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Financial Rewards for Health Care Program Outcomes and Why They Can and Do Lead to Undesired Results

Working Paper 3 in the Series: The Perils of Pay for Performance in Public Service Industries

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Abstract

The operations of heath care programs and organizations today rely heavily on the measurement of performance and outcomes. This includes a variety of stakeholders—*private firms* such as pharmaceutical manufacturers, *government* health care providers and insurers including Veterans Administration (VA) *hospitals*, and private *hospices* that depend on the Medicare payment system. In varying ways, all view their expenditures and revenues as being tied to systems of incentives, rewards, and penalties that are linked to performance and outcome measures. Not surprisingly, that can and does trigger stakeholder responses to maximize specific metrics and their associated financial rewards. The result is unintended and often unforeseen distortions in behavior that can lead to undesired outcomes. This paper examines the history of U.S. public policy regarding federal health care programs and payments, and through a series of case studies it shows how and why strong financial rewards tied to simplistic health care performance measures lead to these results. It delves into the economic concept of how and why measurement itself leads to changes in behaviors, and the rationale behind behaviors of ”gaming” health care performance measures systems to enable the appearance of better outcomes. Finally, it points the way to more sophisticated measurement of health care performance with use of “weaker” rather than “stronger” financial rewards as a way to better achieve desired results.

About the Series. This paper is the third in a series on "The Perils of Pay for Performance" for public service industries. The series highlights an important issue today, which is how for-profit firms, nonprofit organizations, and governmental agencies can coexist in many parts of a modern economy, with each playing a role supporting "better" performance. Other papers in the series delve deeper into those issues for other specific industries including K-12 and higher education.

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Introduction: Health Care by the Numbers

> *Doctors and hospitals [in the United States] are obsessed with metrics, not least because under the health law, they may be rewarded or penalized based on their performance. They tally the number of medication errors, the number of patients injured in falls and the number who develop infections after certain types of surgery*.[1]

Measuring performance is fundamental to establishing *incentives* that encourage better performance. If only providers had stronger incentives to cut "waste, fraud, and abuse," and so to increase social efficiency, the more social costs could be cut. Or so it would seem.

If health system providers such as hospitals, physicians, pharmaceutical producers, and hospices were not paid per day of hospitalization, they would not be paid for poor performance. All that would be needed to rein-in public expenditures would be to measure performance better and then to reward it. If Medicare and Medicaid programs had not been encouraging hospitals to keep patients longer, by paying for each additional day; if only we stopped encouraging physicians to order expensive but "unnecessary" tests, those costs would fall; if only we stopped paying pharmaceutical firms higher prices for their drugs than are paid anywhere else in the world, drug expenditures would drop. If only!

My prior papers in this series showed how financial incentives for higher performance by providers of education and other public service industries (referred to as P4P – Pay for Performance) can lead to unintended and counter-productive results.[2] The same basic P4P forces operate in the healthcare industry, where financial incentives facing service providers (who get reimbursed) and insurers (both public programs and private companies who pay for the services) interact to bring predictable but inefficient results: stronger incentives do bring better measured performance, but not necessarily real accomplishments. Performance measures can be and are gamed – specifically to overstate true performance and thereby enhance rewards.

In the U.S. healthcare sector, the pressure to hold down the growth of spending in this part of the economy reflects the rising portion of Gross Domestic Product (GDP) devoted to health; up from 16.3 percent in 2008, to an all-time high of 19.7 percent in 2020 for tighter constraints on stakeholders – especially on the use of costly diagnostic tests and medications. The stakeholders include *private firms* such as pharmaceutical manufacturers, *government* health-care providers and insurers such as Veterans Administration (VA) *hospitals*, and private *hospices* benefitting from the Medicare payment system. In this paper, I show how similar forces operate here, providing opportunities for gaming -- i.e., for manipulating performance statistics among groups of stakeholders. In any case, health care or other, gaming may or may not violate legality constraints.

Three Health-Care Stakeholders: Consumers, Producers, and Insurers

<u>*Consumers*</u> of health services involve vast numbers of people whose aggregate interests in the healthcare system's pricing and regulation are enormous even if their individual interests are small. The result is that they have the strongest incentives to treat health care prices and medication dosage rules, as set by other stakeholders -- producers and insurers -- and beyond a consumer's control; consumers are largely responders -- price-*takers* and rule-*takers*. Yet they can take advantage of their private information about their own productivity or lack thereof, to increase or decrease health care system rewards and penalties.

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[1] Goodnough and Pear, "Health Reform Could Outlast…"

[2] Weisbrod, "Why Strong Performance Rewards…, Weisbrod, "Incentives in K-12 Education…"

Producers and *insurers*, by contrast, are stakeholders who have more powerful instruments than do consumers, to influence system performance, expenditures, rewards, and penalties. Hospitals, nursing homes, hospices, physicians, and pharmaceutical manufacturers all have greater opportunities to influence patient service utilization and to collaborate with the health insurance system to generate revenues and expenditures. More patient overnight stays, longer stays, and more testing and treatments typically bring more net revenue to the service providers. But these gains often come at the expense of other stakeholders, especially *consumers* and *government agencies* that see their rising health care expenditures as measurable costs, not as benefits.

Consumers with severe health problems may see both sides—recognizing that the free or low out-of-pocket costs of care are primarily, if not entirely, financed not by some remote, abstract, insurer, but by their own payments for health insurance, their own outlays to meet insurer co-pays and deductibles, and the lower cash wages they receive because of their employers' contributions for health-care insurance.

Insurers are another health-care stakeholder group—typically a direct source of payments to service providers. In the United States the federal Medicare program, the joint state and federal Medicaid programs, and private insurers such as Blue Cross Blue Shield, Aetna, and Humana, are all parties to the establishment of rules, prices, and rewards that affect health-care providers' and consumers' utilization incentives. Higher prices for prescription drugs, physician services, and hospital, nursing home, and hospice services, may well raise those suppliers' incomes but also impose side-effects on consumers.

This paper focuses on the P4P gaming decisions by each of these three healthcare industry sub-sector participants -- pharmaceutical manufacturers, hospitals, and hospices. Most striking is the variety of gaming mechanisms they have used, the constraints and incentives established by regulators, and the impacts of measured performance on stakeholder rewards.

Gaming and Output Wastage by Health Care Providers

Gaming opportunities associated with P4P are available to health care providers, largely because of their informational advantages over other stakeholders in the health care economy: *physicians* know better than their patients when an office visit and diagnostic tests are "needed," *hospitals* know better than *insurers* whether the cost of some particular test for a patient is "justified," and pharmaceutical manufacturers know more than insurers whether a costly medication is being provided *only* in large, high capacity, vials for medical reasons because that maximizes drug manufacturers' profits even though it also causes greater medication wastage and higher costs to consumers than if smaller-content vials had also been available, as it has been in other countries.

Health care illustrates well the variety of gaming mechanisms — legal and illegal —through which unintended incentives induce health care providers to game incentives and reap greater private rewards but in socially inefficient, wasteful, ways. Three examples involving different health-care stakeholders, illustrate gaming mechanisms that increase private profits at public expense:

- *Pharmaceutical manufacturers.* They face, in their drug pricing and medication- content marketing quantities, and political forces, a critical wastage of expensive but unused medications. By limiting a drug's distribution to only one large vial content, 3.5 mg in the case of a major anti-cancer drug, Velcade, for treating multiple myeloma, the manufacturer was required to state on the vial a safe, use-by, expiration date at which time considerable amounts

of the medication were often unused and discarded, especially for small, lightweight, patients. There would have been less wastage, or none, if smaller vial contents were also available. And there were, at least in the U.K., but not in the U.S.

- *Veterans Administration Hospitals* – why and how have they established inefficient and even illegal record-keeping systems, to intentionally understate veterans' waiting periods, in weeks or even months, to see a physician, with rewards and penalties for successes and failures, came as a surprise to VA investigators who were shocked by the sharp drop in waiting periods.
- *Hospices,* nonprofit or for-profit – how they have responded to Medicare's or other long-term insurers' payment incentives, to attract patients with particular medical diagnoses, ability-to-pay, and life expectancies to make their care profitable.

The variety and scope of opportunities for one set of stakeholders to intentionally game regulatory mandates, prohibitions, and other incentives, to augment their own well-being at the expense of others', are the source of the perils of using strong rewards for better performance when at least some components of performance are costly to measure, value, and aggregate, while others are not.

The results of these measurement hurdles are predictable: systematically *mis-measured* and *mis-rewarded* incentives. While the gaming strategies used by private *pharmaceutical* manufacturers, government (VA) *hospitals*, and palliative-care *hospices*, for-profits and nonprofits, differ, all these healthcare sectors share an underlying characteristic -- there are *informational asymmetries* between what a health-care provider *is* paid for, what should be paid for, and what is not paid for; *measurement* problems abound. With multiple goals and their degrees of achievement differing and posing distinct measurement challenges, *weak* rewards for *all* dimensions of performance are appealing. For they do not create distortionary incentives that would accompany *strong rewards* for encouraging emphasis on the "measurables."

To highlight how information differences affect incentives of health care providers to game the reward system, it is useful to re-visit the information asymmetries in the three health-care sub-markets highlighted above:

1. how a *pharmaceutical manufacturer* can take advantage of financial incentives operating through public and private healthcare insurers, to sell a medication, Velcade, for treating a multiple myeloma cancer patient who is tall and heavy enough to need a series of large Velcade dosages. Using less of the drug by its expiration date requires disposal of the excess -- wastage of a costly unused drug;
2. how *VA hospital* patient appointment schedulers and supervisors took advantage of the weak external monitoring of veterans' long *wait-times* for a physician appointment that systematically understated true wait-times; and
3. how *hospices* – nonprofit and for-profit – have responded to incentives (primarily through the Medicare system), to attract patients with particular medical diagnoses and long-life expectancies.

Three Stakeholder Groups, Some Short History

Stakeholder Group 1. Pharmaceutical Manufacturers: How much medication to put into a "single-use" vial of a multiple-myeloma cancer drug, Velcade?

Prior to passage of the U.S. Pure Food and Drug Act, in 1906, there was essentially no governmental role in the markets for medical products – no checks on the accuracy of their advertising claims, the effectiveness and safety of the treatment dosages for people of various ages and weights, nor why and how to dispose safely of any medication after the initial cycle of treatments.

Much has changed, especially since WW II, including expansions of *Medicare* health coverage under the Social Security Act for the elderly, *Medicaid coverage* for the poor and disabled, and the Affordable Care Act (ACA), also known as Obamacare, have covered a growing range of health-care services and new technologies including drugs and costly testing and treatment devices that have revolutionized the arsenal of health care weapons. But at a cost.

Greater access to medical care of greater quality has been a bonanza for millions of people who were previously uninsured and unable to finance the available care.[3] But it also unleashed opportunities for owners of new diagnostic and therapeutic technologies to adopt new pricing strategies that brought added profits as well as increased costs to patients and increased wastage of costly new drugs that would be unused at their expiration dates.

An anti-cancer drug, Velcade, that received expanded FDA approvals in the past decade for treatment of multiple-myeloma cancer under various conditions, illustrates how a drug developer's decision to make a drug available to patients in only one, but large, quantity, has caused substantial spoilage and wastage at the end of its short shelf-life. Once a vial of Velcade powder is opened, its safety and efficacy are limited to a period of some eight hours. The result: wastage, which could be reduced or even eliminated if the medication vial content was marketed not only in today's standard of a 3.5 mg vial, but also in a much smaller size, such as 1.0 mg.

Drug Wastage Can be Profitable: Velcade and Treating Multiple Myeloma Cancer

A drug company's choice of how much medication to put into a "single-use" vial of an anti-cancer drug such as Velcade, produced and distributed in the U.S. by Takeda Pharmaceuticals since 2013 and earlier under specific circumstances, highlights a fascinating opportunity for the manufacturer to game its variety of medication contents. Briefly, different treatment dosage levels are optimal for patients of differing sizes and weights; one size does not "fit" all; a vial dosage recommended for a 200 pound, six feet tall, male would be excessive for a 110 pound, five feet tall, female; if only one vial size was marketed, and its medication content was sufficient for the male, using that same size vial for the female would be substantially excessive for the female; the result would be wastage, discarded medication at its expiration date.

In 2016 some surprising, even shocking, information surfaced about decisions by a major group of health-care stakeholders -- manufacturers of a variety of cancer drugs – to game the rules, restrictions, and rewards in their growing markets. Producers of the top twenty cancer drugs were being paid some $1.8 billion annually by healthcare insurers, hospitals, physicians, and patients, for drugs that were contributing *nothing* to patient health; the drugs were being produced and sold for use by cancer patients under a physician's direction, but much of the vial contents was simply discarded because of its

[3] US Dept. of HHS, Office of Health Policy, "Health Coverage Under the Affordable…"

limited shelf-life and expiration date.[4] There is no evidence of producer efforts to reduce wastage by adding a second, smaller, dosage vial, although that had been done in the U.K. To the contrary, it could be, and presumably was, profitable for the U.S, manufacturer to market only one, large- quantity, medication vial and accept the wastage consequence along with the profit.

Velcade had been approved by the FDA back in 2007, for treatment of multiple-myeloma cancer, to be used over a several-month schedule, in quantities that varied with the patient's weight and height. The glass vials used contained the medication as a powder that, upon opening, was to be mixed with a saline solution for injection in the patient in a specified time pattern over several months, subject to a maximum elapsed time of some 8 hours since the vial was first opened. Any remaining excess at the expiration date on the medication vial was required to be discarded because of its limited shelf-life, sensitivity-to-light, and other impediments to safe storage.

The result: many patients were paying for a quantity of medication that could have been sold in vials with much less than the 3.5 mg of medicinal powder that was, and is, available; a smaller vial content would have generated less wastage, but patent laws gave authority to patent holders to establish vial content quantities – why 3.5 mg -- and why a price of $1,034 per vial, with some patients requiring multiple vials annually, and others requiring considerably less than one? Prices, vial contents, and wastage were, and still are, under the control of patent holders. The Velcade patent expires in 2022, opening the door to expedited approval of generic versions.

Since Velcade had been approved by the Food and Drug Administration (FDA), it had been judged to be safe and effective in treating that disease for patients of particular size and weight, and with particular symptoms, so those were not the problems. The drug has been produced legally and safely, prescribed lawfully by physicians, delivered to authorized health-care providers, and paid for largely by insurers and patients. The wastage problem did not result from buyers' or physicians' random errors, nor from accidental over-production. But much of the medication continues to be routinely discarded.

How could such social inefficiency occur, and repeatedly, continuing at least into 2022? The root cause was, again, incentives—unintended opportunities for a drug patent owner to game the rewards operating through the health-care insurance payment system. Simply put, a one-size-fits-all dosage regime was established by one stakeholder, the pharmaceutical firm that owned the drug patents, at the expense of another, the price payers. Drug manufacturers, who faced no legal or regulatory restrictions on the content volume of the medication vials they were producing, chose to market just one medication vial content, presumably with an eye on profit.

Velcade was and still is sold in the United States in only the one container size, a 3.5 milligram (mg) vial. That is enough to treat a six-foot-tall patient weighing 250 pounds. For smaller patients that is excessive, and the excess medication is simply thrown away. FDA standards do permit the use of any unused portion, but only within about six hours of its opening, for safety reasons. So leftovers may not be kept for the next time the patient comes in for a treatment, nor used for another patient unless that is within the same period.

Velcade's manufacturer, Takeda Pharmaceuticals, was estimated to have earned $309 million in one year, 2016, on its U.S. sales of the discarded medication under plausible assumptions, some from company reports, some mine but intended only to be suggestive: (1) 30 percent of Velcade's U.S. sales were based on its sale price of $1,034 for each 3.5 mg dosage vial; (2) the recommended annual dosage

[4] Harris, "Researchers Describe Costly Waste…"

for a hypothetical patient requiring use of a total of 3.7 mg of the medication annually, the required use of more than one full vial but considerably less than a second 3.5 mg vial; so (3), if a second, smaller, vial were also available, of, say, 0.25 mg , were available, one such vial would have sufficed to cut wastage dramatically, virtually eliminating it for a patient requiring an annual total medication dosage of 3.75 mg – one "large" vial of 3.5 mg, plus one "small" vial of 0.25 mg. There would be no need for a second large vial, only to discard *almost* all of it.[5] Similarly, since a 5ft. 8-inch tall person weighing 150 pounds -- the approximate combination for a male adult -- would require only a total of 2.35 mg of the anti-cancer medication,[6] availability of both a large and a small vial would cut wastage by some 87 percent.[7]

While wastage could clearly be cut, how much that would have affected the prices of each vial dosage, and, so, affected consumer and insurer expenditures on the drug, is less certain. If a patient's physical size and responsiveness to the drug dictated lower dosages or longer rest periods over the treatment cycle, so that a maximum need over a treatment cycle was, say, only 2.5 mg of Velcade would be needed for a cycle, a total of ten of the lower-dosage (0.25 mg) vials would have sufficed, with no wastage. It would have been unnecessary to prescribe the higher-dosage, 3.5 mg, and then discard the excess 1.0 mg medication that would have been wasted if only the large vial of medication had been available.

In Britain, by contrast, Velcade has been sold in *two* vial sizes for many years, 3.5 mg and 1.0 mg.[8] But not in the United States. As of January 2022, the drug continues to be available in the U.S. only in the larger vial -- and wastage continues. Moreover, in the U.S. the FDA does not have the legal authority to regulate drug *prices*—only their safety and efficacy. Neither does Medicare have the authority to negotiate with a pharmaceutical manufacturer over price or quantities of vial medicinal content, and legislation sharply restricts importation of pharmaceuticals from other countries where prices are lower and choices greater. The effects of unavailability of lower-dose, lower priced, options in the United States, continues to generate wastage and higher consumer expenditures -- not only for Velcade but for other medications with analogous dosage restrictions. If one smaller volume vial size were added for the other top 20 cancer drugs, total wastage could have been cut by an estimated $1.5 billion in the single year, 2016.[9]

The market valuations of reduced wastage reflect prices negotiated by prescription drug manufacturers, patients, and insurers, which have made it profitable to charge more for a larger dosage vial even when much of it is unneeded and it goes unused. Yet, for reasons that are not well understood—though probably related to weak inter-manufacturer competition —there is little variation in the range of vial contents available, and so in the volume of product wastage.

For instance, another anticancer drug, Treanda, manufactured by Teva Pharmaceuticals and used to treat leukemia and non-Hodgkin's lymphoma, is available in *four* dosages, and, not surprisingly, only 1 percent is wasted. At the same time, the vial options for many drugs are even more limited: of the

[5] Harris, "Researchers Describe Costly Waste…"

[6] Calculated from the dosage formula for intravenous injections published by Velcade's manufacturer, Takeda-Millennium Pharmaceuticals, from 2014, when the drug received FDA approval, and continuing today. See Millennium, "reconstitution and dosing"

[7] From an estimated 1.15 mg of wastage annually per patient when only the 3.5 mg dosage vial was available, to virtually zero if smaller 0.25 mg vials were also available

[8] Harris, "Researchers Describe Costly Waste…"

[9] Bach et al., "Overspending driven by oversized... "

twenty largest-selling cancer medications, eighteen are sold in only one or two vial sizes, and wastage is far greater, averaging 10 percent.[10]

Gaming is Inefficient, but That Does Not Make it Illegal

A patent owner can decide what drug dosages to produce and market, anticipating competitive responses in markets for generic versions of the drug, following expiration of the patent-protection period. But such strategic behavior need not be a violation of any law or regulation. Patent laws grant important protections to patent holders in their pricing and medication quantity policies, to provide incentives for creativity and new product development.

Routes to the "gold at the end of the rainbow"—the rewards for better performance—pass through *legal and illegal* terrain*, and* both are inevitably available. On students' standardized-tests, correcting wrong answers was seemingly the lowest-cost path for administrators and teachers to raise students' measured performance, thereby reaping the resulting acclaim, bonuses, promotions, and other rewards for "success." The most-profitable path is often in plain sight, at least if a code of silence can be counted on to mask illegal violations, or weak regulatory enforcement. Yet lawful options such as taking advantage of the monopoly power accompanying patents remains appealing.

That gaming a reward system can be simultaneously profitable to a product developer, costly to consumers and insurers, and socially inefficient, but at the same time be legal, is a theme that threads its way through the broad spectrum of industries we examine—some dominated by government producers, some by private nonprofit producers, and some by for-profit firms. It is useful to see how the gaming of reward systems can be so pervasive but, at the same time, differ among ownership forms as this can shed light on differences in how both strong and weak rewards motivate performance.

Stakeholder Group 2. Government, Veterans' Administration Hospitals, and Growing Wait-Times to See a Physician

As far back as 1993, concern about long wait times—often months—to see a physician at a Veterans Administration (VA) hospital was attracting attention.[11] By 2014 the problem had become especially pronounced at the Phoenix, Arizona, VA hospital, but it was widespread.[12]

There were a number of ways for hospital administrators to meet the new goal of making wait times appear better : (1) Hiring more physicians could solve the problem, but that would increase budgetary costs, (2) abbreviate the duration of a physician visit, and (3) turn over more elements of a physician visit to lower-cost assistants, accelerating a process that has been evolving for decades throughout the nation's health-care system; but these, too, could subject VA hospitals to charges of cutting "quality."

There was another option, and it won out: (4) game the appointment wait-time records by *cheating*. It worked, proving easy and inexpensive to implement, and costly for external monitors to detect and penalize.[13] Hospital wait-time records were simply falsified—reminiscent of how k-12 student test scores were surreptitiously increased in school systems "performance" as discussed in paper 2 of this

[10] Harris, "Researchers Describe Costly Waste"
[11] GAO, "VA Health Care: More National Action", p.1
[12] US Dept. of VA, OIG, "Review of Alleged Patient Deaths," p.1
[13] Brunker, "Performance Mismanagement…"

series.[14] The rewards for "better performance" by hospital administrators and their appointment-schedulers continued, despite increased violations of VA rules intended to cut actual wait times.

The game that played out in VA hospitals involved several groups of stakeholders—producers (hospitals and their administrators), consumers (veterans seeking medical attention), and payers and their agents (the federal Department of Veteran Affairs and the individual VA medical facilities). It is a fascinating story of how high-powered incentives to cut wait-time can be cut while providing ostensible evidence of maintaining quality of care. But the "evidence" can be misleading and even counter-productive. It actually *was*, and predictably so. It is a tale of intentional, if not illegal, under-reporting of veterans' true wait-times at more than 120 VA medical centers and clinics around the U.S. -- including, for example, not only Phoenix, but suburban Chicago (Hines VA Hospital), and Shreveport, Louisiana.

How Were the Reported Wait-Times Gamed and Under-Reported?

There were two main approaches to hospitals' gaming of veterans' wait times for a physician appointment. First, any ambiguity as to *how* to calculate "wait-time" could be resolved in favor of showing the hospital's performance achievements. Second, key stakeholders -- especially hospital appointment schedulers and their supervisors -- could exercise self-serving discretion, by deliberately over-reporting their own VA facility's improved wait-time performance. So, self-interest was at work. Under Department of Veterans Administration rules a veteran requesting a medical appointment should be asked by the scheduler to state a desired appointment date (in VA lingo, the "desired date"), irrespective of the hospital's or physician's schedule of availability. It is then the hospital's responsibility to schedule and hold an appointment within fourteen days of that desired date.[15]

Hospital administrators and appointment personnel thus have two dates to set, which jointly determine each patient's "wait time": When did the veteran first contact the hospital to *request* an appointment with a VA physician? And when did that appointment occur? (For veterans who had already been seen by a VA doctor in the past two years, an appointment could also be requested by a physician.)[16] When, that is, did the wait-time "clock" start and stop for a given patient, and was the goal of a fourteen-day maximum achieved?

The two-step process was not easy to implement—or to monitor. In VA hospitals, not only in Phoenix, both pieces of information were generated by appointment clerks (schedulers) and reported to the VA system in Washington, DC. The hospitals and their staffs were and are in "principal–agent" relationships with the central VA system to which reports on performance are submitted; but the patients-consumers, whose complaints of long wait times had given rise to pressures to shorten them, also have a stake in the process. And some seemingly technical, even inconsequential, details of calculating wait time can be gamed. How easy it is to understate the true wait times? Quite easy. The Phoenix VA Hospital showed how.

Was the wait-time a game?

The *Phoenix VA* patient wait-time had been increasing in the 1990s and early 2000s, and complaints were growing. Political responses resulted, from both Democrats and Republicans.[17] Hospital

[14] Weisbrod, "Incentives in K-12 Education…"
[15] GAO, "VA Health Care: Reliability of Reported Outpatient…"
[16] GAO, "VA Health Care: Appointment Scheduling Oversight…"
[17] Oppel, "Official Says Prosecutors..."

supervisors and appointment schedulers, though, knew how to cut *measured* wait time. It was not hard. They even knew how to do it without materially increasing expenditures.

Appointment schedulers at the hospital simply altered the methods of setting, recording, and reporting appointments to the central VA office. But reducing the *true* time interval between when a scheduler set an appointment date and when the patient met with a physician would have been costly, requiring more doctors, longer work hours per physician, shorter office visits, or substitutions of less-trained, presumably lower quality, physician assistants could be added to enhance physician productivity at the visit.

But a simpler, less costly, approach was adopted: the record-keeping protocol was changed. The appointment date "requested," that is, when a veteran "sought" an appointment, was manipulated, largely hidden through overwriting the conventional appointment-dating process with a later date. This delayed the start of the wait-time "clock," cutting the *reported* wait time.

Records based on *traditional* wait-time calculations became "secret"; a second, *official,* set of bogus wait-time records was reported by VA hospitals to the national system authorities. The new data showed what authorities wanted to see: shorter *wait times,* improved *performance,* albeit having been achieved through intentional *mis-measurements and mis-reports.*

VA Incentives and Unanticipated Results

In 2001, a VA report assessing patient wait times was issued by the U.S. General Accounting Office (GAO). Entitled "More National Action Needed to Reduce Waiting Times, but Some Clinics Have Made Progress," the report found that only about a third of the VA hospitals audited were meeting the thirty-day maximum wait-time goal established six years earlier.[18]

In May 2014, the VA Office of Inspector General (OIG) reported four "scheduling schemes" that were being used by the Phoenix VA hospital and elsewhere, nationwide, to reduce reported patient wait time to, or below, the fourteen-day threshold for success.[19] All four involved gaming, through manipulations of reported data as noted below.

1. For established patients, schedulers ascertained an appointment date that was available, asked the veteran if that would be acceptable, and recorded that date -- for performance measurement purposes only—as "the veteran's desired date of care." This made the reported wait time for that veteran zero days, because the reported date the appointment date was requested, and the date of the actual physician appointment were the same—even if the appointment with a physician was weeks or even months after the veteran first called.
2. Supervisors used an auditing process to identify individual schedulers whose appointments exceeded the fourteen-day goal, and schedulers were instructed to "fix" any appointments more than 14 days off by rescheduling. In response, schedulers at one VA medical facility "automatically changed the desired date to the next available appointment, thereby, showing no wait time" to see a physician.
3. The scheduling system had an "overwrite" function that allowed schedulers to make a new appointment on top of an existing one, without recording the canceled appointment. To diminish reported wait time, this mechanism was used to overwrite the original "desired

[18] GAO, "VA Health Care: More National Action…"
[19] US Dept. of VA, OIG, "Review of Alleged Patient Deaths, Patient Wait Times…"

date" with a new, later, appointment date, and the date on which that first appointment had been created was recorded as the "current date of entry."

The VA conceded that the whole concept of a "desired date" is difficult to reconcile with more traditional, accepted practices, such as negotiating an appointment date based on the hospital's schedule and resource availability. The "desired date" negotiation process and record keeping benefited schedulers, who could present the patient with options while also enhancing the hospital's *measured* success in reaching its performance target and rewards.[20] Such gaming behavior was predictable as policies intended to cut wait-time caused distortionary responses; this follows from "the Social Heisenberg" concept discussed in my paper 1 of this series.[21]

The VA's internal reward system, ostensibly to improve veterans' medical care, did shorten wait times, but in the process it sowed seeds for gaming. VA hospitals nationwide responded to the incentives by reporting shortened wait times for appointments. Of course, the greater the rewards for shortening the wait, the more reason there would be for VA officials to be skeptical of officially reported reduction in wait-time performance, lest they unwittingly encourage upwardly biased reports of success.

Hospital administrators, record-keepers, and appointment schedulers recognized that they could "succeed" and, in the process, gain rewards (financial and other) even when the measured reductions in wait times were illusory. "Success," after all, was seemingly easy to measure -- when the number of days veterans had to wait to see a doctor dropped to fourteen or fewer, you had succeeded. The game was on.

The two key end points that determined the wait time—when a patient first made contact to set an appointment to see a VA physician, and then when the patient was actually seen by a physician—were *self-reported* by a VA hospital scheduler. The reports often reflected the incentive to maximize the percentage of patients for whom the fourteen-day maximum-wait threshold was being met; this amounted to a "pass–fail" performance grading system that encouraged understating the true elapsed time. The VA hospital system supervisors in Washington, DC were rewarding hospital administrators and staffs erroneously, through compensation and promotions tied at least partially to the hospital's "success" in cutting the *measured* wait times. (The extent of wait-time gaming nationwide is not clear, but the incentives certainly are.)

The crux of the VA gaming scandal was measurement—of when a veteran's medical appointment wait-time truly began and ended. The central issue was how those decisions were actually made, and how, if at all, they were influenced by various forms of incentives.

Here are several examples of how what would seem to be matter-of-fact data can be reconceived to reap rewards for reducing wait times even without actually performing better:

Counting the Days

A patient telephones a VA hospital on a Thursday morning at 9:00 a.m., and is given an appointment to see a physician fourteen calendar days later, at noon. What is the wait-time? (a) 14 days? (b) 14 days and 3 hours? (c) 10 days—excluding weekends, when routine appointments are not held? (d) something else? If the correct answer is (a) or (c) the hospital succeeded in achieving its 14-day wait-time target -- but not if (b) is the answer. How, in short, is a "day" of wait time defined and measured? How much

[20] US Dept. of VA, OIG, "Review of Alleged Patient Deaths, Patient Wait Times…"

[21] Weisbrod, "Why Strong Performance Rewards in Government and Nonprofit Programs Don't Work…"

does that matter? And to which stakeholders, and how great are the rewards or penalties? Measurement involves judgments on operational ways to determine how good a program's performance is, and so the choice of measures is affected by the rewards—by what is rewarded, and how much.

Note that the appointment schedulers know that the official goal is to cut wait time to a maximum of fourteen days, and consider their measurement choices and the effects of those choices. Since the hospital is rewarded, in some form, for keeping wait time at or below fourteen days, option (a) would be a failure, warranting no reward, or possibly a penalty, option (b) would constitute either a success or a failure, depending on the rule used for rounding; and option (c) would be a success or a failure, depending on the rule used for Saturdays and Sundays.

Call Me in the Morning

A patient contacts an appointment scheduler just minutes before the office closing time -- say at 5:30 p.m. Assuming that the actual appointment date is the same, would that be recorded as a day-longer wait time than had the call come in at 8:00 the next morning, when the office reopened? If so, there would be a clear incentive for a facility to be rewarded for shorter wait times to use its discretion to delay the start of the wait-time measurement clock.

If a scheduler wanted to shorten a patient's reported wait time -- in days -- it might be useful to explain to the caller that the computer was about to be shut down, and ask the patient to call back in the morning—or, perhaps, ask if it was OK to formally record the appointment the next morning. These options might seem trivial to the caller, but to the hospital scheduler the effect could be to cut "a day" from the recorded wait time, even if the true performance wait time did not change at all. Bookkeeping can matter. The greater the reward for a shorter wait time, the greater the incentive to engage in such gaming of appointments.

Other Times, Same Mores

Details of performance measurement matter when performance is linked to rewards, regardless of the particular stakeholders involved. Under circumstances involving hospitals and another major stakeholder group, insurers, more than thirty years ago, hospitals had the incentive to game insurers' payment system. For decades prior to 1985 hospitals were routinely paid a flat fee for each "day" a patient was "hospitalized." Barring a medical emergency, a hospital then had the financial incentive to "admit" a patient late in the day—even just before midnight—rather than early the next day, just after midnight--because a new "day" was counted as beginning at midnight and insurers paid hospitals for each day.

In health care any stakeholders—pharmaceutical manufacturers, patients, hospitals, insurers, and political leaders—may be lured by incentives to reap rewards by selecting ways to maximize their profitability by taking advantage of rules that encourage distortionary decisions.

End Game. Note that although the VA hospital schemes focused largely on the *starting* point—which was, indeed, intentionally falsified—the *stopping* point could also have been gamed. But what, exactly, does that "end point" mean, and how might it be used in the wait-time calculation? After all, an appointment to "see" a physician on a specific date does not necessarily yield something equivalent to a well-defined, "standard" office visit. What, then, is the operational definition of when a patient is actually "seen," or "attended to" by a physician, thereby ending the patient's wait time?

Systemwide Gaming: Not a "Few Bad Apples"

Data manipulations analogous to those found in Phoenix occurred throughout the VA hospital system. **S**ystematically misleading record-keeping of wait times -- at least one case of proper software not being used--was identified in 70 percent of the 517 VA medical sites investigated. Of all appointment schedulers, 8 percent (at 29 percent of clinics) actually admitted they had manipulated data by preselecting a date from among available dates rather than record the veteran's preferred date; such a "desired date" switch was found to have taken place, contrary to VA rules, at 76 percent of the medical sites audited. At twenty-four VA sites appointment schedulers reported feeling "threatened or coerced" by their supervisors to enter specific "desired dates" so as to hold down wait-time statistics; and overall, 13 percent of schedulers said they had been instructed to enter a date different from the one the veteran had requested.[22]

The fact that the GAO had reported considerable confusion and insufficient staffing in many VA hospitals is consistent with a benign interpretation-- occurrence of record-keeping "errors."[23] But while errors are inevitable in any realistic context, what is noteworthy is that at the VA hospitals they were not random -- not sometimes understating actual wait times, sometimes overstating them; rather, they were systematically showing shorter wait times than what would have resulted if the VA rules for appointment making and reporting had been followed. The errors were in *understating* wait times. Many appointment schedulers were misreporting the appointment dates they were assigning as the *patients'* desired appointment dates, which were generally earlier. This had the direct effect of systematically shortening the reported wait time, for the VA rules had intended the counting to begin when the veteran first contacted the scheduler to make an appointment.

The Phoenix VA hospital had reported that, in fiscal year 2013, 43 percent of new patients had waited more than fourteen days for their first primary care appointment, and the average wait was twenty-four days. The Office of Inspector General (OIG) analysis, though, disclosed a far more dismal picture: average wait time to see a primary care physician in FY 2013 had been 115 days, not 24; and an overwhelming 84 (not 43) percent of wait times had exceeded the 14 days reported. According to the OIG report, "Most of the wait time discrepancies occurred because of delays between the veteran's *requested* appointment date and the date the appointment was *created*." That is, the records has been doctored (overwritten; see scheme 4 above) to make it appear that the appointment wasn't set up until much closer to the appointment date. Moreover, even these longer wait times were almost surely understatements, for the Department of Veteran Affairs admitted that the date of a veteran's first call was often *deleted from the record,* further understating the actual wait time.[24]

Was the VA Hospital Gaming Illegal?

Were these actions by appointment schedulers "gaming"? Yes. Were they contrary to VA rules? Yes. Were they "illegal"? That is unclear.

The report by the VA's Inspector General did not indicate *how often* these gaming schemes were employed at the Phoenix hospital or any other VA medical facility. What is especially noteworthy, though, is that the Veterans Health Administration, which conducted the audit of practices, did "not probe the extent to which some of these alternatives might have been justified under VA policy"—that

[22] US Dept. of VA, OIG, "Review of Alleged Patient Deaths, Patient Wait Times…"
[23] GAO, "VA Health Care: Appointment Scheduling Oversight"
[24] US Dept. of VA, OIG, "Review of Alleged Patient Deaths, Patient Wait Times…"

is, these gaming practices, although undesirable and presumptively inefficient, might have been legal, perhaps not even in violation of internal rules.[25] True, the Secretary of Veterans Affairs did swiftly lose his job over the furor; but more than two years later, in 2017, there was still no evidence of formal charges of illegal behavior, nor of clear penalties to schedulers or others involved in the process—no evidence of demotions, official reprimands, and so on; the *legality* of the system of keeping two differing sets of records, as discovered at Phoenix—the secret, true lists and the intentionally under-reported wait times, remains unsettled.

Sharon Helman, head of the Phoenix VA hospital at the time of the scandal, was suspended and then discharged; but when in May 2016 she was penalized by the court—two years' probation—it was not for her involvement in the wait-list scandal, but for failing to disclose gifts from lobbyists.[26]

How Strong Were the Incentives to Cut Patient Wait Time?

Over the course of more than two years the *Arizona Republic*—the main news source for the Phoenix scandal—asked for the hospital *bonus* records at least ten times, but obtained only limited data from the Department of Veteran Affairs. Finally, the newspaper received from the VA the fuller information it had requested. This disclosed that the performance bonuses were being paid by the Phoenix VA hospital and *not,* it appears, from the central VA system in Washington, DC. Total performance-based bonuses paid to employees increased from $2.5 million in 2011 to $3.5 million the next year and $3.9 million in 2013—roughly 1 percent of the hospital's total budget for salaries.[27]

How much the increase in total bonuses was due specifically to meeting the maximum fourteen-day wait-list goal is not documented, but there is no evidence that all VA hospitals used a formula, let alone the same one, to set bonuses. Nonetheless, incentives for the hospitals and their staffs to manipulate reports of their own performance were widespread enough to cause a re-examination of the effectiveness of the entire incentive system.

The foundations for VA performance-based bonuses were annual reviews and ratings of each employee's *overall* performance--not in any single dimension such as wait-list duration—as "unacceptable," "minimally satisfactory," "fully successful," "excellent," or "outstanding." An employee rated fully successful or higher was eligible for a bonus, which could have been for cutting wait times, but also for other forms of what the hospital's administrator judged to be an acceptable basis for a reward.[28]

The fourteen-day maximum wait-time measure of performance was not only arbitrary but it was so easy to manipulate that it was soon abandoned. In July of 2014 the Acting Secretary of Veteran Affairs, Sloan D. Gibson, announced that wait-time had been *eliminated* from the employee performance evaluation and bonus reward system: "The inappropriate 14-day access measure had been removed from all individual employee performance assessments, to eliminate any motive for inappropriate [appointment] scheduling practices. …. over 13,000 performance plans were amended."[29]

[25] U.S. Dept. of VA, *Access Audit—System-Wide Review of Access*, p. 4
[26] Wagner, "Judge Sentences Former Phoenix VA Director"
[27] Harris and O'Dell, "Phoenix VA Gave Out $10 Mil…"
[28] Harris and O'Dell, "Phoenix VA Gave Out $10 Mil…"
[29] U.S. Dept. of VA, OPIA, "Acting Secretary Gibson Outlines Problems"

Game Change: Steps toward Privatization

The U.S. Congress also responded. In 2014 it legislated a temporary VHA (Veterans Health Administration) "Choice Program," providing $10 billion to allow veterans to use private doctors rather than those of the VA, if they could not get an appointment to see a VA physician within thirty days, or if they lived more than forty miles from a VA hospital. This Veterans Access, Choice, and Accountability Act authorized an additional $5 billion to hire and train 28,000 health-care providers, and $1.3 billion to establish 27 new VA clinics.[30]

Yet over the succeeding two years the number of veterans on a waiting list of a month or more did not fall; it increased. One year later, in June 2015, it was reportedly 50 percent greater than it had been "during the height of the previous year's problems," and another year later, in August 2016, it was still being reported that "Veterans are waiting longer to see doctors than they were two years ago....[31]

Management of the hastily created program had been contracted out to private firms, and the result, according to the federal commission established by Congress to "transform the Veterans Affairs Department over the next 20 years," was a 300-page report chronicling VA system failings and recommending reforms.[32] So at the time the report was issued two years later, in July 2016, the wait-time fiasco remained unresolved, but the report by the fifteen-member Commission on Care had opened the door for veterans' choice of physicians still wider. Patients became free to choose among physicians in a nationwide network of health-care providers that included not only VA hospital physicians but also physicians at military hospitals and even private physicians approved by the VA.[33] The budgetary implications of the expanded options remain obscure, though, as are the fees paid to private physicians, the nature and effectiveness of quality controls, the true wait-times, and what new opportunities for gaming may have emerged.

What had initially been seen as a wait-time issue proved to be much more. There were multiple goals: cutting patient wait times, to be sure, but also increasing "quality" of care more generally, and controlling the overall budget, not to mention achieving those goals while paying attention to the effects on other stakeholders such as Congress and suppliers of medical equipment, pharmaceuticals, and other inputs to a wide-ranging health-care system.

The Takeaway: VA Incentives to Shorten Veterans' Wait-Times

In any industry, whenever there is discretion in the performance-reporting process—especially *self*-reporting by people who stand to gain from doing "better"—exaggerating performance accomplishments is predictable. This happened in many VA hospitals when performance came to be measured largely by cutting patients' wait-times to see a physician down to 14 days or less.

Deliberate under-reporting of wait-times was one reward-gaming approach that VA Hospitals adopted. Its use was facilitated by a number of forces -- the costs of *detecting* violations of reporting rules, ambiguities in the *precise* way to *measure* the number of "days" a veteran had to wait to see a physician, and the rewards, bonuses, and penalties to hospital administrators, appointment schedulers,

[30] Philipps, "Care by Private Doctors" and "Did Obama's Bill Fix Veterans' Health Care"
[31] U.S. Dept. of VA, VHA, "Patient Access Data"
[32] New York Times Editorial Board, "Heal the V.A. (But First, Do No Harm)"
[33] Commission on Care, *Final Report,* p. 3

and other stakeholders all contributed to conveying "successful performance" in reducing wait-times down to the revised, 14-day, threshold.

There were and are, perils, though. One is that rewarding performance that is *self-reported,* measured by the very stakeholders who receive rewards based on their own measurements of performance, and reports to higher-level decisionmakers; the incentives are to take advantage of ambiguous measures of performance to advance VA hospital personnel in pursuit of their own financial and other goals. Some VA hospitals recognized the conflicts-of-interests among the various stakeholders.

There was another peril, resulting from the "pass-fail" nature of the measures of performance success, shorter wait-times. By focusing on a specific target there was an unintended effect--there was no clear incentive for a hospital administrator to reduce a patient's wait-time if it remained above the threshold target, nor to reduce wait-time further if it was already below the performance target and further reductions were not rewarded. A reduction that cut wait-time from above the threshold down toward that level but short of it, would not necessarily affect the hospital's measured "success" or its personnel rewards.

In short, the incentive was to cut wait time down to the threshold *but no further*. If cuts, even substantial ones, fell short of meeting the target and so were not rewarded, there was no incentive to cut wait times that were already at or below the threshold and its rewards. Bunching at that threshold level is predictable, but evidence to test the prediction of bunching at the threshold is not available. (Paper 2 of this series showed an analogous bunching of test scores in New York State high school graduation test scores at the pass–fail threshold.[34]) Car drivers who exceed posted speed limits by less than the non-enforcement cushion are, similarly, not penalized for a "small," presumably inconsequential, violation of the speed threshold.

Table 3.1, below, follows the general structure of table 2.1, on k-12 *schools*, again focusing on the variety of gaming approaches available to stakeholders, but now in three health care markets – Pharmaceuticals, Hospitals, and Hospices. Yes, all industries are the same, and all are different:

Table 3.1. A Health Care Performance Gaming Matrix: Drugs, Hospitals, & Hospices

Legality of Gaming	***Owners (1)***	***Patients (2)***	***Governments (3)***	***Other (4)***
(A) Illegal gaming	*#*	*#*		
(B) Legal gaming		*##*	*##*	
(C) Borderline legality		*###*	*###*	*###*

Cheating: falsifying VA patient wait-time records, to meet national target reductions (Phoenix, Arizona)

Permitting drug patent-holders to sell only in large containers (vials) that increase sales but also waste (Velcade, multiple myeloma drug)

Allowing hospices, which are not legally permitted to discriminate among patients, may do so by advertising their specialized facilities to attract patients with particular interests, needs, and life expectancies.

[34] Weisbrod, "Incentives in K-12 Education…"

Stakeholder Group 3: Nonprofit and For-Profit Hospice Incentives to Game the Medicare Payment System through Systematic Patient Selection

Differences in rewards for greater achievement bring different opportunities and incentives to game the system -- to take the least costly steps for winning the rewards, regardless of whether the true social goals are advanced. As we have already seen, in the market for cancer drugs, the gaming can take the form of limiting the variety of medication volume vial sizes, which causes wastage of expensive drugs and added costs to consumers and insurers; in the VA hospital market, where gaming has taken the form of manipulating the system for recording patients' wait times to see a physician, thereby imposing costs on patients but appearing to increase efficiency.

A third type of health-care service provider, hospices, exemplifies another opportunity and type of incentive to game the reward system. The payment structure from the federal government to a hospice encourages them, though unintentionally, to devote resources to attracting more-profitable patients -- those who can be expected to remain longer in the hospice's program, for a longer stay leads to greater profit. Because the hospice industry is a mixture of for-profit and nonprofit providers, a key question is whether those organizational forms respond differently to the same incentives to game the payment system by seeking-out healthier patients -- who can be expected to be more profitable.

Medicare pays both ownership forms the same price per day of hospice care, even though their service costs differ, depending on patient diagnosis. Medical diagnoses are largely knowable prior to admission, and so there are opportunities to game the pricing system so as to enhance provider profit at the expense of health care insurers, mostly Medicare.

Hospices face special challenges of caring for people judged by physicians to be "terminally ill" -- having a life expectancy of six months or less. How can a hospice be rewarded for good performance in assisting patients to die "peacefully" and with "dignity"? How, that is, can hospices—which as of 2019 served 1.61 million U.S. patients[35], up from 200 thousand in 1989[36] — be given incentives to advance social goals rather than simply reap private gain by gaming the reward system?

Hospices and the Medicare Pricing System

Hospices are a rather new addition to the sets of stakeholders in a modern health-care system. They started in the United Kingdom in 1967;[37] the first U.S. hospice, Connecticut Hospice, opened in 1974, and by 2019 there were 4,890 hospices in operation in the US.[38]

Unlike hospitals, nursing homes, and rehabilitation facilities, hospices do not provide health care services that are curative or even ameliorating. To the contrary, public expenditures for the delivery of hospice services are justified as a mechanism to cut those expenditures on the terminally ill by substituting lower-cost, end-of-life, *palliative* services and bereavement counseling.

"Performance" by a hospice, in short, is gauged largely by its success in reducing health-care expenditures—concentrating not on curing illnesses, physical or emotional, but on helping terminally ill patients and their families to cope with the impending death. The services, typically provided in patient residences, have the twin social goals of providing lower-cost alternatives to hospitals, nursing homes,

[35] NHPCO, "NHPCO Facts and Figures," p.6
[36] Magno, "USA Hospice Care in the 1990's"
[37] Roberts, "The History of Hospice…"
[38] NHPCO "NHPCO's Facts and Figures," p. 20

and rehabilitation facilities, and improving "quality of life"—providing palliative care and "death with dignity"—at the end of the patient's life.[39]

Medicare is the principal insurer and financial stakeholder in the hospice market, and the principal service regulator. It provided 88 percent of all hospice revenues in 2012,[40] up from 81 percent in 2007.[41] (Medicaid and private hospice insurance are not included in this discussion.) Medicare, as a payer for services, also determines a patient's eligibility and so the well-being of two other major stakeholders—providers (hospices) and consumers (patients and their families). It determines how much a hospice is paid per day for a terminally ill patient's palliative care, what services must be provided to qualify for the payments, and how long the payments will continue.

Medicare, in short, establishes rules, rewards, and incentives for other stakeholders: for *patients* to be medically certified as terminally ill (life expectancy of no more than six months) to be eligible for hospice coverage, to forego traditional curative medical care in exchange for hospice provision of palliative services; and for *hospices* to agree to federal regulatory constraints, including the services they will provide and the prices they will receive.

The patient's limited life expectancy must be certified by both a physician and the hospice medical director before he or she enters a Medicare-authorized hospice program; but even after admission, the patient must be recertified after ninety days to continue receiving hospice services. Additional extensions are possible, but they must be scrutinized with increasing care as the six-month period is approached or exceeded. Medicare pays hospices essentially a flat rate per day for serving the patient. That rate varies between residential and home care, but is (a) the same for nonprofit and for-profit hospices, and is (b) constant with respect to both the patient's duration of involvement in the program and the patient's specific terminal illness (e.g., whether it is cancer or dementia; see below).

The rationale for not differentiating among illnesses is that hospices are designed to provide only care that is palliative, not curative, and palliative care is not disease specific. The technology of palliative care has changed significantly, however, since the fixed per diem hospice rates were established more than forty years ago, in 1982.[42] Chemotherapy-based and radiation therapy-based palliative care have been found to be useful for some patients. Nevertheless, the fixed per diem reimbursement to the provider of hospice care remains in effect. After 2016 hospice reimbursement changed to a two-tier system: days 1-60 are reimbursed at $187.54 per day and $145.14 for any additional days. This change was made part of the Affordable Care Act (ACA).[43]

The essentially fixed flow of revenue to a hospice is in contrast with the flow of costs of providing the care. Regardless of the site of care, the cost of providing an additional day is relatively high at the onset of care, when there are initial costs of learning about the patient's and family members' physical and emotional needs and for developing a plan to facilitate adjustment to the impending death; this period is approximately four days. Costs are again relatively high during the approximately four days prior to the death. In the intermediate period between the high costs at the start and at the end of the period of care, however, costs are lower.[44] This U-shaped pattern of costs is the same for all diagnoses.

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[39] Folland, Goodman, and Stano, *The Economics of Health and Health Care,* p. 298
[40] Whoriskey and Keating , Hospice Firms Draining Billions from Medicare"
[41] Park-Lee and Decker, "Comparison of Home Health and Hospice Care Agencies," p. 6
[42] Huskamp et al., "Providing Care at the End of Life," p. 207
[43] Stevenson and Huskamp, "Hospice Payment Reforms Are A Modest Step"
[44] Carney, Burns, and Brobst, "Hospice Costs and Medicare Reimbursement"

The provision of chemotherapy and radiation palliative care, however, increases daily costs,[45] as does the provision of recreational services for patients with less debilitating diagnoses.

Hospices versus Hospitals: Differential Incentives and Potentials for Gaming

Hospices differ dramatically from hospitals in more than the services they provide and where. They also differ dramatically in their incentives to attract various types of patients who in turn differ in their expected lengths of stay in the program and, so, in their expected profitability. Because hospices are paid largely for each day of patient care they provide, they have the incentive to seek-out longer-stay patients of service providers, and to game the payment systems, by attracting and retaining the more profitable patients.

Hospices face a *retrospective* revenue system: the longer a patient remains in the program the greater are the expected profits, because the fixed daily price generates losses in the initial and ending four days or so of a patient's total program stay, and losses in between; a longer stay portends a longer intermediate period of profitability.

Payments to hospitals, however, are quite different. Retrospective -- "cost-based" -- for decades, they became *prospective* in 1983 -- initially through the Medicare System but then through other health care insurers. Payments to a hospital for treating a patient no longer were tied to the length of a patient's stay, the number or variety of tests performed, or to other services provided, all of which involve the hospital's decisions. Rather, a hospital's total revenue for treating a specific patient for an identified medical problem became essentially known to it at the time of the patient's admission. With the total fee for treating a specific patient being largely predetermined once the patient's particular diagnosis was specified -- out of an initial list of payments for each of the 467 Diagnosis Related Groups (DRGs) -- a hospital's financial incentives changed sharply, away from finding reasons to extend a patient's stay or to give more diagnostic tests, but the opposite -- to cut its expenditures even if that meant discharging patients "quicker but sicker." Payment by Medicare and most other insurers for treating a specific patient depends on the medical diagnosis at the time of admission, not on the eventual length of patient stay nor on the specific forms and "costs" of care provided.[46] The number of DRGs has increased somewhat over time, but remains in the vicinity of five hundred, and the associated prices have also changed over time, as testing and treatment technologies and costs have changed.[47]

A *prospective* payment system -- by paying essentially the same price to a hospital or other provider, whether the patient is easier or more difficult to treat, provides financial incentives to attract patients likely to be less complex and less expensive, to treat, and then to retain them only long enough to satisfy the insurer's requirement for the payment, potentially leading to readmissions and greater overall costs. Not surprisingly, Length-of-Stay (LOS) for medical (non-surgical) patients admitted to U.S. hospitals via Medicare dropped noticeably once prospective pricing was introduced, from a median of 6.5 days in 1981 to 5.6 in 1984 and 5.1 days in 1987.[48] Prospective payments, such as those based on DRGs, also encourage providers to cut corners on expenditures, foregoing tests that might well prove medically useful but would increase costs without a commensurate increase in revenue.

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[45] Huskamp et al. "Providing Care at the End of Life," pp. 206, 209.

[46] For background on the DRG-based pricing system see U.S. Congress, OTA 1983.

[47] Compare state prisons, which usually pay private contractors a flat rate per inmate-day and public and private "charter" K-12 schools, which are generally paid a flat amount per student per year

[48] Kominski and Witsberger, "Trends in Length of Stay for Medicare Patients", p. 128 (Table 3)

For hospices, financially successful gaming entails taking advantage of the unintended but predictable incentive effects resulting from the interplay of two forces. One is the hospice *revenue* structure -- the fixed payment per patient-day that has been adopted by the Medicare agency, which administers the federal hospice program for persons of all ages. The second force is the typical hospice service *cost* structure, which while *not* fixed over a patient's end-of-life process, has a U-shape, as noted earlier.

As long as the price per diem is high enough to make the intermediate days profitable, the financial incentives for *all* hospices, whether for-profit or nonprofit, is to maximize the length of that intermediate period. A longer LOS will yield higher profits for any hospice, regardless of a patient's diagnosis, which means (observable) LOS is positively correlated with (unobserved) profit. However, because a patient's diagnosis at admission is also an excellent *predictor* of LOS, the hospice's financial incentives are to attract patients with diagnoses correlated with longer expected lengths of stay.

A key element in the process of gaming a reward–penalty system is asymmetric information being held by stakeholders.[49] In the hospice industry, the asymmetric information is not between patients (consumers) and hospices (providers) but between the hospice–patient unit and the payer, Medicare, regardless of the terminally-ill patient's age.

Pre-admission sorting is the key. Once a patient is admitted to a hospice there is little that can be done to affect his or her length of stay and the hospice's profitability. But systematic pre-admission sorting of patients by hospices based on diagnoses and related life expectancies is more than a theoretic possibility. Knowing the diagnoses and other characteristics of potential patients—their age, other concurrent medical conditions (comorbidities), and recent (say, within two years) surgical and other curative care—a hospice may prefer, on financial grounds alone, patients with presumed longer expected lengths of stay to those with shorter ones. The facility could then differentially attract the two through purposeful, directed, advertising and selective forms of service provision (e.g., by offering physical activities more apt to appeal to the ambulatory than the bedbound).

Therein is their incentivized path to financial success—one that is difficult and costly for governmental monitors to detect and deter. Though there are impediments to gaming the pricing system, they are surmountable; and the potential for gaming is real.

For-Profit versus Nonprofit Hospices: Do They Game the Same?

Hospices face the same revenue incentives and performance constraints whether they are nonprofit or for-profit. But do they take equal advantage of the gaming opportunities?

Ownership form could influence hospices' gaming incentives in two ways: first, nonprofits, but not for-profits, confront a legal "non-distribution" constraint (NDC) which restricts their payouts of earnings to those who control organization decisions: members, officers, directors, and trustees. True, to the extent the NDC is enforced, nonprofits have weaker incentives to cut costs or to maximize profit-making opportunities compared with for-profit firms, which face no such constraint.[50] Yet the NDC is not a "performance constraint" -- it does not directly restrict a nonprofit's service quality or marketing strategies.

[49] Weisbrod, "Why Strong Performance Rewards in Government and Nonprofit Programs Don't Work…"
[50] Hansmann, "The Role of Nonprofit Enterprise."

Second, to the extent that nonprofit managers and other decision makers are more socially motivated than for-profit managers—that is, more altruistic—they would have weaker interests in pursuing greater *private* benefits relative to collective, *social* benefits from their organization control. Price-system gaming is, after all, a process of circumventing constraints on private benefits for some stakeholders, shifting them to others. A nonprofit hospice (or other service provider) might therefore be less likely than a for-profit to take advantage of opportunities to game the reward system incentives.

These two sets of forces are linked insofar as stricter enforcement (by the IRS) of the NDC reinforces the weakening of managerial incentives to minimize production costs and maximize opportunities to expand profitable markets.

A hospice that is not pursuing maximum profit would pay less attention, for example, to attracting patients who can be expected to remain in its program longer. If for-profit and nonprofit hospices acted alike in their emphasis on profit, they would focus equally on patient selection as a mechanism for advancing their respective missions. They would not differ in their mixes of patients with shorter and longer life expectancies—that is, in their attempts to attract patients with terminal diseases of differing life expectancies. And yet they do: the median length of stay at a for-profit hospice is nearly double that of nonprofit hospices; a pattern that holds for all diagnosis categories, which has held for decades.[51]

Significant differences in patient case mixes have been found between nonprofit and for-profit hospices for decades. A study of their comparative gaming determined that the number of patients with diagnoses having higher expected profitability (longer LOS) is the same at nonprofit and for-profit facilities, but that patients expected to be financially *un*profitable (or, at less profitable) are more likely to be admitted to nonprofit hospices. Controlling for a wide variety of patient and hospice characteristics of the 106,698 patient admissions in 1993 to 638 urban hospices, economists Richard Lindrooth and Burton Weisbrod found that for-profits have engaged in more gaming of the Medicare payment system—by admitting a larger share of "patients with observable characteristics [including primary medical diagnoses, recent curative care, and patient age] that are associated with longer expected lengths of stay." These researchers hypothesized that, although the flat per diem payment system applied equally to for-profit and nonprofit hospices, the ownership forms would take differential advantage of the gaming opportunities if they had different interests in reaping more profit—say, if the lure of added profits to a for-profit provider was tempered, if not eliminated, by the non-distribution constraint, which restricts how a nonprofit can use any revenue surplus. [52]

The evidence was compelling that for-profit hospices were more astute or energetic than their nonprofit counterparts in pursuit of patients most likely to generate increased profit. (We cannot know, though, whether the for-profits *worked harder to attract* the more-profitable, longer-expected LOS patients, or whether they were simply *more efficient in sorting* by that profitability.) The for-profits were clearly more successful in finding ways to capitalize on the systematic, nonrandom, misalignment of Medicare's fixed daily payments to hospices and the systematically non-fixed daily costs to hospices of serving patients. Moreover, that both ownership categories had equal numbers of more-profitable patients indicates that nonprofits were not made "inefficient" by their NDC-constrained ability to reward managers who generate greater profit.[53]

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[51] Bazell et al, *Hospice Medicare Margins*

[52] Lindrooth and Weisbrod, "Do Religious Nonprofit and For-profit Organizations…", p. 354.

[53] Lindrooth and Weisbrod, "Do Religious Nonprofit and For-profit Organizations…" Note that most nonprofit hospices are religiously affiliated, and this research focused on them.

Can a Hospice "Choose" Its Patients -- Legally? A Form of Gaming

Under Medicare rules it is illegal for a service provider to discriminate among prospective patients based on their expected profitability; to do so would justify termination of Medicare's contract with the hospice. If the facility is not filled to capacity and the admission is valid under Medicare guidelines, a hospice must accept all patients who seek care.

Still, a hospice may be able to influence which potential patients seek admission to its program, and, by knowing the patient's medical diagnosis, can predict how long a patient can be expected to remain, which affects the patient's expected profitability, and thus his or her likely profitability. If it can attract more patients with longer life expectancies, a hospice can game the pricing system and reap more profit while not officially "discriminating." For example, in the comparison study cited above, for-profit hospices had fewer less-profitable, short-life-expectancy patients because they used targeted marketing techniques to "cherry-pick" more profitable, longer-LOS ones. By not offering services attractive to short-LOS patients, and not dealing with the "referral agents" from which such patients come, for-profit hospices avoided the appearance of illegally "refusing" hospice patients.[54]

Recall that although a patient's initial eligibility for Medicare hospice payment requires a physician's statement of a maximum six months of life expectancy, hospices can and do request and receive from Medicare extensions (called *reauthorizations*) for additional periods. In fact, almost 60 percent of Medicare's 2011 hospice payments went for patients in hospice care for more than six months. These can sometimes extend for many years, if the declining quality of life can be documented. And although Medicare has capped *average* per-patient revenue at the equivalent of roughly 180 days of routine hospice care, this cap is "averaged over all of a hospice's patients," and so does not limit the stay of any particular patient.[55]

Hospice Choice between Dementia and Cancer Patients

The choices made by (patients and their families) and by providers both highlight the effects of incentives, including those taking subtle forms. A prospective hospice patient may choose among hospice programs based not on their prices, for Medicare will make the effective price zero in any case. As a result, consumers can gravitate toward hospices they deem to provide the highest-quality services—the "best" massage therapy, music and art therapy, chaplain services, foods, and so on.

But a hospice, as we've seen, may choose, even in subtle ways, among patients who differ in their expected profitability to the hospice. Prospective patients with a primary diagnosis of dementia, for example, have been found to have an expected average LOS in a hospice program of 271 days, whereas cancer patients have only 81 days.[56] A hospice thus has a financial incentive to prefer dementia patients.

Can it make that choice? Research suggests that it can, despite the Medicare anti-discrimination constraint. Lindrooth and Weisbrod found that the for-profit hospices they studied had larger shares of patients with dementias, and smaller shares of cancer patients, than did the nonprofits. The relevant background information for patients had been available to all hospices at the time of admission, but it was not used equally by nonprofits and for-profits.[57] In an earlier study of 6,451 adults (5,175 [80

[54] Lindrooth and Weisbrod, "Do Religious Nonprofit and For-profit Organizations…"
[55] Whoriskey and Keating, "Hospice Firms Draining Billions from Medicare."
[56] Lindrooth and Weisbrod, "Do Religious Nonprofit and For-profit Organizations…"
[57] Lindrooth and Weisbrod, "Do Religious Nonprofit and For-profit Organizations…"

percent] with some kind of cancer and 1,276 [20 percent] with other diseases [of whom 95, or 1.5 percent, had dementia]), Christakis and Escarce had found that survival of patients was longer at for-profit hospices even after controlling for patient diagnosis and severity. Though ownership type was not the focus of their paper, they noted the relevance of hospices' outreach efforts for affecting the timing of admissions, and they discussed the possibility that some hospices exclude certain patients who are close to death and so are expected to be less profitable.[58]

Hospices can choose which physicians and hospital programs to cultivate, befriend, and target with advertising to in order to attract particular types of patient who will soon be discharged, deemed terminally ill, and be eligible for Medicare financing of hospice care. The lure of increased profit would thus attract a hospice's attention to physicians and staff at hospital neurological and dementia programs more so than to their counterparts in cancer programs.

Concluding Remarks: What Have We Learned?

This paper has focused on the efforts of health-care stakeholders of three distinct ownership types--for-profit, governmental, and nonprofit, and providing three types of services -- drugs, hospitals, and hospices, to improve their performance, as measured and rewarded. The specifics differed, but all involved gaming of P4P incentives that brought benefits to some stakeholder group, but at the cost of socially inefficient use of resources. It is important, though, to be clear that this does not mean that the gaming of a P4P reward systems is zero-sum as the losses and the gains do not cancel out. The social costs of the wasted drugs are real, and not offset by social benefits. In the process the inefficient wastage redistributes income from consumers and insurers, and to the drug patent-holders, but the resources used to produce drugs expected to be discarded are social inefficiency losses. Similarly, the use of resources to mask the fact that patient wait-times to see a VA hospital were often simply a sham, involved real wastage of time and effort. And in the case of hospices' efforts to attract patients likely to live longer and, so, to be more profitable, and in light of the Medicare payment structure to hospices, which made longer patient stays more profitable, hospices have been, in effect, incentivized to undermine the egalitarian, non-discriminatory social goal of the governmental hospice program.

Results of these complex forces shaping opportunities for gaming:

- *For-profit* pharmaceutical manufacturers pursued greater profits by restricting the variety of medication dosages in vials -- albeit at the expense of substantial wastage.
- *Governmental*, Veterans Administration, hospitals "improved" their *measured* performance by developing bogus ways to shorten patients' *reported* wait times to see a physician.
- *Nonprofit and for-profit* hospices pursued—the latter to a significantly greater degree—ways to attract patients who were expected to have longer life expectancies, and so to be more profitable under the Medicare pricing-payment system, and to drive governmental expenditures upward in the process.

These inefficient behaviors result from identifiable P4P incentives. And they point the way forward to reduce waste, cut costs, and generate better outcomes. While measurement and incentives have their place, gaming can be reduced by more sophisticated approaches. And that may be as straightforward as relying on weaker rather than stronger incentives, tied to multi-dimensional rather than simplistic performance measures.

[58] Christakis and Escarce, "Survival of Medicare Patients"

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