complex interactions with insurers is the precertification process for procedures and high cost diagnostics. Patients and/or providers are required to obtain approval for hospital admissions and other high-cost services prior to the service. Health plans can deny coverage for a service if they believe that the service is inappropriate for the patient given their health status. Often this is driven by evidence-based medical research on the effectiveness of procedures under various circumstances. This process requires communication of clinical information between medical professionals in the provider’s office and at the insurer, and adds to the cost of administering coverage.

The administrative simplification provisions of the Health Insurance Portability and Accountability Act (HIPAA) required the Department of Health and Human Services (HHS) to establish national standards for electronic health care transactions and national identifiers for providers, health plans, and employers. The HHS has also issued rules concerning accreditation, coding standards for pharmacy transactions, and adoption of the new ICD-10-CM national coding system for diagnoses and clinical processes for claims process.¹³⁰

The PPACA requires the secretary of HHS to establish a consensus-based process to develop additional standards and processes that can reduce the cost of these transactions. They define the following objectives for the processes to be developed:

- Enable determination of an individual’s eligibility and financial responsibility for specific services at the point of care;
- A comprehensive system requiring minimal paper and other communications;
- Provide for timely management of a timely process for claims processing and denials including adjudication and appeals;

- Provide a standard formatting of data with sufficient detail to administer service eligibility and prohibits additional conditions; and
- Requires timely updates of information to assure that the data base includes the most recent information.

2. Automation of Transactions in New York

The Medical Group Management Association (MGMA) estimates that a 10-physician medical group spends about \$39,000 annually to verify patient coverage, copayments and deductibles for varying health plans.¹³¹ With a standardized technology, health care providers could avoid having to ask enrollees for the same information at every encounter and avoid the inefficiency of telephone inquiries. It would also reduce the number of telephone inquiry calls between providers and insurers which consume staff time for both.

Efforts have recently been undertaken to automate and standardize these administrative functions. The Council for Affordable Quality Healthcare (CAQH) has undertaken a national industry initiative to simplify eligibility and benefits data transactions and improve provider access to administrative information through their Committee on Operating Rules for Information Exchange (CORE) program. Although the program is voluntary, CAQH reports that more than 100 healthcare industry stakeholders have collaborated in developing the uniform business rules and CORE participants maintain eligibility and benefits data for more than 130 million covered lives.

The CORE system allows providers to electronically query any CORE-certified health plan for patient information and receive it in a uniform format within seconds. Providers can access eligibility and benefits data from any CORE-certified health plan using the electronic system of their choice through secured interchange over the public Internet. Thus, providers will not be required to have expensive EHR systems in order to access these data.

The New York Medicaid program has an automated system for verifying eligibility. Beneficiaries present their card at the doctor's office which is swiped through a machine that immediately verifies eligibility.

The PPACA would require insurers to standardize the reporting of eligibility and benefits information consistent with the CORE program, which is now voluntary. But the existence of the CORE system will facilitate adoption of the systems to be developed under the PPACA. Although estimates differ, only about 10 percent of transactions are now performed electronically.^{132,133} Thus, the savings that would result from this provision would include only the increment of savings for plans that do not now participate. CAQH has estimated that full implementation throughout the nation would save \$3.0 billion once fully implemented.

A study supported by the California HealthCare Foundation found that by moving from labor-intensive patient coverage verification methods such as using the Internet, fax, and phone to automated HIPAA transactions by providers and health plans could also achieve significant labor savings.¹³⁴ The study showed that average labor costs per phone call are \$1.38 compared to little or no cost for an automated transaction.

3. Estimated Impact of the PPACA Administrative Simplification Provisions

It is difficult to anticipate the effects of these administrative provisions due to the complexity of the transactions involved. For example, as discussed above, the authorizations process and claims filing account for 35.9 percent and 41.2 percent of physician BIR costs respectively. Shifting that process away from in-person communications to electronic transfers of information could potentially reduce these costs substantially. Potentially affected transactions include:

- Claims filing;
- Eligibility verification;
- Referrals;
- Prior authorization of services;
- Payment and remittance; and
- Claims status inquiries.

There is growing evidence that administrative simplification can reduce cost for providers and payers. For example, a recent study published in *Health Affairs* showed that adopting a uniform set of rules, forms and procedures across payers could result in savings of up to \$7.0 billion per year for physicians alone.¹³⁵ Physician time devoted to BIR would be reduced by 4 hours per week.

The key to savings from simplification of transactions is to reduce the number of transactions performed by staff over the telephone. Labor costs can be greatly reduced if the use of staff time for these purposes is replaced with an automated inquiry to an up-to-date data base.

However, it is unclear what share of transactions could be automated in this way. For example, the system would need to provide up-to-date information on sources of coverage in real time for the system to fully eliminate the need for phone-based confirmation of eligibility. It will also require up-to-date claims data at all times to be able to process eligibility under complex coverage rules limiting the amount scope and duration of covered services. This is particularly true in administering annual and lifetime limits on benefits.

It is doubtful that the process of pre-certification of coverage for services can be fully automated in this way due to its clinical component. The decision to cover specific services is often based upon evidence-based studies of the effectiveness of health procedures under certain circumstances. This process requires detailed medical data for individual patients not generally reported in claims data, requiring a manual intervention (i.e., telephone inquiry). This problem may be further simplified by provisions in the PPACA establishing a minimum essential benefits package and eliminating annual and lifetime limits on the amount of benefits covered, particularly in high-cost cases where individual procedures and services can be quite costly.

A Milliman study estimated that the manual cost per eligibility verification transaction was \$3.70 compared to only \$0.74 per electronic transaction.¹³⁶ Thus, moving to an automated process for performing eligibility and benefit verification functions could save a typical

physician's office about \$2.95 per transaction. They also estimated that the average solo physician's office performs about 1,250 eligibility verification per year, which they estimate could result in potential annual savings of \$3,700 for eligibility verification alone.

We estimated the effects of this provision on providers and health insurers based on the cost of performing transactions manually compared to the costs of using an automated system. We used data from the Milliman study on costs per transaction and the number of transactions for six types of transactions including claims filing, eligibility verification, referrals, prior authorizations, payment and remittance, and claims status inquiries. We first specified assumptions on the percentage of these transactions already performed electronically including:

- We assumed that 75 percent of all claims are submitted electronically, which we based upon data provided by Americas Health Insurance Plans (AHIP);
- We also assumed that 75 percent of payments by insurers are performed electronically;
- We assumed that only about ten percent of all other transactions will be performed electronically. This is based upon data published by the CMS showing that only about 10 percent of all providers have implemented a system that performs all of these steps electronically; and¹³⁷
- We also assume that about half of all inquiries would have been performed electronically without the health reform bill using systems similar to CORE by 2019.¹³⁸

We then specified assumptions on the effect of the administrative simplification provisions of the PPACA on the percentage of these functions that would be performed electronically. We assumed that the percentage of claims submitted electronically would increase to 90 percent. We assumed that only 25 percent of prior authorizations would be made electronically, reflecting the complexity of the information required to implement this function. We assumed that the percentage of referrals handled electronically would reach 65 percent. As shown in *Figure 58*, we estimate that savings would equal about \$11,700 per physician if fully implemented in 2011.

These provisions will also reduce administrative expenses for hospitals and insurers. Due to a lack of detailed data for hospital and insurer administrative practices, we assumed that savings would be in proportion to our estimated savings for physicians for those administrative BIR line-items that would be affected.

Figure 58
Estimation of Savings from PPACA Administrative Simplification Provisions for a Solo Practitioner Practice

	Cost per Transaction		Number of Transactions	Percent Electronic		Costs under current Law	Costs under PPACA	Savings under PPACA
	Manual	Electronic		Current Law	Full Implementation			
Claims Submission	\$6.63	\$2.90	6,200	75%	90%	\$23,762	\$20,293	\$3,469
Eligibility Verification	\$3.70	\$0.74	1,250	10%	75%	\$4,255	\$1,850	\$2,405
Referrals	\$8.30	\$2.07	1,000	10%	65%	\$7,677	\$4,251	\$3,427
Prior-authorizations	\$10.78	\$2.07	100	10%	25%	\$991	\$860	\$131
Payment and Remittance	\$2.96	\$1.48	4,240	75%	90%	\$7,844	\$6,903	\$941
Claims Status	\$3.70	\$0.37	620	10%	75%	\$2,088	\$746	\$1,342
			13,410			\$46,616	\$34,902	\$11,714

Source: The Lewin Group estimates using transaction cost data supplied by Milliman. See: “Electronic Transaction Savings Opportunities For Physician Practices,” Milliman, Technology and Operations Solutions, January 2006.

We estimate that the administrative simplification provisions of the PPACA will result in savings in New York of about \$10.1 billion over the 2011 through 2020 period (*Figure 59*). These include savings to physicians of \$5.6 billion and savings of \$2.4 billion for Hospitals. Savings to insurers would be \$2.2 billion.

Figure 59
Savings from Standardizing and Automating Patient Eligibility, Coverage, and Cost Sharing Inquiries: 2011-2020 (millions)

	Phase-in of Systems	Savings for Physicians	Savings for Hospitals	Savings to Insurers	Total Savings
2011	0%	\$0	\$0	\$0	\$0
2012	0%	\$0	\$0	\$0	\$0
2013	10%	\$81	\$34	\$31	\$145
2014	30%	\$253	\$106	\$96	\$455
2015	50%	\$441	\$186	\$169	\$795
2016	75%	\$692	\$292	\$266	\$1,250
2017	100%	\$965	\$409	\$372	\$1,746
2018	100%	\$1,010	\$430	\$391	\$1,829
2019	100%	\$1,056	\$451	\$410	\$1,917
2020	100%	\$1,104	\$474	\$431	\$2,008
2011-2015		\$775	\$325	\$296	\$1,396
2011-2020		\$5,603	\$2,382	\$2,166	\$10,145

Source: The Lewin Group Estimates. Numbers may not add to totals due to rounding.

Streamline and Standardize the Growing Demand for the Collection and Reporting of Clinical Information for Quality Measures

Under this option, health plans, private accrediting organizations and government agencies that require reporting of quality data will have standardized reporting requirements. These groups would be required to adhere to common definitions for data elements and standard practices for data collection, submission, and frequency of reporting. Standardized quality measures must be endorsed by the National Quality Forum and adopted by the Hospital Quality Alliance (HQA) or Ambulatory Quality Alliance (AQA).

1. Background

Hospitals are active participants in a number of initiatives to improve patient care, reduce mortality and readmissions, identify and control infections, and coordinate care for patients with chronic conditions. However, intertwined with those quality improvement efforts is an ever-increasing burden to collect, analyze and submit vast amounts of patient care data associated with quality and patient safety and/or pay for performance methodologies. These requirements involve varied data definitions and formats reported to numerous organizations at multiple levels and on a variety of timetables and frequencies.

A recent study estimated that hospitals spent about \$334 million collecting data, transmitting data to the hospital's vendor, aggregating the data, calculating results and validating the data for the 21 HQA-approved quality measures required by CMS and Joint Commission on Accreditation of Healthcare Organizations' (JCAHO) in 2006.¹³⁹ The study reported that hospitals perform much of the data collection electronically, but 69 percent of the data is gathered manually through medical chart review at a very high cost, even though most hospitals in the study's sample had EMR systems.

An estimate based on a sample of CareScience customers shows that it takes between 50 and 90 monthly hours to collect data for the JCAHO's Core Measures for AMI, heart failure and pneumonia. It took approximately 23 hours per month to analyze the data. The cost associated with extracting, entering, submitting and analyzing these data for the same three measures reached \$77,000 to \$100,000 annually per hospital.¹⁴⁰ Hospitals respond to multiple quality reporting programs in addition to those required by CMS and JCAHO.

A study published in *Health Affairs* examined hospital quality reporting initiatives at thirty-six hospitals and found that all reported to CMS and JCAHO based on Hospital Compare and Quality Check due to linkages to payment and JCAHO accreditation.¹⁴¹ However, respondents at every hospital also reported participating in additional programs-- a mean of 3.3 (range of 1-7), and 38 separate programs in all. These 38 separate programs varied in clinical focus and reporting requirements.

The study found, through interviews with quality officers, that the burden of collecting and reporting quality data did increase costs. However, at many hospitals, management diverted staff from other tasks or simply gave existing staff more responsibility. Quality officers noted that staffing burdens increase with the number of programs that the hospital participates in, even for the same conditions, because report formatting requirements may be different. Thus,

quality reporting programs could reduce the reporting burden on hospitals by better coordination of targeted conditions and standardized reporting requirements.

The cost of collecting and reporting hospital quality data is likely to increase in the future as additional quality measures are added, since the current set of HQA-approved measures represents only about 16 percent of the inpatient data. However, a Booz Allen Hamilton interview of stakeholders indicated that the measurement industry is moving toward increased use of efficiency and outcomes measures that utilize claims data, which will reduce the cost of data collection per future measure. Stakeholders also indicated that the increasing adoption and sophistication of EMR systems will also result in reducing the future cost of hospital quality data collection and reporting for current and future clinical measures.

2. Estimates

We estimated the savings to hospitals of requiring standardized reporting of quality measures for all organizations and limiting reporting to only HQA-approved measures. To estimate these impacts, we first developed an estimate of baseline spending for collecting, transmitting, aggregating, and validating hospital quality data using the following assumptions:

- Hospitals nationally spent about \$334 million collecting, transmitting, aggregating and validating the data for the 21 Hospital Quality Alliance (HQA)-approved quality measures required by CMS and JCAHO in 2006. We assume costs in New York will be \$27.6 million, which is based on the assumption that costs in New York will be in proportion to the share of hospital spending in New York ;
- The HQA-approved measures will account for about 20 percent of hospital inpatient care in 2010 and the addition of new measures will increase this percentage to 50 percent by 2019;
- In addition to collecting and reporting quality data to CMS and Joint Commission on Accreditation of Healthcare Organizations' (JCAHO), hospitals also participate in an average of 3.3 additional programs. We assume that the cost of each additional program is half the cost of CMS and JCAHO programs due to overlap of measures and data collection activity; and
- The increasing adoption and sophistication of EMR systems will result in reducing the future cost of hospital quality data collection and reporting, we assume a 10 percent reduction in future cost of producing currently defined measures.

Based on these assumptions, we estimate that hospitals in New York will spend about \$80.6 million on these activities in 2011, \$539 million over the five year period from 2011 to 2015 and \$1.6 billion over ten years (*Figure 60*).¹⁴²

Under this provision, hospitals will only need to collect data for the HQA-approved measures at that time and report the data in a standardized format. This same report then can be used for any other requests without additional data collection or changing the format of the data. This could virtually eliminate the cost we estimated hospitals incur for all other quality reporting initiatives.

However, many hospitals are involved in these additional quality initiatives due to their mission of continuously improving their quality of care and would continue these activities. Also, hospitals did increase staff to perform many of the tasks involved in the quality data collection and reporting functions at an additional cost, but also diverted existing staff from other tasks or simply gave individual staff additional responsibilities. Reducing the data collection and reporting efforts will allow hospitals to alleviate the additional workload put on existing employees. Therefore, we estimate that about one-third of the costs associated with collecting and reporting quality data for other organizations would continue to stay with the hospitals.

Using published studies, we estimate that hospitals in New York will spend about \$1.6 billion over ten years on quality data reporting and analysis, of which 62 percent will be attributed to Hospital Quality Alliance (HQA)-approved measures for CMS and JCAHO.¹⁴³ This option would require that these data be reported in a standardized format and would require other quality reporting efforts accept these data. This would reduce the cost of reporting for non-CMS/JCAHO quality programs by about two thirds, resulting in savings of \$652 million over 10 years.

We estimate that this provision would reduce hospital costs for collecting and reporting quality data by \$224 million over the five year period 2011 to 2015 and \$652 million over ten years.

Figure 60
Savings from Standardizing Requests for Hospital Quality Information in New York: 2011 - 2020
(millions)

Year	Percent of Care Measured	Cost of Collecting and Reporting of HQA-Approved Measures for CMS and JCAHO	Cost of Collecting and Reporting Quality Data for Other Organizations	Total Cost of Collecting and Reporting Quality Data	Estimated Savings
2011	20%	\$30	\$50	\$81	\$33
2012	22%	\$35	\$58	\$93	\$38
2013	25%	\$40	\$66	\$106	\$44
2014	27%	\$46	\$75	\$121	\$50
2015	30%	\$52	\$86	\$138	\$57
2016	33%	\$59	\$98	\$157	\$65
2017	37%	\$67	\$111	\$179	\$74
2018	41%	\$77	\$127	\$203	\$84
2019	45%	\$87	\$144	\$232	\$96
2020	50%	\$99	\$164	\$264	\$109
2011-15	n/a	\$203	\$336	\$539	\$224
2011-20	n/a	\$594	\$980	\$1,573	\$652

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Consolidate Processes for Provider Licensure, Accreditation and Certification

This option would reduce costs by standardizing elements of the process for health care provider licensing, accreditation and certification. For example, states require most health care providers to obtain and periodically renew a license to practice medicine, which is typically conditioned on an examination or proof of education. Providers often seek accreditation or credentialing from the government or professional organizations to establish their qualifications in the field.

Also, health plans typically have their own unique credentialing requirements often requiring providers to apply separately to 15 or more health plans. Physicians must also be accredited by any hospital that they seek to be affiliated with, which to a large degree is shaped by the standards required by payers in a given area. Using a single standardized process for accreditation and licensing nationwide could reduce costs for physicians, hospitals and payers without compromising quality.

1. Background

Health care providers, especially physicians and other allied health care professionals are confronted by a host of requirements for the submission of professional credentialing applications for regulators, private accrediting agencies, health plan networks, and the health care organizations within which they practice. There are three processes, each with overlapping requirements. These include:¹⁴⁴

- **Licensure:** This is a process whereby a government authority grants permission to an individual or organization to provide medical services. Licensure for individuals is typically granted after some form of examination, inspection or proof of education, which may be repeated periodically;
- **Accreditation:** This is a process where a recognized body, typically non-government, determines whether the provider meets established standards. It typically applies to organizations such as hospitals. The accreditation process is based upon a periodic on-site evaluation by a team of peer reviewers. Accreditation can be obtained for a wide range of services including hospitals, home care, long-term care, office based surgery, laboratory services and service-specific care. The cost of the accreditation is paid by the applicant; and
- **Certification:** This is a process where individuals or organizations are evaluated to assess whether the provider meets established criteria. The credentialing body may be a government organization such as CMS or a recognized professional association.

The processes can be repetitive and overlapping. Health plans typically require physicians and hospitals to submit their own unique application to be certified for their services to be covered by the plan. This process is usually repeated every three years. Physicians often apply for certification by 15 or more health plans. These are in addition to hospital accreditation applications and various certifications from professional associations or the CMS.

The MGMA estimates that a typical medical practice of 10 physicians will submit an average of 17.8 applications per year. These include: 13.2 for health plans, 3.7 for hospitals, 0.5 for ambulatory surgery centers; and 0.4 for other entities.¹⁴⁵

Applications differ in terms of the information required, the period of performance and type of service. However, there is a huge overlap in the types of information requested.¹⁴⁶ These certifications and accreditations also overlap with licensure requirements and often require the compilation of information over differing time periods. The use of differing time periods adds significantly to the cost of applying for and maintaining certification with health plans.

Some efforts have been made to standardize and centralize professional credentialing processes. The Council for Affordable Quality Healthcare (CAQH) has developed the Universal Credentialing DataSource[®], an online data base designed to reduce the preparation of paper applications when a professional supplies their information and the organization requiring the information is willing to pay the service for electronic receipt of the information. Seven states and the District of Columbia have adopted the UCD as a standard credentialing form and another 17 states have developed their own standardized credentialing form.

A bill was introduced to the New York State Senate in 2009 (S 3905) that would establish a standardized form to be used for provider certification with health plans and hospitals (The bill was referred to the Health Committee in February 2010). The purpose of the bill is to streamline and simplify the process by which physicians and other health care professionals are credentialed by health plans and hospitals. It would also create a standardized form that primary care physicians would use to refer patients to physician specialists.

The MGMA estimates that a typical practice of 10 physicians spent about \$7,600 per year per practice (\$760 per physician) submitting credentialing applications for practice physicians.¹⁴⁷ The CAQH system is estimated to have saved about \$92 million in credentialing costs for the 735,000 physicians participating in the program. These data imply that physician credentialing costs could be reduced by about 17 percent.¹⁴⁸

Potential savings to health plans have been estimated to be between 30 and 50 percent if the State were to create a centralized automated system for use by all health care providers and health plans, although these savings have not yet been documented.¹⁴⁹ There would be a single automated form submitted by each provider to the contractor who would then verify the information submitted. The system would enable health plans to obtain required information as necessary. However, key to its success would be to assure that providers update their information in the system on a timely basis (changes of address, services provided etc.).

Standardization of an automated system would also result in savings to health plans. Individual health plans currently spend about \$60 to \$70 per physician to perform the credentialing function.¹⁵⁰ Currently, many plans have entire departments devoted to comprehensive fact checking of credentialing applications that include primary data collection, provider outreach and compilation of results.

Most health plans and health networks still do the majority of credentialing in-house, although a growing number of organizations are delegating the credentialing process by contracting with a qualified vendor to assist in the process. However, health plans and health networks are still

responsible for oversight and final approval of providers even when they delegate the task to outside vendors. They are also responsible for continuously monitoring of network physician and provider performance to maintain a high quality physician network.¹⁵¹

2. Estimates

This policy option would standardize the credentialing process by using a single vendor to perform certifications for all health plans and hospitals operating in the state. Based upon the administrative data presented above, we estimate that health plans in New York will spend about \$234 million on provider certification under current law in 2011. Physicians in New York will spend \$94 million on certification while hospitals will spend \$175 million for accreditation and certification. Thus, total spending for accreditation and certification would be about \$500 million in 2011 under current law, including provider and insurer costs. These estimates are based upon:

- Hospital Accreditation and Credentialing costs are based upon data showing that these costs equal about 0.2 percent of hospital revenues (*Figure 57*);
- Physician Credentialing costs are based upon data showing that the cost of performing these functions is equal to 2.5 percent of physician revenues (*Figure 56*); and
- Private Insurer credentialing costs are equal to 0.2 percent of premiums (*Figure 54*).

Based upon the literature review presented above, we assume that provider credentialing costs would be reduced by 17 percent and that health plans would see similar savings. We assume that savings would phase-in over a period of four years.

Using these assumptions, we estimate that the proposal would reduce costs for health care providers and health plans by \$919 million over the 2011 through 2020 period. These include savings of \$172 million for physicians, \$320 million for hospitals and \$427 million for health plans (*Figure 61*).

Figure 61
Savings from Standardizing Credentialing Applications and Require Centralized Verification:
2011 - 2020 (millions)

Year	Certification, Accreditation and Licensure Spending under Current Law				Savings from standardization			
	Physicians	Hospitals	Health Plans	Total	Physicians	Hospitals	Health Plans	total
2011	\$94	\$175	\$234	\$503	\$4	\$7	\$10	\$21
2012	\$97	\$180	\$241	\$518	\$8	\$15	\$20	\$44
2013	\$101	\$187	\$251	\$539	\$13	\$24	\$32	\$69
2014	\$106	\$197	\$263	\$566	\$18	\$33	\$45	\$96
2015	\$111	\$207	\$276	\$594	\$19	\$35	\$47	\$101
2016	\$117	\$217	\$290	\$624	\$20	\$37	\$49	\$106
2017	\$123	\$228	\$305	\$656	\$21	\$39	\$52	\$112
2018	\$129	\$240	\$321	\$690	\$22	\$41	\$55	\$117
2019	\$135	\$252	\$337	\$725	\$23	\$43	\$57	\$123
2020	\$142	\$265	\$354	\$762	\$24	\$45	\$60	\$130
2011-15	\$508	\$946	\$1,265	\$2,720	\$62	\$115	\$154	\$331
2011-20	\$1,154	\$2,149	\$2,873	\$6,176	\$172	\$320	\$427	\$919

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Other Administrative Simplification Options

There are several additional steps that could be taken to reduce BIR administrative costs that we did not model here. These include:

- Increase the timeliness and accuracy of processing claims involving coordination of benefits by establishing common rules under HIPAA;
- Expand the HIPAA transaction standards to require that health plans fully utilize the information codes in the uniform bill;
- Prohibit administrative denials for otherwise-covered and medically-necessary services unless there is a documented pattern of repeated provider abuse;
- Establish HIPAA requirements for the standard information and format for Explanations of Benefits (EOBs);
- Improve HIPAA remittance transaction standards to standardize and better define common terms and timeframes so that providers will have accurate and timely information about the disposition of individual claims and specific adjustments made to plan payments for billed services;
- Modify HIPAA to ensure that claims are paid on a timely basis; and
- Establish a more standardized and equitable process for auditing and resolving claims.

Actionable Steps

For the most part, these administrative simplification steps could be implemented throughout most of the New York health care system by the State legislature. Private plans could be required to participate, including health plans serving Medicare and Medicaid recipients. The legislature could also require use of these systems in the State's fee-for-service Medicaid program. Private plans would have input to the design of the process, but would be required to use the data provided through the system. While the State cannot require self-funded plans to use the system, these plans are likely to voluntarily accept these processes if they can reduce costs while maintaining quality objectives.

The major barrier to implementation will be for the Medicare program. Like all insurers, the Medicare program requires accreditation/certification of providers according to its own rules. The federal government also sets its own standards for quality data reporting and cannot be required to participate in the automated verification processes. It is possible to design the standardized process so that it is, to the extent practical, consistent with federal standards. Therefore we assume that all of the savings estimated above are achievable with State action.

We estimate that the administrative standardization options discussed above would reduce New York State health spending by nearly \$1.6 billion over the 2011 through 2020 period. Of these, \$1.1 billion would be attributed to providers and about \$427 million would go to health plans (*Figure 62*).¹⁵² In *Figure 63*, we present estimated savings by payer group. Savings are allocated to payer groups in proportion to the distribution of affected administrative costs by payer. Savings for people with employer coverage are allocated to households and employers in proportion to the portion of the premium paid by these two groups. These estimates reflect that most of these savings would be for people with private health insurance.

It is important to recognize that provider administrative savings are not savings to consumers unless they are passed back to consumers in the form of lower charges for health services. For example, savings to physicians from a standardized certification process are a windfall savings to the provider unless these savings are somehow negotiated back by payers resulting in lower premiums. In the following table we assume that savings are passed back.

Figure 62
Combined Savings of Administrative Simplification Options in New York State: 2011-2020
(Millions)

	Combined Impact of Administrative Simplification Options			Savings by Sector	
	Standardize Reporting of Quality Data	Standardize and Automate Provider Certification Process	Total Savings	Provider Savings	Payer Savings
2011	\$33	\$21	\$55	\$45	\$10
2012	\$38	\$44	\$82	\$62	\$20
2013	\$44	\$69	\$113	\$81	\$32
2014	\$50	\$96	\$146	\$102	\$45
2015	\$57	\$101	\$158	\$111	\$47
2016	\$65	\$106	\$171	\$122	\$49
2017	\$74	\$112	\$186	\$134	\$52
2018	\$84	\$117	\$202	\$147	\$55
2019	\$96	\$123	\$219	\$162	\$57
2020	\$109	\$130	\$239	\$179	\$60
2011-15	\$224	\$331	\$555	\$401	\$154
2011-20	\$652	\$919	\$1,571	\$1,144	\$427

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Figure 63
Changes in New York Health Spending due to the Administrative Standardization Options by Payer Group: 2011-2020 (millions)

Year	Household Out-of-Pocket and Premiums	Private Employer Savings	Federal Government Savings	State and Local Government Savings	Net Change in New York Health Spending
2012	\$21	\$39	\$9	\$14	\$82
2013	\$28	\$54	\$12	\$19	\$113
2014	\$37	\$70	\$16	\$24	\$146
2015	\$40	\$75	\$17	\$26	\$158
2016	\$43	\$82	\$18	\$28	\$171
2017	\$46	\$89	\$20	\$31	\$186
2018	\$50	\$96	\$22	\$33	\$202
2019	\$55	\$105	\$24	\$36	\$219
2020	\$60	\$114	\$26	\$39	\$239
2011-15	\$139	\$264	\$60	\$92	\$555
2011-20	\$393	\$749	\$170	\$260	\$1,571

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

X. Rebalancing Long Term Care

New York State's Medicaid program plays a fundamental role in providing long-term care in both residential and community-based settings for a large population of beneficiaries with extensive functional and cognitive impairments and behaviorally and medically complicated needs. An estimated 247,000 Medicaid beneficiaries each month receive long-term care services through 12 distinct programs. In 2007, Medicaid spending for this population's long-term care was roughly \$12.3 billion, about one-quarter of all Medicaid spending in the State.¹⁵³ In 2007, 53% of long term care spending is directed towards nursing homes, with the remaining 47% used for community-based services (such as home health, adult day, and TBI waiver services).

Currently, no one organizational unit within New York has responsibility for long term care budgets, policies, or programs. The lack of a single responsible entity contributes to difficulties in viewing long term care as a system of services and supports through which consumers and their families will move as their needs and challenges change with time. It also affects the State's ability to create easy and seamless consumer access to the full range of long term care services and creates issues with overall program monitoring and cost management. To address these issues, we assume that New York can undertake the following steps:

1. Enhance the Aging and Disability Resource Centers (ADRCs) throughout the State to add more pro-active intervention in critical pathways to institutions consistently across the State and create a single point of entry into the State's long term care system.
2. Complete the development of a single, standardized, automated assessment, service plan, and authorization process that could be applied to both nursing home and community residents (allowing for comparisons across groups).
3. Develop data capability and report production to inform day-to-day program management and to provide information for decision makers' long range planning.
4. Develop rate and fee systems for both institutional and community-based long term care services that work, in concert, to promote the overall goals of the State to provide services in the least expensive and most appropriate settings.
5. Institute an aggressive diversion and transition program to avoid institutionalization and assist nursing home residents wishing to return to the community. This approach would include:
 - a. Identifying current and soon-to-be nursing home residents who could be appropriately cared for in a home or community-based setting;
 - b. Reimbursing providers for these kinds of assessments; and
 - c. Diverting a significant portion of nursing home residents into home-based long term care.

A. Assumptions Regarding Actionable Steps

We first developed a "baseline" based upon the status quo of service use for nursing homes and community-based settings in 2000 and 2008 (base year)¹⁵⁴. Alternative modeling scenarios included: 1) using the change in nursing facility use rates experienced in NY from 2000-2008 to

trend forward from 2008; 2) trending forward from 2008 based on nursing facility use rates of another state (Vermont) with a similar nursing facility use rate in 1995 as New York has today¹⁵⁵; and 3) trending forward from 2008 based on the national average trend in nursing facility use rates.

Our savings estimates are based on more conservative approaches to rebalancing long-term care, which are the appropriate next steps for New York. There are more intensive options implemented by Oregon and Washington, which would shift more individuals to home and community-based settings while controlling spending. New York may be ready to take these steps over the long-term, but it is better positioned to first take the rebalancing steps.

Our long term care analysis also estimates potential savings based on use and spending projections for Medicaid (assuming there are no changes to the system compared to the mix of services expected under a reformed system). The projections account for changes in population, changes in potential need, and changes in the mix of services, and implementation costs.

1. Population

Population projections by age for New York City were obtained from New York City’s government census¹⁵⁶, and the projections for New York State are from the Census bureau.¹⁵⁷ Population projections by age group and by county were only available for years 2015 and 2020.

2. Disability

Changes in the rates of disability will influence the number of individuals needing long term care services. Analysis of recent historical experience indicates an increase in the age-adjusted disability rates among those under age 65 and declines in age-adjusted disability rates among individuals age 65 and over. The model uses the default assumption that the disability rate for individuals younger than 65 will grow 1.6 percent per year between 2010 and 2015. This assumption is based on those used by the Social Security Administration for the increase in the percentage of workers receiving Disability Insurance benefits¹⁵⁸ (*Figure 64*). We applied this trend to the disability rates for all individuals under age 65, including children, because projections for individuals younger than age 18 are not available.

For people age 65 and older, the model assumes an annual decline in the disability rate in the community of 0.8 percent from 2010 to 2020 based on an analysis of non-institutionalized individuals from the 1999 National Long Term Care Survey (NLTCs).¹⁵⁹

Figure 64
Assumptions for Change in Disability Rates

Age	2008-2020
0-64	1.6%
65+	-0.8%

Source: The Lewin Group estimates.

3. Nursing Home Use Rate

As the population of older adults grows, the increase in the number of older adults in nursing homes has not kept pace with the population growth, resulting in declines in age-specific nursing home use rates.¹⁶⁰ New York, with a relatively flat use rate, has lagged behind the rest of the country in the decline of nursing home use. We use alternative nursing home use rate assumptions to simulate the impact of instituting an aggressive diversion and transition program to avoid institutionalization by changing the use rate of nursing home use by each age group.

For the modeling scenarios, we adjusted the rate of change in the nursing home use rate so that in twenty years, New York will have the same percentage decline in the ratio of nursing home user per/1000 65+ population as Vermont had for 1995 to 2005, or the same decline as the national average from 1995 to 2005, while assuming there is no change in bed supply. We used Vermont because when they began an active program to shift the proportion of Medicaid participants and spending from nursing facilities to home and community-based services starting in the later half of the 1990s, their nursing home use rate looked similar to New York's current use rate. We also modeled a less aggressive scenario based on the change in the national average (*Figure 65*).

Figure 65
New York, Vermont and National Historical Trends in Medicaid Nursing Facility Residents per 1,000 65+ Population

Year	New York	Vermont	United States
1995	32.9	33.4	30.2
2005	32.6	25.7	25.7
Percentage change 1995 -2005	-1.0%	-23%	-15%
Annualized Rate of Change	-0.01%	-2.6%	-1.6%

Source: Mick Cowles Nursing Home Yearbook and Lewin calculation using Census data

Figure 66 presents the resulting Medicaid NF residents per 1000 65+ population for base year (2008) as well as 2020 under two different modeling scenarios. Scenario 1 is to assume New York State have the same percentage decline in the ratio of NF residents per 1000 65+ population as Vermont had from 1995 to 2005 -23 percent. Scenario 2 is to assume New York State have the same percentage decline in the ratio of NF residents per 1000 65+ population as the national average had from 1995 to 2005 -15 percent.

Figure 66
Percentage Change in Ratio of Medicaid Nursing Facility Residents per 1,000 65+ Population for year 2020 under Two Alternative Scenario

	Ratio of Medicaid NF per 1,000 65+ Population, 2008
Year	New York State
2008 (base year)	32.6
Assumption 1:	Ratio of NF per 1000 65+ Under Alternative Scenarios
New York Ratio in 2020, assuming the same percentage change as Vermont had from 1995 to 2005	25.1
Percentage change 2008-2020	23%
Annualized Rate of Change in Use Rate to Project Forward	-2.6%
Assumption 2:	
New York Ratio in 2020, assuming percentage change as national average had from 1995 to 2005	27.7
Percentage change 2008-2020	-15%
Annualized Rate of Change in Use Rate to Project Forward	-1.6%

Source: The Lewin Group estimates of 2008 New York Medicaid claims.

4. Distribution of Nursing Home Residents Diverted to the Community

The models also estimate the impact of an action plan to assist nursing home residents returning to the community. *Figure 67* lists the distribution assumptions of diverted nursing home residents to home and community-based services (HCBS). The default assumption is based on age-specific distribution among HCBS in 2008.

Figure 67
Default Assumptions on Distribution of Home and Community-Based Services from Nursing Homes

	Programs that Require Nursing Home Level of Care				Programs that Do Not Require Nursing Home Level of Care	
	Personal Care	Long Term Home Health Care	Assisted Living	Nursing Home Transition Waiver	Adult Day Care	Home Health Care
0-17	91%	0%	0%	0%	9%	0%
18-65	0%	18%	7%	0%	74%	0%
66+	54%	18%	2%	0%	7%	19%

Source: The Lewin Group estimates of 2008 New York Medicaid claims.

Note: The weighted total rounds to 0 percent for Personal Care, Long Term Home Health Care and Home Health Care. For age 65 under, use distribution of among the programs that had increase in enrollment between 2000 to 2008, and 66+ distribution is based on current program use.

5. Medicaid Payment Assumption for Institution Services as well as Community-based Services

Figure 68 lists the Medicaid payment per user for each of the institution and community-based service programs. The baseline Medicaid payment rate is based on the average rate in 2008. For people diverted to the community from nursing homes, we assume a higher payment rate to account for their greater needs that require higher levels of support relative to the average current community-based participant. Based on acuity data from Wisconsin¹⁶¹, we assume diverted nursing home residents spend 20 percent more than the annual average for their community-residing counterparts due to a higher level of acuity.

Figure 68
Assumptions of Medicaid Payments for Institutional and Community-based Services

	New York State	
	Historical Payment per User by Program (2008 Dollars)	Payment for Nursing Facility Diverted People who Need Higher Intensity of Care (2008 Dollars)
Skilled Nursing Facility	\$ 92,985	N.A.
Personal Care	\$ 42,902	\$51,482
Long Term Home Health Care	\$ 41,024	\$49,229
Assisted Living	\$ 28,087	\$33,704
Adult Day Care	\$ 48,044	\$57,653
Home Health Care	\$ 62,632	\$75,158
Nursing Home Transition Waiver	\$ 25,400	\$30,480

Source: The Lewin Group estimates of 2008 New York Medicaid claims.

6. Administrative Cost to Carry Out the Action Plans

The model also accounted for administrative costs to carry out the suggested action plan including enhancing the ADRC throughout the State, developing a standardized assessment tool, and developing and producing reports to assist decision making. Consistent with the budget data submitted by ADRCs across the country, we assume it costs \$4 per person in the State in 2008, increasing with inflation to cover all of the overhead and implementation expenses of the single entry point and regular data reporting. We did not deduct the cost of developing an assessment tool because the State has nearly completed this activity.

7. Inflation

The model used excess Medicaid cost inflation growth¹⁶² in addition to consumer price index¹⁶³ to convert 2008 dollars to nominal future dollars for years 2015 and 2020.

B. Measuring Savings

Moving nursing home residents to the community, establishing a single-entry point into the long-term care system and developing a standardized assessment process for both institutional and community-based residents could reduce overall spending on long term care services.

We estimate that if New York State can modernize its long term care system by taking the recommended actions, the State will recognize significant financial savings. As depicted in *Figure 69*, under the two scenarios, New York State will save in a range of \$0.3 billion to \$1.02 billion over the ten-year period from 2011 to 2020. *Figure 70* shows the estimated number of long term care users by setting under the baseline and both alternative assumptions.

Figure 69
Projected Savings Under Assumed Scenarios (2011 - 2020), in millions

	Baseline LTC Cost, excluding admin cost	Admin Cost to carry out LTC reform	Assumption - Vermont		Assumption - National Avg.	
			Baseline LTC Cost	Savings (net of reform implementation cost)	Baseline LTC Cost	Savings (net of reform implementation cost)
2011	\$14,190	\$92	\$14,091	\$7	\$14,123	\$24
2012	\$14,299	\$94	\$14,168	\$38	\$14,210	\$4
2013	\$14,409	\$95	\$14,244	\$70	\$14,298	\$16
2014	\$14,520	\$97	\$14,321	\$102	\$14,386	\$37
2015	\$14,632	\$99	\$14,398	\$134	\$14,474	\$58
2016	\$14,768	\$101	\$14,533	\$134	\$14,613	\$54
2017	\$14,905	\$103	\$14,668	\$134	\$14,753	\$49
2018	\$15,044	\$105	\$14,805	\$134	\$14,895	\$45
2019	\$15,184	\$106	\$14,943	\$134	\$15,037	\$40
2020	\$15,325	\$108	\$15,083	\$134	\$15,182	\$35
Total (2011-2020)	\$147,277	\$1,000	\$145,255	\$1,021	\$145,971	\$305

Source: The Lewin Group estimates of long term care service use and cost savings under two different assumptions for New York State. The baseline LTC cost information is from The Lewin Group's estimates of 2008 New York Medicaid claims.

Figure 70
Historical and Projected Number of Long Term Care Users

	Baseline				Assumptions- Vermont		Assumptions - National Average	
	2000	2008	2015	2020	2015	2020	2015	2020
Nursing Facility (Medicaid)	88,468	78,864	81,394	88,590	76,980	83,857	78,559	86,070
HCBS Programs	116,122	138,346	149,163	149,896	153,035	153,926	151,456	151,713
Personal Care	53,609	68,734	75,711	75,273	77,381	76,825	76,702	75,874
Long Term Home Health Care	21,125	22,630	24,482	25,039	25,128	25,579	24,862	25,243
Assisted Living	2,288	3,591	2,465	2,279	2,879	2,949	2,724	2,699
Adult Day Care	7,696	11,092	11,992	12,229	12,389	12,840	12,215	12,548
Home Health Care	31,404	32,277	34,488	35,053	35,186	35,628	34,899	35,273
Nursing Home Transition Waiver	n/a	22	25	23	72	105	55	76
Total Medicaid LTC Users, New York State	204,590	217,210	230,558	238,486	230,015	237,783	230,015	237,783

Source: The Lewin Group estimates based on 2008 New York Medicaid claims. Numbers may not add to totals due to rounding.

Our savings model accounted for administrative costs to carry out the suggested action plan including enhancing the ADRCs throughout the State, developing a standardized assessment tool, and developing and producing reports to assist decision making. Consistent with the budget data submitted by ADRCs across the country, we assume \$4 per person to operate ADRCs statewide in 2008, increasing with inflation to cover all of the overhead and implementation expenses of the single entry point and regular data reporting. We did not deduct the cost of developing an assessment tool because the State has nearly completed this activity. ADRCs comprise a collaborative effort between the Administration on Aging and CMS to streamline access to long term care services. With their latest ADRC grant, New York plans to strengthen the promotion of NY Connects and optimize choice through the availability of individualized options counseling.

The outlined recommendations constitute the next logical steps for New York State and the State has already begun to implement several of them. For example, New York State adopted ADRCs and recently launched a single standardized automation system. New York State has also implemented a small nursing home diversion program. Our savings estimates are based on more conservative approaches to rebalancing long-term care. There are more intensive options implemented by Oregon and Washington, which would shift more individuals to home and community-based settings while controlling spending. New York may be ready to take these steps over the long-term, but it is better positioned to first take the rebalancing steps.

To accrue the savings estimated under the scenarios, New York needs to craft a strategic agenda to overcome the systematic barriers related to inadequate information collected at points of entry, payment methodology, effective care management, and affordable housing. We recommend that the State develop an information infrastructure to support real time analysis and decision making, as well as a fee system that encourages services provided to individuals in the least expensive and most appropriate settings. Additionally, to make these changes sustainable, the State should also focus on community resource issues, especially affordable housing, to enable people to use more in-home community-based services and to relieve the barriers to the expansion of Medicaid reimbursed assisted living.

In this policy option, we examined the potential impact that the increased use of alternative care delivery models would have on the State's health care costs. These models include options for using alternative, less costly systems for the delivery of care. Many of the services provided in physician offices, urgent care centers or hospital emergency rooms can be provided at a lower cost in retail clinics or workplace clinics. These providers provide care for less acute conditions in less intensive settings at a lower price compared to traditional settings.

The intent of this policy option is to promote the growth of retail health clinics throughout the state and to encourage patients to use retail clinics for low acuity conditions instead of traditional setting. Retail clinics have been shown to be a lower cost alternative to doctor's offices, urgent care centers, and emergency rooms. Thus, shifting more care to these settings could help reduce health care costs across the state.

A. Background

The number of retail clinics operating in the United States has grown from 200 in 2006 to about 1,100 by the end of 2008. However, few retail clinics (seven CVS Minute Clinics and five Duane Reade clinics) operate in New York State even though nurse practitioners and advanced nurse practitioners, which primarily staff retail clinics, have the ability to prescribe medications independently of physicians.¹⁶⁴

Nationally, the number of clinics declined in 2009 due primarily to the economic downturn and many close during summer months because the conditions they treat, such as influenza, tend to be seasonal. However, many are expanding their scope of services to include preventive, screening and lab services to maintain year-round operations. Industry forecasts project retail clinic sites to grow steadily over the next five years to about 3,200 sites by 2014.¹⁶⁵ Thus, there are industry plans to continue to grow the number of retail clinics in operation.

Retail clinics have certain attributes that make them attractive to consumers, including convenience (most offer evening and weekend hours and appointments are not necessary), easy access, quick service, lower cost and transparent pricing (most post a list of services with prices). Most retail clinics are located in retail pharmacies, which allow patients to get medications quickly after their visit.¹⁶⁶

Studies have shown that costs of care for episodes initiated at retail clinics were substantially lower than those of matched episodes initiated at physician offices, urgent care centers, and emergency departments. One study showed that episodes initiated at retail clinics were \$110 compared to \$166 for physician offices, \$156 for urgent care centers and \$570 for emergency departments.¹⁶⁷ The authors of another study found similar price differences between retail clinics compared to urgent care settings, physician offices, and emergency department.¹⁶⁸

Based on review of the literature, we identified nine conditions that are commonly treated in retail clinics. These conditions include the following:

- Sinusitis (ICD9-CM codes 461.xx)

- Outer upper respiratory infections (ICD9-CM codes 460.xx-466.xx)
- Immunizations
- Inner ear infections (ICD9-CM codes 386.1x)
- Swimmer's ear (ICD9-CM codes 380.xx)
- Conjunctivitis (ICD9-CM codes 372.xx)
- Urinary tract infections (ICD9-CM codes 599.xx)

B. Estimating Volume of Low Acuity Visits in New York

We estimated the number of visits for the specific conditions listed above for New York Medicaid beneficiaries including managed care enrollees using Medicaid fee-for-service and encounter claims for calendar year 2008. We identified 1.9 million immunizations and 576,000 low-acuity visits in 2008.

We estimated the number of visits for the specific conditions listed above for New York Medicare beneficiaries using the Medicare 5-percent Standard Analytic File for 2007. These data include all Medicare fee-for-service claims for a 5-percent sample of Medicare beneficiaries in the State. We identified 51,136 visits from a sample of 140,217 Medicare fee-for-service beneficiaries. We then extrapolated the number of visits to the total number of Medicare beneficiaries in the State of 2.6 million.

For New York residents with other types of coverage, we estimated the number of visits based on United Healthcare claims data for calendar year 2008 for members residing in New York State. These data included claims for about 1.5 million members in the State. We computed the average number of visits per member for the specific conditions listed above by the member's age and gender and by place of service. To estimate total services, we multiplied the visits per member by the total population (estimated for 2010) in the State within the same age and gender groups. For uninsured people, we assumed that they use about one-third less care than insured people with the same characteristics.

Based on these data, we expect that about 6.5 million immunization visits and 8.8 million minor condition visits will occur for New York State residents in 2010 without any changes in current patterns. *Figure 71* presents our estimate of the number of retail clinic eligible services for New York residents by primary source of coverage and place of service. Most of these services were provided to people with employer sponsored insurance or Medicaid/CHIP. Also, the vast majority of services were performed in physician offices while relatively few were performed in emergency departments. *Figure 71* presents estimates of the expected number of visits in 2010 for the conditions listed above, so that we can make assumptions about how this distribution changes under the policy.

Source of Coverage	Emergency Room	Physician Office	Other ^{a/}	Urgent Care Center	Retail Clinics	Total
Immunizations						
Employer-Sponsored Insurance	4,407	3,714,022	69,084	15,395	7,483	3,810,391
Employer-Retiree	76	12,940	146	123	26	13,311
Non-Group Coverage	280	211,263	4,824	917	426	217,709
CHAMPUS	55	45,463	803	188	92	46,600
Medicaid/CHIP ^{/b}	2,007	1,798,760	0	58,472	0	1,859,239
Medicare	56	110,630	4,923	4,559	231	120,399
Uninsured	535	445,688	10,716	1,867	898	459,704
Total	7,415	6,338,766	90,495	81,522	9,155	6,527,353
Minor Condition Visits						
Employer-Sponsored Insurance	1,739	5,559,650	99,563	141,988	11,430	5,814,369
Employer-Retiree	33	106,557	4,516	2,613	219	113,938
Non-Group Coverage	120	391,906	7,878	10,519	807	411,230
CHAMPUS	30	125,306	13,318	4,550	260	143,464
Medicaid/CHIP ^{/b}	17,285	534,241	0	24,352	0	575,878
Medicare	43,582	575,129	165,709	47,341	1,335	833,096
Uninsured	242	822,887	13,863	23,874	1,697	862,564
Total	63,031	8,115,676	304,848	255,237	15,748	8,754,540
Total Immunizations and Conditions	70,446	14,454,441	395,343	336,759	24,903	15,281,892

a/ Includes inpatient hospital, ASC, skilled nursing facilities, hospice and residential treatment centers.

b/ Based on calendar year 2008 Medicaid claims data from NYS/DOH/OHIP Datamart & NYS eMedNY Metadata Datawarehouse.

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Unfortunately, the claims data did not include information necessary to determine whether services were provided by a retail clinic. Therefore, we had to estimate the volume of these services that are currently provided by retail clinics in New York State using the following assumptions. In 2009, there were 10 retail clinics in operation in New York State for about 19 million people or 0.5 clinics per million people. There are 70 clinics in the state of Minnesota for 4.9 million people or 14.3 clinics per million people. ¹⁶⁹ Thygeson, M. et al (2008) estimated that about six percent of the services they studied were performed in retail clinics based on HealthPartners' claims data for the Minneapolis-St. Paul area. Thus, based on the difference in clinic penetration between Minnesota and New York and the retail clinic market share of HealthPartners' patients Minnesota, we estimate that retail clinics currently account for only 0.2

We assume that the following steps are taken to promote increased utilization of alternative delivery models in New York:

- Incent commercial payers to participate in reimbursement schemes that promote primary care and wellness programs (e.g., using P4P incentives for any health plan with enrolled State employees);
- Retail clinics negotiate acceptable rates with Medicaid MCOs
- Promote training programs for NPs/PAs in New York, thus increasing the supply of alternate provider types;
- Change policies to reduce any statutory and regulatory barriers to entry for alternative providers (including scope of practice regulations for NPs/PAs); and
- Provide tax incentives for large employers to open workplace clinics.

The intent of this policy option is to promote the growth of retail health clinics throughout the State and to encourage patients to use retail clinics for low acuity conditions instead of traditional setting. However, the literature is limited as to how particular policy options or regulations effect the growth of retail clinics. Thus, for illustrative purposes, we assume that these steps increase the penetration of retail clinics in New York to the same levels as seen in Minnesota in order to get an idea of the magnitude of the potential savings. However, the actual impacts of these policy options may be very different.

A study of cost and utilization of retail clinics in the Minnesota's Twin Cities region showed that use of Minute Clinics for certain conditions (sore throat, otitis media, acute sinusitis, conjunctivitis, and urinary tract infection) grew rapidly in this area (the number of episodes per 10,000 members have doubled in two years), but during the three years after their inclusion in the network, Minute Clinics still only accounted for less than six percent of overall episodes of care for these conditions. Thus, we assume that 5.8 percent (6 percent - 0.2 percent) of total volume for selected conditions could be moved to alternative settings.

D. Estimated Effects

Moving the treatment of these minor conditions from physician offices, urgent care centers and emergency departments to retail clinics could reduce overall spending for these services. We based our cost savings estimates on the Mehrotra (2009) study finding described above since they measured cost differences for a complete episode of care compared to the Thygeson et al (2008) study that looked at price differences per visit. This Mehrotra (2009) study was based on episodes for three minor conditions including otitis media, pharyngitis and urinary tract infections which are similar to the list of eligible services included in this study. Although we did not group claims into episodes of care, we included only professional service visit claims as a proxy for episodes and excluded pharmacy and ancillary test claims.

Mehrotra did not estimate the cost difference for immunizations performed at retail clinics compared to other settings. Therefore, we estimated the savings per immunization to be a similar percentage savings as determined for the minor conditions above. We estimated the

departments. So we assumed the same savings for emergency departments as for physicians.

The savings estimates presented in the Mehrotra study were based on payments from a private health plan. The savings identified in the study would be primarily due to the price charged by the retail clinic being less than the prevailing rates paid by insurers to physicians for the same service. However, physician payment rates from Medicare and Medicaid are substantially less than rates paid by private insurers. Nationally, physician payment rates from Medicare are about 81 percent of private insurance payment rates.¹⁷¹ The difference in the price charged by the retail clinic compared to the Medicare payment rate would be less than the difference between the clinic price and private insurance payment resulting in lower savings.

Medicaid physician payment levels in New York appear to be substantially lower than Medicare levels. A recent study estimated that Medicaid fee-for-service physician payment rates for primary care services were only 36 percent of Medicare levels.¹⁷² The Minute Clinics in New York City charge about \$62 for a low-acuity visit and Duane Reade charges about \$95. Based on the 2008 Medicaid claims data, the average fee-for-service payment for a physician office visit for one of the low-acuity conditions was about \$55. Thus, the Medicaid payment rates would be less than the prices charged by the retail clinics, which would result in no savings. Also a review of the Minute Clinic and Duane Reade websites and various press articles indicates that they do not yet accept New York Medicaid patients. In fact only about 60 percent of retail clinics nationally accepted Medicaid patients.¹⁷³

Figure 72 shows the per-episode savings estimated used for the study.

Figure 72
Per-Episode Savings for Retail Clinics Compared to Other Settings by Payer Type

Comparison Setting	Private Insurance	Medicare	Medicaid ^{a/}
Immunizations			
Physician Office	\$18	\$9	--
Urgent Care Center	\$15	\$6	--
Emergency Department	\$18	\$9	--
Minor Conditions			
Physician Office	\$56	\$24	--
Urgent Care Center	\$46	\$16	\$26
Emergency Department	\$460	\$351	\$97

a/ Based on the difference between average Medicaid fee-for-service payments for low-acuity condition visits for emergency departments and hospital outpatient departments and the average price for a retail clinic minor-condition visit.

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

We estimated the volume of services that would be moved from other settings to retail clinics based on the assumption that the above policies increase the penetration of retail clinics in New York to the same levels as seen in Minnesota resulting in 5.8 percent (6 percent - 0.2 percent) of

immunizations and visits for minor conditions would be moved to retail clinics (*Figure 73*) assuming that the policies were fully implemented and reached their full potential impact in 2010. We estimate a cost savings of about \$29.9 million associated with moving these services to lower cost settings.

Figure 73
Estimated Number of Services Moved to Retail Clinics and Total Savings
(assuming full implementation in 2010)

Primary Source of Coverage	Population (thousands) ^{a/}	Services Moved to Retail Clinics (thousands)	Estimated Cost Savings (millions)
Medicare	2,615	55.3	\$2
Employer	9,164	548.5	\$22
Non-group	705	35.7	\$2
CHAMPUS	248	10.2	\$0.5
Medicaid/CHPlus (excl dual eligibles)	3,790	141.2	\$0.2
Uninsured	2,332	75.3	\$3
Retiree	221	7.1	\$0.4
Total	19,075	873.3	\$30

a/ Average monthly coverage by primary source.

Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

Over the 10 year period from 2011 to 2020, we estimate this policy would reduce statewide health spending by \$345.4 million (*Figure 74*). The federal government would realize savings of \$26.9 million from reduced physician spending for Medicare, Medicaid and CHAMPUS. New York State government and local governments would see savings of \$42.9 million due to reduced costs for Medicaid and employee benefit programs. Similarly private employers would see savings of \$136.7 million in reduced benefit costs, which we assume would eventually be passed on to workers in the form of higher wage increases. Households would see savings of \$138.9 million in reduced out of pocket spending and reduced premium costs, including the employee's share of employer premiums.

Figure 74
Estimated Savings from Expanding Retail Clinics by Stakeholder Group
2011-2020 (millions) ^{a/}

Year	Federal Government	State and Local Governments	Private Employers	Households	Total Statewide Health Savings
2011	\$0.6	\$0.9	\$3	\$3	\$8
2012	\$1	\$2	\$6	\$6	\$16
2013	\$2	\$3	\$10	\$10	\$25
2014	\$3	\$4	\$14	\$14	\$35
2015	\$3	\$5	\$15	\$15	\$37
2016	\$3	\$5	\$16	\$16	\$40
2017	\$3	\$5	\$17	\$17	\$42

2019	\$4	\$6	\$19	\$19	\$48
2020	\$4	\$6	\$20	\$20	\$51
2011-2020	\$27	\$43	\$137	\$139	\$345

a/ Assumes full phase in by 2014. Future health spending inflation is based on CMS National Health Expenditure Projections, which is estimated to increase at about 6 percent per year. Source: The Lewin Group estimates. Numbers may not add to totals due to rounding.

E. Discussion

The savings estimates presented in this section are highly dependent on the growth in retail clinics in New York State. The growth in retail clinics in New York is dependent on reimbursement levels from private insurers, Medicare and Medicaid as well as other barriers that may limit the business model for retail clinics. However, the literature is limited as to how particular policy options or regulations effect the growth of retail clinics. Thus, for illustrative purposes, we assume that these steps increase the penetration of retail clinics in New York to the same levels as seen in Minnesota in order to get an idea of the magnitude of the potential savings. However, the actual impacts of these policy options may be very different.

Certain barriers may exist in New York that have prevented the growth of retail clinics compared to other states that have seen very dramatic growth. The higher price for labor, space and capital that clinics would face in New York City relative to other states and the rest of New York State could deter national companies from expanding retail clinics into New York. The relatively low Medicaid reimbursement levels in New York could also deter clinic expansions. However, Medicaid payment levels for primary care services will be improved under the recently-passed federal health care reform bill, which could make expansion in New York City more attractive. Also, the clinic's ability to establish good relationships with the physicians and hospitals in the community is important so that patients who require follow up care who are diagnosed with more serious conditions can receive referrals for the appropriate levels of care. In January 2010, Duane Reade announced plans of adding another 20 clinics over the next year or so, which illustrates the possibility of growth of retail clinics in New York.

These estimates were based on a very limited number of services that are commonly provided by retail clinics. However, there have been recent trends to expand the scope of services provided by retail clinics to include preventive care, laboratory services, wellness programs and chronic disease management services.¹⁷⁴ If retail clinics can expanded their scope of services then the potential for even greater savings exists.

Endnotes

- 1 This definition of spending is termed “health services and supplies.”
- 2 We allocated these capitation payments across service categories based upon service use patters for people with similar characteristics. CMS uses a similar approach to allocate these amounts in their health spending data.
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