Healthcare Reform:
The "Freakonomics[1]" of Medicine

Steven L. Leach, MD
Division of General Internal Medicine

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Biographical Information

Name: Steven L. Leach, MD

Rank: Professor of Internal Medicine

Division: General Internal Medicine

Position: Chief Medical Officer
UT Southwestern University Hospitals

Professorship: Irene Wadel and Robert Atha, Jr. Professorship of Internal Medicine
in Honor of John W. Burnside, MD

Interests: Electronic Health Records, Continuous Quality Improvement, Preventive Medicine

Health care's new leaders must organize doctors into teams; measure their performance not by how much they do but by how their patients fare; deftly apply financial and behavioral incentives; improve processes; and dismantle dysfunctional cultures.

- Thomas H. Lee (2010)

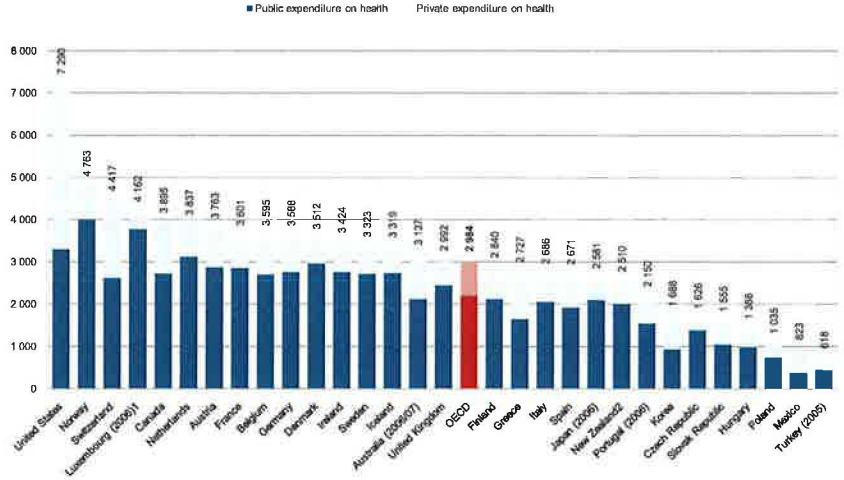
The election of 2008 riveted the attention of America on health care. The Patient Protection and Affordable Care Act (ACA) that followed in March 2010, is sweeping in its scope and breathtakingly ambitious in its implementation agenda.

Healthcare reform focuses on three key elements: access, quality and cost. This paper will not address access or health care financing. Rather, it will focus on the intersection of cost and quality.

Americans pay more per capita and as a percent of GDP than any other country for healthcare. In Internal Medicine Grand Rounds July 30, 2010, Dr. Ugis Gruntmanis cogently outlined factors that impact the cost of care in America.[2]

1. The cost per hospitalization is the highest in the world.
2. Americans pay more for pharmaceuticals than any other country.
3. We have more imaging devices than any other country except Japan and pay more for those services than any other country.
4. Americans pay a higher administrative burden for health care than other countries.
5. Physician salaries are among the highest in the world.

Total Health Care Expenditures, 2007



1. Health expenditure is for the insured population rather than resident population. 2. Current health expenditure.
Source: OECD Health Data 2009.

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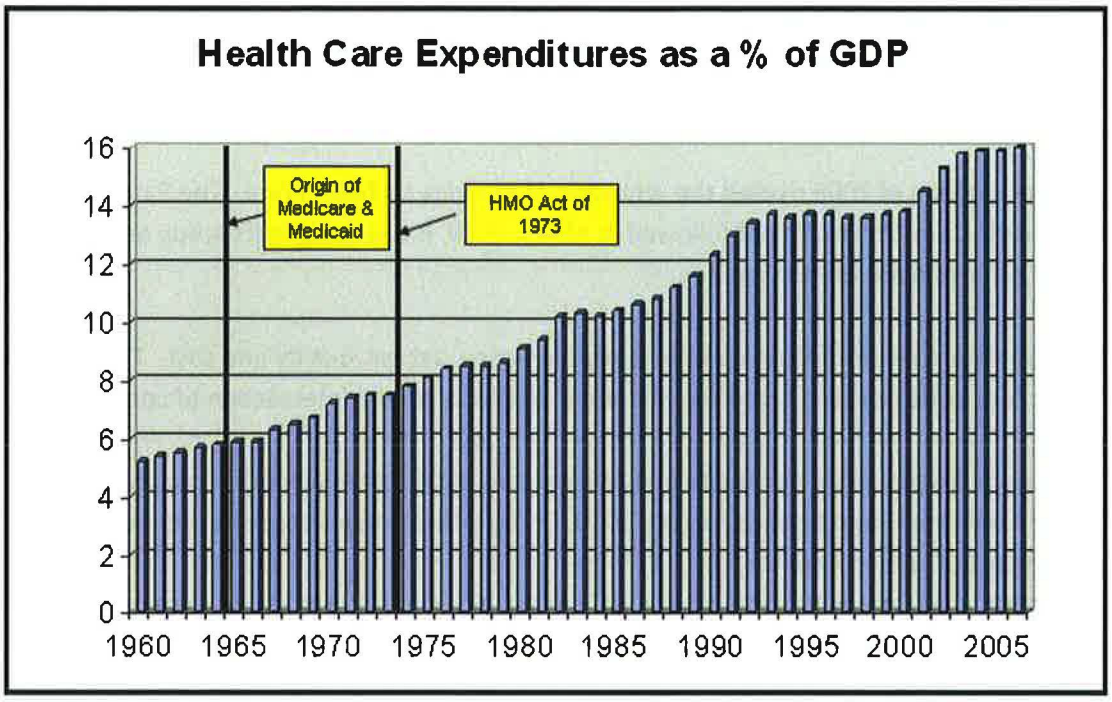

Other factors that contribute to increasing health care costs include the aging of the population, as well as newer, safer and more expensive innovations. In addition, the fee-for-service payment system, which reward frequency and intensity of service, is frequently identified a contributing factor.

Contrary to what one might have expected, he also identified the following:

1. The frequency of hospitalization and the length of stay per hospitalization in the United States, on average, are not disproportionately elevated.
2. Ambulatory visits per capita in the United States are not disproportionately elevated.
3. The costs of health care are relatively independent of the type of health care system, whether nationalized, socialized or private.

The high cost of health care in America has not yielded the anticipated return on investment. The United States ranks 39th in the world in infant mortality, 43rd in adult female mortality, 42nd in adult male mortality and 36th in life expectancy.[3]

The following fundamentals have been repeatedly emphasized in the medical literature.

1. Healthcare costs in the US are increasing at an unsustainable rate. They are increasing at a rate faster than the growth rate of the rest of the economy and faster than any other industrialized nation.
2. There is wide variation in healthcare cost within the US.
3. The quality of care in the US is not correlated with cost.
4. The delivery of healthcare in America is largely uncoordinated.

Controlling Cost

The simplest methods for controlling cost are price controls and capitation. Price controls simply fix the price of a given service. Examples of price controls are contracted pricing, such as one finds in traditional insurance networks with Preferred Provider Organizations (PPO's), or the fixed fee schedule imposed by Medicare and now used as a benchmark price by most insurance carriers. The theory of price controls is simple. If the demand for a service is stable and the price is fixed, costs are easily predicted and controlled. In health care, however, price controls have failed for at least two reasons. First, the demand for services has not remained constant. This can be attributed to (1) an over abundance of available services with pressures to market and maximize the utilization of those services , (2) new innovations which have prompted the creation of new service needs and (3) redefining what constitutes a given "service." As an example, many physicians began to require two visits to provide the same level of care they previously provided in one visit.

In 1973, during the Nixon administration, Congress passed the HMO Act in an effort to contain healthcare costs. The original law was fairly restrictive and it was not until the early 1980's when many of these restrictions were eliminated that HMO's took hold in America. HMO's followed several strategies to contain costs. First, they paid physicians on capitation, thereby placing the provider group at risk for costs and utilization. Second, they negotiated deeply discounted rates with hospitals. Third, they used the tension between physician groups and hospitals to leverage negotiations. Fourth, they imposed strict utilization criteria for referrals and for inpatient care, often denying payments. Fifth, they imposed strict control over medication formularies durable supplies.

Concurrently, Medicare implemented the Inpatient Prospective Payment System. This system replaced the standard per diem hospital rates with Diagnostic Related Groups (DRG's). Under this system, hospitals were paid a fixed amount for a given diagnosis. However, if a patient suffered a complication, the DRG was adjusted to account for the complication, resulting in a relatively higher payment to the hospital.

For a brief period of time, capitation seemed to be working. Beneficiaries flocked to HMO's. But over time, HMO's often became viewed as sacrificing quality for the sake of cost. There was a consumer backlash and HMO's fell into disfavor in many parts of the country.

Controlling Quality

At the same time that the cost of care was skyrocketing, many consumers, businesses and health care agencies began to be concerned about the quality of care as well. However, the availability of data to support the concern was limited. Furthermore, many Americans and most health care professionals remained convinced that they (at least those who were insured) received excellent care.

In 1987, The Joint Commission initiated the Agenda for Change, in which it proposed hundreds of quality measures. Healthcare organizations were allowed to choose among them those that were most aligned with their strategic goals. Unfortunately, this resulted in the inability to compare one organization with another. In 1999, The Joint Commission began an effort to develop standard measures to apply to all acute care hospitals. This resulted in the establishment of the Core Measures for Acute Myocardial Infarction, Congestive Heart Failure and Pneumonia in July of 2002.

Simultaneously, the National Quality Forum (NQF) was founded in 1999. The NQF is a coalition of public and private sector leaders who have endeavored to define quality in measurable terms so that valid assessments of quality can be made.

Frustrated with the inability to attract the attention of health care leaders to the concerns about the quality of care in America, the Institute of Medicine published *To Err Is Human* in September of 1999, highlighting the fact that many Americans die as a result of healthcare delivery.[4] In an effort to attract the attention it deserved, the publication was intentionally directed to the American public, bypassing health professionals. There was an immediate public demand for greater accountability in health care. This effort was dramatically successful in drawing attention to the need for accurate data about quality.

The Institute of Medicine followed *To Err is Human* with the publication of *Crossing the Quality Chasm* in March of 2001, in which it outlined standards by which quality should be measured.[5]

These two publications, along with the establishment of The Joint Commission core measures and the quality measures proposed by NQF and other organizations, were intended to allow consumers to shape the healthcare landscape by providing the information they need to shop for the best care. Unfortunately, much of the public sector gave little heed to those measures. As a result, the public reporting of this data has done little to influence consumers. Even more importantly, it has until recently done little to change the delivery of care.

Aligning Cost and Quality

Recognizing that traditional methods for reimbursement in America were failing to produce the quality of care expected, much of the last decade has focused on realigning financial incentives by rewarding physicians and other health care entities for providing quality care, not just quantity and intensity. Some of these represent incremental steps. Others represent modifications to the entire health care system.[6]

Pay for Performance

For nearly a decade, a simple attempt to align cost and quality has been described as Pay for Performance (P4P). These projects often targeted physician services and provided an incentive if certain quality thresholds were met. Financial incentives were either added to a base pay, or represented pay

that was initially withheld, then received once the thresholds were achieved. These efforts often focused on preventive services, such as vaccination rates, cancer screening, diabetes management and cardiovascular risk reduction. P4P was enthusiastically adopted, but to date has yielded lackluster results.[7]

Patient Centered Medical Home

It has been recognized for some time that effective primary care can have a dramatic impact on health care costs and utilization. Expanding the availability of primary care is a key component of healthcare reform. Expanding the implementation of patient centered or advanced medical homes is a component of the efforts to enhance primary care and improve healthcare delivery. The concept of the medical home originated with American Association of Pediatrics in 1967.[8] Originally, it was used to describe a single source of medical information about a patient. Over time it grew to include a partnership with families in which care was accessible, family-centered, coordinated, comprehensive, continuous, compassionate and culturally effective. Central to the idea of the medical home was primary care. The final building block of the medical home was the elucidation of the chronic care model by Dr. Ed Wagner.[9]

Building on these principles, the American Academy of Family Physicians, the American Academy of Pediatrics, the American Osteopathic Association and the American College of Physicians have agreed upon the following seven core features of a medical home.[8]

1. **Personal physician** —each patient has an ongoing relationship with a personal physician trained to provide first contact, continuous and comprehensive care.
2. **Physician directed medical practice** —the personal physician leads a team of individuals at the practice level who collectively take responsibility for the ongoing care of patients.
3. **Whole person orientation** —the personal physician is responsible for providing for all of the patient's health care needs or taking responsibility or appropriately arranging care with other qualified professionals. This includes care for all stages of life; acute care; chronic care; preventive services; and end of life care.
4. **Care is coordinated and/or integrated**—across all elements of the complex health care system (e.g., subspecialty care, hospitals, home health agencies, nursing homes) and the patient's community (e.g., family, public and private community based services). Care is facilitated by registries, information technology, health information exchange and other means to assure that patients get the indicated care when and where they need and want it in a culturally and linguistically appropriate manner.
5. **Quality and safety**—are hallmarks of the medical home. A medical home must demonstrate the application of evidence-based medicine as well as meet quality and safety standards.
6. **Enhanced access**—to care is available through systems such as open scheduling, expanded hours and new options for communication between patients, their personal physician and practice staff.
7. **Payment**—appropriately recognizes the added value provided to patients who have a patient centered medical home.

Medical homes are a variation of Pay for Performance. The incentive for providing care in this model comes from two sources—an added payment for coordination of care and a bonus for meeting certain performance standards. Rewarding providers for services to patients that have been shown to reduce costs, but which would otherwise go uncompensated, is a simple scheme to align quality and cost.

Physician Quality Reporting Initiative and Physician Compare Website

The 2006 Tax Relief and Health Care Act required the establishment of a physician quality reporting system, including an incentive payment for eligible professionals who satisfactorily report data on quality measures. CMS named this program the Physician Quality Reporting Initiative (PQRI). The program began voluntarily in 2007 with incentive payments of up to 2% of eligible charges for those who participated. The intent was to provide feedback to clinicians about their performance. It was understood from its inception that the plan would eventually be mandatory, with penalties for non-participation.

The program allows for multiple reporting options, including claims-based reporting, registries, group measures and HER-based reporting. For FY 2010, there are 216 possible measures from which to choose.

The ACA placed even greater emphasis on PQRI by requiring the Secretary of Health and Human Services to create a PhysicianCompare for physicians website, similar to the HospitalCompare website currently available to consumers to compare. The website must be in place by January 1, 2011 and must begin to report quality data by January 1, 2013. That data will likely come, at least in part, from PQRI.

The impact of such a site is unclear. As previously noted, publicly-reported data, without financial incentives, was relatively ineffective at improving the quality of care. However, given the current healthcare environment, there is reason to believe that financial incentives will eventually be attached to these performance measures as well.

Non-Payment for Hospital Acquired Conditions and Readmissions

Providing a financial incentive for extended care and improved performance is a nice carrot. There are also sticks. Non-payment for hospital acquired conditions is one of those. In 2002, the National Quality Forum first published its list of Never Events. The list was updated in 2006 and now includes 28 conditions which are viewed as being preventable. Following the lead from certain third party payers, CMS adopted the policy of non-payment for these hospital-acquired conditions, starting in October of 2008. In addition CMS began to require documentation of certain conditions that were present on admission in an effort to more consistently identify hospital-acquired conditions. Considerable interest has been expressed in expanding the list of complications which will not be compensated, including conditions such as central line-associated blood stream infections.

Beginning in 2013, CMS will also begin reducing payments to hospitals for excessive readmission rates. Initially, three conditions will be included—AMI, CHF and CAP. In 2015, COPD, CABG, PTCA and other vascular procedures will be added to the calculation. The calculation of excess readmission is based on an observed to expected (O/E) ratio (effectively the hospital rate/national average). The excess is the O/E ratio – 1. This value is multiplied times the total hospital payment for that specific condition. The excess payment is summed for all three conditions and represents the amount that must be refunded to CMS. This amount is capped at 1% of total CMS payments for 2013, 2% for 2014 and 3% for 2015. Considering that Medicare accounts for such large amounts of hospital payment, these are potentially very large sums. It is also notable that as performance improves nationally, the expected standards will rise, putting an even greater number of dollars at risk for those institutions which fail to improve.

Value Based Purchasing

The concept of value based purchases stems from the business community—those who are often large purchasers of healthcare services—dates back to the early 1990's[10]. Examples include the Leapfrog Group and the National Business Coalition on Health (NBCH). The NBCH, representing over 70 businesses and health coalitions, outlined the idea of value base purchasing as follows:

> Value based purchasing is a demand side strategy, involving the actions of coalitions, employer purchasers, public sector purchasers, health plan payers and individual consumers to reward excellence in health care delivery. Rewards include enhanced reputation and recognition through public reporting, enhanced payment through differential reimbursement, and enhanced market share through purchaser, payer and individual consumer selection. Further, the NBCH states that it is NOT the supply side strategy of continuous quality improvement espoused by the Institute of Medicine in *Crossing the Quality Chasm*.[11]
>
> There are four pillars of value based purchasing:
>
> 1. Standardized performance measures
> 2. Transparency and public reporting
> 3. Payment reform
> 4. Informed choice

With the lesson learned from industry, Congress proposed a plan in 2007 to incorporate value based purchasing into the payment of hospitals. The exact formula that will be implemented by Medicare has not yet been published. However, the model covers three domains: (1) clinical process of care measures, (2) patient satisfaction as measured by Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), and (3) outcomes measures such as 30-day mortality measures.[12]

CMS has proposed two approaches to measure performance—attainment and improvement. The first compares a hospital's performance on a measure within a domain to a set *threshold* and a *benchmark* which must be attained. Points are attributed to each measure in each domain according to the following paradigm.

Measure	Benchmark	Attainment Threshold
Clinical Process of Care	Mean of the Top Decile	50th percentile
HCAHPS	95th percentile	50th percnetile

Hospital Score	Points
> or = benchmark	10
> attainment threshold and < benchmark	1-9 points on a linear scale
= or < attainment threshold	0

The second methodology is the improvement methodology. Under this method, a hospital garners points based on improvement according to the following scale.

Hospital Score	Points
> or = benchmark	10
> previous period score and < benchmark	1-9 points on a linear scale
= or < previous period	0

Points are then summed and scores aligned by percentile.

Data collection will begin in FY 2010. Maximum reduction in payments would be as follows: 1% in FY 2013, 1.25% in FY 2014, 1.5% in FY 2015, 1.75% in FY 2016 and 2% in FY 2017. Hospitals that achieve the 75th percentile nationally will receive full DRG reimbursement. Hospitals below the 25th percentile see a 2% reduction in payment. Those between the 25th and 75th percentiles will risk losing 0.1% to 1.9% on a sliding scale.

Value-based purchasing represents the public demand for better, more affordable care and their determination to use market forces to get it.

Bundled Payments

Like other innovations noted above, bundled payments are not new. Bundled payments have been in place in the solid organ transplant field since the mid 1980's. Bundled payments are a method of reimbursement that distributes a single payment to cover physician, hospital and other costs for an episode of care. The payment to the participants is a pre-determined percent of the total payment. If the costs of the total services rendered are less than the payment, each participant shares in the gain. If the costs exceed expectations, all share the burden. The purpose of bundled payments is to align physicians and hospitals to improve efficiency and to reduce physician incentives for the provision of unnecessary services.

Nationally, Geisinger Health System has achieved notoriety for its version of bundled payments, which it has trademarked ProvenCare®[13]. The basic tenets of their bundling process include:

1. The establishment of consensus-based best practices

2. Redesigning work flows and electronic data systems to ensure the reliable delivery of these best practices
3. The requirement to document the appropriateness of care (e.g., indications)
4. The active engagement of patients and families in their health care experience

The key element of the ProvenCare® model is the commitment to deliver ALL expected best practices for a given condition. As such, it was not conceived as a payment reform effort, but as an intense effort to provide the highest quality of care. As a measure of confidence, Geisinger elected to offer a price guarantee. The episode price was set at a base price for routine care, plus 50% of the average cost of complications in a historical cohort. In essence, there would be a net shared savings to the payer equal to the cost of a 50% reduction in complications. In order to avoid disincentives for providing care to the sickest of patients, physicians were eligible for a 5% bonus for compliance with the bundle, rather than their overall complication rate.

Geisinger has now implemented this methodology with a variety of episode-based interventions, such as CABG, total hip replacement, cataract surgery, PCI, bariatric operations, perinatal care and delivery, low back pain management, CKD and erythropoietin therapy, and lung cancer resection. The bundled price includes preoperative care, inpatient care and a 90-day period of follow up care. It should be noted that Geisinger is unique when compared to most hospital and physician groups in that the principle payer is Geisinger Health Plan. In fact, they have not implemented this methodology with any other payers.

Nationally, others have been successful with bundled payments and third party payers. The most notable has been the Cleveland Clinic, who signed a national contract with Lowe's Corporation to provide CABG. MD Anderson is experimenting with bundled payments for laryngeal carcinoma. Physician practices in California have successfully implemented bundled payments across payer plans and multiple physician groups.

Although the concept of bundled payments is very popular and likely beneficial in many ways, it is extremely complex to administer. It requires not only a close alignment of hospitals and providers, but also a well established relationship with payers.

Prometheus

Similar to bundled payments, the Prometheus Payment model has been proposed as a method to increase alignment of hospitals and physicians by paying episode-based payments. The model was first proposed in 2006 and now has several pilot programs in operation, supported by the Robert Wood Johnson Foundation. The model consists of three components:[14]

1. Evidence-informed base payment
2. Patient-specific severity adjustment
3. Allowance for potentially avoidable complications (PAC's)

In the description of Prometheus, Brantes et. al. provided the following example. A patient is admitted for coronary artery bypass surgery. His course is complicated by difficult to manage glucose, which requires an additional 2 days in the ICU. He is discharged on day 8, but readmitted one week later with an infection in his vein harvest site, requiring debridement and IV antibiotics.

Fee-for-service payment	
Bypass Surgery—Hospital	$47,500
Bypass Surgery—Surgeon	$15,000
Extended hospital stay—Hospital	$12,000
Extended hospital stay—Surgeon	$2,000
Readmission cost	$25,000
Total	$101,500
Prometheus payment	
Severity-adjusted bypass—Hospital	$61,000
Severity-adjusted bypass—Surgeon	$13,000
Severity-adjusted allowance for PAC	$15,300
Total	$89,300

If the readmission had been prevented, the hospital and physician would have effectively received a $12,800 bonus.

An advantage of the Prometheus model is that it does not require that a single integrated organization accept payment for the entire episode of care. It is estimated that this model may be applied to one half to two thirds of health care expenditures.

Accountable Care Organizations and Shared Savings

One of the key provisions of the Affordable Care Act is the encouragement of Accountable Care Organizations (ACO). ACO's are organizations of health care providers that agree to be accountable for the quality, cost and overall care of Medicare beneficiaries who are enrolled in the traditional fee-for-service program who are assigned to the ACO[15,16]. All of the rules regarding ACO's have not yet been established. However, the statute broadly outlines what type of organizations may qualify as an ACO. They include:

1. Physicians and other professionals in group practices
2. Physicians and other professionals in networks of practices
3. Partnerships or joint venture arrangements between hospitals and physicians/professionals
4. Hospitals employing physicians/professionals

Additional requirements include:

1. A formal legal structure to receive and distribute shared savings
2. Having a sufficient number of primary care professionals for the number of beneficiaries (minimum of 5,000 beneficiaries)
3. Agreement to participate for not less than 3 years

4. An appropriate leadership and management structure
5. Defined processes to promote evidence-based medicine, report necessary quality and safety data, and coordinate care

Importantly, beneficiaries who receive care through an ACO are not required to receive all of their care within the organization. They may continue to choose their care providers. With regard to the payment to ACO's, the program is considered a shared savings program. There is no penalty to the ACO if it does not achieve its goals. However, the organization stands to benefit if overall costs can be reduced.

Several other demonstration projects are underway that promote shared savings.[6] This includes the Medicare Physician Group Practice Demonstration project. This project allows integrated groups to earn a bonus for demonstrating slower than expected spending growth relative to peers. Any savings above 2% are shared with CMS, with up to 80% of the amount going to the physicians. There is no quality bonus unless savings are realized. Another version of shared savings is Alabama Medicaid in which primary care physicians are eligible to share in savings accrued from the use of generic medications, reduction in emergency room visits, office visits and an index of actual-versus-expected charges. The efficacy of these projects is yet to be determined. However, their outlines form much of the theoretical basis for ACO's.

Lessons from Grand Junction, Colorado

Much of the interest in ACO's stems from experience in Grand Junction Colorado.[17] In August of 2009, President Barack Obama traveled to Grand Junction to tout the community's healthcare system, as a way of providing low-cost, high quality healthcare. According to data from the Dartmouth Atlas, in 2007 Grand Junction's average per capita Medicare spending was 24% lower than the national average and 60% less than that in Miami, FL. In 2005, Grand Junction had 60% fewer CABG surgeries compared to the national average, 55% as many PCI's and 61% fewer inpatient days during the last 2 years of life. In 2008 and 2009, Mesa County (in which Grand Junction resides) expenditures per Medicare enrollee were 37% lower than the Colorado average.

Although it is impossible to identify all of the factors that may have contributed, several have drawn significant focus. One of the key features was strong leadership by the primary care community. This leadership maintained a deliberate orientation toward the provision of primary care as a means of managing utilization.

The organization implemented a mandatory 15% withhold of reimbursement for physicians in a risk pool. If physicians contained cost, they received the additional 15%. If not, the pool was depleted. In order to promote appropriate utilization, they published utilizations data. Remarkably, high utilization dramatically decreased. Services were regionalized. There was only one tertiary care hospital, one cath lab and one cardiac team.

A key innovation was the decision to avoid penalizing physicians for seeing low paying Medicaid patients. They accomplished this by equalizing fee schedules to those of other payers. They did so by subsidizing low paying encounters with income from higher paying visits. Consequently, patients gained

access to primary care and stopped using high cost emergency resources. In another effort to promote primary care, the practice association agreed to pay primary care physicians for hospital visits, even when they were being managed by hospitalists. Finally, there was a strong presence of end-of-life care, resulting in 40% fewer days in the hospital in the last 6 months of life and 50% fewer in-hospital deaths than average.

Healthcare Innovation Zones

Unlike ACO's that are initially focused on Medicare beneficiaries, Healthcare Innovation Zones (HIZ) are intended to cross payer lines as well as provider entities. HIZ's were conceived by the Association of American Medical Colleges (AAMC).[18] AAMC has argued that "academic medical centers are ideally suited to develop and test new care delivery and payment models."[19] They were formally proposed in legislation with The Healthcare Innovation Zone Pilot Act of 2009 (HR 3664). The Affordable Care Act included a provision for testing the model through the Center for Medicare and Medicaid Innovations.[20] The University of Nebraska Medical Center has already declared its intent to create an HIZ.

HIZ's consist of a geographic area that includes:

1. Physician practice plans with a strong primary care and team-based practice style
2. Teaching and non-teaching hospitals
3. Network of partnering outpatient facilities
4. Post-acute care that includes rehab, nursing facilities and hospice
5. Public health and community services

To date, no HIZ's have been implemented.

Comprehensive Primary Care

One of the most dramatic proposals for health care reform is the Comprehensive Primary Care Payment plan proposed by the Massachusetts Coalition for Primary Care. The model proposes primary care capitation with a performance incentive. The per member per month capitated rate would take into consideration costs of a medical home, including a favorable salary for the primary care physician, salaries for dietitians, midlevel providers, medical assistant, office expenses and an HER. This model is still under development.

Conclusions

The American health care system is on an unsustainable course. Costs are too high and quality is too low. Traditional methods of price controls and capitation have been largely ineffective because they have not been adequately tied to measures of quality. Similarly, public reporting of performance has been ineffective in the absence of being tied to reimbursement.

Incentives drive performance. The American incentive system is based on economic rewards. Physicians and other healthcare entities can and will respond to appropriately placed incentives.

Which of the incentive structures outlined in this paper will be most effective is yet to be determined. It is likely that portions of many of them will persist. The net effect will be for more hospital physician alignment. In fact, it is estimated that about one half of physicians entering the workforce will be employees of a hospital or a hospital-affiliated practice group. Physician and hospital performance will be measured and publicly reported. Reimbursement will be directly or indirectly tied to that performance.

Regardless of the outcome of the recent midterm elections, the principles of health care reform are here to stay. Republican efforts to derail healthcare reform will largely focus on access and healthcare financing. Derailing efforts to reduce costs and improve quality would be political suicide.

End Notes

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