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Eliminating waste in US health care: evaluating accountable care organizations as a model for quality sustainable care

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ELIMINATING WASTE IN US HEALTH CARE: EVALUATING ACCOUNTABLE CARE ORGANIZATIONS AS A MODEL FOR QUALITY SUSTAINABLE CARE

By

LENEÉ MICHELE PLAUCHÉ

B.A., University of Rochester, 2009

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Approved by

First Reader _____

Gwynneth D. Offner, Ph.D.
Director, M.A. Medical Sciences Program
Associate Professor of Medicine

Second Reader _____

Karen Symes, Ph.D.
Assistant Dean of Student Affairs
Associate Professor of Biochemistry

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LENEÉ MICHELE PLAUCHÉ

Boston University School of Medicine, 2013

Major Professor: Gwynneth D. Offner, Ph.D., Director of M.A. Medical Sciences Program, Associate Professor of Medicine

ABSTRACT

In 2011, the United States spent $2.7 trillion in health care expenditures, accounting for 17.9 percent of the Gross Domestic Product (GDP). Health care spending increased by 3.9 percent in 2011 and is expected to surpass 20 percent of GDP by 2020. An investigation of national trends in health spending conducted by the Institute of Medicine (IOM) estimates that approximately 30 percent of US health expenditures—that is, about $750 billion—is wasteful spending. Analysis of spending trends suggests waste in health care falls into one of six categories: (1) failures in care delivery; (2) failures in care coordination; (3) overtreatment; (4) administrative complexity; (5) pricing failures; (6) and fraud and abuse.

A sustainable level of health spending would be one that grows at the same rate as the GDP; this would require cutting health care expenditures by an estimated $2.2 trillion by 2020. Distributing these cuts across the spectrum of wasteful spending by specifically

targeting cost-containment efforts toward those areas of waste, it is possible—albeit challenging—to create a more solvent health care system.

The Patient Protection and Affordable Care Act of 2010 (ACA), landmark legislation of the Obama administration, introduced extensive policy changes and addressed the unsustainable trajectory of Medicare with the debut of the Accountable Care Organization (ACO). The novel ACO design aims to bring hospitals and physician groups into partnerships with the common goal of providing quality, affordable care to a defined population of patients with the introduction of a Shared Savings Program and a triple aim of: (1) improving population health; (2) providing higher quality-care experiences; and (3) moderating per-capita health care cost increases.

The ACO has the potential to address each of the six areas of waste specified by the Institute of Medicine, bringing health care expenditures down to sustainable levels, while also increasing the quality of care and the efficiency of US health care overall. The ACO model is promising, but poses its own challenges as a largely untested health system structure, and will require extensive efforts to refine and perfect the model in order to be a feasible answer to the US health care crisis.

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ABBREVIATIONS

ABIM	American Board of Internal Medicine
ACA	Affordable Care Act [Patient Protection and Affordable Care Act of 2010]
ACO	Accountable Care Organization
AHRQ	Agency for Healthcare Research & Quality
AMA	American Medical Association
BMI	Body Mass Index
CER	Comparative Effectiveness Research
CMS	Center for Medicare and Medicaid Services
DHHS	Department of Health and Human Services
DOJ	Department of Justice
EBM	Evidence Based Medicine
EMTALA	Emergency Medical Treatment and Active Labor Act of 1986
FQHC	Federally Qualified Health Center
FTC	Federal Trade Commission
GDP	Gross Domestic Product
HMO	Health Maintenance Organization
ICESCR	International Covenant on Economical, Social and Cultural Rights
IOM	Institute of Medicine

MSR	Minimum Savings Rate
NIH	National Institutes of Health
NQF	National Quality Forum
PCMH	Patient Centered Medical Home
PCP	Primary Care Provider
PGPD	Physician Group Practice Demonstration
SSP	Shared Savings Program
RHC	Rural Health Center
UDHR	Universal Declaration of Human Rights
UN	United Nations
WHO	World Health Organization

INTRODUCTION

"If we solve our health care spending, practically all of our fiscal problems go away."[1]

--Victor Fuchs
Emeritus professor of economics and
health research and policy, Stanford University

In 2011, the United States spent $2.7 trillion in health care expenditures, accounting for 17.9 percent of the Gross Domestic Product (GDP), nearly twice that of other developed countries[2,3]. Health care spending increased by 3.9 percent in 2011 and is expected to surpass 20 percent of GDP by 2020[3,4]. This rapid growth in spending is not, however, a new challenge. In fact, health care expenditures have been rising an average of 2.0 to 2.3 percent each year since 1950[2]. That health care spending has been an issue facing our nation for such an extensive period of time—and has endured various efforts of reform in the interim—provides a sobering perspective on the enormity of the challenge.

The numbers become even more striking with an evaluation of wasteful spending in health care. An investigation of national trends in health spending conducted by the Institute of Medicine (IOM) estimates that approximately 30 percent of US health expenditures—that is, about $750 billion—is wasteful spending[5]. Analysis of spending trends suggests waste in health care falls into one of six categories: failures in care delivery, failures in care coordination, overtreatment, administrative complexity, pricing failures, and fraud and abuse[4]. The challenge becomes greater still when considering the need to increase access and quality in a health care system struggling to stay afloat at the status quo. To simultaneously expand the reach of our health care system while improving quality and reducing waste, we are in need of revolutionary policy changes.

Congress arguably needs no convincing to prioritize the matter, as significant reductions in health spending would release substantial capital to other areas of national interest, such as defense spending, education, and infrastructure development. But changes in health policy are typically painstakingly slow and they can only go so far. Our complex health care system is one of multiple payers, but also, multiple players. Governing bodies, providers, and patients alike must join together in the effort to create a venue for quality sustainable health care.

The Patient Protection and Affordable Care Act of 2010 (ACA), landmark legislation of the Obama administration, introduced extensive policy changes in an effort to remedy some of the issues in health care access, quality, and spending. A major concern of the ACA was the unsustainable trajectory of Medicare spending and the need to curb costs as the baby boomer generation enters eligibility causing a precipitous rise in the number of Medicare beneficiaries. ACA's proposed solution to this imminent spending crisis is the Accountable Care Organization (ACO). The novel ACO design aims to bring hospitals and physician groups into partnerships with the common goal of providing quality, affordable care to a defined population of patients. The ACO model is well designed to facilitate the dialogue between the three major players: governing bodies, physicians, and patients. It also has the advantage of engaging oft-overlooked ancillary players, such as social workers, physical and occupational therapists, public health professionals, and others with vital roles in the patient experience.

Specific Aims

The trajectory of health care spending is increasing at unsustainable rates and the quality of care is diminishing as physician and hospital budgets are stretched to accommodate greater patient populations and increased administrative burdens. It is the objective of this literature review to evaluate the Accountable Care Organization model, as designed by the Centers of Medicare and Medicaid Services under the Affordable Care Act, as a vehicle for eliminating waste in the United States health care system. The ACO model was designed for the purpose of increasing the cost-efficiency of the Medicare payment system, but is well suited for both public and private sector health care. It has the potential to address each of the six areas of waste specified by the Institute of Medicine: failures in care delivery, failures in care coordination, overtreatment, administrative complexity, pricing failures, and fraud and abuse. This paper will illustrate how attributes of the ACO model will address each major area of waste within the US health care system, bringing health care expenditures down to sustainable levels, while also increasing the quality of care and the efficiency of US health care overall.

BACKGROUND

Economic Impact of Health Care

The rapid increase in the cost of health care has drastic consequences on the US economy; as the percentage of GDP devoted to health care continues to rise, other industries are forced to bear some of the burden. The economic impact of health care has been of interest to researchers at RAND Health, a division of RAND Corp, the largest independent health policy research center in the nation. RAND Health targets much of their research to quality, cost and delivery of health care.

In 2006, when the percentage of GDP dedicated to health care was 16 percent (compared with 17.9 percent in 2011), RAND Health determined that the growth of health expenditures cost the broader US economy an estimated 120,000 jobs, over $28 billion in gross output from goods and services, and approximately $14 billion in value—that is, the net loss in GDP[6]. While RAND Health has not published updated data, it is reasonable to assume these numbers have seen a drastic increase since the economic downturn in 2008 and continued growth in health care spending.

In our capitalist society that values the competitive marketplace, it can be difficult to understand why the health care market does not appear to be self-regulating, as are many industries in the US economy. Victor Fuchs, emeritus professor of economics and health policy at Stanford University, ascribes the distinction between typical goods and services and those of the health care industry as a consequence of the "great uncertainty" and essential nature of health care[7].

The unpredictable and essential nature of health care demands that it not be treated as a traditional commodity; it cannot be compared to other goods and services. Fuchs drives this point home by relating health care to a personal computer. The challenge of reigning in the cost of health care encounters so many obstacles, he says, because developed nations do not deny care based on a patient's ability to pay for services. "The poor who are ill obtain care paid for by others. Personal computers are not viewed the same way; if access to a computer were regarded as essential, computers would be subsidized for poor individuals"[7]. While a commodity's price should its real cost of production and real value to the consumer, the nature of goods and services in the health care market and the asymmetrical value placed on them by buyers (patients) allow for soaring prices in the absence of appropriate legislation to regulate the market[7].

To further illustrate the importance of regulating the health care market, RAND Health emphasizes that increased health care costs "force employers to reduce health benefits, cut employment, and raise prices, which in turn may lead to lower output and profits"[6]. As unemployment rises and the number of insured Americans falls, the consequences will only perpetuate the problem. Uninsured individuals lose access to care resulting in untreated medical conditions, public health risks, and loss of preventative opportunities. The cost of caring for these individuals is then shifted to the taxpayer as government entities pick up the bill through programs like Medicaid, while cost of care increases due to progressed, untreated illnesses.

Waste in Health Care

In order to control the costs of health care, we must first evaluate current spending trends and determine which areas are lacking efficiency or require greater regulation from governing

bodies. The major areas of waste in the US health care system can be broken down into six broad categories: (1) failures in care delivery; (2) failures in care coordination; (3) overtreatment; (4) administrative complexity; (5) pricing failures; and (6) fraud and abuse.

Failures in Care Delivery

Failures in care delivery are estimated to cost the US health care system between $102 billion and $154 billion annually[4]. Actions that fall under this category are related to "poor execution or lack of widespread adoption of known best care processes," and often result in patient injury or poor patient outcome; preventable readmissions are a common result[4]. It has been estimated that preventable hospital readmissions in four US states over the course of a six month period resulted in a cost of $730 million to the US health care system[8]. Missed opportunities to save in this category include patient safety guidelines, guidelines for patient discharge, tools for identifying high-risk patients, improved follow-up procedures, and preventative care.

Failures in Care Coordination

Fragmented care results in $25 billion to $45 billion in wasteful spending each year[4]. Care coordination is useful to everyone in health care, but its benefit is most obvious for patients with multiple diagnoses and chronic conditions—patients whose health status is most vulnerable and whose care ultimately costs the most. Failures in care coordination often result in disease complications, increased dependency, decreased functional status, and substantially diminished quality of life.

A study by the IOM evaluating medication errors, a preventable offense that comes at a great cost, determined that over half of US medication errors occur at interfaces of care, such as during a shift-change or the transfer of a patient between departments, and accounted for over 7,000 deaths annually[9]. Improved coordination between all levels of health care professionals is essential to improving quality and accuracy—and eliminating costly waste—at this level of care.

Overtreatment

The practice of Evidence-Based Medicine (EBM) is the best method for avoiding overtreatment, a common err in medical practice that results in an estimated $158 billion to $226 billion of wasteful spending annually[4]. This waste is often a result of fee-for-service payment systems that encourage a volume-driven system, the practice of "defensive medicine" to avoid medical malpractice liability, and other tainted care processes that result in doing more rather than doing only what is appropriate.

An investigation by RAND Corp evaluated the appropriateness of a subset of clinical procedures using criteria produced from scientific literature and medical experts; it was shown that up to 50% of care delivered was "neither necessary nor appropriate"[5].

Administrative Complexity

Heavy administrative burdens cause waste by inefficient and misguided protocols created by governments and accreditation agencies[4]. This category of wasteful spending costs the US health care system between $107 billion and $389 billion annually[4]. Missed opportunities in this category include the failure to standardize procedures and forms and the creation of "needlessly complex billing procedures"[4].

Pricing Failures

Pricing failures in health care occur due to "the absence of effective transparency and competitive markets"[4]. Lack of regulation in the US health care market has led to rampant inflation, as evidenced by large pricing disparities between identical procedures in the US and international markets. This area accounts for between $84 billion and $178 billion in wasteful spending annually[4].

Fraud and Abuse

Representing between $82 billion and $272 billion in wasteful spending, this category is the result of health care scams, fraudulent billing, and inspection and regulation applied across the spectrum of health care due to the "misbehaviors of a very few"[4].

Wedges of Waste

In its current state, health spending is projected to grow from 17.9 percent of GDP in 2011 to over 20 percent by 2020[4]. In order to bring health care spending to sustainable levels, the rate of growth must be slowed such that it matches the rate of growth of overall GDP. In other words, if health spending and GDP grow at the same rate, the percentage of GDP dedicated to health care would remain constant.

A "Wedges" Model is perhaps the most illustrative schematic to show how the six areas of wasteful spending in US health care can address the issue of unsustainable growth in health spending; scientists Pacala and Socolow developed this schematic in their investigation of fossil fuels and projected levels of atmospheric CO_2 emissions[4,10]. Their model is composed of three important components:

(1) A "ramped" trajectory representing the status quo[10]. In the case of health spending, this trajectory represents current trends and projected growth in spending. Because this is the anticipated course of health spending in the absence of any changes to the culture of US health care, it can otherwise be referred to as the "business as usual" trajectory[4].

(2) A "flat" trajectory representing stabilization or sustainable levels of health spending as a percentage of GDP[10]. For the purpose of this discussion, this line should closely follow the trajectory of GDP[4].

(3) The "stabilization triangle," or the area between the ramped and flat trajectories[10]. This area represents the amount of spending that must be eliminated in order to achieve the flat trajectory. The stabilization triangle can then be divided into "wedges" that represent actions that would reduce spending—in the case of US health spending, these actions include eliminating waste in each of the six specified categories at a rate proportional to their current share of wasteful spending[4].

The "Wedges" model of US health spending follows the methods of Pacala and Socolow; devised by Berwick, the model (Fig. 1) suggests that the stabilization triangle represents $2.2 trillion in potential savings between 2012 and 2020[4]. "Eliminating on average an additional 4% of this waste each year," says Berwick, "reaching a 37% reduction in annual theoretical waste by 2020—would achieve the goal of sustainability over this period"[4].

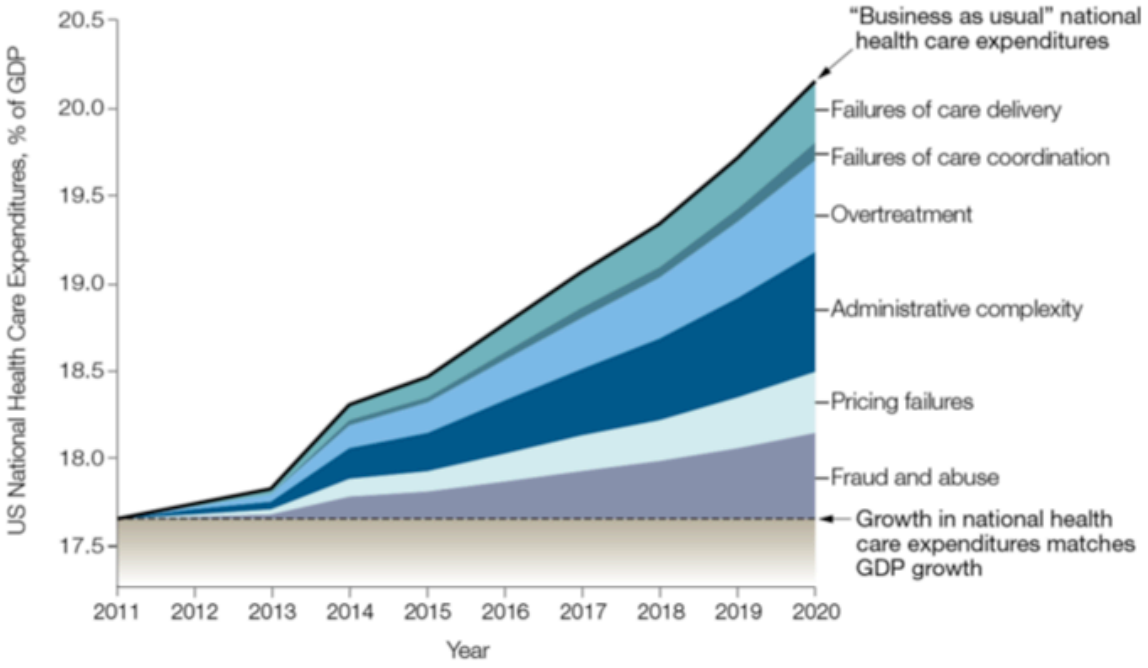

Fig. 1. "Wedges" Model for US Health Care. Following methods of Pacala and Socolow, the "wedges" model illustrates the need for waste elimination in order to achieve a sustainable level of growth in health spending[4,10]. The "business as usual" line indicates the projected increase in health spending as a percentage of GDP. The flat dotted line represents the trend in health spending that would match the rate of growth in GDP bringing health expenditures to sustainable levels. The "stabilization triangle" represented by the region in between these two lines has been divided into six segments for each of the six categories of wasteful spending in US health care. These wedges represent potential savings in health spending that, if eliminated, would help achieve stabilization and sustainable growth. Figure taken from Berwick and Hackbarth, 2012[4].

Barriers to Health Care Financing

The IOM has been spearheading a mission to decrease the overall costs of care in the US by 10 percent in 10 years. In their discussion, they have identified seven distinct trends in US health care that ultimately drive increases in costs. These include: (1) scientific uncertainty; (2) misguided economic and practice incentives; (3) system fragmentation; (4) lack of transparency in cost, quality and outcomes; (5) trends in national health status; (6) lack of patient engagement; and (7) under-investment in public health[11].

Scientific uncertainty stems from great advancements in science and technology that have lead to new pharmaceutical therapies and medical tools at a much faster rate than available evidence supporting their use[11]. In short, while available therapies and treatments abound, much is yet to be learned about these advances and the risks and benefits they present. These new technologies are often costly to develop and see little financial return due to lack of supporting evidence, and therefore have little use (and uncertain value) at the bedside.

Misguided practice incentives include a fee-for-payment system that encourages a volume-driven system and devalues the practice of EBM. A recent policy forum conducted by the American Medical Association (AMA) revealed an interesting finding that many physicians believe weighing costs in the process of making clinical decisions is "antithetical to being a 'good' doctor"—a mentality at odds with the fiscal realities that face our health care system and a cultural behavior that deserves attention from medical educators and professional societies[12]. Medical malpractice liability and its effect on physician behaviors, as discussed further below, also contribute to this barrier to health financing.

The IOM cites system fragmentation as an issue that can be observed "on virtually every dimension—providers, payers, regulators, consumers"[11]. This pervasive disjunction results in inefficient care and increased risks to patients and providers. Lack of communication between providers leads to redundant clinical testing, greater opportunity for medical errors, increased administrative burdens, and diminished patient satisfaction—all of which contribute to increased costs of care[11].

Lack of transparency in health care exerts considerable influence on pricing of goods and services. Providers have little reason to keep prices low, as patients seldom pay mind to the actual costs of services—but who's to blame? Headlining stories such as, "What's the Price? Simple

Question, Complicated Answer," speak volumes of truth to the complexity of our payment system[13]. When reputable websites such as Kaiser Health News have difficulty defining the price of services, how are we to expect patients to follow the dialogue? Providers also lack informative means of comparing the value of their skills and services to others in their professional circles[11]. Thus any potential for competition in health care is lost and pricing systems go unchecked by the forces that would otherwise lead to appreciable self-regulation of the market.

Evolving trends in the national health status have severe implications for the future solvency of the health care system. Currently, 48 percent of Medicare beneficiaries are battling at least three comorbidities requiring complex—and costly—care[11]. As the Medicare-eligible population balloons with the aging baby boomer generation, we can expect rapid growth in Medicare expenditures to follow. Further complicating the issue, current projections estimate 41 percent of the population will be clinically obese by 2015, inevitably contributing to increasing financial strains with rising rates of diabetes, cancer, and heart disease[11].

Lack of patient engagement in health decisions also has consequences contributing to increased costs of care. With up to 40 percent of the population possessing only "basic" health literacy, patients are unlikely to encourage value-based decisions[11]. Further, as societal values translate into medical care, patients often forego opportunities for autonomy in the physician's office, ascribing to the notion that "doctor knows best" and the misguided mindset that more is always better.

Finally, the consequences of health behaviors are increasingly evident as rates of obesity, sexually transmitted illnesses, and cancer continue to rise. Public health initiatives are exceedingly relevant and in desperate need of continued investment. Currently, only 6 percent of

health spending is devoted to population health—a startlingly low figure when weighed against the potential rewards to health outcomes and, ultimately, health expenditures[11].

Barriers to Quality Care

In a historical report issued by the IOM in 1999, *To Err is Human: Building a Safer Health System*, it was shown that there is an overwhelming need for increased patient protections and a measurement system for determining the quality of care. The report revealed some startling figures: at least 44,000 deaths annually are the result of medication errors[14]. These errors are costly, amounting to an estimated $57 billion in annual spending, according to the National Quality Forum (NQF), a non-profit organization with a mission to improve transparency, accountability and quality in health care[15]. The IOM categorizes barriers to quality care in three ways: (1) overuse; (2) underuse; and (3) misuse[16,17].

Overuse, defined as receiving treatment of no value, can be caused by failure of providers to practice evidence-based medicine (EBM) and also by the practice of "defensive medicine" to avoid malpractice litigation. Tenets of evidence-based medicine are now integrated into a vast majority of medical school curricula—promising news that the culture of medical practice will see drastic change as the theories of this methodology continue to infiltrate the medical workforce. Reform of malpractice law will hopefully follow, using EBM as an argument for the use of "best practice" guidelines to protect those physicians victimized for the unintended and unpredictable consequences of honorable decisions. Additionally, it is estimated that 21% of antibiotics are prescribed for conditions for which they are known to be ineffective[16]. This rampant over-prescription of antibiotics has had devastating consequences on quality care leading

to the evolution of antibiotic-resistant strains of many deadly microorganisms and posing a significant challenge to the pharmaceutical industry in search of novel therapies.

The IOM refers to underuse as "failing to receive needed treatment"[16]. Instances of underuse can succinctly be summed up as missed opportunities. This can include failure to immunize children with vaccines of proven efficacy, inadequate or untimely prenatal care resulting in labor or developmental issues, and undetected or untreated hypertension and mental health disorders[16]. This category can also include missed opportunities for public health interventions and preventative care, including screening procedures like mammograms. The IOM estimates that failure to receive known effective treatment for acute myocardial infarction results in up to 18,000 preventable deaths annually[16]. Issues of underuse can be ascribed to a wide variety of causes including providers that decline to follow "best care" processes and patients that are lost to follow-up in a fragmented health care system; these issues are only exacerbated by the large population of underinsured and uninsured individuals that often fail to enter the health care system until all options for effective care have vanished.

Errors and defects in treatment, what the IOM refers to as "misuse," are particularly difficult to confront. The physical, emotional, and financial consequences often incurred by the patient and family members can be devastating, while providers are faced with guilt, diminished confidence in clinical skills, exorbitant legal fees, and threats to their professional licensures, among others[16]. Medical errors persist as a systemic issue in US health care largely because the culture of medicine fails to attribute the blame properly. As Berwick puts it, "Most individuals still believe that the major cause of bad care is bad physicians," when in fact, the majority of medical errors are results of flaws in systems and processes of care[17]. It is indeed self-evident that avoiding errors at the bedside requires substantial efforts from the provider—certainly, individual

efforts to increase patient safety are fundamental to the mission of the medical profession: first, do no harm. But in order to make any true impact on the overwhelming problem, it is imperative to coordinate a concerted effort; the most effective method of achieving this goal is for leadership to take hold of the cause. If patient safety becomes of highest priority to the governing bodies of our health system, producing substantial changes in institutional processes and policies, this value will naturally flow down to providers, resulting in attainable, meaningful, lasting change in bedside practice, and ultimately, in lives saved.

Health Care Reform and Philosophy

The Patient Protection and Affordable Care Act (ACA) was signed into law on March 23, 2010 representing the most significant reform of the United States health care system since President Lyndon Johnson's efforts towards the establishment of Medicare and Medicaid in 1965[18]. Major achievements of the ACA include increased patient protections, such as mandates making it unlawful to deny a patient insurance coverage based on a preexisting condition; increased access to care in both the public and private sector, including the option for dependents to maintain coverage on their parents' insurance plans until the age of 26 years old; the establishment of required quality reports from insurers and providers; the creation of various public health initiatives to promote wellness and prevention; and numerous processes aimed to reduce health spending including the establishment of a Medicare shared savings program (SSP)[19].

ACA is estimated to extend coverage to 30 million uninsured Americans through enrollment in various payment systems, many of which are funded by taxpayer dollars[20]. This has led to heated debate regarding the role of government in health care and which party is ultimately

responsible for the costs of medical care: the government or the individual consumer. With health care spending already increasing at unsustainable rates, many are concerned that the ACA puts our nation in a fragile financial state; at a time when we should be cutting federal expenditures, bringing millions of Americans into a publicly funded payer system could have catastrophic consequences.

Indeed, these concerns are deserving of cautious reflection; a glimpse at health care reform under the Reagan administration tells us why. In 1986, President Reagan signed into law the Emergency Medical Treatment and Active Labor Act (EMTALA). EMTALA was a response from Congress to the great public distrust of the medical system due to such issues as denial of care and preventable deaths caused by inappropriate transfers of unstable patients. The unintended result of EMTALA was the establishment of a "minimum standard: [that] in emergency settings, no person, regardless of his or her ability to pay, will be denied initial evaluation and basic, lifesaving treatment"[21]. This effectively extended the reach of the US health system to every individual, regardless of citizenship or ability to pay, with little regard for who would bear the ultimate financial burden. The aftermath was extensive:

> [A]s an unfunded mandate for provision of emergency care, EMTALA required initial assessment and stabilization of all patients without consideration of insurance coverage. The philosophical strengths of this aspect of the law quickly ran afoul of health care financing realities. Under the new mandate, hospital emergency departments were acknowledged as a key part of the federal safety net, but lack of a fiscal strategy led to an increasing rate of emergency department closures. Burdened by increased cost shifting, private and public insurance systems strained to absorb the costs of unpaid emergency care and subsequent admissions. Hospitals and physicians risked substantial legal and financial penalties for violations of the mandate, with consequences as extreme as revocation of a hospital's Medicare provider agreement. Underinsured and uninsured patients often faced personal bankruptcy trying to pay health care bills. Through EMTALA, Americans have learned that assured access in the emergency department setting does not ensure affordability[21].

The takeaway from this account—that access does not ensure affordability—is of great import if we are to evolve a sustainable health care system for all. But there is another lesson to

be learned from this misguided policy reform and the disheartening anecdotes of those who ultimately paid the price: the disorder of the US health care system is beyond the reach of stopgap measures and surface level policy changes—the culture of the entire medical system, from the fundamental tenets of medical practice to the patient's sense of personal responsibility for their role in the health care system, requires a radical philosophical shift.

Health Care as a Human Right

In 1948, as a response to the abhorrent events in Nazi Germany during World War II, the United Nations (UN) put forth the *Universal Declaration of Human Rights* (UDHR) in order to establish an international standard for human rights "grounded in traditions of moral theory"[22]. Two decades later, this document was followed by a treaty—the International Covenant on Economic, Social and Cultural Rights (ICESCR)—which enumerated various tenets of the UDHR, including articles specifically addressing the natural right to health, stating, "The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health"[23]. The UN later issued a commentary to aid nations in their efforts to implement the standards set forth in the ICESCR, including the human right to health:

> "Health is a fundamental human right indispensable for the exercise of other human rights. Every human being is entitled to the enjoyment of the highest attainable standard of health conducive to living a life in dignity."[22]

Of the 193 United Nations member states, 160 have ratified the ICESCR treaty. It is worth mentioning that, to date, the United States remains one of nine democratic nations that has yet to ratify the ICESCR. As a nation that prides itself in the example it sets to the world, defining

an unrivaled standard of freedom and opportunity, it is surprising that the United States has failed to show adequate support of such a fundamental covenant.

While it is reasonable to say that most Americans are supportive of the natural right to health, the issue of the right to health *care* tends to incite great debate. The discussion tends to focus on the issue of whether it should be left to government or the individual to "shoulder the economic and administrative burdens involved in realizing this particular right"[22]. If our nation is to make any true strides in solving the financial crisis in health care, we must first settle this debate.

The World Health Organization (WHO) asserts that the right to health demands that governments facilitate processes that allow individuals to obtain health; governments must "generate conditions in which everyone can be as healthy as possible"[24]. The WHO claims this can be accomplished through a variety of measures such as ensuring safety in the workplace, access to adequate food and shelter, and the availability of health services[24].

Martha Nussbaum, Ernst Freund Distinguished Service Professor of Law and Ethics at the University of Chicago, contends that "bodily health" is one of ten basic human capabilities "the existence of which exerts moral and political claims upon others to provide the means for their actualization"[22]. Eberl expands on Nussbaum's idea in his argument for the natural right to health care:

> "The first two capabilities listed are *life* and *bodily health*. The latter, of course, is integral to promoting the former, but it also possesses a more extensive value on its own insofar as being healthy also means that one is not suffering from physical disease or injury… [S]ociety's obligation is to equip individuals with the opportunity to avail themselves of the tools, with which they are already naturally endowed but may be hampered through disease or disabling injury, to be able to choose for themselves which fulfilling activities they will engage in for their own and others' benefit"[22].

In short, if our nation is to fulfill its obligation to ensure every individual's bodily health is protected, it requires the establishment of laws entitling citizens of these United States to obtain health care in absence of the potential of financial burdens to threaten this right. The most financially solvent vehicle to achieve this purpose is the individual mandate.

The Individual Mandate

An individual mandate—that is, a requirement by law that every citizen of the United States carry health insurance—is by far the most unprejudiced method of achieving a solvent, equitable, accessible health care system[18]. However, the word "mandate" tends to incite fear of government infringement on personal rights, thus the idea of an individual mandate has struggled to maintain favorable consideration in public opinion.

What many opponents of the individual mandate fail to adequately address is the issue of the "free rider," as explained here by Moffitt:

> "Absent a specific mandate for at least catastrophic health insurance coverage, some persons, even with the availability of tax credits to offset their costs, will deliberately take advantage of their fellow citizens by not protecting themselves or their families, with the full knowledge that if they do incur a catastrophic illness that financially devastates them, we will, after all is said and done, take care of them and pay all of the bills. They will be correct in this assessment. But the rest of us should realize that we are thus being victimized by deliberate irresponsibility"[25].

Moffitt sums up his argument quite succinctly by commenting, "It is idle to talk about personal freedom outside of personal responsibility"[25]. The individual mandate simultaneously serves both to protect the individual's right to health and to shelter the individual from the burdens of guaranteeing their fellow citizen that same right. It demands that all citizens are both equally entitled to health and obligated to ensure that their own pursuit of that right does not preclude the right of their neighbor to do the same.

Interestingly, many Americans fail to understand just how much care they ultimately fund, for themselves and for others. Health care consumers pay for care through four distinct methods: (1) out of pocket costs, including payments toward their deductible; (2) monthly insurance premiums deducted from their paychecks at a tax-advantaged rate; (3) foregone income that ultimately funds their employer's contributions to their health insurance plans; and (4) state and federal taxes, approximately 20 percent of which funds public programs like Medicaid[25,26]. Most consumers are unaware of methods in which they fund the care of others: through higher out-of-pocket costs as the market inflates to offset uncompensated care, through their insurance premiums for those whose illnesses result in much higher costs of care than their own, and through taxes that finance the care of those in public payer systems[25]. This method of funding health care is what some have come to refer to as a "taxpayer mandate." Because we fail to hold every individual equally responsible for participating in the health care system through an individual mandate, the taxpayer inevitably offsets the resultant asymmetrical burden of cost. Yet, those who oppose the individual mandate tend to ignore—or are simply unaware—of this burdensome mandate already imposed on them by a flawed system.

One fundamental issue with the individual mandate that deserves mentioning is its incompatibility with the current structure of our medical insurance system. Outdated tax policy places limitations on the individual's options for purchasing health insurance that are absent from other insurance markets such as automobile, life, and home insurance. Stipulations of tax codes born of wartime economic theory of the 1940s prescribe health insurance be tethered to employment in the most restrictive manner; this requires loss of job be followed by loss of coverage[25]. Purchase of private insurance independent from an employer-sponsored plan comes at a significantly higher cost, absent the tax advantages received by the employed, to those who can

least afford it. In this manner, the individual mandate places an undue burden on the unemployed. Significant reform to tax policy and insurance regulation would be imperative for an individual mandate to function properly and equitably.

Finally, it is worthwhile to mention that an individual mandate will alleviate financial stresses on the US health care system across the entire spectrum of the industry at great benefit to all parties involved. Expanding the reach of our insurance system also allows a certain amount of predictability in the market—an advantage we miss when no one is accountable for such a large population of those who receive care. Market predictability lends to stabilization of prices for goods and services within the industry and lowers insurance premiums for individuals. Insured individuals also have access to primary care, which serves two notable purposes: (1) it stymies the frequency of uncompensated emergency department visits for non-acute care allowing the emergency room to return its focus to its primary purpose, and (2) it allows for management of care, including access to preventative care, which can slow disease progression and allow for higher quality, more effective care at significantly less cost[21]. In short, the domino effect of an all-encompassing insurance industry is of vital importance to the future security of health care.

The Affordable Care Act

The Obama administration set out to design the Affordable Care Act with three distinct goals in mind: (1) to expand health insurance coverage to the millions of underinsured and uninsured Americans; (2) to develop cost-saving strategies in order to constrain growth in health spending; and (3) to increase the security of insurance coverage for individuals with chronic illnesses who would otherwise risk facing lifetime caps in coverage of care, loss of portability of coverage due to established diagnosis of prior illness, and other issues in retaining appropriate financial assistance for their care[18].

Reform under the ACA was extensive; much of the new law remains recondite and untested, as implementation is ongoing. This paper will focus primarily on aspects of the ACA affecting health care financing and quality of care, touching on other details of reform only as opportunities arise.

Efforts to Reform Financing

The ACA addresses health care financing in four ways: (1) an individual mandate; (2) an employer mandate; (3) expansion of Medicaid; and (4) insurance reform[27].

The ACA established a requirement that all US citizens maintain a minimum coverage, effectively enacting an individual mandate:

> "An applicable individual shall for each month beginning after 2013 ensure that the individual, and any dependent of the individual who is an applicable individual, is covered under minimum essential coverage for such month"[19].

This clause of the ACA incited considerable resistance from citizens and state governments who claimed it was unconstitutional, calling it an excessive use of federal power and an infringement of individual rights. Despite this public unrest, on June 28, 2012, the Supreme Court upheld the law as constitutional under the taxing power bestowed to the federal government, and thus the individual mandate stands today. Those who neglect to meet this requirement of minimum essential coverage will face tax penalties of up to 2.5% of household income[27]. Medicaid expansion and federal subsidies to aid in the purchase of private insurance are both aimed to help low-income individuals meet the requirement.

An employer mandate was another major reform of the ACA. Starting in 2014, all businesses employing 50 or more full-time workers are encouraged to enroll in an employer-sponsored health plan that meets the standard of a minimum essential (i.e. catastrophic)

coverage[27]. If employers fail to do so and their employees are subsequently forced to apply for federal subsidies for the purchase of private insurance, the employer would then face a financial penalty; employers are not subject to penalty if their workers to do not apply for these subsidies. This exception provides a loophole, however the penalty effectively functions as an employer mandate in order to prevent employers from leaving their workers to seek public funding for coverage. The ACA also provided the incentive of tax credits of up to 35% for small businesses (less than 25 employees) to alleviate financial stresses should they elect to enroll in employer-sponsored health plans[19].

Expansion of Medicaid, another major reform of the ACA, caused great disturbance among state governments. Medicaid is currently run independently by the states with some oversight by CMS that enables the states to receive partial federal funding for their programs. Historically, in order for states to receive federal reimbursements, state Medicaid programs were required to provide eligibility criteria to include a minimum of: (1) members of low-income families with children, (2) elderly individuals with incomes at 75% of the poverty level, and (3) disabled individuals; all other criteria were at the states' discretion[18]. The ACA initially mandated that all states expand their Medicaid programs by loosening the eligibility requirements to include all individuals, regardless of health status or family circumstance, that fall below 133 percent of the poverty level[18]. This mandate was expected to bring an estimated 16 million uninsured individuals into public sector coverage, placing a considerable financial burden on both state and federal governments[18]. Many state governments were understandably threatened by this diminution of their powers and the matter was eventually brought to the Supreme Court where Medicaid expansion was ruled unconstitutional[28]. Under this ruling, the law was reconciled and states may now maintain current coverage or opt to expand their Medicaid programs and receive

increased federal assistance; this flexibility makes projections of cost and coverage difficult and thus the future solvency of the Medicaid program remains largely ambiguous at this stage.

Finally, the ACA approached the issue of private medical insurance from a variety of angles. One reform effort allows for dependents age 26 and younger to remain on their parents' insurance policies, while others served to eliminate life-time caps on insurance payouts and prevent insurance agencies from denying payment or coverage based on the existence of a prior condition[19]. Another provision of the ACA allowed for a strategic change to the structure of the insurance industry by establishing state-based insurance exchanges; these exchanges will serve as a marketplace to the uninsured looking to purchase an insurance policy in order to meet the individual mandate[27]. As the individual mandate goes into effect in 2014, these exchanges will likely encounter growing pains, but many remain hopeful for their success citing this reform as "substantial progress in supporting and empowering patients by reorienting state agencies to become active advocates for their citizens"[29].

Efforts to Improve Quality of Care

The ACA addresses the issue of quality in health care from several angles, a promising sign that we may be entering a new era of medicine that emphasizes value and minimizes harm. Efforts to increase quality in health care are demonstrated in four major ways in the ACA: (1) relegating duties to the Secretary of the Department of Health and Human Services (DHHS) with a focus on quantifying and improving quality in care; (2) increased transparency in medicine through establishment of quality measures and mandated quality reports; (3) investment in Comparative Effectiveness Research; and (4) investment in innovation, including the

establishment of the CMS Innovation Center and the development of novel primary care delivery models.

The Secretary of DHHS was granted a great deal of authority through the ACA to advance the mission of quality in health care; the Secretary has been afforded the powers to establish system-wide goals, set quality standards, create guidelines for insurance agencies, allocate grant money to states for developing insurance exchanges, and collect penalties, among others[19]. In 2011, the Secretary moved for the establishment of the Partnership for Patients under the CMS, a public-private partnership with a membership currently totaling 3,700 hospitals nation-wide[30]. The Partnership was devised to promote collaboration between patients, hospitals and community care facilities to accomplish two main goals: (1) to make care safer, with the precise aim to decrease preventable hospital-acquired conditions by 40 percent; and (2) to improve transitions in care and thereby reduce preventable hospital readmissions by 20 percent[30].

Efforts to increase transparency in medicine led the ACA to establish provisions by which DHHS can assess physician and hospital performance. One such measure will be used to determine an overall "hospital performance score" that will then allow patients, payers, and governing agencies a standard by which they can evaluate an institution on quality from a national perspective[19]. This increased transparency will almost certainly serve to promote competition between providers and hospitals on the regional level with a potential to alleviate market stresses.

The ACA also calls for increased support to Comparative Effectiveness Research (CER) to aid physicians and patients in the process of making a clinical decision[19]. Efforts to expand CER resources have been largely encouraged by the IOM with the hope that the data provided will allow physicians to engage their patients in discussions of value-based care. Approximately

$1.1 billion have been allocated to the National Institutes of Health (NIH) and the Agency for Healthcare Research & Quality (AHRQ), the institutions charged with the responsibility of delivering CER that serves four purposes: (1) provides information that can be used "on the front lines of treatment;" (2) helps clinical decisions become consistent, transparent and rational; (3) is widely disseminated and used; and (4) promotes collaboration and discussion of comparative effectiveness[11].

The AHRQ has been touting another provision of the ACA for its innovative approach to primary care. The Patient Centered Medical Home (PCMH) is one new model of care delivery that targets patients with a high use of health services, such as patients with chronic illnesses, in order to provide them with highly coordinated, efficient care[31]. The PCMH is designed to provide care that is: (1) comprehensive (offers a majority of specialty services); (2) patient-centered (facilitates relationship between provider and patient); (3) coordinated (a health care team that works together for a common goal); (4) accessible (with an emphasis on ease of navigation); and (5) high quality and safe (appropriate, timely, and evidence-based care)[32]. A pilot program at Geisinger Health, the major health system serving central and northeastern Pennsylvania, has seen significant success since its launch, citing that 24-hour access has increased the rate at which patients claim their primary care physician as their usual source of care over the emergency room (83% versus 68% prior to launch of the PCMH)[33].

Finally, as an additional investment in innovation of primary care, the ACA established the CMS Innovation Center with a primary goal of devising new models of care that will serve the Medicare and Medicaid populations with greater efficiency and better outcomes than current fee-for-service models[19]. The Accountable Care Organization (ACO) is one such model designed to answer this calling and will be discussed at great length in the pages that follow.

Accountable Care Organizations

The Accountable Care Organization model is designed to promote partnerships between hospitals, physician groups, and other health care providers in order to facilitate coordinated, efficient, patient-centered care. The model that is most evolved to date is that designed with Medicare patients in mind, and it is that model that will be evaluated here; it should be noted however, that there are Medicaid ACOs and public ACOs currently being designed and piloted. Because Medicare ACOs are further along in the development process, the lessons learned from their progress will be applicable to the further evolution of the broader ACO model.

While the ACO concept has experienced a great deal of interest from motivated leaders in health administration, the model itself presents a challenge due to lack of supporting data. The ACO design being implemented today is, in fact, a second-generation model of the Physician Group Practice Demonstration (PGPD)—a pilot program initiated by Congress in 2000 and the only source of empirical evidence for the model's utility[34]. The data collected from this demonstration will be presented and discussed, but the ACO model will be defined in terms of goals, design, governance, and fiscal considerations.

Currently, physicians caring for Medicare patients receive payments from Medicare on a fee-for-service basis and, because Medicare reimbursement rates are typically substantially lower than the rate a provider might receive from a private insurer, there is little financial incentive to devote a great deal of time or effort in managing the complex care of the average Medicare patient. Hospitals and physician groups that choose to participate in a Medicare ACO are charged with the responsibility of coordinating care for a specified population of Medicare beneficiaries on a unique reimbursement scheme called a Shared Savings Program (SSP). Under the SSP, an ACO will be assigned a patient population and the annual cost of care for that population will be

estimated based on Medicare reimbursement rates for the distribution of diagnoses in that population and the prospect for new diagnoses[35]. If the ACO is able to successfully care for these patients at a reduced cost than that estimated by Medicare reimbursement rates, while meeting a list of quality measures determined by CMS, then the ACO will share those savings with Medicare[35].

ACO Triple Aim

The ACO model was designed with a so-called "triple aim" to achieve three primary goals: (1) improved population health; (2) higher quality-care experiences; and (3) moderation of per-capita health care cost increases[36,37]. As an integrated care delivery model, hospitals and physician groups that participate in these partnerships will be expected to coordinate their operations on all levels of care—that is, funding, administration, organization, service delivery, and clinical care—with the hope that this multi-level integration will produce the highest degree of health outcomes and system productivity[38].

Improved Population Health

An essential tenet of the ACO is its focus on a defined population of patients. The benefit of managing the care of a predetermined population is easily seen in traditional managed care models like the Health Maintenance Organization (HMO). While the HMO model receives criticism for its payer-provider relationship that at times limits physician choice, the aspect that makes it economically attractive is the ability to evaluate the broad population of patients and prospectively plan for their treatment[18]. In essence, the idea of managed care is to limit the unpredictable nature of health care as much as possible so that funding for care can be

approached creatively with the mindset of delivering quality care efficiently[39]. Similarly, if there are trending morbidities in the population, public health interventions can be targeted to specific health behaviors in order to confront the issue from a preventative approach.

Higher-Quality Care Experiences

The CMS has developed a set of 33 quality care measures that span four domains of practice: (1) patient-provider experience; (2) care coordination and patient safety; (3) preventive care; and (4) care of at-risk populations (See Appendix 1)[40]. The number of quality measures met determines the percentage of shared savings the ACO is eligible to receive[40]. The list is extensive and has been the topic of debate among critics of the ACO model; many ACOs in the beginning stages of implementation struggled to meet every quality measure and called for more attainable goals. CMS responded to this by reducing the quality measures from 65 to 33 in the ACO Final Rule[35]. Even so, the struggle to meet quality measures continues to incite contention, despite the fact that the measures were developed from best care processes with EBM at their core. EBM is the great normalizer; it derives its power as a quality measure from its ubiquitous applicability. If quality is derived from EBM, then every interface of care, nation-wide, should be subject to that same standard[41].

Moderation of Per-Capita Cost Increases

The Shared Savings Program is designed to present providers with an incentive to steer away from the traditional volume-driven fee-for-service payment scheme[35]. The culture of health care today provides little motivation for a provider to approach care with the mindset of "less is more," but the SSP is designed to encourage the practice of EBM and more coordinated, cost-

effective care. If the financial incentive lies on the side of doing only what is appropriate, promoting provider collaboration, and avoiding redundancy, then perhaps we can generate a shift in provider behaviors that will result in efficient, higher-value care[39].

ACO Design and Hierarchy

The CMS currently has several tiers of ACO models designed for a term of three years; an ACO may select their program depending on the organization's stage of development, the amount of risk they wish to take on, and the capital investments they have available to them. An emerging ACO may participate in a Track model, while an ACO that participated in the PGPD may elect to participate in a Transition ACO[42]. An organization that is highly experienced in integrated care models may choose a Pioneer ACO model[43]. An emerging ACO requiring more financial assistance with start-up costs may opt for the Advanced Payment model[42]. Pioneer, Transition and Advanced Payment models each have their merits, but are beyond the scope of this discussion; the focus here will be on Track models for emerging ACOs.

Track Models

There are currently two separate tracks that an emerging ACO may elect to take; the Track 1 and Track 2 models differ in the amount of financial risks and rewards involved in their design and agreement with CMS (see Table 1). For example, the Track 1 model has a potential to receive up to 50 percent of the shared savings, but minimizes risk by not sharing in losses throughout the term of the three-year program[42]. Meanwhile, the Track 2 model has a greater potential reward of up to 60 percent of shared savings, but takes on a greater risk by sharing losses all 3 years of participation[42].

The CMS has further defined the SSP by establishing a Minimum Savings Rate (MSR). The MSR defines that a minimum savings must be demonstrated before any sharing occurs; the greater the population served by the ACO, the less the MSR may be[42]. As an example, an ACO may be required to reduce costs of care for their Medicare patient population by 5 percent before they receive a portion of the savings. Once this MSR has been achieved, they will share in savings with Medicare on a first-dollar basis[35].

Table 1. A comparison of Track 1 and Track 2 ACO Models.

	Track 1	Track 2
Potential for shared savings and shared losses	Potential for shared savings in all 3 years; no share in losses	Potential for shared savings and losses in all 3 years
Potential for shared losses	None	Year 1 – 5 % Year 2 – 7.5% Year 3 – 10%
Minimum savings rate (MSR)	2% to 3.9% (3.9% for ACOS with 5000 beneficiaries)	2%
Maximum shared savings and cap on savings	Up to 50% of amount of costs below benchmark plus 2.5% for serving RHC and FQHC populations; Cap of 7.5% of benchmark	Up to 60% of amount below benchmark plus 5% for serving RHC and FQHC populations; Cap of 10% benchmark
Bonus for beneficiaries who use RHCs or FQHCs	2.5%	5%

Emerging ACOs may select a Track 1 or Track 2 model depending on the balance of risk and reward they are seeking. Track 1 ACOs take on less risk with the potential for less reward, while Track 2 models accept greater risk with the potential for greater reward. MSR is Minimum Savings Rate; RHC is Rural Health Center; FQHC is Federally Qualified Health Center. Table compiled from data in Correia and Berwick[35,42].

Population Coverage and Rostering

The patient population for a Medicare ACO is determined by a patient's primary care provider for the year preceding the upstart of the ACO. The CMS Final Rule for ACOs has devised a two-step patient assignment process: (1) if a beneficiary has received care from more

than one primary care provider, the patient will be assigned to the ACO of the physician providing the majority of their care services; (2) if a beneficiary has not received any services from a primary care provider, the patient will be assigned to an ACO based on services provided by any other ACO professional (including specialty providers)[35].

A point of contention for many critics of ACOs has been that Medicare beneficiaries may be enrolled in an ACO without their knowledge since assignment is based purely on the provider's participation in an ACO and not on patient-initiated enrollment[44]. As a result, physicians are now required to notify their patients upon the initial upstart of the ACO and inform them of the reorganization of their care, providing the patient with an opportunity to seek care from a non-ACO provider if they so choose[35].

Quality Care Measures

The CMS Proposed Rule for ACOs originally called for 65 distinct quality measures spanning five domains; this list was deemed burdensome and largely unattainable by early critics of the ACO model. The Final Rule responded to this by narrowing the list to 33 measures in four domains: (1) patient-provider experience; (2) care coordination and patient safety; (3) preventive care; and (4) the care of at-risk populations. CMS has developed a two-tier system for assessing quality on these 33 measures: during the first year, an ACO will receive shared savings based on reporting of the measures; during the second and third years, performance measures will be phased in along with reporting[35]. In other words, for the first year, the ACO's eligibility for shared savings does not reflect their performance on quality measures—they are only required to account for the current status of each measure[35]. Reporting of quality measures can occur in a

variety of media including patient surveys, insurance claims data, and patient chart data (see Appendix 1)[45].

Benchmarks

The SSP relies heavily on benchmarking data to establish clear criteria for what qualifies as reduced costs of care. The benchmark provides an estimate of the total predicted cost of caring for the specified population of patients in absence of the ACO; this estimate is based on the standard Medicare fee-for-service reimbursements and accounts for population characteristics that could potentially increase the costs of care[45]. When determining whether care of the Medicare patient population has been successfully reduced, total ACO expenditures are evaluated against this benchmark[44].

Governance

While an ACO can be composed of multiple institutions such as hospitals and physician groups, the establishment of a "separate legal entity," such as a non-profit organization, must occur to serve as the governing body of the ACO[42]. This legal entity is responsible for distributing shared savings among ACO participants and must have a structure of shared governance in which each participant maintains proportionate control over decision making processes[42]. Additionally, participants are required to maintain at least 75 percent control of the organization and beneficiaries are required to have a role in governance. In other words, if an ACO is composed of one hospital and two physician groups, their board of directors might include 8 members with two representing the hospital, two each representing the two physician groups, and two beneficiaries.

The ACO participants would thus have proportionate control and maintain a cumulative 75 percent control with the beneficiaries having 25 percent control.

Antitrust Law

Many concerns have been raised that the conglomeration of health care providers into ACOs would provide them with substantial market power, diminishing the potential for competition and subsequently driving prices higher with catastrophic consequences for our health care system. This concern was put to rest by the Federal Trade Commissioner (FTC) and Department of Justice (DOJ) with the application of a unique antitrust law; the ACO will be evaluated based on "common services" provided by participants in a single ACO[42]. If the total market share for that service is determined to be less than 30 percent within the geographical area, the ACO is within the bounds of antitrust law[42]. If the total market share is above this range, the ACO may be subject to review by the appropriate governing agencies[42].

Physician Group Practice Demonstration

In 2000, a directive from Congress resulted in the initiation of the Physician Group Practice Demonstration (PGPD) in which Medicare providers were presented with financial incentives in the form of shared savings for providing high-quality care at a reduced cost[46]. The Demonstration included 10 large physician group practices (PGPs), 8 with distinguished reputations in integrated care models; PGPs could receive up to 80 percent of the savings if they were able to meet 32 quality goals and reduce costs of care by at least 2 percent[46–48].

The results from this demonstration provided the framework on which today's ACO model is based and this is the only longitudinal study providing observational evidence for the

model's utility in today's health system. Each PGP was evaluated in comparison to a control population of Medicare beneficiaries not assigned to a participating PGP; the cost of care from participating PGPs was measured using this control group as a benchmark in order to be eligible for shared savings[47]. Fortunately, the participating PGPs saw significant success in improving quality during their five years in the program with all 10 groups meeting at least 29 of the 32 quality measures by the fourth year of participation and 7 groups meeting all 32 measures by the fifth year[46].

A 2011 CMS report indicates that after five years, participating PGPs were able to increase their quality scores from baseline performance by an average of 11 percent on diabetes measures, 12 percent on heart failure measures, 6 percent on coronary artery disease measures, 9 percent on cancer screening measures, and 4 percent on hypertension measures[49]. While the PGPD appears to have demonstrated considerable progress in quality of care, the results are less promising for the ability of the model to achieve a cost savings. An analysis of pre-PGPD costs and post-PGPD costs for participating PGPs and control populations reveals significant room for improvement in cost-containment processes.

CMS estimated that the overall savings of the five-year demonstration amounted to $137 billion, however some question whether this might have been an overestimation due to the methods used for risk-adjustment[48]. Further, the data indicate that savings were most notable in patients that were dually eligible for both Medicare and Medicaid services, while patients that were only eligible for Medicare saw modest to no savings[48]. The dually eligible population saw an average savings of $532 per beneficiary, while the nondually eligible population experienced an average of just $59 in annual savings; averaged over the total population of dually and nondually eligible beneficiaries, this amounts to a savings of $114 per beneficiary (Figure 2)[48].

The data suggest that a considerable proportion of the savings was due to decreased hospitalizations due to high quality care for the vulnerable dually eligible population, while many groups saw increased spending during the shift away from fee-for-service payment[48]. This data provides an informative, though complex, perspective on the promise of the ACO framework to simultaneously increase quality of care and decrease overall health expenditures.

The PGPD is also useful for the feedback from the participating PGPs on the design issues they experienced during the program. In devising the ACO model, CMS ardently referred to this feedback and adjusted specifications as appropriate. Additionally, the PGPD served as a promising indication of rising interest in improving quality and controlling health care expenditures, with many of the participating PGPs citing that their involvement in the demonstration was motivated by their "belief that this is the right thing to do for patients, and [it aligned] with their mission and vision of the future of health care"[47].

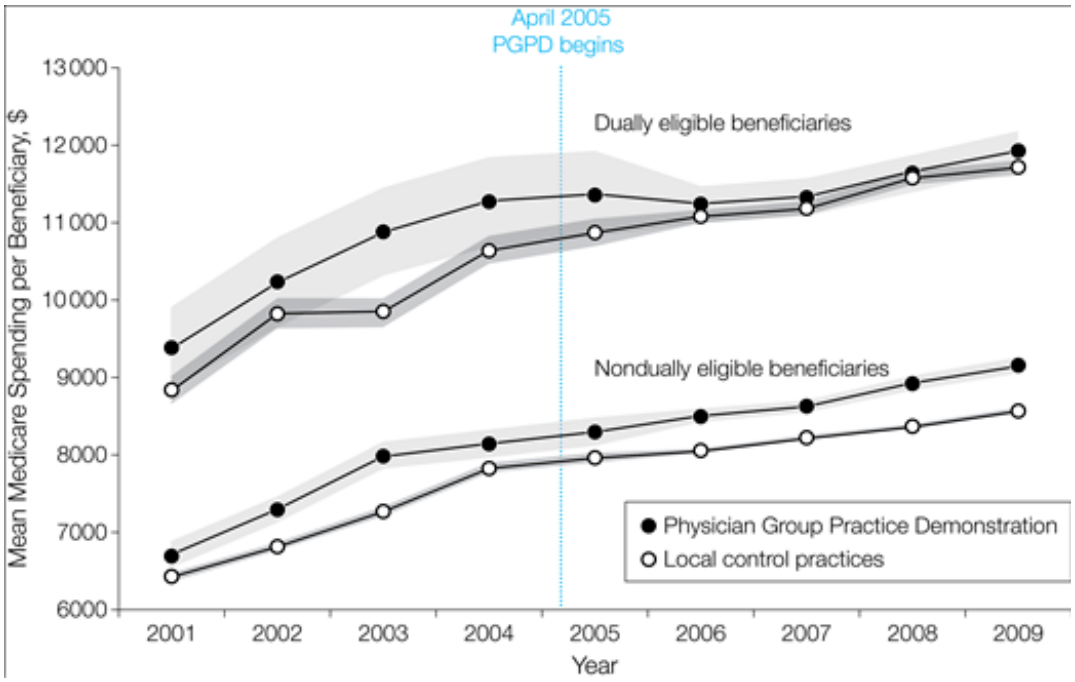

Figure 2. Medicare spending per beneficiary in Physician Group Practice Demonstration and Control Populations. Mean Medicare spending per beneficiary for PGPD participants and local control groups. Dotted vertical line indicates initiation of the PGPD in April 2005. Dually eligible beneficiaries include those patients eligible for both Medicare and Medicaid services; nondually eligible beneficiaries are those patients eligible only for Medicare services. Annual savings from the PGPD were significant only for the dually eligible beneficiaries with an adjusted mean savings of $532 per beneficiary; nondually eligible beneficiaries saw an adjusted mean savings of just $59 annually[48]. Figure taken from Colla et al[48].

DISCUSSION

As of October 2012, there were 153 Medicare ACOs in various stages of development spanning the spectrum of models available; over 400 other organizations had also expressed intention to begin transitioning to an ACO model in the near future[43]. Additionally, there are currently between 150 and 200 private ACOs at various stages of development[43]. This abounding interest is evidence of the compelling changes occurring within the culture of medicine and the desire to enhance the overall health care experience. Certainly, the wastefulness and inefficiency of our health care system wears heavily on the medical workforce as it does on the patients it serves. We have now reached a pivotal juncture at which we must harness the rising momentum of the individual parties and collectively push forward into an era of accountable care.

Addressing the Wedges of Waste

Recall that the trajectory of health care spending in Berwick's Wedges model results in a "stabilization triangle" representing an estimated $2.2 trillion in unsustainable spending[4]. The ACO model has unrivaled potential to address each wedge of the stabilization triangle in order to stabilize the trajectory of health spending.

The first three areas of waste—failures in care delivery, failures in care coordination, and overtreatment—are each addressed in the four domains of quality measures embedded in the ACO model: (1) patient/caregiver experience; (2) care coordination and patient safety; (3) preventative health; and (4) at-risk populations. The governance and financial aspects of the model also improve each of these areas of waste. The remaining three areas—administrative

complexity, pricing failures, and fraud and abuse—are more directly influenced by other aspects of ACO design and indirectly impacted by quality measures.

Failures in Care Delivery

Issues in care delivery are addressed in the patient/caregiver experience domain through measures of access to specialists, timeliness of care, provider communication skills, health promotion, and functional status. In the care coordination/patient safety domain, measures of medication reconciliation and fall risks can improve care delivery by decreasing the rate of hospital-acquired conditions. The preventative health domain has great potential for decreasing failures in care delivery by encouraging immunizations, promoting management of body mass index (BMI) and hypertension, and incentivizing multiple screening efforts such as breast cancer, colorectal cancer, and psychological disorders. Perhaps the most efficacious domain for addressing issues of care delivery is the at-risk population domain, which contains several measures of "all-or-none" scoring. For example, there are six individual measures for the at-risk population of diabetes patients; five of the measures are denoted "all-or-nothing," indicating that all five of those measures must meet quality standards or the ACO receives no savings based on the those specific measures[45]. Both of the measures for coronary artery disease also follow all-or-nothing scoring methods. This strategy provides stark motivation to improve follow-up care of these vulnerable patients and focus on treating the whole patient rather than a single clinical observation or lab value.

Additionally, the ACO goal of improved population health, facilitated through patient rostering methods and population management, will serve to promote provider investment in care prevention and chronic disease management. Rather than treating illness as it presents, providers

will be encouraged to educate and empower patients, to expand preventative services, and to engage in shared decision making with a focus on value-based care.

Failures in Care Coordination

Failures in coordination are addressed in the patient/caregiver experience domain through measures of access to specialists, timeliness of care, information provided to patients, and shared decision-making processes. In the care coordination/patient safety domain, the "all condition readmission" measure places necessary emphasis on the issue of hospital readmissions. An estimated 2.3 million Medicare beneficiaries experienced readmissions within 30 days of discharge in 2003 and 2004; this area of failure is predicted to provide an opportunity of $1.9 billion in annual savings for Medicare patients alone[50]. CMS provides the clinical recommendation of holding pre-discharge assessments and improving follow-up care methods to address readmission rates[45]. Additional care coordination measures include promotion of electronic health records, disincentives for hospital admissions of vulnerable patients—such as those diagnosed with heart failure or chronic obstructive pulmonary disease—in order to promote case management processes[45]. Medication reconciliation and fall risks are also a major component of care coordination with large potential cost and quality benefits. In the preventative health domain, BMI management, clinical depression screening, and tobacco cessation interventions each have components of follow-up care, which will also aid in addressing failures of care coordination. Finally, the at-risk population domain relies heavily on exemplary coordination of care and each of the clinical measures in this domain will be heavily influenced by devotion to interdisciplinary, team-based integrated care.

Shared governance and emphasis on population management will also likely have a positive influence on coordination of care, resulting in more efficient professional practices and inter-organizational communication and record-keeping strategies. A substantial opportunity for savings in this category is reduced redundancy of clinical diagnostic tests and imaging studies.

Overtreatment

A notable quality measure with the potential to decrease overtreatment is the measure of provider communication in the patient/caregiver domain. This measure implies the need for better communication between patient and provider as well as between multiple providers on an interdisciplinary care team. Team-based decisions are likely to discourage practice of defensive medicine as providers are afforded security in the ultimate consensus of multiple professional opinions. Further, a healthy interdisciplinary approach enhances provider creativity and problem solving with a potential to find effective, cost-reducing methods of care.

Additionally, the major remedy for overtreatment issues is integrated into every detail of the ACO model; the volume-driven, fee-for-service mindset of contemporary medical practice will be dissolved by the Shared Savings Program and the shift toward value-driven care.

Administrative Complexity

The shared-governance structure of the ACO presents a challenge to conquering issues with administrative complexity. ACOs will require creativity in order to streamline processes and reduce administrative burdens. Inter-organizational standardized billing procedures and electronic health records are deserving of further development in order to see improved efficiency in this complex model of care delivery. After the initial growing pains subside and procedural “kinks”

are minimized, this area of wasteful spending has a potential to provide many opportunities for cost savings. Additionally, as care coordination efforts improve and readmission rates, medical errors, and malpractice risks decline, the natural progression will result in decreased administrative burdens that result from lack of standardized care processes and inefficiencies in care.

Pricing Failures

The ACA holds many opportunities to address pricing failures in the health care market, including public access to quality measures and the nationally standardized "hospital performance score." These efforts will be multiplied as competition gains ground in the ACO marketplace. Medical manufacturers and suppliers will begin to engage in pricing battles to score lucrative contracts with successful ACOs, and ACOs will have enough market power to make bold negotiations with a great potential to provide stability to this volatile market. The future of capitalism in health care is indeed an exciting prospect and as patient education continues to promote value-based health care decisions, a balance will begin to be restored to this historically asymmetrical marketplace.

Fraud and Abuse

As a more ambiguous source of waste in US health care, it is difficult to estimate how this area of wasteful spending will directly benefit from the ACO model. Opportunities for savings will be most easily attained through professional checks and balances; as organizations begin to integrate their care delivery methods, opportunistic frauds will be more cautious of

watchful eyes, providers with a tendency to overprescribe and over-treat will be dis-incentivized by shared decision making processes and organizational initiatives towards value-based care.

These six areas of wasteful spending in US health care hold endless opportunities for improving the mechanisms of care delivery and decreasing overall health expenditures. Perhaps the most evocative aspect of the ACO design and its approach to care delivery is the initiation of a persistently dynamic process of improved quality and increased cost containment. As each individual attribute of the ACO design approaches maturity and undiminished productivity, the advantages will continually fall toward higher quality, more efficient, value-based care processes. A RAND Health report on payment reform devised a schematic to represent this powerful relationship (Figure 3); they demonstrate that quality and cost containment are symbionts, each drawing life from the other[51]. As quality goals are achieved, cost containment goals become more attainable; likewise, as costs are controlled, there is natural promotion of quality. This mutually effectual relationship works both ways however, and the great challenge in US health care rests in halting the downward spiral and turning a diseased system into a thriving, efficient health care market.

Figure 3. Mutually beneficial relationship between cost containment and quality goals in payment reform. Schematic demonstrates dynamic relationship between efforts to improve quality and cost containment in US health care. FFS is fee-for-service. From RAND report on payment reform[51].

Issues in Financing

Many health care professionals and insurance companies are frustrated by what they consider to be burdensome quality reports; some consider this to be a bureaucratic micromanagement of health care that adds to administrative complexity and tedium and pulls clinicians away from the bedside. However, quality reports that are made available to the consumer (the patient) infuse the competitive spirit of American capitalism into an industry that has been lacking the balance provided by informed buyers. Physicians that perform well on quality reports will conceivably see rewards as their clientele increases, while those that perform poorly will be forced to respond to the market demands and increase the quality of the care they provide in order to remain competitive. Restoring this balance to the health care market could provide much-needed stabilization to the costs of medical goods and services.

Benchmarking has presented another challenge for CMS as many ACO administrators feel the current process places an undue burden on an ACO to compare their costs of care delivery to a national benchmark, ignoring regional pricing disparities and local market pressures. ACOs in regions of substantially inflated markets will see greater challenges in reducing costs than others, placing them at a disadvantage for receiving shared savings. CMS argues that all ACOs in the region will experience these same challenges and therefore the risk is standardized within the local market, nevertheless, further attention to benchmarking processes is warranted to alleviate the concerns of emerging ACOs and encourage smaller organizations to take risks in a potentially volatile market.

Finally, an issue that has yet to be resolved by CMS relates to tracking costs as patients migrate through the broader US health care system. Under Medicare law, beneficiaries are afforded the flexibility to select any provider they wish and can change providers at any time. However, the rostering process provided by the ACO Final Rule delineates that ACOs will be assigned Medicare beneficiaries based on the primary care provider for the year prior to the ACO's upstart. This implies that an ACO will be held accountable for health outcomes for patients that might have crossed through their system prior to organization of the ACO, whether or not that patient's care is still being managed by a professional belonging to that specific ACO. Insofar as this could negatively influence an ACO's eligibility to receive shared savings, the concern is understandable and is deserving of attention from the appropriate governing bodies.

Issues in Quality Care

A significant issue observed in the PGPD was the temptation of providers to focus their clinical efforts strictly on the quality measures in the ACO Final Rule and to neglect other care processes not specifically measured and incentivized. In other words, there is a risk of "teaching to the test," whether conscious or not, where providers are likely to modify behaviors in order to optimize their percentage of shared savings while potentially ignoring other vital aspects of care that produce little to no financial gain.

Another shortcoming of the ACO model is the lack of community care promotion. Many community health centers are troubled by the ACO model and what they presume to be a shift toward conglomerates of health care providers. This could potentially leave community centers struggling to negotiate prices with manufacturers and suppliers, in addition to eliminating necessary access to specialty care and diagnostic services. CMS should devote additional consideration to the needs of community health centers, paying mind to their vital role in promoting population health and providing essential care to underserved populations. Proper support of these community centers could provide many opportunities for cost containment, most notably in the realm of preventative care and case management of vulnerable patient populations.

Responsibility of the Governing Bodies

It is clear that the task at hand presents a sizable challenge to our nation requiring the efforts of every party involved. While the ACO model provides a framework for reducing waste, there are many other aspects of the health care system requiring attention in order for the ACO model to work effectively. Governing bodies, providers and patients each have a part to play in molding a more efficient, higher-quality health care system. Governing bodies—to include

DHHS, CMS, and leaders in health care administration—need to prioritize and facilitate a culture shift that values EBM, promotes value-based decisions, and encourages a pay-for-performance mentality with a focus on population health.

Governing bodies also have a responsibility to providers to reduce red-tape that prevents physicians from focusing on patient care—excessive paperwork, administrative complexity that adds to cost and diminishes workflow efficiency, and unmitigated risk of medical malpractice suits. Many physicians are calling for malpractice reform that lies "clearly in the interests of both patients and physicians"[52]. A common result of malpractice suits is a physician with wavering self-assurance in clinical skills, causing discomfort to both provider and patient; liability protections are necessary in order to provide appropriate support for physicians acting in the patient's best interest. Appropriate reform efforts would include a focus on litigation that emphasizes avoiding medical errors and improving quality, while leaving punitive tasks to medical licensing boards. In order to provide a venue for patients to bring viable claims of medical injury, some hospital systems are approaching the issue proactively with internal medical error disclosure systems; this allows facilities to assess patient safety and quality issues and provides settlements to patients when necessary[52]. Facilities implementing claims processes have seen medical malpractice suits decline up to 64 percent with much of the savings from malpractice suits being devoted to patient safety and quality efforts[52]. Significant malpractice reform would have the effect of allowing doctors to provide only the care that is appropriate, reducing the financial and administrative burden of malpractice protections, and discouraging lawyers with an affinity for filing frivolous claims and potential fraudsters looking to game the system for financial gain. The final product would yield more confident physicians with a focus on value-based care, decreased administrative complexity, and many related opportunities for

cost-containment. When addressing the issue of medical errors shifts from assigning blame to modifying processes of care, the result is a more efficient health care system with better patient outcomes.

Finally, governing bodies have a duty to the health care consumer and provider to enforce transparency in medicine. This includes publishing of quality reports and availability of real costs of care in order to provide a basis for value-based decision-making processes between provider and patient. Appropriate insurance reform would include recommendations for communicating costs of care to patients in plain language thus eliminating a profound barrier to a patient's self-advocacy. Without this transparency, the health care market will go on unregulated with rampant pricing failures and continued inflation.

Provider Responsibility

While physicians are deserving of protections and professional courtesies, they also have a responsibility to be accountable not only to their patients, but to each other. As a profession, physicians need to encourage a cultural shift toward appropriate, value-based care. Care is deemed inappropriate if a there is "no scientific basis on which to predict benefit" for a particular patient[53]. Most physicians are likely guilty of delivering inappropriate care at some time in their careers due to outdated treatments with no proven efficacy, to avoid liability, or due to pressure from patients to act despite supporting evidence of an effective treatment option. Focus on delivery of appropriate care is perhaps the single most important factor of clinical practice in the battle to control health care spending as it not only provides the benefits of effective care, but also avoids the costly, unfortunate burdens of medical errors caused by inappropriate care.

Tools to guide physicians in the practice of appropriate care have been in existence for

nearly three decades, yet still require complete implementation; RAND Corp has developed a detailed set of clinical indications, assigning each indication a 9-point scale appropriateness (9 being very appropriate, 1 being extremely inappropriate)[54,55]. These indications cited very precise clinical values, such as the degree of occlusion demonstrated via angiography for determining the appropriateness of ipsilateral versus contralateral approach for carotidendarterectomy[54]. The 9-point scale used for each indication for a specific procedure then culminates with a final recommendation that can land in one of three categories: (1) the procedure should not be done; (2) performing the procedure is questionable; or (3) the procedure is indicated and should be performed[54]. This approach to appropriateness of care should be adopted for each clinical decision in order to combat this area of weakness in today's volume-driven system. One such initiative to encourage this methodology, and bring patients in on the discussion, has been adopted by the *Choosing Wisely* campaign.

Choosing Wisely Campaign

The *Choosing Wisely* campaign is an initiative of the ABIM Foundation, a non-profit offshoot of the American Board of Internal Medicine (ABIM), "to help physicians and patients engage in conversations to reduce overuse of tests and procedures, and support physician efforts to help patients make smart and effective care choices"[56]. Over 40 subspecialty professional societies have joined the campaign since its inception in 2012 by creating lists of common practices that, while status quo, might not actually yield any benefit to the patient or provide valuable information to providers (Figure 4)[56]. These lists encourage physicians and patients to dialogue about the most valuable and effective care plan rather than passively accepting what is common for what is right.

The lists of questionable actions are well designed for the fast pace of a typical physician's office. They are concise, consisting of merely five common practices to be questioned in the specialty of the specific professional society. They set attainable goals, citing precise clinical thresholds for when the practice might deserve further consideration (e.g., if the patient has a greater than 10 percent risk of developing cardiac disease in the next ten years, electrocardiogram testing might be a relevant screening measure for an asymptomatic individual)[56]. Importantly, the lists are also specific and, through provider surveys, the influence of the lists is measurable. Measurable data of the initiative's impact is invaluable as it has the potential to demonstrate convincing evidence that small changes in the culture of physician practices can have drastic influence on health spending and our ability to provide appropriate and accountable care.

The "Five Things" lists, as they have been dubbed, are typically written in scientific language, with clinical markers and medical terminology that might prove difficult to understand by the average patient. In order to engage the patient in the discussion, the *Choosing Wisely* campaign provides patient educational tools that complement the "Five Things" lists. These tools give further explanation of medical terms in plain language, inform patients of both health risks and financial risks of pursuing a treatment that lacks evidence-based justification, provide guidelines for signs and symptoms that would warrant further consideration, and suggest alternative measures for managing their condition and tracking their health.

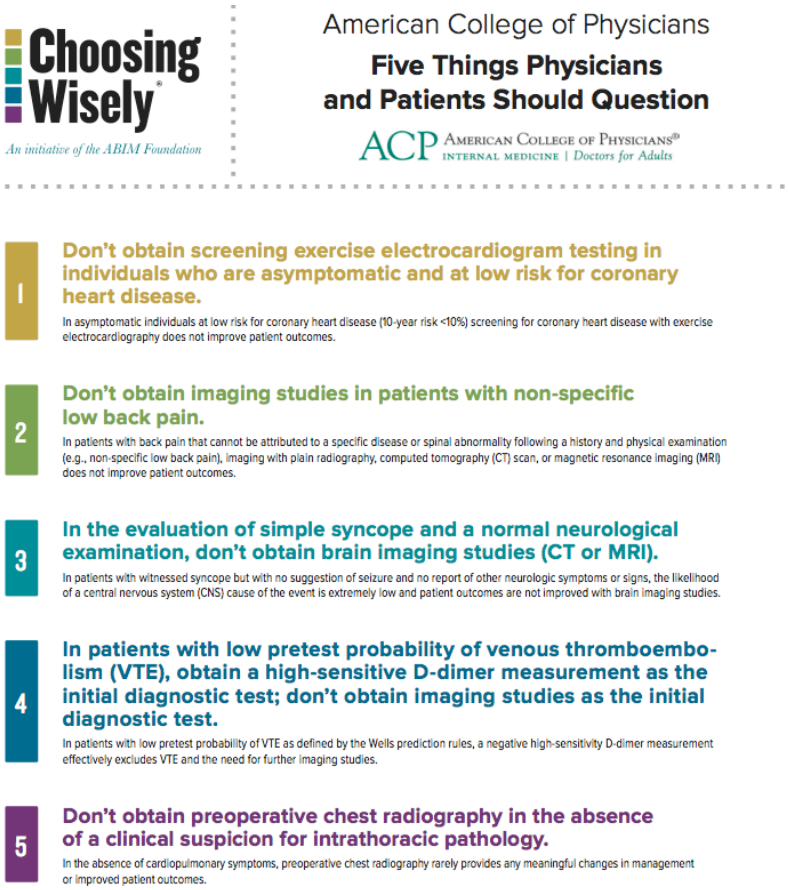

Figure 4. Choosing Wisely: Five Things Physicians and Patients Should Question in Internal Medicine. A "Five Things" list devised by the American College of Physicians to guide Internal Medicine physicians in their practice of value-based, appropriate care. "Five Things" lists are part of the *Choosing Wisely* campaign of the ABIM Foundation to encourage the practice of evidence-based medicine and provide higher-quality, cost-containing health services and to engage patients in the discussion of their care. Similar lists have been constructed by other professional societies for the broad spectrum of medical specialties. ACP is American College of Physicians. Figure taken from Choosing Wisely[56].

The challenge with this initiative seems to be in disseminating the information to patients and collecting data to determine efficacy. Currently, several consumer-oriented organizations, such as AARP and Leapfrog Group, have partnered with the ABIM Foundation to help spread the word[56]. Considering the potential impact this type of patient education could have, and the missed opportunities for preventative measures by prolonging a patient's first encounter with the

information until a doctor's visit, it is imminently necessary to find innovative ways of educating patients. For the *Choosing Wisely* patient education tools to achieve their full potential influence, the ABIM Foundation should expand their partnerships and, importantly, recruit public health organizations, to broadcast the tools in a variety of interfaces—public transit hubs, schools, sporting venues, and highly trafficked websites, to name a few. The ABIM Foundation should also construct data collection interfaces to allow physicians to report their use of the Five Things lists and how, if at all, the lists impacted their clinical decisions.

Consumer Responsibility

A fundamentally crucial aspect of consumer responsibility is participation in the insurance system through compliance with the individual mandate. This not only serves the patient's best interest, but is also an obligation of every citizen in order to protect the interests of neighbor and nation. Likewise, the consumer has a personal duty to prioritize one's health. This is certainly a controversial issue, as ownership of self is a constitutionally protected right, however, when one's own health and costs of care affect that of others, it becomes necessary to consider personal health actions and their influence on the health and prosperity of others. Just as one must consider your neighbor in the issue of a noise complaint, it should be the responsibility of a patient to consider the burden placed on his fellow citizen by his own neglect of his personal health status. If he has been afforded the opportunity to attain insurance coverage and has been offered the education and tools necessary to form positive health behaviors, and yet continues to rest on public systems to pick up the bill for poor health decisions, why should he not incur a penalty for such indifference?

As a nation, trends in obesity and cardiac disease are proof of such neglect for personal health. While local governments have the responsibility to invest in preventative care efforts and population health, the task of the patient is to participate and take advantage of opportunities for personal health improvements. This includes engaging in discussions of treatment plans and care options with the patient's health care team, in addition to establishing a relationship with a primary care provider. The PCP should fully replace emergency department visits for all non-acute care needs in order for this relationship to function properly; this requires timely access to PCP office visits, but also on patient action, follow-through, and compliance with the agree-upon care plan. Finally, as a consumer, it is paramount that patients take a more proactive role to understand the costs of their care. They must begin to demand transparency in billing procedures, to ask about cost prior to receiving treatment rather than passively accepting care with no concept of pricing, and to refuse care if they determine the asking price does not reflect the true value of the service. Without this patient interaction in the health care market, inflated rates for medical devices and procedures will continue to poison the health industry and diminish competition in the field. As more attentive consumers, patients have an unrealized power to affect the trajectory of US health spending.

Importance of Primary Care

Finally, an aspect of critical importance is the insufficient emphasis on primary care in the broader culture of US health care. This neglect is perpetuated by perverse economic incentives that devalue this field in the eyes of medical school graduates where the substantial burdens of education loans encourage emerging residents to select more lucrative specialties in order to escape the debt incurred. While this systemic flaw has received increasing attention from

lawmakers of late, there is a persistent need to educate the patient population on the importance of primary care. ACOs would be wise to focus efforts on developing more aggressive means of distributing preventative care services and to engage organizations such as the Leap Frog Group in discussions of how best the public can be educated to take control of their own health.

It has been shown time and time again that populations with access to care that emphasizes primary health care benefit in two ways: (1) the overall health of the population is better than regions with less primary health care, and (2) patients who actively participate in primary health care have better health outcomes[57]. The ACO model has the potential to address the need for improved relationships between PCPs and their patient population; if PCPs take full advantage of the incentives to strengthen their management of population health and to improve the health literacy of their patients, ACOs could see promising results in cost-containment efforts.

While the ACO model remains largely untested and requires considerable attention of health care administrators and legislators, the fiscal realities facing the US health care system demand a thorough investigation into the realistic results the ACO model may deliver. At this juncture, there appear to be few hopeful options for answering the needs of the health care market. Therefore, it is in the best interest of all US citizens to devote the necessary efforts to supporting the full development of the ACO model and its integration into the US health care system. While the ACO model has the potential to address issues in coordination, quality, and cost-containment, full participation of all parties is essential to the success of the model and to delivering our nation out of its current fiscal dilemma.

Table 1
Measures for Use in Establishing Quality Performance Standards that ACOs Must Meet for Shared Savings

ACO #	Domain	Measure Title	NQF Measure #/ Measure Steward	Method of Data Submission	P4P Phase-in PY1	P4P Phase-in PY2	P4P Phase-in PY3
AIM: Better Care for Individuals							
1.	Patient/Caregiver Experience	CAHPS: Getting Timely Care, Appointments, and Information	NQF #5, AHRQ	Survey	R	***P***	***P***
2.	Patient/Caregiver Experience	CAHPS: How Well Your Providers Communicate	NQF #5 AHRQ	Survey	R	***P***	***P***
3.	Patient/Caregiver Experience	CAHPS: Patients' Rating of Provider	NQF #5 AHRQ	Survey	R	***P***	***P***
4.	Patient/Caregiver Experience	CAHPS: Access to Specialists	NQF #5 AHRQ	Survey	R	***P***	***P***
5.	Patient/Caregiver Experience	CAHPS: Health Promotion and Education	NQF #5 AHRQ	Survey	R	***P***	***P***
6.	Patient/Caregiver Experience	CAHPS: Shared Decision Making	NQF #5 AHRQ	Survey	R	***P***	***P***
7.	Patient/Caregiver Experience	CAHPS: Health Status/Functional Status	NQF #6 AHRQ	Survey	R	R	R
8.	Care Coordination/ Patient Safety	Risk Standardized All Condition Readmission	CMS; NQF #1789 (adapted)	Claims	R	R	***P***
9.	Care Coordination/ Patient Safety	Ambulatory Sensitive Conditions Admissions: Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults (ACO version 1.0)	NQF #275 AHRQ PQI #5	Claims	R	***P***	***P***
10.	Care Coordination/ Patient Safety	Ambulatory Sensitive Conditions Admissions: Heart Failure (HF) (ACO version 1.0)	NQF #277 AHRQ PQI #8	Claims	R	***P***	***P***
11.	Care Coordination/ Patient Safety	Percent of Primary Care Physicians who Successfully Qualify for an EHR Program Incentive Payment	CMS	EHR Incentive Program Reporting	R	***P***	***P***

(continued)

Table 1 (continued)
Measures for Use in Establishing Quality Performance Standards that ACOs Must Meet for Shared Savings

ACO #	Domain	Measure Title	NQF Measure #/ Measure Steward	Method of Data Submission	P4P Phase-in PY1	P4P Phase-in PY2	P4P Phase-in PY3
12.	Care Coordination/ Patient Safety	Medication Reconciliation	NQF #97 AMA-PCPI/NCQA	GPRO Web Interface	R	***P***	***P***
13.	Care Coordination/ Patient Safety	Falls: Screening for Future Fall Risk	NQF #101 NCQA	GPRO Web Interface	R	***P***	***P***
AIM: Better Health for Populations							
14.	Preventive Health	Influenza Immunization	NQF #41 AMA-PCPI	GPRO Web Interface	R	***P***	***P***
15.	Preventive Health	Pneumococcal Vaccination for Patients 65 Years and Older	NQF #43 NCQA	GPRO Web Interface	R	***P***	***P***
16.	Preventive Health	Body Mass Index (BMI) Screening and Follow-Up	NQF #421 CMS	GPRO Web Interface	R	***P***	***P***
17.	Preventive Health	Tobacco Use: Screening and Cessation Intervention	NQF #28 AMA-PCPI	GPRO Web Interface	R	***P***	***P***
18.	Preventive Health	Screening for Clinical Depression and Follow-Up Plan	NQF #418 CMS	GPRO Web Interface	R	***P***	***P***
19.	Preventive Health	Colorectal Cancer Screening	NQF #34 NCQA	GPRO Web Interface	R	R	***P***
20.	Preventive Health	Breast Cancer Screening	NQF #31 NCQA	GPRO Web Interface	R	R	***P***
21.	Preventive Health	Screening for High Blood Pressure and Follow-Up Documented	CMS	GPRO Web Interface	R	R	***P***
22.	At Risk Population—Diabetes	Diabetes Composite (All or Nothing Scoring): Diabetes Mellitus: Hemoglobin A1c Control (<8 percent)	NQF #729 MN Community Measurement	GPRO Web Interface	R	***P***	***P***
23.	At Risk Population—Diabetes	Diabetes Composite (All or Nothing Scoring): Diabetes Mellitus: Low Density Lipoprotein Control	NQF #729 MN Community Measurement	GPRO Web Interface	R	***P***	***P***

(continued)

Table 1 (continued)
Measures for Use in Establishing Quality Performance Standards that ACOs Must Meet for Shared Savings

ACO #	Domain	Measure Title	NQF Measure #/ Measure Steward	Method of Data Submission	P4P Phase-in PY1	P4P Phase-in PY2	P4P Phase-in PY3
24.	At Risk Population—Diabetes	Diabetes Composite (All or Nothing Scoring): Diabetes Mellitus: High Blood Pressure Control	NQF #729 MN Community Measurement	GPRO Web Interface	R	***P***	***P***
25.	At Risk Population—Diabetes	Diabetes Composite (All or Nothing Scoring): Tobacco Non-Use	NQF #729 MN Community Measurement	GPRO Web Interface	R	***P***	***P***
26.	At Risk Population—Diabetes	Diabetes Composite (All or Nothing Scoring): Diabetes Mellitus: Daily Aspirin or Antiplatelet Medication Use for Patients with Diabetes and Ischemic Vascular Disease	NQF #729 MN Community Measurement	GPRO Web Interface	R	***P***	***P***
27.	At Risk Population—Diabetes	Diabetes Mellitus: Hemoglobin A1c Poor Control	NQF #59 NCQA	GPRO Web Interface	R	***P***	***P***
28.	At Risk Population—Hypertension	Hypertension (HTN): Controlling High Blood Pressure	NQF #18 NCQA	GPRO Web Interface	R	***P***	***P***
29.	At Risk Population—Ischemic Vascular Disease	Ischemic Vascular Disease (IVD): Complete Lipid Panel and LDL Control (<100 mg/dL)	NQF #75 NCQA	GPRO Web Interface	R	***P***	***P***
30.	At Risk Population—Ischemic Vascular Disease	Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic	NQF #68 NCQA	GPRO Web Interface	R	***P***	***P***
31.	At Risk Population—Heart Failure	Heart Failure: Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	NQF #83 AMA-PCPI	GPRO Web Interface	R	R	***P***
32.	At Risk Population—Coronary Artery Disease	Coronary Artery Disease (CAD) Composite (All or Nothing Scoring): Lipid Control	NQF #74 CMS (composite) / AMA-PCPI (individual component)	GPRO Web Interface	R	R	***P***

Table 1 (continued)
Measures for Use in Establishing Quality Performance Standards that ACOs Must Meet for Shared Savings

ACO #	Domain	Measure Title	NQF Measure #/ Measure Steward	Method of Data Submission	P4P Phase-in PY1	P4P Phase-in PY2	P4P Phase-in PY3
33.	At Risk Population—Coronary Artery Disease	Coronary Artery Disease (CAD) Composite (All or Nothing Scoring): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy - Diabetes or Left Ventricular Systolic Dysfunction (LVEF < 40%)	NQF # 66 CMS (composite) / AMA-PCPI (individual component)	GPRO Web Interface	R	R	***P***

NOTE: ACO = accountable care organization; NQF = National Quality Forum; P4P = pay for performance; ***P*** = performance; R = reporting

LIST OF JOURNAL ABBREVIATIONS

Am J Manag Care	The American Journal of Managed Care
Health Aff	Health Affairs
Health Care Manage Rev	Health Care Management Review
Healthc Financ Manage	Healthcare Financial Management: Journal of the Healthcare Financial Management Association
Healthc Q.	Journal for Healthcare Quality
JAMA	The Journal of the American Medical Association
J Extra Corpor Technol.	The Journal of Extra-Corporeal Technology
J Med Philos.	The Journal of Medicine and Philosophy
Mayo Clin. Proc	May Clinic Proceedings
N. Engl. J. Med	The New England Journal of Medicine
Med Care Res Rev	Medical Care Research and Review
Popul Health Manag.	Population Health Management

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