May 2015

Moving the Needle: How Transparency Could Lower Costs and Improve Quality in United States Hospitals

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Moving the Needle:
How transparency could lower costs and improve quality
in United States hospitals

An undergraduate thesis presented

by

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to

The faculty of Ethics, Politics, and Economics
at Yale University

in partial fulfillment of the requirements for the degree of Bachelor of Arts

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New Haven, Connecticut
April 2015

To my family, at home and at Yale.

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Abbreviations

AHA: American Hospital Association
AMA: American Medical Association
APCD: All-payer claims database
CMS: Centers for Medicare and Medicaid Services
HHS: Department of Health and Human Services
HMO: Health maintenance organization
HQA: Hospital Quality Alliance
WCHQ: Wisconsin Collaborative for Health Quality

Abstract

Nina S. Russell: *Moving the needle:*
How price and quality transparency could lower costs and improve quality
in United States hospitals

This thesis shows the limitations of price and quality information for improving the value of healthcare.[1] First, in four survey experiments to determine the impact of information on decision-making, consumers were more likely to choose the lower cost or higher quality option when relevant information was presented in straightforward ways with a minimized risk of information overload ($n = 224$, $t = -3.7065$, $p < 0.0002$). Second, hospitals on the U.S. News Best Hospital list between 2008 and 2011 were shown to be significantly more likely to be found in wealthy, highly populated areas, while unranked hospitals were more likely to be the sole community provider. Third, perceived quality (U.S. News-ranked hospitals) was shown to be out of alignment with actual quality (hospitals performing above the national average for readmission and mortality according to Medicare Hospital Compare): 36 hospitals performed well on both lists, constituting only 0.77% of total hospitals in the U.S. in 2011.

Current efforts have not gone far enough toward complete transparency to lead to negative effects such as collusion, nor to positive effects such as better value. Fears held by economists and private sector participants will likely not be realized in the near future—but neither will the hopes of policymakers for demand-driven change in the healthcare system.

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[1] In this context, "value" denotes the relationship of price to quality, where a high quality to cost ratio is of good value.

Chapter 1 Introduction to transparency

Chapter 1 begins by outlining problems in the United States healthcare market—namely, high costs and low quality. Next, it presents the case for transparency as a demand-side and supply-side solution to these problems. Finally, it highlights the main risks of transparency, such as the threat of collusion leading to higher prices across the board.

Healthcare in the U.S. is too costly. U.S. healthcare spending in 2010 was 17.7 percent of GDP (Bank, 2015). Such high spending may not seem unreasonable until we compare the U.S. to its peer countries. In 2010, the OECD average for healthcare spending as a percentage of GDP was 9.5 percent (Lafortune, 2012). One might hope that, because the U.S. is spending more than its peers, what it is receiving is worth the premium price.

To the contrary, healthcare quality in the U.S. does not appear to merit the cost. Among 19 countries included in a 2008 study of amenable mortality, the United States had the highest rate of deaths from conditions that could have been prevented or treated successfully (Nolte & McKee, 2008). Americans receive appropriate, evidence-based care when they need it only 55 percent of the time (NCQA, 2007). Tens of thousands of Americans die each year as a result of preventable hospital errors (NCQA, 2007). Furthermore, too much is currently being spent on the wrong types of care. Adult patients in the U.S. receive only about half of the care recommended for their condition, yet nearly 30 percent of the care delivered each year is for services that may not improve patient health (RWJF, 2015).

It is clear that we ought to combat the trend of the U.S. spending too much and getting too little, for ethical reasons (people's lives are at stake) and for economic ones (this is an inefficient market). The U.S. healthcare market is rife with misallocated resources that could be fixed by a realignment of incentives to prioritize value over volume.

Price and quality transparency could be the answer. First, transparency could cause providers to improve their own performance relative to benchmarking for price and quality. Second, transparency could lead to competition on the basis of price and quality, thereby driving positive change throughout the market. Finally, transparency could provide consumers with the information necessary to choose low-cost, high-quality options, thereby channeling clientele and revenue toward hospitals that are providing better value.

Transparency relies upon the Internet's ability to communicate large amounts of up-to-date information in ways that are tailored to the end user. Just as consumers evaluate restaurants on Yelp, so, too, can patients now post a review of their physician on Healthgrades.

Transparency in healthcare pricing and quality is popular with policymakers partly due to the persuasiveness of philosophical and economic arguments for patients to have full information. From a philosophical standpoint, to enable consumers to have full information is laudable in the context of individual autonomy. From an economic standpoint, transparency seems poised to enable an efficient healthcare market: with more information available, consumers, providers, and payers can make better decisions, enabling both supply-side and demand-side change. In a market struggling under the excess costs incurred by supply-sensitive

care—which accounts for more than half of all Medicare spending[2]—transparency could provide consumers with the information they need to use the "just right" amount of healthcare, thereby reducing costs.

However, varying philosophical conceptions of patients and competing economic interests mean that legislation can result in the assembly of information that is designed for policymakers rather than consumers.[3] Providing policymakers with more information can be valuable for improving public health policy[4] and facilitating supply-side change. An example of a supply-side attempt to mitigate rising healthcare costs in the U.S. is the Centers for Medicare and Medicaid (CMS) Hospital-Acquired Condition Reduction Program. In October 2014, CMS began cutting Medicare payments for hospitals that perform poorly with respect to hospital-acquired conditions (Medicare, 2015b). However, supply-side policies are ought not be implemented instead of demand-side ones merely because private payers and providers are afraid of airing their dirty laundry.

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[2] According to the Dartmouth Atlas of Health Care, "Supply-sensitive care refers to services where the supply of a specific resource has a major influence on utilization rates. The frequency of use of supply-sensitive care is not determined by well-articulated medical theory, much less by scientific evidence; rather, it is largely due to differences in local capacity, and a payment system that ensures that existing capacity remains fully deployed. Simply put, in regions where there are more hospital beds per capita, patients will be more likely to be admitted to the hospital. In regions where there are more intensive care unit beds, more patients will be cared for in the ICU. More specialists will result in more visits to specialists. And the more CT scanners are available, the more CT scans patients will receive" (T. D. A. o. H. Care, 2015).

[3] In an analysis of 174 pieces of legislation passed in 45 states between 1956 and 2013, 107 out of explicitly required the reporting of price information to the general public (often through the state government), while 120 required the reporting of information solely to the state government. The remainder imposed requirements on payers and providers to make information available on their own (sources of information: Delbanco, 2014; NCSL, 2015a; analysis mine).

[4] Policymakers can use data on overall pricing to regulate prices directly or to pursue alternate methods of increasing the degree of price competition. In his 2013 statement before the U.S. Senate Committee on Finance, Paul B. Ginsburg describes the three distinct audiences that have the potential to benefit from healthcare price information. Besides indicating the role of policymakers in regulating competition and prices, he also highlights the audiences of (1) individual patients and (2) employers purchasing health benefits for their employees (Finance, 2013).

One defense of transparency is a values-based argument holding that transparency is a core value of our society. On this view, we believe that the public or individual consumers should know about the products and services they are buying and what they cost, even if someone else is paying (i.e., an insurer, Medicare, or Medicaid). While this perspective is valuable, this paper focuses on concrete policy implications of transparency, specifically relating to its feasibility.

Another supporting argument for transparency is utilitarian: we ought to use transparency to promote high-value healthcare. I have already referred to the three mechanisms by which this might take place: providers improving their own performance due to benchmarking; competition on the basis of price and quality; and consumers choosing low-cost, high-quality options.

Yet, there are risks to implementing transparency. The healthcare market in the U.S. is far from perfectly competitive, with economies of scale for payers and providers. As a result, it is possible that publication of prices may allow firms to reduce the intensity of oligopoly price competition, as occurred in Denmark's ready-mixed concrete market when the Danish antitrust authority published firm-specific transaction prices in 1993 (Overgaard, Møllgaard, & Albæk, 1997). Whereas firms had been cutting deals before the legislation, in 1993 they saw an opportunity to hike up prices, which led to convergence at a higher price point (Overgaard et al., 1997). The risk of price inflation means that healthcare consumers could end up worse off than before transparency legislation.

Transparency also poses risks to quality. If the measures for quality are not chosen properly, we may see negative consequences for the quality of care and adverse effects on health worker motivation and performance. Stimulation of certain

efforts by public reporting may discourage efforts on aspects of healthcare

performance that are not measured (de Bruin, Baan, & Struijs, 2011). Further risks to

quality include the possibility of false reporting; providers cherry-picking patients to

meet targets more easily; increased inequity due to the rewarding of providers and

facilities that are in a better position to meet targets; and dilution of intrinsic

motivation (Ireland, Paul, & Dujardin, 2011). While these are valid concerns, they

could be reduced by careful selection of performance measures. For example, the

risk of healthcare workers "treating to the test" (focusing on aspects of health that

are being measured) seems possible to mitigate by ensuring that the "test" includes

every aspect of health that we care about.

Furthermore, a broader risk that faces all policy decisions is the chance that

the amount spent implementing price and quality transparency will not be made up

for in lower prices and higher quality. Measuring and reporting takes resources, on

the part of providers, payers, and the government, and overregulation can stifle the

private sector. For example, in its June 18, 2013 statement before the U.S. Senate

Committee on Finance, the American Hospital Association writes:

> Nationally, hospitals deal with more than 1,300 insurers, each having different plans, all with multiple and often unique requirements for hospital bills. Add to that decades of governmental regulations that have made a complex billing system even more complex and frustrating for everyone involved. In fact, Medicare rules and regulations alone top more than 130,000 pages, much of which is devoted to submitting bills for payment. Clearly, this is an unworkable system. (Finance, 2013)

Transparency runs the risk of piling on more paperwork without realizing returns.

Given these concerns, this thesis addresses the feasibility of implementing

transparency, given current efforts. It seeks to understand how healthcare reform

efforts could best raise quality and lower costs. In Chapter 2, I lay out a theory of

transparency, arguing that we ought to understand the behavior of healthcare

consumers through the lens of bounded rationality. Chapters 3 and 4 present the

current state of affairs for price and quality transparency (respectively) in the U.S.

hospital market. The literature includes a lack of conclusive evidence that

transparency drives change in hospital price and quality. The case studies of

legislation confirm that members of both parties have pushed for transparency, but

also highlight the ways in which current legislation does not go far enough. I propose

that current efforts have fallen short of achieving their aims because they were

constructed for a hypothetical fully rational consumer, rather than one that is

boundedly rational.

Chapter 5 presents the results of four surveys and of an analysis of the U.S.

News Best Hospital rankings for the years 2001-2014. The survey results indicate

that information presentation matters, and that healthcare quality and price data can

be confusing to the point where people can draw opposite conclusions from the

same data. The survey results also indicate that U.S. News Best Hospitals tailors

information to consumers such that they are more likely to make the right decision.

Analysis of the U.S. News Best Hospital rankings shows hospitals ranked between

2008 and 2011 were shown to be significantly more likely to be found in wealthy,

highly populated areas, while unranked hospitals were more likely to be the sole

community provider. It also suggests that perceived quality (U.S. News-ranked

hospitals) is out of alignment with actual quality (hospitals performing above the

national average for readmission and mortality according to Medicare Hospital

Compare).

From each of these components of analysis emerges a view of price and quality transparency as being a potentially useful but complex policy tool, not a silver bullet. Having provided an introduction to transparency, I next lay out conditions for its success.

Chapter 2 Theoretical underpinnings of transparency

Imagine that you live in Boston and are trying to decide where to have knee replacement performed. You are insured and your deductible is $1,000. You pull up search results on My Health Care Options, a website run by the Massachusetts Health Care Quality and Cost Council. Both hospitals have low rates of surgical site infections. Beth Israel Deaconess has treated 275 cases, of which 11% were complex; Massachusetts General has treated 624 cases, of which 6% were complex. Beth Israel Deaconess Medical Center has a cost that is no different from the median state cost, while Massachusetts General Hospital has a cost above the median state cost for this procedure. The data provided on the website is from 2008 and 2009, and you are making your decision in April 2015.

In short, you are faced with a large amount of information, all of which is so dated that it is likely no longer relevant. It is difficult to infer what the best option for your own treatment will be.

<p align="center">***</p>

The behavior of healthcare consumers, providers, and payers determines whether price and quality transparency will drive improvements in the value of healthcare. The emphasis of this chapter is on finding a theory of the healthcare consumer that aligns with reality. Only then can we properly evaluate the potential of price and quality transparency initiatives to drive positive change in the U.S. healthcare industry through benchmarking, competition, or consumer selection, which is the aim of Chapters 3 and 4.

In this chapter, I evaluate the view that consumers, providers, and payers are capable of making better decisions when presented with full information. I focus first on healthcare consumers, then widen my scope to include healthcare providers and payers. This connection is possible because just as patients care about their health while also having other aims such as financial solvency, the business model of healthcare providers depends on providing quality care while also performing enough procedures to bring in revenue.

To determine which model of behavior is most useful here, I expand upon the three arguments presented briefly in the introduction: benchmarking, competition, and consumer choice. Underlying all three arguments is the economic theory that full information is necessary for markets to function efficiently. An efficient market allows prices to direct resources toward those who value them most. In the context of healthcare, optimal resource allocation would be achieved by consumers making informed decisions, choosing the price and quality combination that will maximize their own utility.

The first two arguments describe supply-side change; the third focuses on demand. Benchmarking could cause improvements even if we just increase the information that providers have about themselves and their competitors, without the competitors being identifiable and without the information being made publicly available. The second argument differs from the first in that it requires some public availability of information in order for competition on price and quality to occur.

The third argument describes demand-side change. For the third argument to hold up, reforms that focus on increasing transparency should be accompanied by measures for strengthening citizens' capacity to act upon the available information

(Lindstedt & Naurin, 2010). In the context of the U.S. hospital market, this means that factors introducing stickiness, such as in-network providers for those covered by insurance, should not be underestimated in their power to limit the impact of transparency on bringing about meaningful change.

To lay the groundwork for evaluating these stances, I present two dominant theories of patient behavior, each of which has different implications for transparency in healthcare. I evaluate them based on their ability to explain the apparent paradox currently observed in the U.S. healthcare market. The paradox is that Americans bear the burden of expensive, low-quality care, yet do not actively select for cheaper, high-quality care. I argue that, given more active regulator promotion of transparency, consumers would be able to make better healthcare decisions.

Through health insurance and the threat of malpractice suits, much of the U.S. population does not bear the full brunt of consuming overpriced, low-quality healthcare. Despite these protections, 57.1% of all personal bankruptcies in the US in 2014 were explicitly tied to medical bills (LaMontagne, 2014). As states resist expanding Medicaid under the Affordable Care Act and insurers rely upon market-based tools such as deductibles, medical bankruptcy will continue to be an issue in coming years, even though one aim of ACA was to address its prevalence by expanding insurance coverage (Sugden, 2012). Consuming low-quality healthcare also brings risks—as of 2000, medical negligence was the third leading cause of death in the US, behind heart disease and cancer (Starfield, 2000).

Despite significant consequences of uninformed consumption of healthcare, evidence suggests that healthcare consumers do not spend much time determining

the price and the quality of their healthcare options. But for the most part it is not because they do not want to—it is because they cannot. In a Kaiser Family Foundation phone survey of 1,517 respondents, 64 percent stated that it is difficult to find information comparing the cost of different treatments and procedures offered by different doctors and hospitals. The survey also shows that between 1996 and 2008, the percentage of Americans using comparison quality information on doctors grew from four percent to a somewhat-less-paltry six percent (KFF, 2008). I will address here the implications of a market in which consumers have trouble acquiring price information and appear largely uninterested in quality data. My task here is not to place value judgments upon any of these facts or behaviors, but rather to determine which theory best explains these phenomena.

2.1 Theory of full economic rationality

Let us start by assuming that consumers act with full economic rationality. A consumer can have multiple possible ends—e.g., benefitting society, benefitting oneself—and rational choice only specifies the means by which she goes about achieving these ends. In the context of price and quality transparency, self-interested rationality means that consumers will choose the best value healthcare from a range of options, *given all available information.* (The competing theory, presented in the next section, differs on this last point of "all available information.")

The theory of self-interested rationality in healthcare consumption aligns with intuitions about human motivation. Freedom from injury and severe illness is a good on which most people place a high value. Transparency ties a patient-centric

approach to the market, ostensibly granting consumers agency in their healthcare decisions.

When policies are based on the assumption of full rationality, they can take the form of forcing consumers to bear a large portion of the burden when things go wrong. The rationale is that, if people care about themselves first and foremost, they will make better decisions if they face the consequences of whatever they decide. According to this line of reasoning, a price transparency initiative built on this approach might, for instance, show consumers that several preventative care measures (e.g., regular check-ups, using an inhaler) add up to be much less costly in the long run than a hospital visit resulting from lax preventative behavior. In that way, such an initiative could incentivize consumers to behave in a way that is better for their health and for their wallets.

But with full economic rationality, the consumer can also exercise the capacity to make decisions based on the bigger picture, weighing costs and benefits as they will have an impact not just on the consumer, but also on her family, friends, and the rest of the world, insofar as they are part of her utility function. We can imagine a system where the state takes the role of social planner, by imposing penalties and rewards for self-destructive behavior. Yet, once we realize that people take other interests besides their own into account, we are able to pass along some of the "social planner" capacity to the individual agents. The role of policy, then, is to provide information in the format best suited to enabling consumers to weigh their decisions. For example, price transparency could be designed to show an eighty-year-old man the cost of his third bypass surgery, and allow him to see the number of prenatal visits for low-income mothers the same amount of money could have

funded. Such information could lead him to change his behavior, or it might not, but either way he would be more informed.

Full economic rationality allows for people to refrain from expensive treatment to ease the burden on their families, or to prefer suboptimal health to being a financial burden on relatives or friends. But full economic rationality does not necessarily entail sacrificing one's health. It just calls for a weighing of the options, and could lead to refraining from expensive treatment in order to leave funds untouched for one's child to go to college. Alternately, it could lead to investing in the expensive treatment in the hopes that the child will have a better childhood with a living father.

2.2 Limitations of full economic rationality

Everyone has values and preferences that inform the decisions they make. Assuming full economic rationality, an agent will place appropriate value on her health, depending on her preferences. The value a healthcare consumer places on his own health determines how much time he will invest in gathering information about his options. To place near-infinite value on said freedom leads a terminal patient to spend resources on hopeless treatments because the treatments have some chance—however slim—of benefiting him. In contrast, an agent with different priorities might identify that the same resources might bring about more benefit overall if saved for one's heirs, or used for palliative care (which might indeed actually be in one's self-interest, depending on one's preferences). If a person places an infinite value on her freedom from injury, the best thing she can do is pursue as much available information as possible. But, if she has additional aims besides freedom

from injury, then she will stop seeking information at the point at which accurate information is unavailable.

Rational choice theory assumes complete, transitive preferences, defined over known, fixed outcomes, with decision makers maximizing their utility by choosing the option that yields the highest level of benefits, discounted by costs (Jones, 1999). But to meet all of these conditions, especially that of known and fixed outcomes, does not seem quite plausible in the context of healthcare. The subjective expected-utility variant of rational choice theory associates a probability distribution, estimated by the decision-maker, with outcomes, thereby integrating risk and uncertainty (Jones, 1999). The subjective expected-utility variant accounts for the uncertainty inherent to healthcare and allows for people to opt for choices benefitting others in addition to or instead of themselves. However, it still does not explain a person who must make a rushed decision about whether to have an emergency procedure, and does not have time to calculate risks. It is difficult to calculate probabilities perfectly in most of these cases, but price and quality transparency can fill in some areas of uncertainty.

2.3 Theory of bounded rationality

Let us now turn to the second theory, which is a revision of the first. The second theory holds that patients act with bounded rationality. Bounded rationality is the same as full economic rationality, but with stipulations about process to explain why people sometimes make decisions with sub-optimal outcomes. These assumptions about process are that the rationality of individuals is limited by three factors: (1) the information they have, (2) the cognitive limitations of their minds,

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and (3) the finite time they have to make a decision (Jones, 1999). Price and quality

transparency have the potential to mitigate the first and third factors: by providing

relevant information for different circumstances, such as the average cost and

mortality for heart attack patients at a certain hospital, transparency can enable a

quick, well-informed decision.

Figure 1: Bounded rationality and full rationality (conceptual diagram)
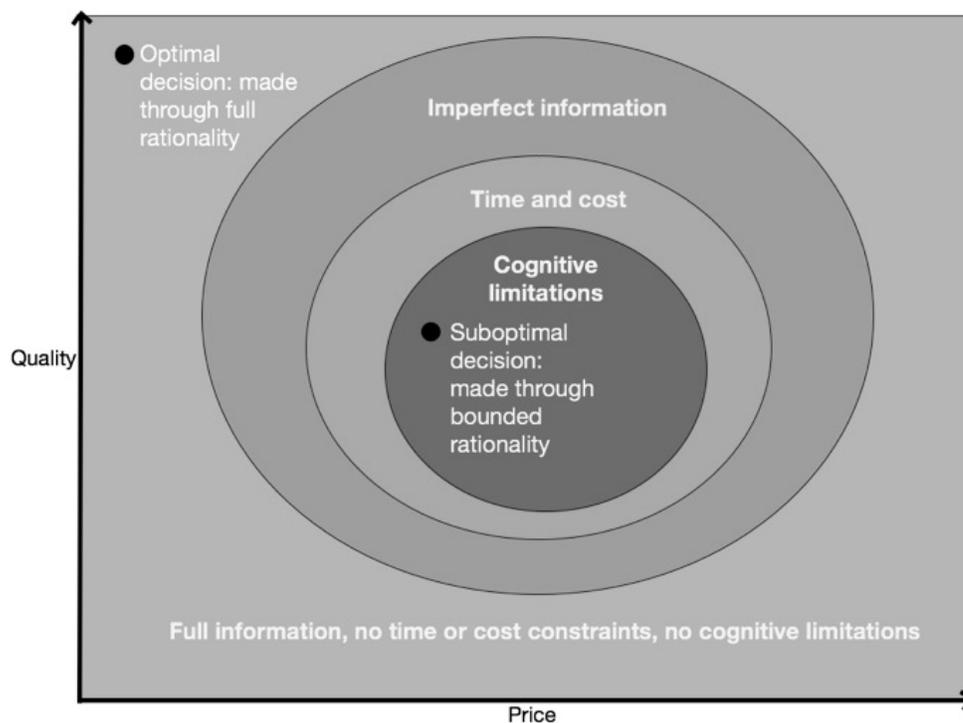
As Figure 1 shows, bounded rationality can lead to a suboptimal decision. In

contrast, full rationality avoids the limitations of imperfect information, time and

cost constraints, and cognitive limitations, leading to a better decision. Yet, a theory

of bounded rationality is useful in the context of healthcare because it accommodates

the limited information available in healthcare and the implausibility of patients being

able to devote the entirety of their mental energy to these decisions. If patients

behave according to bounded rationality, then we ought to construct transparency

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policies very differently than if we were to posit fully economic rationality. Specifically, an assumption of bounded rationality may lead us to discount the expected benefits of price and quality transparency initiatives.

Let us consider a patient who is choosing between multiple cancer treatments. She may categorize them as high, medium, and low risk, then make a decision based on how much risk she willing to accept. The danger with this technique is that it may be more useful to categorize cancer treatment options based on efficacy, and she is making a sub-optimal decision in terms of utility maximization by choosing based on risk instead. Properly presented quality information could guide her toward the optimal decision.

Now let us say that she is simply unable choose whether to have chemo or surgery—let us say these are the only treatment options available—and so she does nothing. In the meantime, the cancer metastasizes. The problem with this, from a policymaker's perspective, is that the making of a decision—any decision—would have been better. Cognitive overload and processing constraints can lead to consumers deferring choice, even if the status quo is less desirable than any of the options (Schlesinger, 2010). Adjusting the parameters of decisions can encourage optimal outcomes by making the right choice easy.

Finally, patients may make choices by selectively evaluating events and circumstances to improve perceived self-efficacy (Schlesinger, 2010). Patients may make sub-optimal decisions (like self-operation) if they use certain emotional heuristics and filters. It would be better to eliminate the need for heuristics in this context, to enable optimal outcomes.

2.4 Implications of bounded rationality

The previous sections have proposed that price and quality transparency policies would be most effective if based on the assumption of bounded rationality. I now show how this could play out for healthcare consumers, providers, and payers.

2.4.1 For healthcare consumers

Viewing patient choice through the lens of bounded rationality can help us create better policies than understanding patient choice through full economic rationality. But what do considerations about bounded rationality mean in practice? First, to reduce the risk of patients categorizing choices in ways that highlight the wrong elements of options, policymakers can take the extra step to reduce the cognitive burden of choice by categorizing choices based on the most important characteristics. They could consult with experts to determine the most important characteristics. The question remains of who would be best positioned to do this. Doctors seem to be the clear choice, given variation among cases, but they might lack the time to present choices like this.

A second implication of bounded rationality in crafting transparency policy is that, to minimize the danger of patients making sub-optimal decisions through use of emotional heuristics and filters, policymakers can reduce the need for emotional heuristics and filters by instilling trust in the system through transparency about price and quality. For instance, if a healthcare consumer is tempted to self-operate because she does not trust the medical professional's expertise, she could then read the statistics on the physician's quality, and on the risks and potential complications of the recommended procedure.

Finally, to avoid cognitive overload and processing constraints, policymakers can tailor information to individuals' specific concerns. An exemplary instance of information tailoring is the healthcare cost comparison website for Maine, which provides a reasonable amount of relevant information based on the needs of individual consumers. The website assesses consumer needs through the inputting of search terms. For instance, if I tell the website that I am a new patient with low to moderate problems who wants to know how much an office visit will cost, the website will provide me with the statewide average cost and then the cost for each hospital in the state.

In contrast, an example of an ineffective approach would be a spreadsheet with all the information behind the scenes for the website. This approach could be based on an assumption of full economic rationality, with a consumer presumed to be able to consume whatever amount of information is appropriate to make a decision. It could also be based on an assumption of self-interest, with patients placing near-infinite value on their own freedom from severe injury and illness and thereby consuming as much information as possible. Given bounded rationality, we understand that providing consumers with the right amount of relevant information enables them to process it, given their available time and mental energy. To do so perfectly would, in an ideal world, involve making the raw data available for economists and researchers who want it all, in addition to the consumer-friendly versions.

2.4.2 For healthcare providers

When considering how price and quality transparency will play out, we must consider the potential responses of all market players. In this section, I present the implications of boundedly rational healthcare providers.

In its current form, the system allows for some degree of gaming. For instance, it is in the interest of hospitals to devote resources to getting out the vote whenever rankings season comes around. Two emails sent to all staff and faculty in the Mount Sinai Health System indicate that the administration is consistently involved in getting out the vote for U.S. News Best Hospitals survey responses (see Appendix for full emails). Indicative quotes are:

> We appreciate your assistance in ensuring that the Mount Sinai Health System is fully represented in the nomination process. (Davis and Charney, 2014)

> Thank you for your continued commitment to advancing both the outstanding patient care of the Mount Sinai Health System, and the innovative education provided by the Icahn School of Medicine at Mount Sinai. (Davis and Charney, 2015)

If the U.S. healthcare market had full information, those resources could be devoted to more useful ends, such as patient care. Furthermore, some hospital systems have more resources to devote to getting out the vote than others.

The complexity of the U.S. healthcare market also means that for some providers, it is optimal for them to remove themselves from the system. For instance, Dr. Michael Ciampi, a primary care physician based in Maine, converted his practice to a no-insurance model in April 2013 (Woodruff, 2013). His argument? "I work for patients. I don't work for the government and I don't work for insurance companies." Since the switch, he has lowered his prices due to savings on overhead, but has also lost hundreds of his initial 2,000 patients (Woodruff, 2013). Bounded

rationality accounts for this outcome by attributing Dr. Ciampi's decision to his limited energies and time. Furthermore, Dr. Ciampi is not alone, although psychiatry remains the number one specialty where doctors do not participate in health insurance plans. For those opting out, not participating in insurance means that they (1) can charge more, (2) do not have to spend time on the paperwork for insurance, and (3) have the freedom to provide better care by spending more time with patients (Miller, 2014; Sullivan, 2012). Groups have developed around this, such as the American Academy of Private Physicians (Physicians, 2015), and the number of doctors practicing private medicine has passed 5,000 (Wieczner, 2013).

2.4.3 For healthcare payers

We need to be wary of overregulating the private sector. A 2012 survey sent to 630,000 physicians (84 percent of all physicians in active patient care) with 13,575 respondents revealed that physicians spend over 22 percent of their time on non-clinical paperwork; that over 52 percent of physicians have limited the access Medicare patients have to their practices or are planning to do so; that over 26 percent of physicians have closed their practices to Medicaid patients; and that 7 percent plan to switch to cash-only or concierge practices (Hawkins, 2012).

While these findings speak more immediately to the private practice community than to hospitals, they have serious implications for healthcare payers. If insurers are being cut out because providers are sick of jumping through hoops to work with them, then it is in the interest of boundedly rational healthcare payers to resist transparency efforts.

2.5 Chapter conclusion

The success or failure of price and quality transparency hinges upon the extent to which policies take into account the boundedly rational behavior of healthcare consumers, providers, and payers. My argument rests upon a normative claim that policies are preferable if they result in consumers making optimal decisions. If bounded rational choice theory describes patient behavior, then the main concern of the healthcare system should be whether healthcare consumers are provided the appropriate amount of relevant information. Likewise, if bounded rationality accurately describes provider and payer behavior, then transparency policies should be designed to place a minimal burden on providers and payers while incentivizing price and quality improvements.

Having laid out the theoretical basis for transparency and presented a model the behavior of healthcare market participants, the rest of this paper seeks to demonstrate that bounded rationality indeed fits empirically with the ways in which price and quality transparency currently functions in the U.S.

Chapter 3 Implementing price transparency

> Most people aren't interested in irrelevant hospital charge-masters, or the details of health plan negotiations. They simply want to know what they'll be paying themselves at the end of the day.
>   (Statement of Hon. Orrin G. Hatch, Ranking Member, Finance, 2013)

Hospital charges can be staggering. Daniel Diaz was billed $3,355.96 for five stitches on his finger after cutting himself while peeling an avocado; a dab of skin glue on Orla Duffy's forehead laceration ran up a $1,696 bill (Rosenthal, 2013). This disproportionality can also be seen with medications: at California Pacific Medical Center, a Tylenol with codeine pill (market price: $0.50) costs $36.78 (Rosenthal, 2013). One cannot help but wonder—why not just send your friend over to Wal-Mart or CVS to pick up some Tylenol instead?

Indeed, Wal-Mart entered the primary care market on April 18, 2014 with a medical clinic in Copperas Cove, Texas (Canales, 2014). It brought to the table a clear value proposition: come to us for a $40 appointment, and that $40 will buy you wellness and preventative care, primary acute care, and referrals to specialists (Wal-Mart, 2015). (For those covered by Wal-Mart's employee health plan, that visit will cost only $4 (Flessner, 2014).) Prior to going in for a lab test or immunization, you can look up the price online–$3 for a blood sugar test, 25 for a flu vaccine (Wal-Mart, 2015).

These examples highlight the disjunction between what makes sense to consumers and what the healthcare industry is currently doing. They speak to the complex interaction of the public and private sectors in the U.S. healthcare market, which this chapter addresses in the context of price transparency.

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Building on the foundation laid in Chapter 2, let us now evaluate price transparency initiatives. This chapter examines barriers to transparency and uses lessons from case studies to develop an understanding of price and quality transparency policy. It shows that, of seven federal price transparency bills sponsored between 2007 and 2013, 61 percent of sponsors were Republicans.[5] Yet, of 174 pieces of price transparency legislation passed in 45 states between 1956 and 2013, 60.47 percent passed when state legislatures were a majority Democrats ($t = 2.827; p = 0.005$) (sources of information: Delbanco, 2014; NCSL, 2015a; analysis mine). This chapter also puts forth criteria for the selection and evaluation of exemplary price transparency initiatives, such as evaluating the user-friendliness of a state's website by determining whether it allows the user to compare specific hospitals.

3.1 Existing work on price transparency

To discuss price transparency, it is necessary to first define key concepts relating to price information in the context of healthcare. (See Appendix for examples.) First, the chargemaster is a list of a hospital's prices for every procedure performed in the hospital and every supply item used during those procedures (Reinhardt, 2006). These procedures correspond roughly to the groupings of *Medicare Severity Diagnosis Related Groups* (*MS-DRGs),* which are a Medicare coding for their payment system. MS-DRGs classify each hospital case into one of 999 groups that is published in the Federal Register (CMS, 2013a; "Code of Colorado Regulations: Annual health reporting and data retention requirements," 2010). Any given MS-DRG is tied to a reimbursement rate. The *reimbursement rate* is the amount, by MS-DRG code, that a carrier paid for a procedure at a facility or hospital, plus any expected

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[5] These seven bills—H.R. 2853 (2013), H.R. 1326 (2013), H.R. 5800 (2012), H.R. 4803 (2010), H.R. 2249 (2009), H.R. 2566 (2009), and S. 2221 (2007)—were found through using the terms "price," "transparency," and "healthcare" to search ProQuest Congressional Publications. To increase the timeliness of the findings, the search results were limited to the year 2007 onward.

deductible, copayment, or coinsurance ("Code of Colorado Regulations: Annual health reporting and data retention requirements," 2010).

Each of these concepts has different implications for consumer decision-making. For example, reimbursement rates often differ significantly from hospital charges. A consumer covered by health insurance may not care about either, and be only interested in his or her co-pay. For a consumer who is not covered by health insurance or who is in a high-deductible plan, he or she may be responsible for the full chargemaster rate. However, depending on state and hospital policies, the patient may receive the care for free, or may only need to pay an amount close to the actual reimbursement rate being paid by insurance companies, Medicare, and Medicaid.

It seems clear that the more specific information is, the more useful it is to the patient—within reason. For example, it is more useful for a consumer to have quality information tied directly to a given illness or procedure at a hospital (i.e., DRG or chargemaster category) than to have overall hospital quality information. But it may be overwhelming for him to be provided with twenty-five indicators of a hospital's quality for cardiac bypass surgery, rather than the five most important measures.

Furthermore, one must determine whether the information presented will drive improvements, either through benchmarking, competition, or consumer choice. I now turn to the empirical literature on the consequences of price transparency for healthcare provider performance, which is still relatively limited, in part because price transparency efforts are relatively new (Sinaiko & Rosenthal, 2011).

3.1.1 Limited effects of price transparency on price variation

New Hampshire provides a test case of price transparency failing to contain costs. In 2007, New Hampshire launched HealthCost, a website listing prices for medical procedures. The New Hampshire Insurance Department (NHID) conducted a study in June 2009 on price variation for medical procedures. The NHID analyzed claims data for HealthCost procedures, using timeframes before and after the website's release (NHID, 2009). The study broke down HealthCost procedures into average allowed amount paid, the coefficient of variation, the median allowed amount, and the percent increase for each year analyzed (NHID, 2009). It demonstrated that there had been no change in price variation as a result of greater transparency (NHID, 2009). Instead, prices increased within similar ranges as in prior years (NHID, 2009). The NHID did not perform significance testing because price variation clearly did not decrease during the relevant time period (NHID, 2009). Overall, the study showed that price transparency failed to contain costs in New Hampshire from 2007 to 2009.

But looking over a longer time frame did not improve the findings from New Hampshire. A follow-up 2014 report on New Hampshire's HealthCost program was based on interviews with healthcare stakeholders and experts, focusing on the steps taken in New Hampshire and how they have affected healthcare markets across the state (Tu & Gourevitch, 2014). Its focus was qualitative, highlighting developments such as hospital-sponsored price transparency, hospital renegotiation of lower contract rates, and price-shopping tools with incentives (Tu & Gourevitch, 2014). Although it did not measure price variation, it did claim that consumer usage had remained steady.

Yet, evidence from New Hampshire does not mean that price transparency could not contain costs in another context. Building on the NHID's 2009 study, Tu and Lauer

(2009) noted two potential reasons for the lack of impact: (1) weak provider competition due to geographical segmentation and few competitors, and (2) only five percent of privately insured state residents being enrolled in high-deductible plans in 2007 (Tu & Lauer, 2009). The first reason would reduce consumer ability to shop around, while the second reason would limit the incentives to do so.

3.1.2 Consumers shopping around for medication

There is evidence that consumers comparison-shop when able. Hsu et al.'s 2008 study on Medicare beneficiaries' responses to drug costs provides evidence that consumers shop around for prescription drugs when they bear significant costs of their care (Hsu, Fung, Price, & al., 2008). The study provides little insight into healthcare providers, but does speak to the larger question of how patients use price information in making healthcare decisions. Hsu et al. (2008) conducted 1,040 telephone interviews in a stratified random sample of community-dwelling Kaiser Permanente-Northern California Medicare Advantage beneficiaries aged 65 or older (Hsu et al., 2008). They measured cost-related responses in terms of cost-coping behaviors such as switching to lower-cost medications, reduced adherence such as not refilling prescriptions, and financial burden, as manifested in going without necessities (Hsu et al., 2008). 36 percent of respondents reported at least one of these cost-related responses to drug costs (Hsu et al., 2008). Multivariate analyses showed that beneficiaries with lower household income more frequently reported cost responses, with a difference of 14.5 percentage points for those making less than $40,000 per year compared to those making $40,000 or more per year (Hsu et al., 2008). In light of this information on consumer response, price transparency seems as though it could facilitate demand-side change in the healthcare industry.

3.1.3 Consumers shopping around for providers

The previous study showed that people shop around for medication—but do these findings hold up in the context of provider selection? A 2014 retrospective cross-sectional study of an insurer-initiated price transparency program sought to encourage patients to select high-value providers (Wu, Sylwestrzak, Shah, & DeVries, 2014). The study used administrative claims data from commercial Blue Cross and Blue Shield health plans in the Northeast, Midwest, and Southeast regions of the United States. The intervention cohort resided in the metropolitan hospital service areas of Atlanta, GA; Cincinnati, OH; Cleveland, OH; Indianapolis, IN; and St. Louis, MO. The reference cohort resided in areas in the same census regions as the intervention group, but in different metropolitan hospital service areas. Patients had at least one outpatient diagnostic MRI scan during either the pre-implementation (2010) or post-implementation (2012) year. There were 61,271 patients in the intervention cohort and 44,366 patients in the reference cohort, for a total of 105,637 patients who had at least one MRI scan. Age and sex distributions were comparable in the two groups (Wu et al., 2014).

In the intervention group, patients were informed of price differences among available MRI facilities and offered the possibility of selecting different providers (Wu et al., 2014). The intervention group realized a $220 cost reduction per test (18.7 percent), decreased use of hospital-based facilities (from 53 percent in 2010 to 45 percent in 2012), and reduced price variation between hospital and nonhospital facilities for the intervention group by 30 percent (Wu et al., 2014). The reduced price variation speaks to a market response to the greater information available, one that allows patients to shift to a more efficient allocation.

3.2 Barriers to price transparency

The complexity of price transparency is partly due to the large number of stakeholders. Stakeholders generally in favor of price transparency include consumer advocacy lobbies, and some physicians. For example, consumer advocacy lobbies, such as Health Access California,[6] call for more consumer power in making healthcare choices, and were behind California's 2003 passing of price transparency legislation (Berger, 2013). Meanwhile, the Alliance for Academic Internal Medicine (AAIM) and the American College of Physicians (ACP) promote high-value, cost-conscious care principles (Smith, 2012), while other supporters include the Robert Wood Johnson Foundation (RWJF),[7] the AARP,[8] the Alliance for Quality Improvement and Patient Safety (AQIPS),[9] and The Alliance.[10]

More hesitant in its support of price transparency is the Federation of American Hospitals, which represents more than 1,000 investor-owned or managed community hospitals and health systems throughout the United States (Finance, 2013). In its statement

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[6] Health Access California is the statewide coalition for California healthcare consumers (California, 2015). It was founded in 1987 and advocates for quality, affordable healthcare for all Californians (California, 2015). Recent efforts include county-based initiatives such as the Low-Income Health Programs, the country's largest early expansion of Medicaid under the ACA (California, 2015).

[7] Risa Lavizzo-Mourey, president and CEO of RWJF, was quoted in 2013 as saying, in praise of the new federal publication of chargemaster data for the most common Medicare procedures: "Transformation of the healthcare delivery system cannot occur without greater price transparency. While more work lies ahead, the release of these hospital price data will allow us to shine a light on the often vast variations in hospital charges" (HHS, 2013).

[8] In a 2013 comment submitted on a CMS proposal to publicize physician-specific reimbursement rates, the AARP wrote: "Full transparency through public release of all relevant data, including physician data, is essential for a vibrant, effective, and competitive marketplace in Medicare. Thus, the program itself, the people it serves, and the public at-large, have a vested interest in understanding how Medicare dollars are used by physicians and other healthcare providers" (AARP et al., 2013).

[9] Also in a 2013 comment submitted on a CMS proposal to publicize physician-specific reimbursement rates, AQIPS wrote: "Releasing Medicare claims data to the public will fuel a tremendous amount of learning about and improvement of the quality and cost of healthcare. The real value of public Medicare data will be realized through the innovation that it catalyzes" (AARP et al., 2013).

[10] The Alliance is a non-for-profit cooperative owned by employers that provide self-funded health benefits to more than 80,000 employees and their family members across three states, and wrote in a 2013 comment submitted on a CMS proposal to publicize physician-specific reimbursement rates: "When patients seek care, they generally do so at the individual physician level as opposed to the hospital level, and they deserve information on the quality of care provided by individual physicians" (AARP et al., 2013).

for the record before the Senate Committee on Finance on June 18, 2013, the Federation of

American Hospitals prefaces its contributions by stating that it "supports efforts to promote

transparency and provide quality and price information that enhances consumer choice." It

proceeds to condemn the recent release of hospital charge data from Medicare inpatient and

outpatient procedures, writing, "**CMS MISSES THE MARK BY PROVIDING**

INCOMPLETE INFORMATION FOR CONSUMERS" (formatting and capitalization

in original) (Finance, 2013). It argues that:

> Unfortunately, the CMS charge data release is more likely to confuse consumers than
> provide meaningful, useful information, and even worse, it could mislead consumers into
> making a wrong choice that could actually harm them. This is because the charges posted by
> CMS are not prices in the conventional sense that consumers think of them—that is, **the
> actual price patients are expected to pay for their care**. (Finance, 2013)

It bears repeating that a significant challenge for price transparency is the drastic

difference between chargemaster rates and prices paid. Chargemaster rates are easy to

provide and not very useful to consumers; prices paid information is difficult to provide but

much more useful to consumers. In its 2013 statement before the U.S. Senate Committee on

Finance, the American Hospital Association (AHA) highlights the challenge of providing

meaningful information to consumers:

> Hospital care is specifically tailored to the needs of each individual patient. For example, a
> gallbladder operation for one patient may be relatively simple, but for another patient, it
> could be fraught with unforeseen complications, making meaningful "up front" pricing
> difficult and, perhaps, confusing for patients...It is also important to note that, for most
> patients, what is most important and relevant is how much they will be required to pay out-
> of-pocket. Because insurers determine how high their customers' out-of-pocket rates will be,
> patients need insurers to provide real-time information. (Finance, 2013)

Branching off from the consumer-centric concerns raised by the Federation of

American Hospitals and the American Hospital Association, other stakeholders generally

opposed to transparency include managed care organizations, the hospital industry, insurers,

and pharmaceutical companies. For example, Pharmaceutical Research and Manufacturers

of America (PhRMA), which represents the leading research-based pharmaceutical companies in the U.S., advocated against a price transparency bill that was rejected in Congress in 2010, because "overly broad proposals" could raise prices across the board due to too much transparency (Berger, 2013). The American Academy of Dermatology Association (AADA) and the American Association of Oral and Maxillofacial Surgeons (AAOMS) also tend to oppose price transparency, arguing that it may "degrade the physician-patient relationship"[11] and "publicly vilify" dermatologists.[12]

Now that we have encountered the main viewpoints on price transparency, let us turn our attentions to politics. Political barriers to price transparency stem from the fact that it is difficult to precisely pinpoint price transparency's location in the ideological spectrum. On the one hand, it fosters market participation; on the other, it requires government intervention. We then see price and quality transparency being championed by Republicans and Democrats alike,[13] with support and opposition from both parties.[14,15] Paul Ginsburg

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[11] In a 2013 comment submitted on a CMS proposal to publicize physician-specific reimbursement rates, the American Association of Oral and Maxillofacial Surgeons raised concerns including "the AAOMS believes that there is a risk with disclosing physician payment information as it may degrade the physician-patient relationship when there is no cause nor benefit for doing so" (AARP et al., 2013).

[12] In a 2013 comment submitted on a CMS proposal to publicize physician-specific reimbursement rates, the American Academy of Dermatology Association raised concerns including "Publicly vilifying [dermatologists in some areas] is not only inaccurate and unfair, but may result in their termination of these paraprofessionals, with a resulting decrease in access to care for Medicare beneficiaries, in order to normalize their practice profiles" (AARP et al., 2013).

[13] On October 17, 2006, Georgia Governor Sonny Perdue, a Republican, signed an executive order creating the Health Information Technology and Transparency Advisory Board (Seals, 2006). "Transparency in the healthcare marketplace is essential," he said. "Increased transparency in Georgia's healthcare industry will help families make informed decisions based on the costs and the quality of the services they receive" (Seals, 2006). Governor Perdue's executive order followed mere months after President Bush's Executive Order on August 22, 2006 was signed, to "Help Increase the Transparency of America's Healthcare System—Empowering Americans to Find Better Value and Better Care" (Seals, 2006). In 2009, Representative Steve Kagan (D-Wisc.) proposed the Transparency in All Health Care Pricing Act (H.R. 4700). "There is no reason patients should be prevented from knowing the price of a pill before they buy it—and knowing what the person in line in front of them is paying for the same prescription," he argued during hearings in the E&C Committee's Subcommittee on Health on May 6. (Barlas, 2010)

[14] For example, the Health Care Price Transparency Promotion Act of 2012 (which died in the House of Representatives) was sponsored by Michael Burgess (R-TX). The bill's three co-sponsors were John Carter (R-TX), Gene Green (D-TX), and Mac Thornberry (R-TX) (Impulse, 2014).

[15] In 2012, Arizona attempted to pass price transparency legislation, but it was killed by a large majority of both Democrats and Republicans because of massive pushback from industry representatives, with 50 in attendance

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notes in his 2013 statement before the U.S. Senate Committee on Finance that the goal of

healthcare price transparency is "lowering prices by engaging consumers to choose providers

on the basis of value" (Finance, 2013). Given the marked increase in the frequency of

legislative deadlock over the past decade (Binder, 2014), the level of agreement on the

desirability of transparency in healthcare is remarkable.

Figure 2: All-payer claims databases (APCDs) and price transparency, 2014-2015 (map)
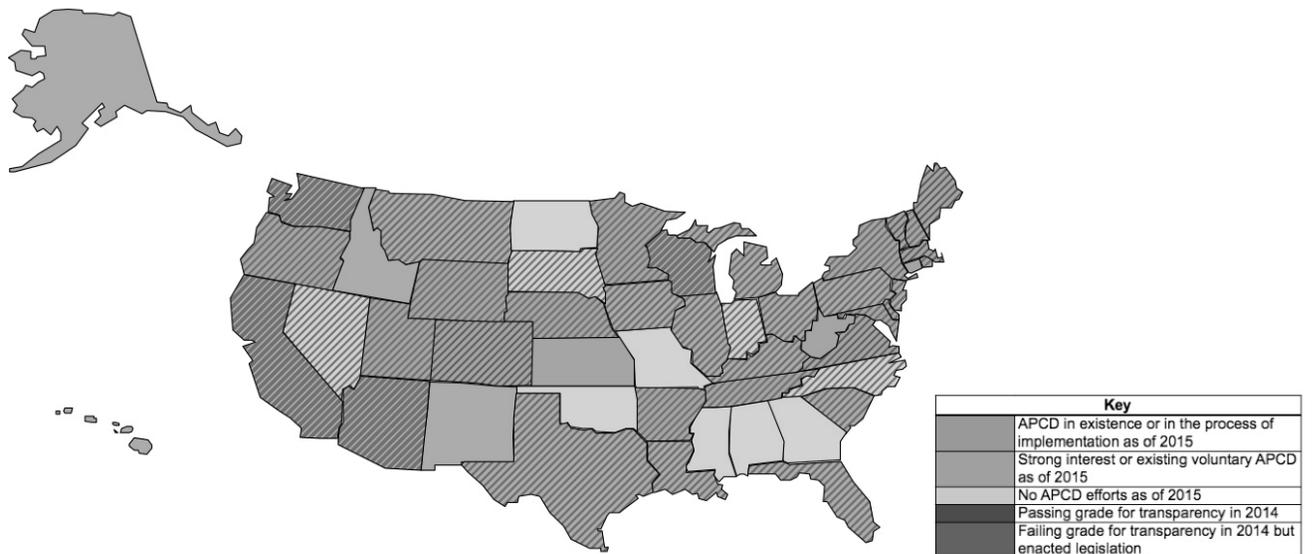
(Source of information for map: A. Council, 2015b; Delbanco, 2014)

Figure 2 demonstrates the extent to which APCDs coincide with price transparency

legislation—34 states had some combination of existing transparency legislation and an

APCD in existence, in the process of implementation, with strong interest, or existing

at the bill's final stakeholder meeting to argue against it (Berger, 2013). The bill was sponsored by a Republican, Nancy Barto, who argued that the resistance was so strong because hospitals and device manufacturers benefit from keeping their prices secret and high (Berger, 2013).

voluntarily. Twelve states developed all-payer claims databases, and six states were in the process of implementing APCDs as of 2015 (A. Council, 2015b).

Given the growing presence of price transparency initiatives, let us attempt to pinpoint price transparency's location in the political spectrum. As depicted in Figure 3, analysis of seven price transparency bills on the federal level from 2007 to 2013 showed that 61 percent of sponsors were Republicans.[16] With a small sample size of 31 sponsors, that percentage was statistically significant at a 90 percent confidence interval ($t = 1.9837; p = 0.0565$).

Figure 3: Federal legislation for price transparency: Partisan sponsorship of House and Senate bills (chart)
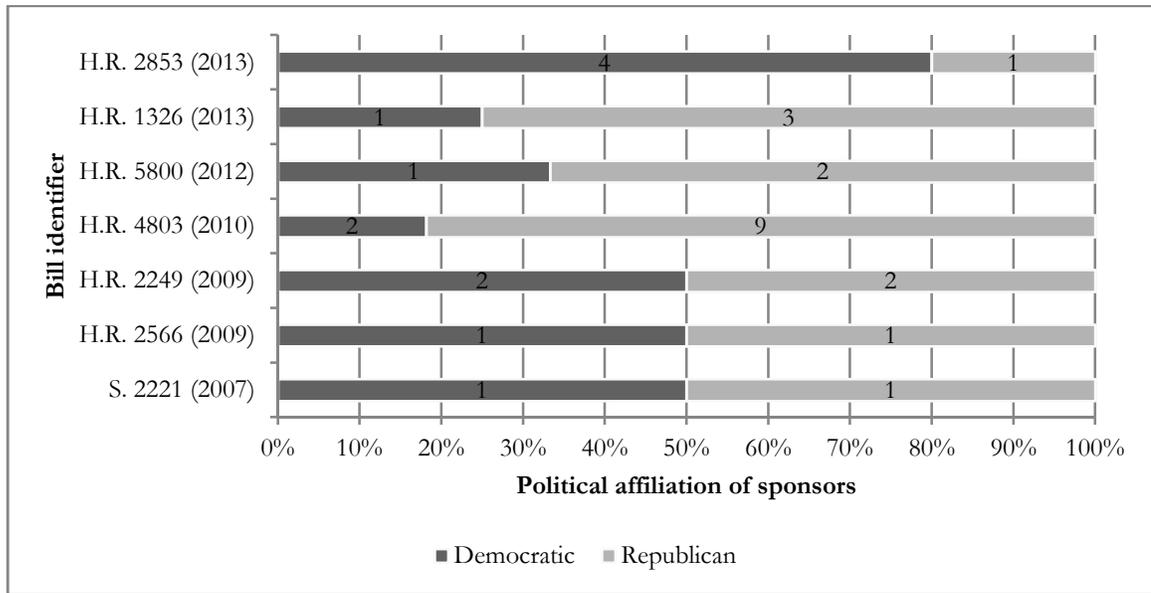
(Sources for information in chart: Delbanco, 2014; Impulse, 2015)

Yet, as Figure 4 shows, the pattern of Republicans pushing for price transparency does not hold up on the state level. Of 174 pieces of price transparency legislation passed in

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[16] These seven bills—H.R. 2853 (2013), H.R. 1326 (2013), H.R. 5800 (2012), H.R. 4803 (2010), H.R. 2249 (2009), H.R. 2566 (2009), and S. 2221 (2007)—were found through using the terms "price," "transparency," and "healthcare" to search ProQuest Congressional Publications. To increase the timeliness of the findings, the search results were limited to the year 2007 onward.

45 states between 1956 and 2013, 60.47 percent passed when state legislatures were a majority Democrats (t = 2.827$; p$ = 0.005), and 60.51 percent passed when the state governor was a Democrat (t = 2.837$; p$ = 0.005) (sources of information: Delbanco, 2014; NCSL, 2015a; analysis mine).

Figure 4: State legislation for price transparency: Partisan control of state legislature and party affiliation of governor when legislation passed (chart)
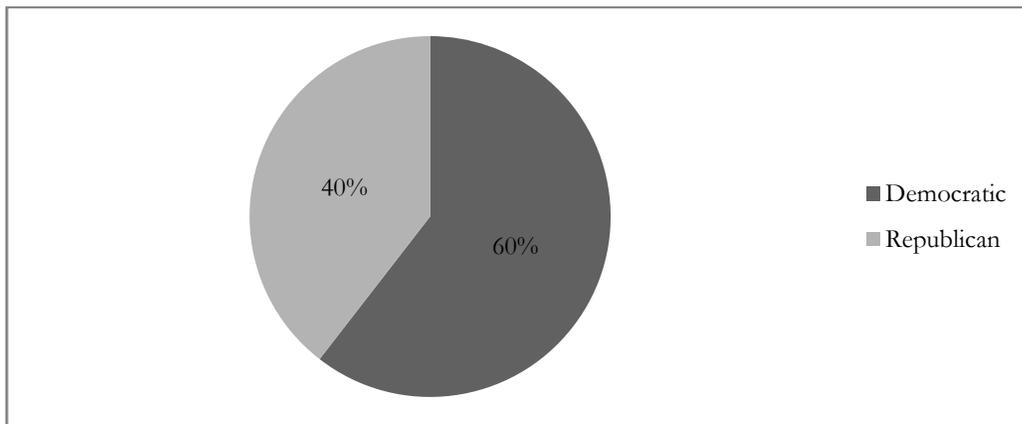
(Sources of information: Delbanco, 2014; NCSL, 2015a; analysis mine)

However, it bears mentioning that laws vary widely between states, and that not all price transparency legislation is created equal. Inconsistencies in legislation are tied to party differences: of the five states that received passing grades for their price transparency laws in 2014 when evaluated by Catalyst for Payment Reform (Colorado, Maine, Massachusetts, Vermont, and Virginia), four had Democratic governors in 2013 and one had a Republican governor (Delbanco, 2014). Inconsistencies in implementation can be seen in how some states have enacted price transparency measures: some have state-mandated websites, and some have voluntary websites (NCSL, 2015b) (WSJ, 2014) (Delbanco, 2014). Variation

between states is useful for this thesis because it makes it easier to tell, through trial and error, what works and what does not.

Figure 5: Price transparency and political parties in control of state legislation in 2014 (map)

Key
Republican control of state in 2014 (both governor and legislature, if applicable)
Republican governor, Democratic or split state legislature in 2014
Democratic control of state in 2014 (both governor and legislature, if applicable)
Democratic governor, Republican or split state legislature in 2014
Transparency legislation passed as of 2014
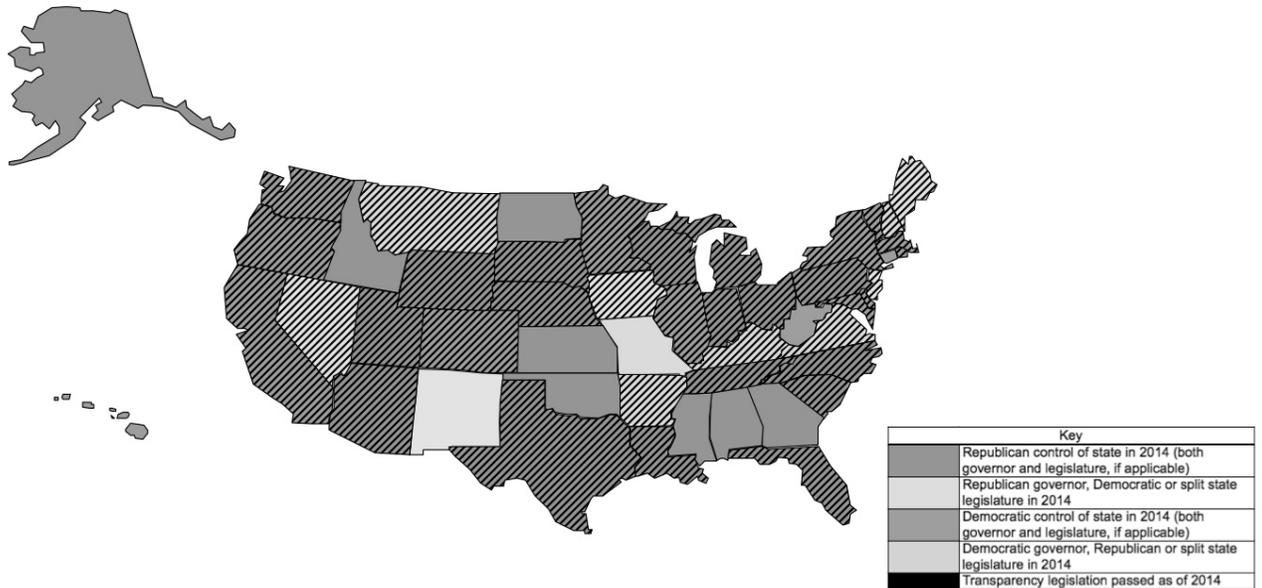
(Source of information for map: A. Council, 2015b; Delbanco, 2014; NCSL, 2014)

Meanwhile, the debate about price transparency is closely observed and participated in by major stakeholders, for whom different outcomes would be ideal. These stakeholders include the government, healthcare providers, and healthcare payers. For some, the current opaqueness of healthcare, with little data on price and quality, is beneficial. For others, it is highly problematic. The government has a consumer protection role, with a simultaneous interest in budgetary sustainability because it is also the payer for Medicare.[17] Healthcare

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[17] As an example of the consumer protection function of the government, then-Secretary of HHS Sebelius was quoted in 2013 as saying, in support of the HHS initiative to make chargemaster data public: "Currently, consumers don't know what a hospital is charging them or their insurance company for a given procedure, like a knee replacement, or how much of a price difference there is at different hospitals, even within the same city.

providers have an interest in keeping their business practices private, although many have been forced to release chargemaster data, through the state of California's Payer's Bill of Rights, enacted in 2005 (Development, 2012). Healthcare payers, primarily insurance companies, negotiate rates separately with each hospital, competing with each other to get more favorable terms. Their goal is to keep their business practices and terms of agreement private to the extent that doing so will protect their businesses.

3.3 Federal initiatives for price transparency

One federal source of price information is the Hospital Provider Charge and Actual Payment Data, released in August 2013 by the Centers for Medicare and Medicaid Services (CMS). It compares the charges for the 100 most common inpatient services and 30 common outpatient services across the nation. It includes the "list prices" on initial submitted bills, as well as the actual amounts paid by Medicare nationwide, covering 3,300 hospitals, with more than 170,000 listed price data points. This data set only shows what Medicare pays, not what private payers negotiate with providers, nor what consumers would pay out of pocket.

Public reception to the federal government releasing payment information varies. On August 6, 2013, CMS issued a Request for Public Comments on the Potential Release of Medicare Physician Data, seeking input on whether to make individual physician payment information publicly available and, if so, in what form (CMS, 2013b). CMS opened the proposed policy to public comment following a 2013 Florida federal district court decision to lift an injunction on the disclosure of individual physician reimbursement information

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This data and new data centers will help fill that gap" (HHS, 2013). Relating more closely to the government's concern with budgetary sustainability, a 2013 request for public comment included the statement: "CMS recognizes the role data can play in achieving the common goal of better quality healthcare at lower costs" (CMS, 2013c).

that had been in place since 1979 (CMS, 2013b, 2013c). During the comment period, from August 6, 2013 through September 6, 2013, CMS received more than 130 comments, representing the views of over 300 organizations and individuals (CMS, 2013b). Starting in February 2014, the first quality measures were added to Physician Compare, a website created by the Affordable Care Act that involves groups reporting quality data through the Physician Quality Reporting System (CMS, 2015a).

Another federal initiative attempts to foster state-run price transparency: in 2013, HHS made $87 million available to states, to be used for their rate review programs and to further healthcare pricing transparency (HHS, 2013). The simultaneous funding of data centers to collect, analyze, and publish healthcare pricing and medical claims reimbursement data was intended to make these data useful to consumers (HHS, 2013).

3.4 State initiatives for price transparency

State approaches to price transparency differ in terms of the measures of price, the modes of presentation, and the content presented. In this section, I present examples of states that have done price transparency well. I argue that their successful elements are built on an assumption of boundedly rational consumers. For example, when the information is only on the aggregate level, it can be useful for policymakers. However, it will not be very useful for the average consumer's budgeting purposes to know that surgeries at a given hospital usually cost about $40,000.

Example states were selected through a multi-step process. The first step was determining which states received passing grades on the 2014 Report Card on State Price Transparency Laws. The Report Card was released in 2013 and again in 2014 by two

nonprofit organizations: Catalyst for Payment Reform[18] and Health Care Incentives

Improvement Institute[19] (Delbanco, 2014). The Report Card seeks "to examine consumers'

access to price information in all 50 states, using well-defined grading criteria applied to laws,

regulations, and state-mandated websites" (Delbanco, 2014). The grading criteria can be

viewed in the report, which awards points based on attributes such as scope, ease of use,

utility, and accuracy for websites. States receiving "passing" grades on the 2014 Report Card

on State Price Transparency Laws are Colorado (receiving a C), Maine (B), Massachusetts

(B), Vermont (C), and Virginia (C). The remaining 45 states failed.

The second step was to cross-reference the list of passing-grade states with

information from the All-Payer Claims Database Council. An all-payer claims database

(henceforth "APCD") is a large-scale database that systematically collects medical claims,

pharmacy claims, dental claims, and eligibility and provider files from private and public

payers, with the first statewide APCD system established in Maine in 2003 (A. Council,

January 2014). An APCD differs from a chargemaster significantly in that an APCD

provides information on prices actually paid for care, whereas a chargemaster only includes

prices that form the starting point for negotiation. The APCD Council serves in an

information-sharing capacity for states with all-payer healthcare claims databases and runs a

website with information on initiatives taking place in each state (A. Council, 2015a). Using

the APCD Council website enabled states that had scored poorly on the Report Card to

nonetheless be considered for their alternate efforts. From the APCD Council website

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[18] Catalyst for Payment Reform, founded in 2010, is "an independent, nonprofit corporation working on behalf of large employers and other health care purchasers to catalyze improvements in how we pay for health services and promote higher-value care in the U.S" (CPR, 2015).
[19] The Health Care Incentives Improvement Institute is a non-profit that resulted from a merger of Bridges to Excellence (programs to reward healthcare practitioners who meet certain performance measures) and PROMETHEUS Payment (a compensation approach based on medical episodes of care), and aims to improve health care quality and value with evidence-based incentive programs and a fair and powerful model for payment reform (HCI3, 2015).

emerged a list of all states with existing APCD systems: Colorado, Kansas, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, Oregon, Rhode Island, Tennessee, Utah, and Vermont.

Table 1: Criteria for price transparency case selection

	Criteria	States meeting the criteria
1. 2014 Report Card on State Price Transparency Laws	Did the state's price transparency receive a passing grade in 2014?	Colorado Maine Massachusetts Vermont Virginia
2. 2015 APCD Council list of state initiatives	Does the state currently have an APCD?	Colorado Kansas Maine Maryland Massachusetts Minnesota New Hampshire Oregon Rhode Island Tennessee Utah Vermont

(Source of information for table: A. Council, 2015a; Delbanco, 2014)

Once states had been identified, four of the states' initiatives were evaluated according to a conception of the consumer as boundedly rational. The four states analyzed were Colorado, Maine, Massachusetts, and New Hampshire. The first step was to evaluate the consumer-friendliness of price transparency measures. As I established in Chapter 2, it will be necessary for price transparency to properly define the parameters in which consumers will make their decisions. New Hampshire was among the first states to build an APCD and allowing consumers to input their own insurance information and see what specific procedures will cost, and Massachusetts developed a consumer-friendly Web site showing the amount paid and quality side by side (CIVHC, 2014a). Other states started out

with information targeted for policymakers but are currently in the process of making information available to consumers.[20] Next, the user-friendliness of the websites themselves was evaluated. User-friendliness can be enhanced by tailoring of information to the consumer's needs. For instance, Maine's website offers a "Cost Compare" feature, which allows consumers to select a procedure category, select a specific procedure from within that category, and see the average cost of that procedure at different health care facilities in Maine (MHDO, 2014). Finally, state price websites were evaluated on the basis of the completeness of information presented. For instance, one measure of completeness is whether there is information available on any given procedure from any given provider in the state. All criteria are described in Table 2.

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[20] For example, Virginia started collecting data for an all-payer claims database (APCD) in 2012, and projected to make its data available online in the spring of 2015. Virginia's APCD data has two purposes: (1) improving public health surveillance, population health, and alternative delivery and payment models, and (2) enabling "healthcare purchasers, including employers and consumers, […] to compare quality and efficiency of healthcare" ("All-Payer Claims Database created; purpose; reporting requirements.," 2012; VHI, 2015).

Table 2: Criteria for price transparency case evaluation

	Criteria	States meeting the criteria
1. User-friendliness of price measures	Is price information specific enough for consumers to infer what their own treatment will cost, by providing: (a) Reimbursement in addition to chargemaster data? (b) Procedure-specific in addition to or instead of overall hospital rates?	Colorado Maine Massachusetts New Hampshire
2. User-friendliness of website	Does the website tailor information to the consumer's specific needs through interactivity by: (a) Allowing comparison of specific hospitals? (b) Allowing searching by condition or treatment?	Colorado Maine Massachusetts New Hampshire
3. Completeness of information	Is information available: (a) On any given procedure? (b) On all relevant payers? (c) On all relevant providers? (d) For all recent years?	Colorado Massachusetts New Hampshire

(Source of information for table: A. Council, 2015a; Delbanco, 2014)

3.4.1 Colorado

Colorado received a passing grade on the 2014 Report Card on State Price

Transparency Laws (Delbanco, 2014). Its APCD has collected data since 2012, and the

launch of the Colorado APCD public facing website was November 1, 2012 (A. Council,

2015a). I will first provide a brief history of Colorado's price transparency, then evaluate the

user-friendliness of its price measures and website, in addition to the completeness of information on its website.

Colorado's All Payer Claims Database (APCD) legislation (Colorado House Bill 10-1330) went into effect in late summer 2010. It was signed by then-Governor Bill Ritter (Democrat) on May 26, 2010. The legislation set out a number of required actions and milestones, including the appointment of an advisory committee to guide the creation of Colorado's APCD (A. Council, 2015a). In 2010, the advisory committee named the Center for Improving Value in Health Care (CIVHC), a non-profit organization, as the administrator for Colorado APCD (A. Council, 2015a). Treo Solutions, which offers consulting services and data analytics to commercial and government health plans, began collecting three years of historic claims information in early 2012 (A. Council, 2015a).

User-friendliness of Colorado's price measures

The Colorado APCD public-facing website, Colorado Medical Price Compare, launched on November 1, 2012, providing high-level views of variation in cost and utilization for approximately two million commercial and Medicaid covered lives (A. Council, 2015a). Because there was no pricing on the medical services level, consumers could not estimate their treatment costs. As a result, it was not very useful for consumers deciding which hospital to use. In 2013, the Colorado APCD on-boarded additional claims data (including Medicare) and expanded the public reporting of comparative cost, quality and value information (A. Council, 2015a). 3 CCR 702-4:4-2-31, which was added in 2010 and last amended in 2013, marked the first legislation in Colorado that made public the paid amount, not charge, by requiring "the average of all reimbursement rates that a carrier paid, by MS-DRG code" to be "reported to the Division" (that is, reported to the state). In 2014,

Colorado Medical Price Compare included reports estimating the amount that a hospital, surgery center, physician or other health care professional receives for its services, and how much one would have to pay out-of-pocket for that service (CIVHC, 2014a).

Another website available is Colorado Hospital Price Report, which predates Colorado Medical Price Compare and which is a joint project of the Colorado Hospital Association and the Colorado Division of Insurance. It is intended to provide consumers and purchasers of health care with information about hospital charges and insurance company or health maintenance organization reimbursement rates. The website includes the 25 most common inpatient medical conditions and surgical procedures performed in Colorado hospitals in 2013. It includes reimbursement by company and by group code, for 2009 through 2013.

User-friendliness of Colorado's website

Although Colorado received a passing grade for its laws, its implementation did not, because the CPR 2014 report card rated the Colorado Hospital Price Report website instead of Colorado Medical Price Compare. The CPR 2014 report card rated Colorado Hospital Price Report, Colorado's state-mandated website, as "poor" for utility and ease of use (Delbanco, 2014). Nonetheless, since 2013, a consumer can search Colorado Hospital Price Report for comprehensive prices for select hospital-based services, by location and insurance (A. Council, 2015a). This is the sort of tailoring that prevents information overload, thereby making it more likely that a boundedly rational consumer will make the optimal decision.

Furthermore, the wording of Colorado legislation suggests that lawmakers are aware of the importance of a user-friendly website. Colorado Revised Statutes §10-16-134, added in 2008, requires "the [Colorado Hospital Association's] web site and information [to be] easy

to navigate [and] contain consumer-friendly language." Colorado Rev. Stat. Ann. § 25-0.031253-703 mandates disclosure of charge information "on an internet web site in a manner that allows consumers to conduct an interactive search that allows them to view and compare." Colo. Rev. Stat. Ann. § 25.5-1-204, added in 2010 and amended in 2013, required both charge and paid amount to be made "available to the public […] in a consumer-friendly manner," allowing "consumers to identify and compare health plans, health insurers, health care facilities, and health care providers regarding the provision of safe, cost-effective, high-quality health care services."

Figure 6: Colorado Medical Price Compare (screenshot)
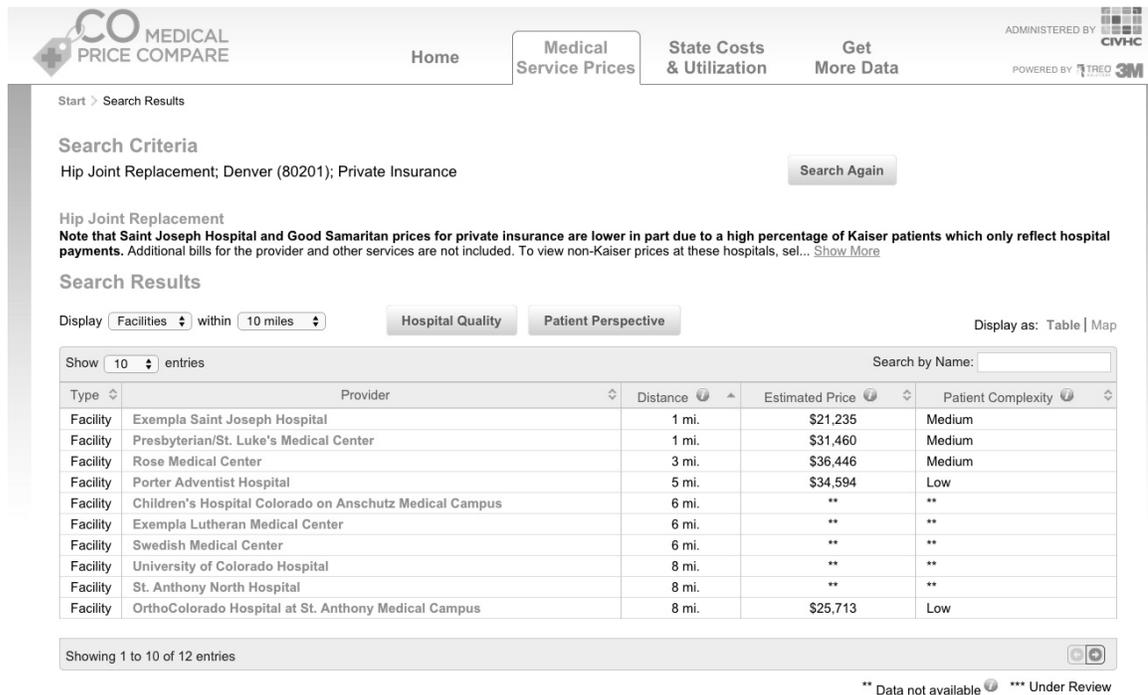
(CIVHC, 2014b)

Completeness of information on Colorado's website

The CPR 2014 report card rated Colorado Hospital Price Report, Colorado's state-mandated website, as "average" for the scope and accuracy of its data (Delbanco, 2014).

Although information is available on all relevant providers and for all recent years, information is not available on any given procedure. The initial launch of the website displayed price and quality information for a limited number of hospital-based services: total knee replacement, total hip replacement, uncomplicated vaginal birth, and cesarean birth. Colo. Rev. Stat. Ann. § 25-3-705, added in 2008 and amended in 2011, mandated that "each hospital" release "the mean charge" of "the twenty-give most common inpatient diagnostic-related groups." In 2015, approximately 30 procedures including imaging services across a variety of facility types are expected to be available. In addition, prices at the provider group level will eventually be incorporated, allowing consumers to evaluate common preventative services such as annual check-ups (CIVHC, 2014b).

Information is not available on all payers. When launched, Colorado Medical Price Compare included data from 2009-2011 from the largest eight carriers in Colorado and from Medicaid, amounting to claims for over 2 million unique individuals, representing over 40% of insured Coloradans (CIVHC, 2012). As of December 2013, the APCD included 2009-2012 historic claims data representing over 2.5 million Coloradans (CIVHC, 2012). Medical services prices were based on 2012 claims data. Self-funded commercial insurance claims data and claims for patients 65 and over were not included in the data (CIVHC, 2012). As of Version 2.0, the APCD includes health insurance claims from the 13 largest health plans for individual, large group fully insured and some self-insured lives, as well as Medicaid (CIVHC, 2014a).

3.4.2 Maine

Maine HealthCost was introduced in May 2009 (Tu & Lauer, 2009). The Maine Health Data Organization (MHDO) collects data on health care claims for Maine residents. Maine Revised Statutes §8712, added in 2003 and most recently amended in 2012, requires

"health care facilities and practitioners" to make available "payments for services rendered" for elective procedures to the uninsured, so that the state can "create a publicly accessible interactive website." Maine Revised Statutes §8712, added 2003 and last amended in 2012, requires "the release of prices paid by individual commercial health insurance companies, 3rd-party administrators and, unless prohibited by federal law, governmental payors" for the 15 most common diagnosis-related groups and outpatient procedures for all hospitals in the State.

User-friendliness of Maine's price measures and website

The CPR 2014 Report Card rated Maine's state-mandated website as "excellent" in terms of accuracy of data. The average cost amount reported in HealthCost is the average payment to the provider for a procedure based on the claims data collected by the MHDO. The CPR 2014 Report Card rated Maine's state-mandated website as "average" in terms of utility and ease of use. The Cost Compare function provides an overall idea of a procedure's average cost by facility (MHDO, 2014). Overall, Maine's price measures and websites effectively tailor price information to the consumer's needs, thereby anticipating the constraints of bounded rationality.

Figure 7: Maine HealthCost (screenshot)

Completeness of information on Maine's website

The CPR 2014 Report Card rated Maine's state-mandated website as "good" in terms of scope. Maine's website does not include information on all relevant providers. On the MHDO's website, it presents the average cost of specific medical procedures at over 50 different high-volume health care facilities and hospitals around the state. The current site includes data from providers who are part of a health care facility. Approximately 80 percent of primary care physicians and 50 percent of specialists are employed by a health care facility or hospital (MHDO, 2014).

Maine's website does not include information on all procedures. Users can compare the average cost of approximately 200 procedures at over 50 high volume health care facilities and hospitals. Neither does Maine's website include information on all relevant payers. The information used to calculate the average cost is from claims data collected by MHDO (as required by law) from all licensed health plans in the State and third-party

administrators. The MHDO reviewed over 7 million claims from 42 health insurance providers. At present, it does not include Medicaid and Medicare claims data.

Nor does Maine HealthCost include information for all recent years. The data in this release cover the time period of July 1, 2012 to June 30, 2013. Q1 2014 APCD Data was released in August 2014, and includes commercial claims and MaineCare data (A. Council, 2015a).

3.4.3 Massachusetts

My Health Care Options has been live since late 2008.[21] The Massachusetts All-Payer Claims Database began collecting claims data in 2008, with claims dating back to July 2006. In summer 2012, the Massachusetts Division of Health Care Finance and Policy released a "preliminary release" of APCD datasets based on private payer data from 2008-2010. That November, the Center for Health Information and Analysis (CHIA) assumed responsibility for the MA APCD. Release 1.0, which CHIA made available in June 2013, included data for 2009 through 2011 from both private and public payers. CHIA finalized Release 2.0, which included data for 2009-2012, in January 2014 (CHIA, 2014). CHIA's APCD data is only released in custom abstracts to users who make it through a multi-layer screening process, although it is used in conjunction with other data sources to create the My Health Care Options ratings (CHIA, 2014).

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[21] I have concluded this from triangulating from a few sources: The Massachusetts House FY2010 budget recommendation, published in 2009, referred to "the Council's recently launched 'My Health Care Options' website" (Patrick & Murray, 2009). More concretely, archive.org's Wayback Machine saved the website 308 times between December 12, 2008 and August 17, 2014 (Archive, 2014). I cannot tell from the archived version which medical conditions were available for cost and quality comparisons, though there is an announcement on the version archived on December 25, 2010, stating: "This Website was enhanced in July 2010 to include updated acute care hospital quality measures, updated text and links, and the addition of medical groups' clinical quality data from the Massachusetts Health Quality Partners (MHQP)." The website also received an update in 2010, according to an August 2010 blog post (Guiltinan, 2010).

The statute creating the Massachusetts Health Care Quality and Cost Council statute expresses a desire to improve health care quality, reduce racial and ethnic disparities and contain health care costs (A. Council, 2015a). The authority to collect claims data was established under the same legislation that established the Council (A. Council, 2015a). Since then, the Division was given authority, under a separate bill, to examine cost containment (A. Council, 2015a).

User-friendliness of Massachusetts' price measures and website

Massachusetts General Laws 12C §8 Part (d), added in 2012, require the public reporting of and placement on the state website of inpatient and outpatient relative prices. The Massachusetts Health Care Quality and Cost Council was established to design a consumer-friendly website that would provide transparency about healthcare costs and quality for the public. My Health Care Options allows comparison of specific hospitals and allows searching by condition or treatment, as shown in Figure 8.

Figure 8: Massachusetts My Health Care Options (screenshot)
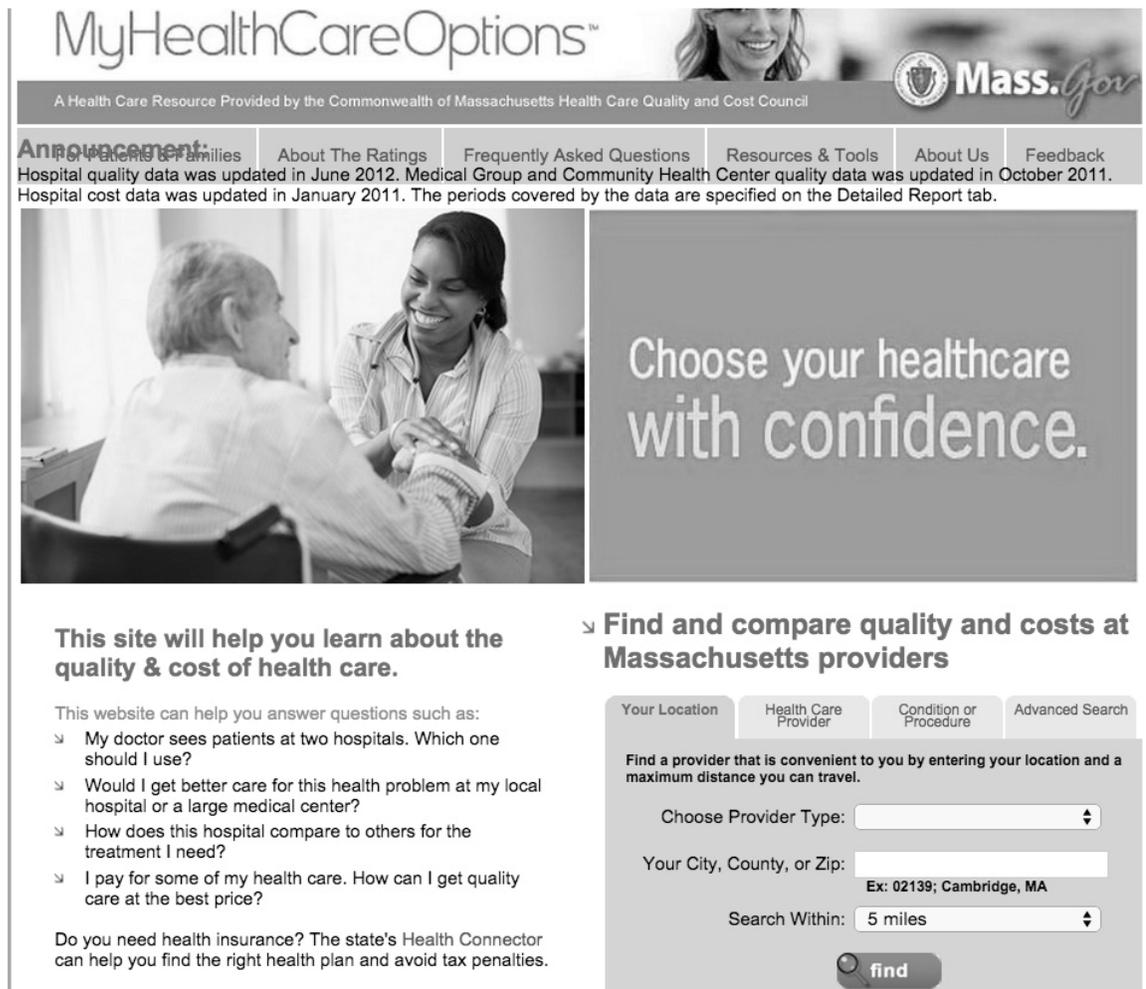
(H. C. Q. a. C. Council, 2014)

Completeness of information on Massachusetts' website

The Division adopted new regulations in July 2010 and includes the collection of

medical claims and information from member eligibility, provider, and product files

encompassing fully-insured, self-insured, Medicare, and Medicaid data (A. Council, 2015a).

As of 2010, the Health Care Quality and Cost Council had collected insurance carrier claims

data on the privately, fully insured for nearly three years. It posted currently posts data on 19

inpatient conditions and 18 diagnostic tests on its consumer website, My Health Care

Options (DHCFP, 2010).

In 2012, Massachusetts' regulation 129 MA ADC 2.05 was added, requiring "each

carrier" (of insurance) to "submit to the Council" "a completed health care claims data set"

"for all Massachusetts resident members." Also in 2012, Massachusetts' regulation 129 MA

ADC 2.09 was added, requiring "carriers" to report "medical and pharmacy claims" and

"claims for capitated services [...] at the visit, service, or prescription level." Further

regulation requires the reporting of financial and other information to the state.[22]

3.4.4 New Hampshire

I will first provide a brief history of New Hampshire's price transparency, then

evaluate the user-friendliness of its price measures and website, in addition to the

completeness of information on its website. NH HealthCost, launched in 2007, is a publicly

available website that provides median bundled prices for about 20 common, mostly

outpatient, services, using the claims data from New Hampshire's all-payer claims database

(Tu & Gourevitch, 2014). The New Hampshire Comprehensive Healthcare Information

System began accepting claims submissions in 2005 in response to a need for more

transparency in the commercial insurance system. The drivers listed in the statute include the

provision of a resource for continuous review of health care utilization, expenditures, and

performance data by insurers, purchasers, employers, providers and state agencies (Tu &

Gourevitch, 2014). Also expressed was the goal to help consumers and employers make

informed and cost effective health care choices (Tu & Gourevitch, 2014).

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[22] See 101 MA ADC 345.05, 114.1 CMR 17.03, 114.1 CMR 17.01, 114.1 CMR 39.03, 40.03, 42.03, 42.04, 114.5 CMR 21.03, 957 CMR 2.01, 957 CMR 2.05 (Delbanco, 2014).

In addition, the NH Department of Health and Human Services, Office of Medicaid Business and Policy (OMPB), wanted to be able to compare Medicaid quality, cost, utilization, and price to those of other payers (Tu & Gourevitch, 2014). For the OMPB, the reporting agenda is focused on how health care quality, access, use, and cost vary geographically, between providers, and most importantly between the Medicaid-covered and commercially insured populations as well as benchmarking of payment rates (Tu & Gourevitch, 2014).

User-friendliness of New Hampshire's price measures and website

The NHID uses claims data to better understand the health insurance market in New Hampshire as well as to provide New Hampshire residents with information about the cost of health care services. To date, the NHID has developed the NH HealthCost website for insurers and is in the process of developing a second website for employers (A. Council, 2015a). NH HealthCost allows comparison of specific hospitals and allows searching by condition or treatment type. Furthermore, it allows website users to enter details about their insurance carrier and the specifics of their plan, then tailors results to that information, as shown in Figure 9.

Figure 9: New Hampshire HealthCost (screenshot)

Completeness of information on New Hampshire's website

HealthCost provides median bundled prices for about 20 common, mostly outpatient, services, using the claims data from New Hampshire's all-payer claims database (Tu & Gourevitch, 2014). Its data includes all providers and major payers.

3.5 Private initiatives for price transparency

Private initiatives for price transparency do not have the force of law behind them, but can result in useful websites through stakeholder support. Examples of state-specific private initiatives for price transparency include Montana Hospital Association PricePoint system website, the California Foundation, and the Oregon Association of Hospitals and Health Systems PricePoint system website.

On the nationwide level, we see Castlight Health was founded in 2008 and is a healthcare information company that offers comparison tools for the price and quality of

healthcare providers (Castlight, 2015). Its clients include self-insured companies such as Wal-Mart and Honeywell (Campbell, 2014).

OpsCost is a privately run website that allows charge comparison for common procedures at over 3,000 hospitals using data from the government and from user-reported bills (OpsCost, 2015). When evaluated according to the criteria used earlier for state transparency websites, OpsCost performs reasonably well. Its price measures are not very user-friendly, providing both billed and reimbursed amounts. However, they are tailored to specific providers. The website is user-friendly, tailoring information to the consumer's specific needs, and it allows the comparison of specific hospitals. Finally, it includes information on all treatment types.

The design of insurance plans impacts the effectiveness of price transparency. Patients with high-deductible plans will tend to be more price-sensitive, for instance. The Health Care Cost Institute (HCCI) was established in 2011 to draw on health care cost and utilization data for Americans covered by private insurance (HCCI, 2015). Through research and access to a large health insurance claims database, HCCI addresses health care spending and utilization for the privately insured health population (HCCI, 2015). Its data contributors are Aetna, Humana, Kaiser Permanente, and UnitedHealthcare (HCCI, 2015).

In 2015, HCCI launched guroo, a consumer-focused website providing national, state, and local cost and quality information for common conditions and services based on data from around 40 million Americans (HCCI, 2015). When evaluated according to the same criteria used for state transparency websites, guroo performs reasonably well. Its price measures are user-friendly, providing procedure-specific cost estimates. However, they are not tailored to specific providers, but rather to the geographic region, which is less useful for a consumer trying to decide which hospital to attend. The website is user-friendly, tailoring

information to the consumer's specific needs, but it does not allow the comparison of specific hospitals. Finally, its information is incomplete: there are conditions not yet included.

With the connection between insurance and healthcare prices, it is unsurprising that we see insurance companies beginning to engage in transparency. In 2010, Aetna introduced Member Payment Estimator, an online tool enabling members to estimate costs (HFMA, 2015). It allows estimates of both in-network and out-of-network physician care costs (HFMA, 2015). Not to be outperformed, in 2012, UnitedHealthcare launched a consumer cost estimator tool for in-network hospitals and physicians: myHealthcare Cost Estimator, or myHCE (UnitedHealthcare, 2015). For those covered by UnitedHealthcare, it should be very useful, providing the ability for consumers to compare quality and cost for more than 574,900 different healthcare providers and 4,275 hospitals (UnitedHealthcare, 2015). Meanwhile, Humana currently offers MyChoice Tools for provider comparison (Humana, 2015).

3.6 Chapter conclusion

This chapter has presented the current state of affairs for price transparency in the U.S. hospital market, including evidence of Republicans and Democrats advocating for price transparency. Without changes in insurance benefit designs to encourage patients to choose high-value providers, price transparency will have limited impact. The examples included also highlighted the disjunction between what makes sense to consumers and what the healthcare industry is currently doing, thereby dealing with the ethical aspects of price transparency in addition to the political and economic.

Chapter 4 Implementing quality transparency

In 2012, Ronald Reagan UCLA Medical Center's patient safety made headlines when it received an F on Leapfrog Group's scoring of the hospital (Terhune, 2012). Since then, Ronald Reagan UCLA Medical Center has risen to a C for Leapfrog Group ratings (Terhune, 2015). Leapfrog Group is an employer-backed nonprofit focused on healthcare quality, and is one of a growing number of healthcare rating organizations seeking to provide more information to consumers and employers (Terhune, 2012).

More recently, between October 2014 and January 2015, over 100 patients at Ronald Reagan UCLA Medical Center[23] were exposed to an antibiotic-resistant bacterium spread by endoscopes (AP, 2015). Two patient deaths have already been attributed to the bacterium (AP, 2015). In January 2014, Virginia Mason Medical Center in Seattle announced that 32 patients were infected with a similar bacterial strain, due to contaminated endoscopes being used between 2012 and 2014, resulting in eleven deaths during that time (Terhune, 2015).

These news stories speak to the sometimes-fraught role that quality transparency plays in the U.S. hospital industry, whether initiated by the media, private rankings groups, or the federal government. Quality in healthcare can be a matter of life or death, unlike in some other industries—for example, in retail, a poor-quality shirt is not newsworthy. Yet, in industries like retail, there are clear indicators of quality—name brands, jaw-dropping price tags—that are not present to the same extent in healthcare. The U.S. hospital industry does

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[23] Ronald Reagan UCLA Medical Center appeared on 225 U.S. News and World Report "Best Hospital" lists between 2001 and 2014, for its performance in various specialties including: oncology, gastroenterology, geriatrics, gynecology, cardiology, endocrinology, nephrology, orthopedics, urology, and rheumatology (USNWR, Cooper, Craig, & Russell, 2015).

have its name brands—Mayo Clinic, Mass Gen, Cleveland Clinic—but since they are geographically inaccessible for many Americans, there have not traditionally been useful "brand name" heuristics for Americans choosing where to have their cancer treatment.

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This chapter evaluates the quality transparency initiatives currently available. It demonstrates the gap between the concept of quality transparency and its implementation. Many different measures can be used to quantify and communicate quality of care. These measures can be grouped into three categories: processes of care, outcomes of care, and patient experience (NCQA, 2007). First, processes of care can be synthesized in *practice guidelines,* which are specific sets of care recommendations designed to help healthcare professionals and patients make decisions about preventing or treating a condition, developed through review of the best available medical evidence or an expert consensus process where evidence is lacking (NCQA, 2007).[24] The second category focuses on outcomes of care, such as readmission and mortality rates.[25] The third category is patient experiences, which can include pain management and quality of communication with practitioners.[26]

The source of quality can determine the measures it reports. For example, Medicare's Hospital Compare provides information about the quality of care at over 4,000 Medicare-certified hospitals, including readmissions, complications, and deaths, while the Leapfrog

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[24] For example, the Health Plan Employer Data and Information Set (HEDIS) tells employers and consumers know how well their care follows practice guidelines, such as the percentage of heart attack patients who are given a beta-blocker to prevent another heart attack (NCQA, 2007).

[25] The Medicare Health Outcomes Survey (HOS) assesses the physical and mental well-being of people enrolled in managed care plans (NCQA, 2007). Its first cohort was surveyed in 1998 and resurveyed in 2000 (HOS, 2014).

[26] The Consumer Assessment of Healthcare Providers and Systems (CAHPS) consists of surveys asking consumers and patients to report on their healthcare experiences (NCQA, 2007).

Group provides voluntarily reported hospital survey results on how patients fare, resources used in caring for patients, and structures that promote patient safety.

4.1 Existing work on quality transparency

Several studies have found evidence of a significant consumer response to health plan ratings when assessing the impact of health plan ratings on consumer choice (Wedig and Tai-Seale, 2002; Scanlon et al., 2002; Chernew et al., 2004; Jin and Sorensen, 2005; Dafny and Dranove, 2005). In the next sections, I present the evidence for consumers using health plan ratings, consumers shopping around for providers, and the impact of consumer choice on providers.

4.1.1 Consumers using health plan ratings

Wedig and Tai-Seale (2002) test the effect of report cards on consumer choice in the HMO market. The OPM provided health insurance plan selections of a sample of federal employees in 1995 and 1996, which was used to match a new hire sample of 649 new hires in 1995 and 713 new hires in 1996 with a stratified random sample of 4,150 existing hire choices in 1996 and 3,650 existing hire choices in 1995 (Wedig, 2002). Wedig and Tai-Seale found statistically significant results at $p < 0.05$, demonstrating that an increase of one standard deviation in a report card measure of quality of care increases the likelihood of plan selection by more than 50 percent (Wedig, 2002). Overall, they offered evidence that subjective measures of quality and coverage influence plan choices.

4.1.2 Consumers shopping around for providers

Less work has been done on the effect of rankings and report cards on patients' choice of provider. Pope (2009) demonstrates that changes in a hospital's ranking by the US News and World Report increases non-emergency patient volume and hospital revenue. The New York State Cardiac Surgery Reporting System provides information on the risk-adjusted mortality rates of hospitals performing coronary artery bypass surgery. Cutler et al. (2004) show a decrease in patient volume for hospitals that performed significantly below the state average, but no evidence that hospitals performing significantly above average attracted more patients. Meanwhile, Jha and Epstein (2006) present evidence that New York Cardiac Surgery ratings did not impact the market share of cardiac patients.

Work on the role of patient choice in healthcare has provided evidence in support of the right kind of transparency. Estimating the impact of hospital competition in the English National Health Service following January 2006 reforms, Cooper et al. (2009) presented results suggesting that hospital competition in markets with fixed prices can lead to improvements in clinical quality, using AMI mortality to indicate quality and a modified difference-in-difference estimator. Cutler and Dafny (2011) recommend transparency initiatives mandating the disclosure of plan-specific patient copayments, to avoid the wrong kind of transparency, which could harm patients by leading to higher prices. Rosenthal et al. (2013) found it difficult to obtain bundled price information for a common elective surgical procedure, indicating pervasive barriers to informed patient choice in the hospital market.

The literature provides mixed evidence on the consequences of report cards for healthcare provider performance. Surveys of patients and clinicians reveal both that report cards can have little effect on decision-making (Schneider & Epstein, 1998) and that they can have a significant effect on patient placement (Schneider & Epstein, 1996). Schneider and Epstein's 1996 study suggests that publication of quality data can significantly impact healthcare provider performance, but not due to increased patient choice. Analysis of clinical and administrative data shows that report cards catalyzed improvement in the quality of care (Hannan, 1994; Peterson, 1998), lending support to the argument that quality transparency can incentivize healthcare providers to perform better.

4.1.3 The impact of consumer choice on providers

The articles reviewed were largely within the field of health economics, and provided a framework for understanding what sort of information was already publicly available and what to look for. An article by Devin Pope (2009) influenced the decision to create a dataset of the U.S. News and World Report rankings of hospitals for 2001 through 2014. Pope's paper includes useful information on how the U.S. News Best Hospital rankings are put together. The U.S. News and World Report rankings of hospitals is a widely dispersed listing of the top hospitals (up to 50 rank slots) in each of up to 17 specialties (Pope, 2009). It has been released annually since 1993, and U.S. News and World Report states that it determines the rankings according to the following steps (Pope, 2009). First, the hospital must be a member of the Council of Teaching Hospitals, affiliated with a medical school, or in possession of certain technological capabilities. (Pope notes that each year, only one-third of the approximately 6,000 U.S. hospitals meet one of the following criteria.) Second, the hospital's reputation is measured by the percentage of surveyed physicians who indicated the

hospital specialty as one of the top five hospitals in that specialty. Third, the hospital-specialty's mortality rate is measured. Finally, other observable hospital characteristics are taken to account (e.g., nurses-to-beds ratio, number of patients treated, specialty-specific technologies available).

As a counterpart to the stated methodology of the U.S. News and World Report, Pope also produces analysis of what actually drives the rankings. Namely, he shows that reputation scores explain over 95 percent of the variation in the final quality scores, while risk-adjusted mortality rates explain less than one percent (Pope, 2009). Pope also offers valuable information on how widely perceived the U.S. News and World Report rankings seem to be. Specifically, he cites the U.S. News and World Report magazine circulation of over 2 million[27] and the free online availability of the rankings (Pope, 2009).

Pope's study shows that U.S. News Best Hospital rankings have a large impact on hospital choice decisions. Yet, consumers of health care may be relatively unresponsive to change in hospital quality. Pope estimates the response to rankings in the hospital market (Pope, 2009). He finds that hospitals that improve their rank attract significantly more patients, by using hospital rankings released by US News and World Report as a proxy for perceived quality (Pope, 2009). The rankings are broken down by specialty, so he produces counts of treated patients at the hospital-specialty level. He then estimates the patient response to these rankings. Pope uses a dummy variable for each hospital specialty, to control for time in varying hospital characteristics (size, culture), but it does not control for the number of patients per year. Using mixed and conditional logit estimates of hospital choice, he shows that distance has a bigger effect than quality. Because patients make appointments far in advance, which could contaminate results, he uses a falsification test.

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[27] For a point of reference, the top-ranked U.S. consumer magazine for the second half of 2013, based on circulation, was the AARP magazine, with 22,274,096 subscribers as of 12/31/2013 (Media, 2014).

For the falsification test, he shows that a rank change occurring in a subsequent year does not have an effect on this year's patient counts. He shows that the average hospital in his sample experiences a 5% change in non-emergency, Medicare patient volume from year to year due to rank changes.

Recent work in behavioral economics suggests that simplicity of information content is an important factor in consumer behavior, and U.S. News seems to have come up with a system that consumers are can easily to grasp. If one assumes that the sample of hospitals used in this analysis is representative of the nation as a whole, changes in these hospital rankings have led to over 15,000 Medicare patients switching from lower to higher-ranked hospitals for inpatient care, resulting in over 750 million dollars moving from one hospital to another over the past ten years. But to understand the entire impact of these rankings, it will be necessary to know whether the response of hospitals to the rankings is efficiency increasing or decreasing.

Contributing a cautionary note to the dialogue, Dranove et al. (2003) use national data on Medicare patients at risk for cardiac surgery and cardiac surgery report cards in New York and Pennsylvania to measure the impact of publishing information on providers' performance (Dranove, Kessler, McClellan, & Satterthwaite, 2003). Dranove et al. examine the effects of mandatory CABG surgery report card laws adopted by New York and Pennsylvania in the early 1990s. Hospital-level trends indicate report card-induced matching, and patient-level analysis showed that report cards led to an increase in the quantity of CABG surgery, a decrease in PTCA, and increased delays in the execution of all three intensive treatments. Their results suggest that report cards can lead to short-term reductions in welfare by leading to selection behavior by providers, which leads to worse health outcomes for sicker patients (Dranove et al., 2003).

4.2 Barriers to quality transparency

In the previous chapter on price transparency, we saw that more Republicans than Democrats tend to advocate for price transparency more than Democrats. Here, I show that more Democrats than Republicans have supported quality transparency measures on the federal and state level. Analysis of seven quality transparency bills on the federal level from 2007 to 2014 showed that 82.5 percent of sponsors were Democrats.[28] With a sample size of 140 sponsors, that percentage was statistically significant at a 99.99 percent confidence interval ($t = 7.5601$; $p < 0.0001$). Even when dropping all observations from H.R. 4841 (2014), which had 43 sponsors, the percentage of Democratic sponsors (70.5 percent) is statistically significant ($t = 2.4861$; $p = 0.0146$). Recalling similar analysis from Chapter 3, the partisan composition of sponsorship differs significantly between price and quality ($t = 5.3326$; $p < 0.0001$), even when dropping observations from H.R. 4841 (2014) ($t = 5.1993$; $p < 0.0001$).

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[28] These seven bills—H.R. 3230 (2014), H.R. 4841 (2014), S. 2450 (2014), H.R. 2853 (2013), H.R. 4803 (2010), H.R. 2723 (2007), and S. 1226 (2007)—were found through using the terms "quality," "transparency," and "healthcare" to search ProQuest Congressional Publications. To increase the timeliness of the findings, the search results were limited to the year 2007 onward.

Figure 10: Federal legislation for quality transparency: Partisan sponsorship of House and Senate bills (chart)
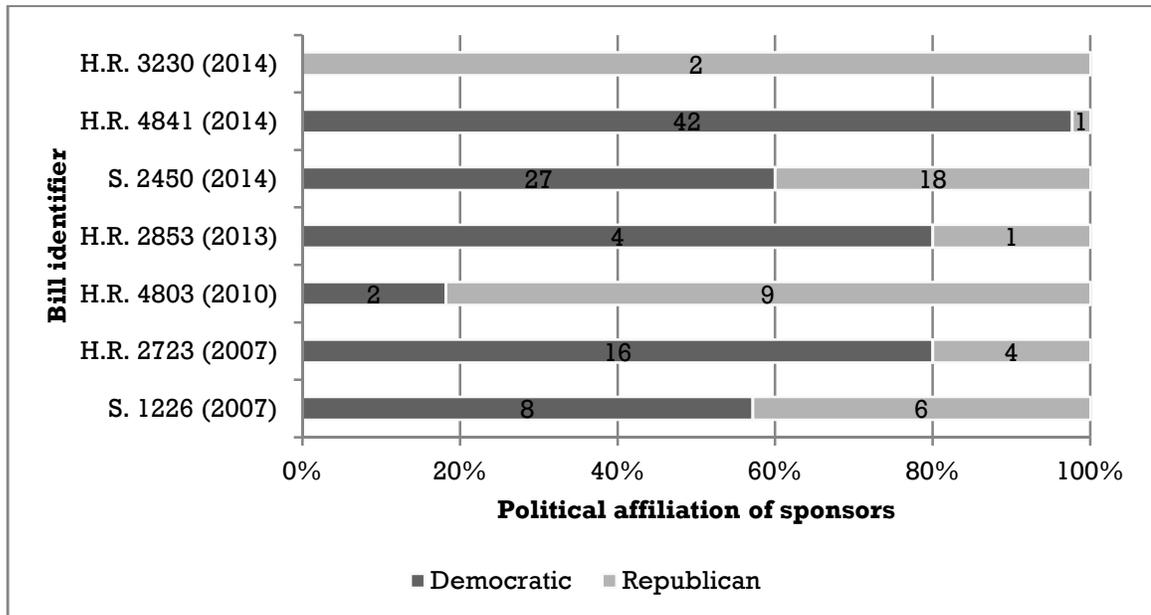
(Sources for information in chart: Delbanco, 2014; Impulse, 2015)

The trend of Democrats pushing for quality transparency is even more apparent on the state level. Of 29 pieces of quality transparency legislation passed in 13 states between 1989 and 2013, 63.89 percent passed when state legislatures were a majority Democrats (t = 1.557$; p$ = 0.131), and 65.63 percent passed when the state governor was a Democrat (t = 1.772$; p$ = 0.087) (sources of information: Delbanco, 2014; NCSL, 2015a; analysis mine).

Figure 11: State legislation for quality transparency: Partisan control of state legislature and party affiliation of governor when legislation passed (chart)
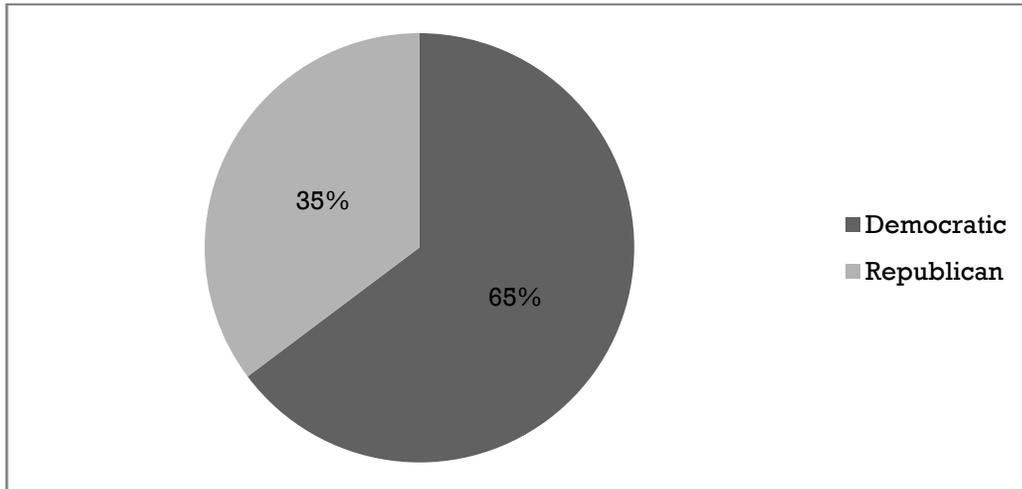
(Sources of information: Delbanco, 2014; NCSL, 2015a; analysis mine)

The partisan composition of legislatures when transparency legislation passes does not differ significantly between price and quality ($t = 0.349$; $p = 0.728$), nor does the party affiliation of the governor ($t = 0.523$; $p = 0.601$).

4.3 Federal initiatives for quality transparency

The main federal initiative for quality transparency is Medicare Hospital Compare, which is a website available to the public. Hospital Compare enables patients to compare the quality of different hospitals (Medicare, 2015a). Hospital Compare has information about the quality of care at over 4,000 Medicare-certified hospitals (Medicare, 2015c). Similar Medicare services are Physician Compare, Nursing Home Compare, Home Health Compare, Dialysis Facility Compare, Medicare Plan Finder, and Supplier Directory (Medicare, 2015a).

Hospital Compare was created through the efforts of the Centers for Medicare and Medicaid Services (CMS), in collaboration with organizations representing consumers,

hospitals, doctors, employers, accrediting organizations, and other Federal agencies (Medicare, 2015c). Prior to Hospital Compare, the Health Care Financing Administration (HCFA; now CMS) sought to publish nationwide hospital-specific mortality data beginning in the mid-1980s. The effort was not widely used by consumers and ended in the early 1990s, partly due to criticism for the HCFA's lack of risk adjustment (Dudley, Rittenhouse, & Bae, 2002). In 1990, the National Committee for Quality Assurance's (NCQA) was founded, and began administering Healthcare Effectiveness Data and Information Set (HEDIS), which now forms the basis for the NCQA's accreditation of more than 90% of America's health plans through measurement of performance for care and service (NCQA, 2015b). Starting in 1999, the federal government re-entered public reporting with comparative performance reports for providers that participate in Medicare; these reports included Health Plan Compare, Nursing Home Compare, Home Health Compare, and Dialysis Compare (C. o. t. F. o. R. H. Care, 2005).

Medicare Hospital Compare is able to have such thorough data because hospital reimbursements are tied to reporting. The Hospital Inpatient Quality Reporting program was originally mandated by Section 501(b) of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, which authorized CMS to pay reporting hospitals a higher annual update to payment rates, and a lower rate to non-reporters (CMS, 2015c).

In 2005, a consortium of organizations initiated an effort now called the Hospital Quality Alliance (HQA) to establish a national database to provide information on the quality of care provided by hospitals (Jha, Li, Orav, & Epstein, 2005). The organizations involved were CMS, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the American Hospital Association, and consumer groups such as the American Association of Retired Persons (Jha et al., 2005). Under the HQA, hospitals nationwide

report data to CMS on indicators of quality of care for three conditions: acute myocardial infarction, congestive heart failure, and pneumonia (Jha et al., 2005). HQA data on 10 quality indicators first became publicly available on November 30, 2004, and were updated on April 1, 2005 (Jha et al., 2005).

Between April 2005 and September 2010, the amount of publicly available information expanded to include 30-day hospital readmission, mortality rates, patient experience of their hospital care, steps to prevent surgical infections, and hospital outpatient measures (AHA, FAH, & AAMC, 2010). Specifically, CMS and the HQA began publicly reporting 30-day mortality measures for acute myocardial infarction and heart failure in June 2007, and for pneumonia in June 2008, and has since expanded the publicly reported outcome measures to include 30-day readmission for these conditions, complications and readmission data for hip/knee replacements, and in-hospital adverse events and mortality (CMS, 2015d). Its stated rationale is that "publicly reporting these measures increases the transparency of hospital care, provides useful information for consumers choosing care, and assists hospitals in their quality improvement efforts" (CMS, 2015d). Using claims and administrative data, CMS annually calculates the following categories of outcome measures based on claims and administrative data for public reporting (CMS, 2015d).

Table 3: CMS categories of outcome measures for public reporting

30-day risk-standardized mortality measures	30-day risk-standardized readmission measures	AHRQ Patient Safety Indicators (PSIs)
Acute Myocardial Infarction	Acute Myocardial Infarction	PSI 04: Death among surgical inpatients with serious treatable complications
Heart Failure	Heart Failure	PSI 90: Composite—complications/patient safety for selected indicators
Pneumonia	Pneumonia	
	Hip/Knee	

The survey of patients' experience that appears on Hospital Compare comes from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Survey (CMS, 2015b). The HCAHPS Survey was created by CMS with AHRQ, and is administered to a random sample of patients continuously throughout the year (CMS, 2015b). Hospital-level results are publicly reported on Hospital Compare four times a year, and are based on four quarters of data on a rolling basis (CMS, 2015b).

When Hospital Compare was first rolled out, to initiate the reporting effort, CMS selected 10 measures of the quality of care that have been widely endorsed and that are considered valid and feasible for immediate public reporting (Jha et al., 2005). These 10 measures reflect the quality of care for three major clinical conditions: acute myocardial infarction, congestive heart failure, and pneumonia (Jha et al., 2005). There were five measures of the quality of care for acute myocardial infarction: the use or nonuse of aspirin within 24 hours before or after arrival at the hospital and at discharge, the use or nonuse of a beta-blocker within 24 hours after arrival and at discharge, and the use or nonuse of an angiotensin-converting–enzyme (ACE) inhibitor for left ventricular systolic dysfunction (Jha et al., 2005). Two measures were used for congestive heart failure: assessment of left ventricular function and the use or nonuse of an ACE inhibitor for left ventricular dysfunction (Jha et al., 2005). Three measures were used for pneumonia: the timing of initial antibiotic therapy, the presence or absence of pneumococcal vaccination, and assessment of oxygenation (Jha et al., 2005).

One strategy the government has used to accelerate the implementation of quality measures has been the linkage of financial incentives to reporting. The Medicare Modernization Act, passed in 2003, established financial incentives for hospitals to provide the CMS with data on these 10 indicators of quality (Jha et al., 2005). Much more recently,

under the Affordable Care Act's attempt to curb avoidable adverse events in acute care hospitals, Yale-New Haven Hospital is set to receive 1% lower Medicare reimbursements between October 2014 and September 15, due to one of the highest rates of hospital-acquired infections in the country (Uchegbu, 2015).

Yet, even this national initiative ran into difficulties in the implementation stage. The controversy surrounding Hospital Compare speaks to challenges facing transparency initiatives more broadly. A Quality Advisory sent to hospitals on September 8, 2010 by the American Hospital Association (AHA), Federation of American Hospitals, and AAMC stated that information on hospital-acquired conditions (HACs) would be available on Hospital Compare, and warned that "the release of HAC rates may generate interest from patients, your community and the media" (AHA et al., 2010). The Advisory also noted that hospitals would have only 9 days to review their data prior to the data being made available to the public in a downloadable file on September 23, 2010. The Advisory listed the eight HACs to be provided—foreign object retained after surgery; air embolism; blood incompatibility; pressure ulcer stages III and IV; falls and trauma; vascular catheter-associated infection; catheter-associated urinary tract infection; and manifestations of poor glycemic control—and noted that the data would be available solely via download, rather than displayed similarly to the rest of the data available on Hospital Compare (AHA et al., 2010).

The Quality Advisory summarizes the legislative push that led to HACs being publicly reported. It states that Congress included a provision in the Deficit Reduction Act (section 5001(c)) to direct the Secretary to begin collecting data on whether complications were acquired during hospitalization and to stop paying the higher complicated MS-DRG payment for selected conditions (AHA et al., 2010). The motivation for this provision was a

concern that the payment system might reward hospitals for substandard care by paying extra when a patient developed a HAC (AHA et al., 2010).

The timeline established by Section 5001(c) of the 2005 Deficit Reduction Act was that on October 1, 2007, the Secretary of Health and Human Services would select at least two hospital-acquired conditions that were high cost, high volume, or both; that would result in a diagnosis-related grouping with a higher payment if present as a secondary diagnosis; and that could have reasonably been prevented through the application of evidence-based guidelines (CMS, 2007). Then, on October 1, 2008, the reimbursement charges based on hospitals receiving no additional payment from CMS is the hospital-acquired condition was listed as a secondary diagnosis and if there was no documentation that the condition was present on admission to the healthcare facility come into effect (CMS, 2007).

A term that appears frequently in the Quality Advisory is "consensus-based entities" (AHA et al., 2010). Examples of such entities include the National Quality Forum (NQF) and the HQA (AHA et al., 2010). One concern raised in the Quality Advisory is that CMS has not released publicly available specifications for the calculation of HAC rates, so they have not been reviewed by consensus-based entities, which "is an essential step in the quality measure development process" (AHA et al., 2010).

Another recent controversy surrounding Hospital Compare is that most hospitals are required to report quality scores, but critical access hospitals can do so voluntarily, resulting in only one in three critical access hospitals reporting their emergency room quality measures (Rau, 2014). A critical access hospital is defined as a hospital with no more than 25 beds; they are usually located in isolated areas, and constitute 25% of hospitals in the US (Rau, 2014). Some states have very few critical access hospitals—Connecticut, Delaware, DC, Maryland, New Jersey, and Rhode Island have none—while they constitute the majority of

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hospitals in other states (Rau, 2014). For example, 80% of hospitals in North Dakota are critical access—the highest proportion in any state—followed closely by 76% in Montana, 71% in Nebraska, and 69% in Iowa (Rau, 2014).

From these federal quality transparency examples, we have learned the difficulties of presenting useful information to consumers without stepping on toes. Let us now turn to the initiatives that individual states have implemented.

4.4 State initiatives for quality transparency

Different states have taken very different approaches to quality transparency. Their approaches differ in terms of the measures of quality, the modes of presentation, and the content presented. This section focuses on cases of states implementing quality transparency successfully. Their approaches differ based on the measures of quality, the modes of presentation, and the content presented. As discussed earlier, of 29 pieces of quality transparency legislation passed in 13 states between 1989 and 2013, 63.89 percent passed when state legislatures were a majority Democrats ($t = 1.557; p = 0.131$), and 65.63 percent passed when the state governor was a Democrat ($t = 1.772; p = 0.087$) (sources of information: Delbanco, 2014; NCSL, 2015a; analysis mine).

Example states were selected through a multi-step process. First were isolated those states that received passing grades on the 2014 State Report Card on Transparency of Physician Quality Information (HCI3, 2014). The Report Card was released in 2013 and again in 2014 by the Health Care Incentives Improvement Institute (HCI3, 2014).[29] The report card reviews the (1) state-specific types of quality information on physicians, (2) state-

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[29] The Health Care Incentives Improvement Institute is a non-profit that resulted from a merger of Bridges to Excellence (programs to reward healthcare practitioners who meet certain performance measures) and PROMETHEUS Payment (a compensation approach based on medical episodes of care), and aims to improve health care quality and value with evidence-based incentive programs and a fair and powerful model for payment reform (HCI3, 2015).

specific amount of publicly available quality information on physicians and clinicians, and (3)

how recent the state-specific quality information is (HCI3, 2014). The grading criteria can be

viewed in the report. The report leveraged the Robert Wood Johnson Foundation's national

directory of public web-based resources available in each state (HCI3, 2014). Only ten states

received passing grades: California, Maine, Massachusetts, Minnesota, Missouri, New

Mexico, Ohio, Oregon, Washington, and Wisconsin (HCI3, 2014).

Next, those states were cross-referenced with the NCQA list of 39 states requiring

the use of HEDIS/CAHPS for both Medicaid and commercial managed care (NCQA,

2015a). NCQA's HEDIS Compliance Audit process is consistent with the CMS protocol for

validating performance measures. Many states, the federal government (Centers for Medicare

and Medicaid Services and the Office of Personnel Management), and other purchasers use

HEDIS measures for quality improvement, benchmarking and pay for performance

(NCQA, 2015a). Using the NCQA website listing enabled states that had scored poorly on

the Report Card to nonetheless be considered for their alternate efforts.

Table 4: Criteria for quality transparency case selection

	Criteria	Successful states
1. 2014 State report card on	Did the state's quality	California

transparency of physician quality information	transparency receive a passing grade in 2014?	Maine Massachusetts Minnesota Missouri New Mexico Ohio Oregon Washington Wisconsin
2. NCQA list of 39 states requiring the use of HEDIS/CAHPS	Does the state currently requiring the use of HEDIS/CAHPS for both commercial managed care and Medicaid	California Connecticut Florida Georgia Indiana Maryland Massachusetts Missouri Nevada New Jersey New Mexico New York Rhode Island Texas Utah Virginia Washington Wisconsin

(HCI3, 2014) (NCQA, 2015a)

From those states, I focused on Maryland and Wisconsin. Maryland offers a Patient Guide, designed to help patients compare hospitals based on quality. Wisconsin's healthcare quality website has been offering comparison information to consumers since 2005.

Table 5: Criteria for quality transparency case evaluation

	Criteria	State(s) meeting the criteria
1. User-friendliness of quality	Is quality information	Maryland

measures	specific enough for consumers to infer how safe their own treatment will be, by providing: (c) Multiple metrics for different measures, such as hospital-acquired infections in addition to readmission rates? (d) Procedure-specific in addition to or instead of overall hospital data?	
2. User-friendliness of website	Does the website tailor information to the consumer's specific needs through interactivity by: (c) Allowing comparison of specific hospitals? (d) Allowing searching by condition or treatment?	Maryland
3. Completeness of information	Is information available: (e) On any given procedure? (f) On all relevant providers? (g) For all recent years?	Maryland
4. Estimated website traffic	If available, does it indicate significant usage?	

(HCI3, 2014) (NCQA, 2015a)

4.4.1 Maryland

Maryland offers a Patient Guide, designed to help patients compare hospitals based on quality. The website provides information designed to help patients select a hospital that provides a high level of care for a given medical condition, and understand how often hospitals perform recommended treatments for selected medical conditions (Guide, 2012).

User-friendliness of Maryland's quality measures and website

The Maryland Hospital Association website allows patients to sort by condition and see how each hospital performs on multiple sets of quality measures for that condition.

Figure 12: Maryland Health Care Quality Reports (screenshot)

Completeness of information on Maryland's website

The Maryland Hospital Performance Evaluation Guide contains information from several sources (Guide, 2012). Information on the number of patients treated for a medical condition, how long they stayed in the hospital, and how many of them were readmitted to the hospital for the same condition comes from the Maryland Health Services Cost Review Commission (HSCRC) and from Washington, D.C. hospitals.

Another source of information included is hospital profile information, such as licensed bed counts and neonatal intensive care unit levels, which comes from the Maryland Health Care Commission (MHCC). Also included is information on quality measures and

services offered directly from the hospitals, as well as information on patient readmissions

and transfers from Maryland hospitals to healthcare facilities in the District of Columbia,

which comes from Washington, D.C. hospitals.

These performance measures have developed over time, developing from listing only

Heart Attack, Heart Failure, Pneumonia, and Surgical Infection Prevention in June 2007 to

listing Heart Attack, Heart Failure, Pneumonia, Surgical Care, Patient Satisfaction, Children's

Asthma, Medical Imaging, Emergency Department Care, Preventative Care, Healthcare

Associated Infections, Stroke Care, Blood Clot Prevention, and 30-Day Outcomes as of

January 2015.

Figure 13: Maryland Health Care Quality Reports: Summary of Hospital Information (screenshot)

4.4.2 Wisconsin

Wisconsin's healthcare quality website has been offering comparison information to consumers since 2005. In 2004, through the support of WEA Trust, WCHQ released an interactive *Performance & Progress Report*. This web-based report allows any individual to access relevant, audited healthcare quality information, while comparing a choice of healthcare providers and performance measures.

User-friendliness of Wisconsin's quality measures

Wisconsin's quality measures are not user-friendly. While WCHQ provides multiple metrics for different measures, such as hospital-acquired infections in addition to readmission rates, and it does provide procedure-specific data, it presents these metrics in ways that are not accessible to the average consumer. For example, see Figure 14, which has all the important information there for someone to know how statistically rigorous the data is—but does not do enough work for the consumer to help her draw conclusions about what this means for her own treatment.

Figure 14: WCHQ CABG deep sternal wound infection (screenshot)
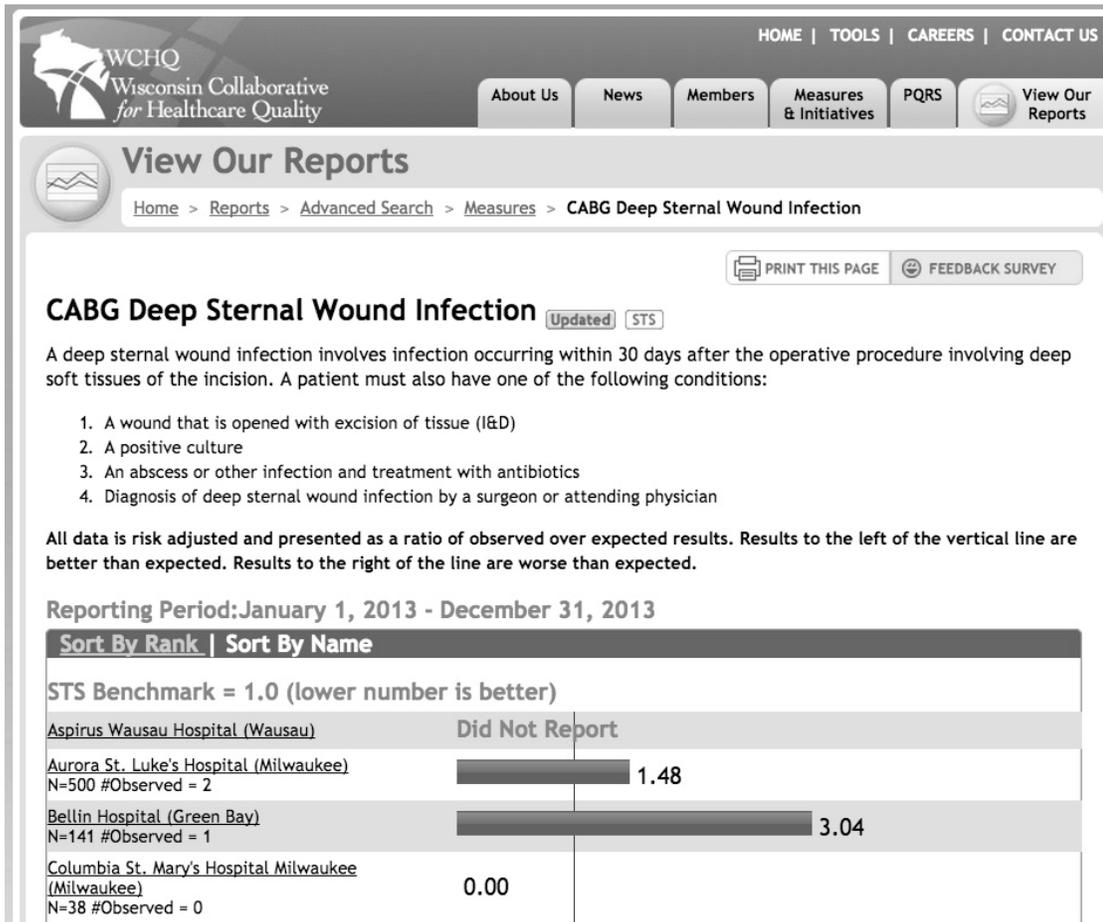
User-friendliness of Wisconsin's website

To some degree, the website tailors information to the consumer's specific needs through interactivity. It allows comparison of specific hospitals, and allows searching by some categories of treatment. But as Figure 9 shows, the results cater too much to a statistician and not enough to a woman who is just trying to figure out where to go for her mammogram.

Figure 15: WCHQ breast cancer screening (screenshot)
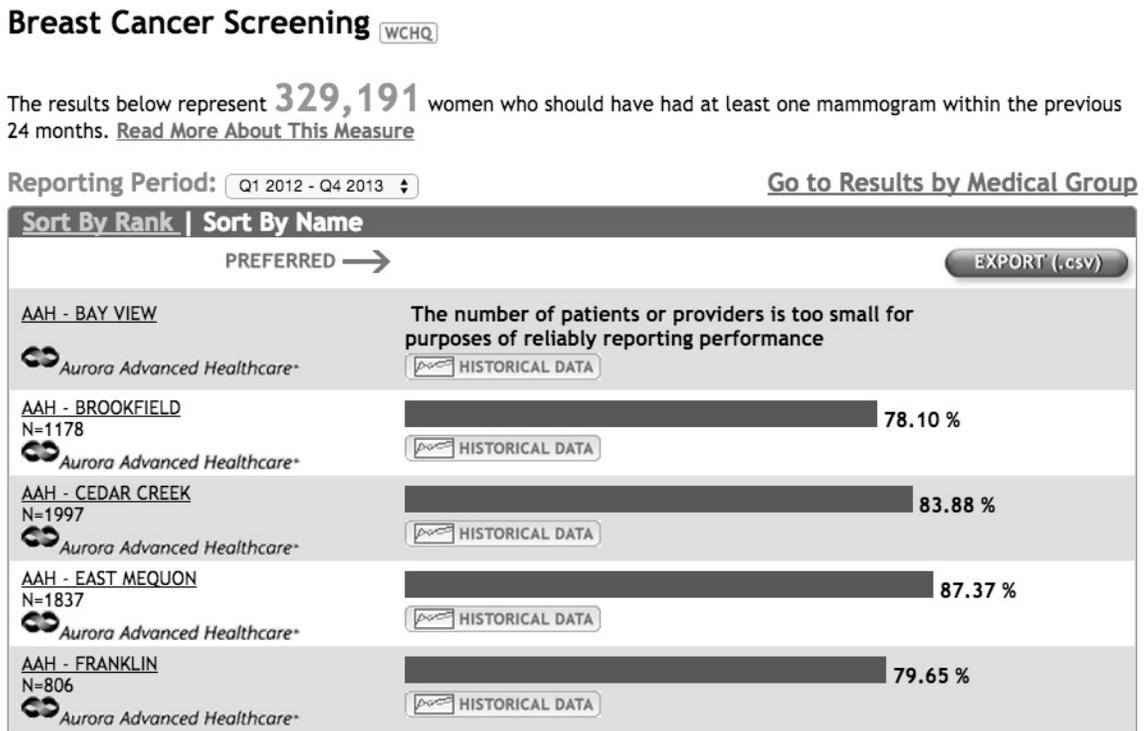
Completeness of information on Wisconsin's website

Although information is available for certain procedures, providers, and years, it was very difficult to find any data on certain hospitals and conditions. For example, if I want to know which hospital will be best for my kidney disease management, the results from WCHQ presented in Figure 10 will be very little help.

Figure 16: WCHQ Measures Summary (screenshot)

4.5 Private initiatives for quality transparency

Private initiatives for quality transparency include the U.S. News and World Report rankings of hospitals, which are available on the website and in print. Another is by the Joint Commission, a national nonprofit that administers the website qualitycheck.org. Another is the Leapfrog Group, a national organization that makes hospital quality measures available on leapfroggroup.org. Further private initiatives include Healthgrades, a national organization that produces healthgrades.com, and the Michigan Hospital Association Keystone Center, which also administers a website.

Major hospital quality reporting organizations include the Consumer Assessment of Health Professionals and Systems; The Joint Commission; The National Quality Forum; National Quality Measures Clearinghouse; Aligning Forces for Quality; and CalQualityCare.org (run by the California Healthcare Foundation). In December 2003, the Agency for Healthcare Research and Quality (AHRQ) released the first NHQR, which included quality measures for the nation (C. o. t. F. o. R. H. Care, 2005). In 2006, AHRQ released a web-based tool called State Snapshots (NCQA, 2007). State Snapshots ranked each state on 15 measures of healthcare quality and showed each state's relative performance (NCQA, 2007).

In June 2001, the Leapfrog Group began requesting information from hospitals on three safety practices (use of computerized physician order entry, evidence-based hospital referral, and staffing of intensive care units with doctors who have specialized critical care training), then in April 2004 added thirty safe practices identified by the National Quality Forum (C. o. t. F. o. R. H. Care, 2005).

4.5.1 CalQualityCare

CalQualityCare is managed by the California HealthCare Foundation (CHCF), a nonprofit group dedicated to improving the value of healthcare in California (Foundation, 2015). CHCF has multiple partners to provide the information on the website, namely the California Hospitals Assessment and Reporting Taskforce,[30] California Healthcare Performance Information System,[31] Consumer Reports Health,[32] Truven Health Analytics,[33] and the Department of Social and Behavioral Sciences at the University of California, San Francisco. In 2002, CHCF began publishing online ratings of nursing homes; in 2004, it added similar ratings of home health care agencies and hospice services; then, in 2005, it incorporated congregate living health facilities, assisted living, continuing care retirement communities, adult healthcare programs, and adult day care centers. In 2007, CHCF began aggregating data from voluntarily participating hospitals and insurers

User-friendliness of CalQualityCare's quality measures

The quality information on CalQualityCare is specific enough for consumers to infer how safe their own treatment will be. It provides multiple metrics for different measures, such as hospital-acquired infections in addition to readmission rates. It also provides procedure-specific in addition to or instead of overall hospital data (Foundation, 2015). The conditions and procedures rated are among the most common reasons for being admitted to a hospital (Foundation, 2015).

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[30] The California Hospital Assessment and Reporting Task Force has received in-kind and financial support from over 200 California hospitals, the California Health Care Foundation, and every California health plan with at least 3% market share (Dudley, 2015).
[31] The California Healthcare Performance Information System (CHPI) is a 501(c)(4) nonprofit, public benefit corporation. CHPI is building a healthcare database with the healthcare experiences of more than 12 million people from health plans and Medicare to evaluate the quality and efficiency of medical services (CHPI, 2015).
[32] Consumer Reports is a nonprofit organization that works toward a "fair, just, and safe marketplace for all consumers" (Reports, 2015).
[33] Truven Health Analytics contracts with hospitals, physicians, pharmacists, employers, health plans, government agencies, pharmaceutical companies, researchers, and policymakers to provide healthcare data and analytics (Truven, 2015).

The quality measures depend on which federal or state agency the data comes from. From CMS Hospital Compare comes data on patient experience, patient safety, heart attack, heart failure, lung conditions and pneumonia, and emergency department care (Foundation, 2015). From California CABG Outcomes Reporting Program and California OSHPD comes heart bypass surgery (Foundation, 2015). From the California OSHPD also comes surgeries and other conditions. From the California Department of Public Health comes the breastfeeding rate (Foundation, 2015). From the California Maternal Quality Care Collaborative come all other mother and baby measures (Foundation, 2015).

User-friendliness of CalQualityCare's website

CalQualityCare tailors information to the consumer's specific needs through interactivity. It allows comparison of specific hospitals. To some degree, it allows searching by condition or treatment, but in a very limited way: heart attack, heart bypass surgery, heart failure, mother and baby, and lung conditions are the only possibilities (Foundation, 2015).

Figure 17: CalQualityCare (screenshot)
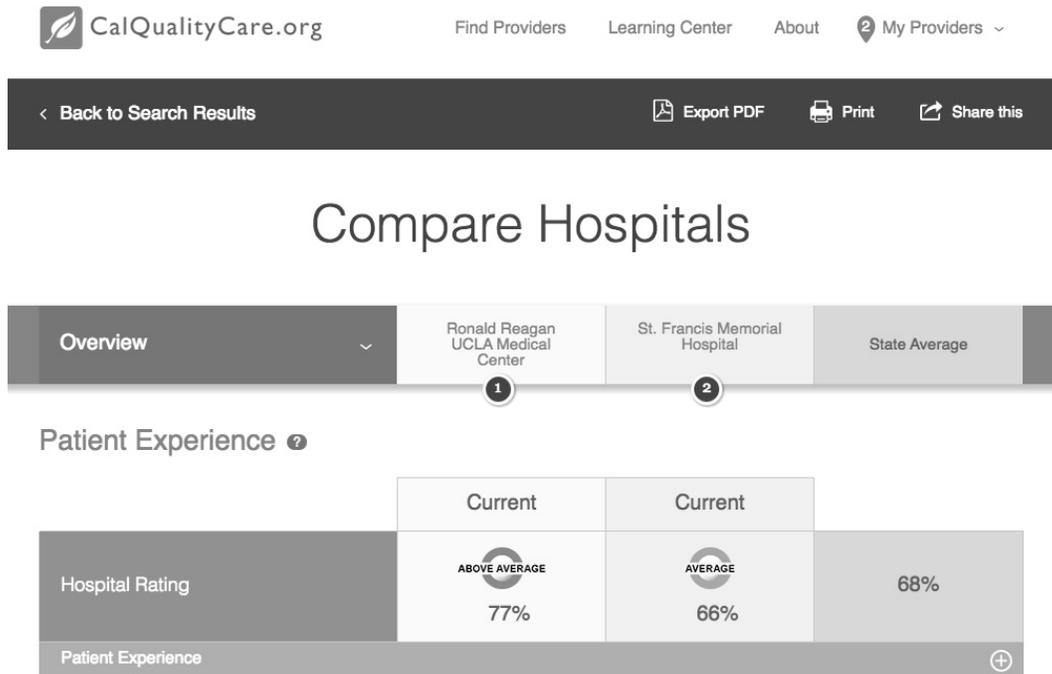
Completeness of information on CalQualityCare's website

　　CalQualityCare does not have information on all procedures, nor on all providers, nor for all recent years. It includes hospital measures for clinical care, patient safety, and patient experience for all acute care hospitals in the state of California with publicly available information (Foundation, 2015). This represents 332 hospitals, and does not include psychiatric hospitals, rehabilitation facilities, long-term acute care hospitals and specialty only hospitals (Foundation, 2015). Some small, rural, or Critical Access Hospitals do not have publically available data or a sufficient amount of data to score them accurately (Foundation, 2015). Measures of children's health care are not included nor widely available (Foundation, 2015).

4.6 Chapter conclusion

This chapter has presented the current state of affairs for quality transparency in the U.S. hospital market, showing the degree of variability between initiatives. It bears clarifying that a hospital can have a high mortality rate for a procedure and still provide high quality care—a hospital could be very good and as a result get the hardest cases. For this reason, predicting the behavior of healthcare market participants according to bounded rationality is particularly important, as not all consumers will understand the implications of mortality ratings for their own circumstances.

While this chapter's discussion showed the importance of different quality measures in providing an accurate picture of how good a hospital is, Chapter 5 will delve into the difference between perceived and actual quality.

Chapter 5 Findings and analysis

A 2015 New York Times article[34] features Harvard's Beth Israel Deaconess Medical Center in Boston,[35] Yale-New Haven Hospital,[36] the Fred Hutchinson Cancer Research Center in Seattle,[37] University of Utah hospital,[38] and Stanford Health Care.[39] The article cites examples of patient surveys triggering hospital improvements, especially relating to process. For instance, one survey revealed that patients felt unable to get a good night's sleep without interruption, so Dr. Michael Bennick (medical director for patient experience at Yale-New Haven Hospital) required any 4 a.m.-blood draw to be accompanied by a phone call to him. Middle-of-the-night blood draws stopped.

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[34] "Doctors strive to do less harm by inattentive care," reads a New York Times headline from February 18, 2015.

[35] Beth Israel Deaconess Medical Center appeared on 84 U.S. News and World Report "Best Hospital" lists between 2001 and 2014, for its performance in various specialties including: oncology, gastroenterology, geriatrics, gynecology, cardiology, endocrinology, nephrology, orthopedics, and rheumatology (USNWR et al., 2015).

[36] Yale-New Haven Hospital appeared on 150 U.S. News and World Report "Best Hospital" lists between 2001 and 2014, for its performance in various specialties including: oncology, gastroenterology, ear nose and throat, geriatrics, gynecology, cardiology, endocrinology, nephrology, orthopedics, urology, and rheumatology (USNWR et al., 2015).

[37] The Fred Hutchinson Cancer Research Center did not appear on any U.S. News and World Report "Best Hospital" lists between 2001 and 2014 (USNWR et al., 2015).

[38] The University of Utah Hospital appeared on 18 U.S. News and World Report "Best Hospital" lists between 2002 and 2014, for its performance in various specialties including: oncology, gynecology, and orthopedics (USNWR et al., 2015).

[39] Stanford Health Care appeared on 181 U.S. News and World Report "Best Hospital" lists between 2001 and 2014, for its performance in various specialties including: oncology, gastroenterology, geriatrics, gynecology, cardiology, endocrinology, nephrology, orthopedics, and rheumatology (USNWR et al., 2015).

Chapters 3 and 4 discussed implementation of price and quality transparency. In Chapter 5, I shift focus to connect price and quality transparency implementation to its efficacy. Patient surveys, which have been rolled out nationwide by the Centers for Medicare and Medicaid Services, prompt both supply-side and demand-side change. They promote supply-side change by motivating hospitals to change their internal policies. They facilitate demand-side change by enabling consumers to make decisions about which hospital to select based on survey results about it.

In this chapter, I juxtapose the longstanding and widespread perspective that transparency ought to be promoted with the reality that transparency is very difficult to do right. President Bush's healthcare policies are emblematic of the view that healthcare in transparency is good because it makes intuitive sense. On August 22, 2006, President Bush signed an Executive Order to increase the transparency of the healthcare system in the U.S. (House, 2006). The Executive Order directed federal agencies that administered or sponsored federal health insurance programs to increase transparency in pricing, increase transparency in quality, encourage adoption of health information technology standards, and provide options that promote quality and efficiency in healthcare (House, 2006). The Executive Order stipulated that, "To spend their healthcare dollars wisely, Americans need to know their options in advance, know the quality of doctors and hospitals in their area, and know what procedures will cost. When Americans buy new cars, they have access to consumer research on safety, reliability, price, and performance—and they should be able to expect the same when they purchase healthcare" (NCQA, 2007).

The reality of implementation did not live up to Bush's vision in the Executive

Order. In 2007, four federal agencies[40] published the "Progress Report on Implementation

of Executive Order 13410 'Promoting Quality and Efficient Health Care in Federal

Government Administered or Sponsored Health Care Programs'" (Services et al., 2007). The

Progress Report highlighted certain steps taken, including CMS adding two mortality

measures for heart attack and heart failure to Hospital Compare in June 2007, OPM

contracting with Web-MD to conduct a pilot project (deployed prior to November 2007)

with three Federal agencies in the DC area to determine how employees use provider price

and quality information, and the VA adopting a set of standards from the Ambulatory Care

Quality Alliance (AQA) and coordinating the testing of the quality standards with the

Department of Defense (DoD) and Indian Health Services (IHS).

Yet, the U.S. has not done much in the eight years following President Bush's

Executive Order. The previous chapter presented the current state of affairs for price and

quality transparency in the U.S. hospital market, and showed that the developments have

been relatively recent. This chapter analyzes the usefulness of current information available

to consumers, demonstrating that recent reforms have not gone far enough to prompt the

demand-driven improvements in healthcare delivery they sought to achieve.

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[40] The agencies that published the progress report were the Department of Health and Human Services, the U.S. Office of Personnel Management, the Department of Defense, and the Department of Veterans Affairs (Services, Management, Defense, & Affairs, 2007). From the Department of Health and Human Services were the Centers for Medicare and Medicaid Services (CMS), the Office of the National Coordinator for Health Information Technology (ONC), the Agency for Healthcare Research and Quality (AHRQ), and the Indian Health Services (IHS) (Services et al., 2007).

Price and quality transparency can only facilitate change insofar as healthcare consumers effectively use the information it makes available. Yet, federal, state, and private websites provide information on hospital price and quality in different ways, including different measures of each. These discrepancies may lead consumers to make suboptimal decisions.

Therefore, I designed and administered surveys to quantify the extent to which discrepancies between websites impact consumer decisions. Four surveys were administered in total. Each survey had a section on price and one on quality. The survey respondents were choosing between two hospitals with obvious differences for utility maximization. Specifically, when deciding on the basis of price, the least expensive hospital, *ceteris paribus*, would maximize utility. Likewise, the highest quality hospital was assumed to maximize utility.

Survey 1, which had versions (a) and (b), explored how consumers make healthcare decisions based on available information as it is currently presented to the public. This was achieved by taking screenshots of the information on two hospitals from two different hospital price and quality websites.[41,42] Including screenshots of websites was intended to simulate the process by which consumers would access information on their own when preparing to make a real life healthcare decision. Beyond conveying the price information

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[41] For price, one of the websites searched was OpsCost, a privately run website that makes public data more accessible and helps individuals share their healthcare bills. The other website searched was My Health Care Options, which is administered by the Commonwealth of Massachusetts.

[42] For quality, one of the websites searched was U.S. News Best Hospitals, a privately run website that releases rankings every year by specialty. The other website searched was Medicare Hospital Compare, which is administered by the Centers for Medicare and Medicaid Services.

itself, using screenshots retained the visual presentation of information of each website and the amount of information presented. In contrast, survey 2, which had versions (a) and (b), extracted price and quality information from the same websites and presented it in table form. Survey 2 sought to isolate the effect of the information itself from its presentation.

In section 5.1, I discuss the usefulness of price information currently available to the public; section 5.2 focuses on quality information. In section 5.2, I present findings from the U.S. News Best Hospital rankings for the years 2001 through 2014. In both sections, I present survey results that show consumers having varying degrees of difficulty in choosing the higher quality or lower cost option. The key finding from the surveys was that people are significantly more likely to make the right choice if they are not told where data comes from, and if information overload is reduced by non-graphical image presentation.

5.1 Usefulness of price-paid information currently available to the public

The usefulness of price-paid information to consumers depends on a few factors, including (1) the consumer's desire for price information, and (2) the information presented alongside price-paid information. Price transparency matters more to some consumers than to others. Those with especially strong incentives to choose lower-priced healthcare include those who are directly responsible for payment, such as the uninsured or those on high-deductible plans (Delbanco, 2014). There is a common misperception that a provider that costs more administers better quality, leading consumers to gravitate toward high cost

providers (Delbanco, 2014). As a result, it can be useful to present quality and price information together, to paint a picture of the value of care given by a provider. Certain desired features for the display of price and quality indicators include simple language, contextual information (such as "below average"), and limited information presented initially (with drill-downs possible) to prevent cognitive overload (Delbanco, 2014).

5.1.1 Survey: price transparency

The driving question of this thesis is: to what extent can and should patients in the US use price and quality information to choose hospitals in order to improve healthcare value in the market? Thus far, I have written about and evaluated efforts to promote transparency. But it is also necessary to ground my analysis of these current efforts in a broader assessment of how people currently make and would make healthcare decisions, given materials presently available. As a result, I developed and administered two survey experiments to determine the impact of information provided and the presentation of that information on enabling better decision-making. In this section, I present the sections of the surveys that pertain to price transparency. Section 5.2.2 presents those for quality transparency.

What is meant by good decision-making here comes from Chapter 2, which argued that healthcare consumers are best understood through the lens of bounded rationality. Decision-making in this context is good insofar as means that higher quality and lower cost healthcare is consumed.

Therefore, the first survey addressed the ability of everyday consumers to make healthcare decisions based on currently available information as it is presented to the public. This was achieved by taking screenshots of the information on two hospitals from two different hospital price websites. The two hospitals were Beth Israel Deaconess Medical Center and Massachusetts General Hospital, both located in Boston. The hospitals were chosen partly because of the existence of the Massachusetts My Health Care Options, which provides hospital price and quality data. They were also chosen because they are in close proximity to each other, which should reduce the effect of distance on the consumer decision. Finally, both hospitals appeared frequently on the U.S. News Best Hospital list, so it was hoped that any name-based reputational effects would be diminished.

The first survey consisted of versions 1(a) and 1(b) to allow comparison of consumer decisions when presented with different websites providing information on the same hospitals. Survey 1(a) used screenshots of My Health Care Options, which is administered by the Commonwealth of Massachusetts. Survey 1(b) presented screenshots of OpsCost, a privately run website that makes public data more accessible and helps individuals share their healthcare bills.

Table 1 provides a summary of both surveys and their versions. The results of Survey 1 showed that everyday consumers had difficulty making optimal healthcare decisions based on available information as it is currently presented to the public. The results of Survey 2 showed that the metrics chosen to present healthcare pricing information lead consumers to different, sometimes suboptimal, decisions. The first survey was administered

February 17 through February 22nd, 2015, and paid respondents $0.04 per survey. The second survey was administered from March 18 through March 22, 2015, and paid respondents $0.10 per survey. Because the second survey was administered after the first survey, it also refined some of the preliminary questions based on how well they elicited answers in the first survey. For all the survey questions, Survey 2(a) can be found in full in the Appendix.

Figure 18: Summary of surveys 1(a), 1(b), 2(a), and 2(b) for price transparency
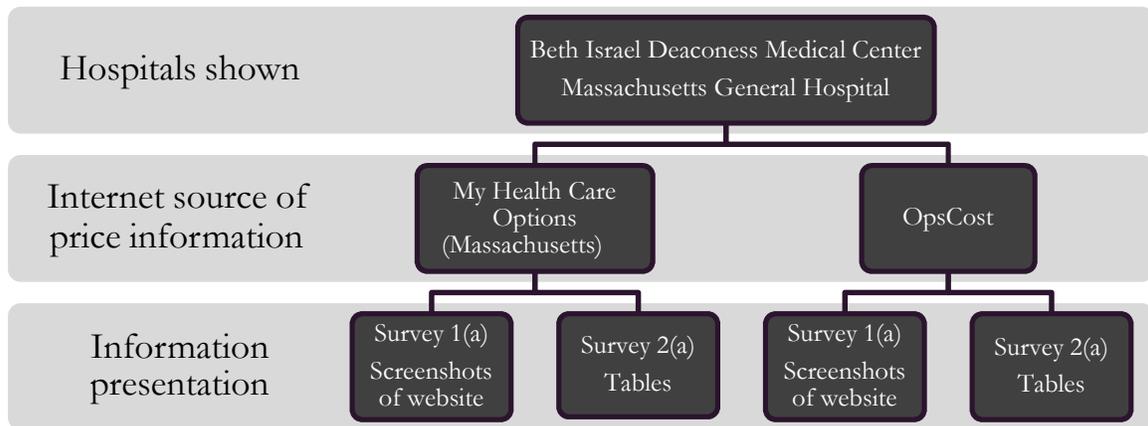
Respondents were provided with some background information on the website, as demonstrated in Figure 1. For example, as shown in Figure 1, Survey 1(a) described My Health Care Options as a website run by the Commonwealth of Massachusetts Health Care Quality and Cost Council.

Figure 19: Excerpt from Survey 1(a): Price information from My Health Care Options (screenshot)

On this page, assume that you need a knee replacement, and that you live in Boston, MA. You are trying to decide where to seek treatment.

The following information is on Beth Israel Deaconess Medical Center and Massachusetts General Hospital, and comes from My Health Care Options. My Health Care Options is a website run by the Commonwealth of Massachusetts Health Care Quality and Cost Council.

Please use this information to decide which of these two hospitals you would prefer to perform your knee replacement. Assume that the hospitals are of equal quality. Assume that you will be paying out of pocket for your care.

Cost of Care
(more)

	Beth Israel Deaconess Medical Center	Massachusetts General Hospital
Cost Rating	$$	$$$
Statistical Significance	Not Different from Median State Cost	Above Median State Cost

Survey 1(b) included the same instructions as Survey 1(a), but presented information

from OpsCost instead of from My Health Care Options, as depicted in Figure 2.

Figure 20: Excerpt from Survey 1(b): Price information from OpsCost (screenshot)

Boston, Massachusetts

Major Joint Replacement Or Reattachment Of Lower Extremity Without Complications And Comorbities

Billed   Average price that hospital billed Medicare.
Reimbursed   Average amount Medicare paid.

Showing nearest 10 hospitals, sorted by distance.

	Hospital	Billed	Reimbursed	Distance
1	**Massachusetts General Hospital** 55 Fruit St Boston, MA 2114	$57,054	$19,447	0.70 mi
2	**Tufts Medical Center** 800 Washington St Boston, MA 2111	$40,420	$22,605	0.72 mi
3	**Boston Medical Center Corporation** 1 Boston Medical Center Pl Boston, MA 2118	$30,419	$24,472	1.88 mi
4	**Cambridge Health Alliance** 1493 Cambridge St Cambridge, MA 2138	$24,910	$19,846	2.66 mi
5	**Beth Israel Deaconess Medical Center** 330 Brookline Ave Boston, MA 2215	$28,608	$21,065	2.75 mi

As is clear from both figures, there are multiple ways to provide context about price

information. OpsCost allows the consumer to compare prices among nearby hospitals, while

My Health Care Options does the comparison on a more aggregate level for the consumer

("Not Different from Median State Cost"). But it is also clear from the figures that the same

information can be presented in different ways, which may have implications for consumer decisions.

As a result, the second survey decoupled website information from its presentation. The aim of the second survey was to show that healthcare pricing information, with sources choosing different metrics, could be complicated and sometimes misleading. This could lead consumers to make suboptimal decisions, independent of differences in presentation.

Survey versions 2(a) and 2(b) extracted price information respectively from My Health Care Options and OpsCost and presented it in table form. The second survey anonymized the websites, terming My Health Care Compare "a state-run website" and OpsCost "a privately-run website." In Survey 2, the hospitals, too, are anonymized to eliminate reputational effects, as shown in Figure 3.

Figure 21: Excerpt from Survey 2(a): Price information from My Health Care Options (extracted)

On this page, assume that you need a knee replacement. You are trying to decide where to seek treatment.

The following information is on two hospitals and comes from a state-run website.

Please use this information to decide which of these two hospitals you would prefer to perform your knee replacement, making the following assumptions:

- The hospitals are of equal quality.
- The information in the table is on cost charged for knee replacements at each hospital.
- You will be paying out of pocket for your care, and do not have insurance. You will be responsible for paying the full hospital bill.

	Hospital A	Hospital B
Cost	Not different from median state cost	Above median state cost
High cost	$27,500	$29,500
Median cost	$21,500	$22,500
Low cost	$11,000	$22,000

The hospitals were referred to as "Hospital A" and "Hospital B," but had almost the exact same information as the real hospitals. No numbers were altered for the price data from My Health Care Options, depicted in Figure 3. However, the price information was adjusted slightly for Survey 2(b) to make the better choice more clear. Specifically, OpsCost provides both billed and reimbursed amounts for a procedure. Massachusetts General Hospital was more expensive for the billed amount, but Beth Israel Deaconess Medical Center was more expensive for the reimbursed amount. Survey 2 removes the ambiguity resulting from this by making "Hospital B" (Massachusetts General Hospital) more expensive for both billed and reimbursed amount, as shown in Figure 4.

Figure 22: Excerpt from Survey 2(b): Price information from OpsCost (extracted)

	Hospital A	Hospital B
Average billed rate	$28,608	$57,054
Average reimbursed rate	$21,065	$22,447

The surveys were built in Qualtrics, which is web-based software that enables survey creation. The surveys were administered through Amazon Mechanical Turk (MTurk for short), an online labor market where requesters post jobs and workers choose which jobs to do for pay (Amazon, 2015). Numerous studies have shown correspondence between the behavior of workers on Mechanical Turk and behavior offline,[43] which makes it a suitable means of gathering respondents for this small-scale survey.

As Table 2 shows, 224 respondents were surveyed total. Survey 1 had 122 respondents, while Survey 2 had 102 respondents. Across both surveys, respondents were young (the median age was 30), educated (the average highest education level achieved was a bachelors degree), making ends meet (the average household income was $40,000-$49,999), settling down (50 percent were married), religious (a plurality of respondents practice

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[43] Mason and Suri (2011) compare the behavior of Amazon Mechanical Turk workers to that of laboratory subjects, showing that the norm on Mechanical Turk of paying less than one would typically pay laboratory subjects should not impact large classes of experiments (Mason & Suri, 2011). Mason and Suri (2011) also highlight three benefits of using Mechanical Turk to run online experiments: (1) subject pool access, (2) subject pool diversity, and (3) low cost (Mason & Suri, 2011). Paolacci and Chandler (2010) found only slight differences between the results from Mechanical Turk and subjects recruited from the subject pool at a large Midwestern university (Paolacci, Chandler, & Ipeirotis, 2010). Berinsky et al. (2012) show that MTurk respondents are often more representative of the U.S. population than in-person convenience samples, but less representative than subjects in Internet-based panels or national probability samples (Berinsky, Huber, & Lenz, 2012). Buhrmester et al. (2011) show that for tasks that rely on subjective responses (as is the case with my surveys), there is no relationship between pay rates and the quality of data gleaned from MTurk (Buhrmester, Kwang, & Gosling, 2011).

Christianity), and leaning toward the left (a plurality were Democrats). On average, it took

six minutes to respond to the surveys.

Table 6: Participant information across Surveys 1(a), 1(b), 2(a), and 2(b)

	N	224
Gender	Female	51%
	Male	49%
Age	Age (mean)	34 years
	Age (median)	30 years
Education	Highest achieved education level (mean)	Bachelors degree
Financial security	Annual household income (mean)	$40,000-$49,999
	Covered by health insurance	82%
Relationship status	Single	40%
	Married	50%
Religion	Practices Christianity	37%
	Practices Hinduism	27%
Political affiliation	Republican	24%
	Democrat	38%
	Independent	31%
	Other	6%
Familiarity with process and subject matter	Ever used online reviews to decide whether to purchase something (e.g., Amazon reviews for a cell phone)	91%
	Ever used online reviews of a hospital to decide where to receive care	38%
	Ever researched prices to decide where to receive medical care	51%
	Immediate family member/close friend employed in healthcare	51%
	Mean perceived comfort navigating the healthcare system (scale of 1 to 100, with 100 = perfect comfort)	67/100
	Saw a doctor in the past year	84%
Familiarity with existing resources	Hospital Compare	28%
	Leapfrog Group	17%
	U.S. News Best Hospitals	56%
	Patient Guide (Maryland)	20%

	My Health Care Options (Massachusetts)	16%
	Wisconsin Collaborative for Healthcare Quality	16%
	The Joint Commission	26%
	Healthgrades	35%
	Michigan Hospital Association Keystone Center	23%
	Hospital Provider Charge and Actual Payment Data (Medicare)	22%
	Colorado All-Payer Claims Database	15%
	New Hampshire Health Cost	17%
	Montana Hospital Association PricePoint	19%
	Oregon Association of Hospitals and Health Systems PricePoint	18%
Survey logistics	Time to complete survey (mean)	6 minutes

Price transparency survey: Do respondents choose the less expensive option?

For Survey 1(a), 55 respondents made decisions based on price information on Beth Israel Deaconess Medical Center and Massachusetts General Hospital. They were shown price information from My Health Care Options, the Massachusetts-run website. The cheaper choice was Beth Israel Deaconess Medical Center. Respondents were asked to assume that the hospitals were of equal quality.

In response to Survey 1(a), a majority of respondents selected the cheapest choice, Beth Israel Deaconess Medical Center (39 respondents, constituting 70.91% of the sample). A single sample two-tailed t-test was performed on Survey 1(a) to determine whether this figure was statistically significant. The percentage of respondents choosing the cheapest hospital was determined to be statistically significant at a confidence level of 99% ($t =$

3.3813, $p = 0.0014$). More people selected Beth Israel Deaconess than the null hypothesis of an even distribution could accommodate.

For Survey 1(b), 53 respondents were presented with price information on Beth Israel Deaconess Medical Center and Massachusetts General Hospital through OpsCost. The cheapest choice at first appeared unclear. Massachusetts General Hospital was more expensive for the billed amount, but Beth Israel Deaconess Medical Center was more expensive for the reimbursed amount. Yet, respondents were instructed to assume that they would be paying out of pocket for their care, so they ought to have made their decision on the basis of the billed amount. The cheapest decision would be to attend Beth Israel Deaconess. Instead, there was evident confusion: one respondent selected Massachusetts General because "Massachusetts General is world renowned"; another noted, "I would want to know what Mass Gen patients are getting for the extra $$$ (more luxury?)." As a result, the instructions of the parameters for the decision were made more explicit for Survey 2 (see Figure 22).

In response to Survey 1(b), a majority of respondents selected the cheapest option, Beth Israel Deaconess Medical Center (31 respondents, constituting 58.49% of the sample). A single sample two-tailed t-test was performed on Survey 1(b) to determine whether this figure was statistically significant. The percentage of respondents choosing the cheapest hospital was not statistically significant at a confidence level of 95% ($t = 1.2438$, $p = 0.2192$). An assumption of even distribution could accommodate the number of people that selected the cheapest option.

Analysis of the survey results focused on whether respondents selected the hospital with the lowest price. As we can see in Table 7, the information presented in Survey 1(a) was only slightly better than Survey 1(b) at leading consumers to choose Beth Israel Deaconess. The difference was not large enough to be statistically significant at p < .05 ($t = 1.3499, p = .1799$).

Table 7: Surveys 1(a) and 1(b) for price: Results of two-tailed Student t-test

	1(a)	1(b)	Difference
Cheapest choice	39 (71%)	31 (58%)	8 (13%)[†]
N	55	53	

† nonsignificant at the 0.05 probability level.

Now let us move on to Survey 2. For Survey 2(a), 52 respondents made decisions based on price information on Beth Israel Deaconess Medical Center and Massachusetts General Hospital. They were shown price information extracted from My Health Care Options, the Massachusetts-run website, and presented in table format (see Figure 3). The better choice was Beth Israel Deaconess Medical Center, because it was shown to be lower cost than Massachusetts General. Respondents were asked to assume that the hospitals were of equal quality.

In response to Survey 2(a), a majority of respondents selected the cheapest option, Beth Israel Deaconess Medical Center, disguised as Hospital A (48 respondents, constituting 92.31% of the sample). A single sample two-tailed t-test was performed on Survey 2(a) to determine whether this figure was statistically significant. The percentage of respondents choosing the cheapest hospital was statistically significant at a confidence level of 99.99% (t = 11.3352, p < .00001). An assumption of even distribution could not accommodate the number of people that selected the cheapest option.

For Survey 2(b), 50 respondents were presented with price information on Beth Israel Deaconess Medical Center and Massachusetts General Hospital extracted from OpsCost. The cheaper choice was made especially clear through the fudging of numbers, which made Massachusetts General Hospital appear more expensive for both the billed and reimbursed amounts.

In response to Survey 2(b), a majority of respondents selected the cheapest option, Beth Israel Deaconess Medical Center, disguised as Hospital A (44 respondents, constituting 88.00% of the sample). A single sample two-tailed t-test was performed on Survey 2(b) to determine whether this figure was statistically significant. The percentage of respondents choosing the cheapest hospital was statistically significant at a confidence level of 99.99% (t = 8.1846, p < .00001). An assumption of even distribution could not accommodate the number of people that selected the cheapest option.

Table 8: Surveys 2(a) and 2(b) for price: Results of two-tailed Student t-test

	2(a)	2(b)	Difference
Cheapest choice	48 (92%)	44 (88%)	4 (4%)[†]
N	52	50	

† Nonsignificant at the 0.05 probability level.

As we can see in Table 8, the materials in Survey 2(a) were only slightly better than those in Survey 2(b) at leading consumers to choose Beth Israel Deaconess. The difference was not large enough to be statistically significant ($t = 0.7261, p = .4695$).

Table 9: Surveys 1 and 2 for price: Results of two-tailed Student t-test

	1(a&b)	2(a&b)	Difference
Cheapest choice	73 (65%)	92 (90%)	19 (25%)***
N	108	102	

***$p < .001$

As shown in Table 9, respondents to Survey 2 outperformed Survey 1 by a statistically significant amount. The relative performance of respondents to Survey 1 and Survey 2 shows that consumers are significantly more likely to make the better decision when relevant information is presented in straightforward ways ($t = 4.5705; p < 0.00001$).

Price transparency survey: Who was more likely to choose the less expensive option?

Analysis of the survey results first focused on whether respondents selected the hospital with the lowest price. Secondary analysis showed that propensity to make the

optimal decision was not predicted by any particular factors, as collected by demographic and other informational questions in the surveys.

Examining political affiliation across all surveys, one sees that Republicans were no more likely than those of any other political affiliation to choose the cheapest option at a confidence level of 95% ($t = -0.1294$; $p = 0.5$). Of respondents, 76.47% of Republicans ($n = 51$) and 77.36% of non-Republicans ($n = 159$) selected the cheapest option.

Examining gender across all surveys, women were no more likely than men to choose the cheapest option at a confidence level of 95% ($t = 1.9418$; $p = 0.5$). 82.57% of female respondents ($n = 109$) and 71.29% of male respondents ($n = 101$) selected the cheapest option. (For gender, none of the respondents to the surveys identified as "other.")

For education, those with graduate degrees (JD, MBA, MPH, Ph.D., or other) were no more likely than those without to choose the cheapest option at a confidence level of 95% ($t = -0.8429$; $p = 0.5$). Across all of the surveys, 72.34% of those with graduate degrees ($n = 47$) and 78.53% of those without graduate degrees ($n = 163$) selected the cheapest option.

Those with higher household incomes were statistically no more likely than those without to choose the cheapest option at a confidence level of 95% ($t = 2.5042$; $p = 0.5$). Across all of the surveys, 87.10% of those with annual household incomes equal to or greater than $60,000 ($n = 62$) and 72.97% of those with annual household incomes less than $60,000 ($n = 148$) selected the cheapest option.

Those employed in healthcare were not statistically more likely to choose the cheapest option at a confidence level of 95% for a single-tailed t-test ($t = 0.9183$; $p = 0.1847$). Specifically, those employed in healthcare were considered to be those with occupations listed as: health diagnosis or treating practitioners and technical occupations; health care support; and health technologists or technicians. Across all of the surveys, 86.67% of those employed in healthcare ($n = 15$) and 76.41% of those not employed in healthcare ($n = 195$) selected the cheaper option.

Those with family or friends employed in healthcare were not statistically more likely to choose the cheapest option at a confidence level of 95% ($t = -2.6594$; $p = 0.5$). Across all of the surveys, 69.52% of those with family or close friends employed in healthcare ($n = 105$) and 84.76% of those without ($n = 105$) selected the cheaper option. (Respondents who declined to answer the question about having a family member or close friend employed in healthcare were counted as not having close friends or family members employed in healthcare.)

In this section, I have presented the results of the survey pertaining to price transparency. Recent reforms produced information that is useful to consumers, but has not required the presentation of that information in ways that would facilitate demand-driven improvements. In the next section, I show that the same holds true for quality transparency.

5.2 Usefulness of quality information currently available to the public

In this section, I evaluate the usefulness of quality information currently available to the public. I focus on two websites in particular: U.S. News Best Hospitals and Medicare Hospital Compare. These websites cater to consumers in fundamentally different ways. U.S. News Best Hospitals tries to make decisions for the consumers. It allows regional searching by treatment type, and the results show up in rank order, best to worst. In contrast, Hospital Compare tries not to pick favorites: it allows for regional searching, but not by treatment type, and provides results in alphabetical order. It also has a direct compare feature, encouraging consumers to actively make decisions.

5.2.1 U.S. News and World Report rankings, 2001-2014

Any discussion of quality transparency would be remiss without analysis of the U.S. News and World Report rankings. The U.S. News Best Hospitals are a good proxy for information regarding quality that is available to the consumer. They are available online for free, and are used frequently in hospital advertisements. The survey showed that 56 percent of respondents were familiar with the rankings.

Analysis of the rankings reveals significant differences between hospitals that are ranked by U.S. News and World Report and those that are not. Ranked hospitals are more likely to be found in wealthy, highly populated areas, with a high percentage of health

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insurance coverage. Ranked hospitals are less likely to be the sole community provider, are more likely to be affiliated with a medical school, and see more patients every day.

In terms of methodology, to perform this analysis, data was merged onto the U.S. News-ranked hospitals dataset from the census and from the American Hospital Association. AHA data was available for 2000-2011, and was merged on via encoded hospital identifiers. The census data came in two datasets—SAHIE, with population insurance estimates, and SAIPE, with income and poverty estimates—and was available for 2008 through 2011. Both datasets were merged using FIPS codes. Despite the year limitations for the census data, the hospitals marked as "ranked" by U.S. News in that dataset were ranked at any point between 2001 and 2014. The full list was retained because so few hospitals are ranked each year, and wanted to determine more about the *types* of hospitals that get onto the U.S. News Best Hospital list, not just which hospitals were on the list for which particular years. The comparison of U.S. News-ranked hospitals and Medicare Hospital Compare was limited to the year 2011. The non-encrypted U.S. News data was used, and Hospital Compare 2011 readmissions and mortality index was compressed, to average score. Any average score of "better than national average" coming from the 6 measures was counted. The data was matched by STATA and then by hand.

To determine the volatility of the U.S. News rankings, a variable that marked the first time each hospital appeared on the list, and then each time it reappeared on the list after dropping off. Each hospital had a listing per year, which either said "listed" or "not", and counted the number of times listed per year (i.e., if appearing on lists for both cardiology and

gastroenterology, had a count of 2 for that hospital for that year). This showed that it is easier to leave the list than to get on (or back on) it. However, there were years with incomplete information—2011 and 2013—and pediatrics stopped being included and became its own separate ranking after 2001, but hospitals ranked on the separate pediatrics list are not included.

Table 10: U.S. News-ranked hospitals by year, with inflow and outflow to show volatility

	Hospitals ranked by U.S. News	Entering the list (% of ranked hospitals)	Leaving the list (% of ranked hospitals)	Difference	Total hospitals unranked by U.S. News
2001	167	-	23 (13.77%)	-	5,521
2002	189	58 (30.69%)	23 (12.17%)	35 (18.52%)	5,542
2003	186	30 (16.13%)	24 (12.90%)	6 (3.23%)	5,570
2004	159	13 (8.18%)	13 (8.18%)	0 (0%)	5,699
2005	159	13 (8.18%)	13 (8.18%)	0 (0%)	5,980
2006	159	14 (8.81%)	26 (16.35%)	12 (7.54%)	6,016
2007	170	28 (16.47%)	19 (11.18%)	9 (5.29%)	6,002
2008	166	6 (3.61%)	28 (16.87%)	22 (13.26%)	6,115
2009	158	17 (10.76%)	36 (22.78%)	19 (12.02%)	6,082
2010	155	11 (7.01%)	33 (21.29%)	22 (14.28%)	6,100
2011	128	0 (0.00%)	-	-	6,121
Mean N	149.67	19 (10.98%)	23.8 (14.37%)	4.8 (3.38%)***	5,886

*** p < .001

Table 11: Populations served by U.S. News ranked and unranked hospitals, 2008-2011: Results of two-sample t-test with unequal variances

	Ranked by U.S. News	Unranked by U.S. News	Difference (t-value)
Population	1,555,894 people	583,939 people	-12.2291***
Percent insured	83.8716%	82.3931%	-5.5948***
Median income	$52,808.55	$47,331.72	-11.0417***
Poverty rate	14.6357%	14.2318%	-2.1021
N	591	23,864	

*** p < .001

The trend in Table 11—that ranked hospitals are more likely to be found in urban areas, with large populations and higher than average poverty rates—holds up when we discover that, between the years of 2008 and 2011, of those hospitals located in the 100 largest cities in the U.S., 418 are U.S. News-ranked and 4,137 are U.S. News-unranked. Being ranked by U.S. News was significantly correlated with being in a top-100 city (r = .2070, p < .001).

Table 12: Hospital information from AHA for U.S. News ranked and unranked hospitals, 2008-2011: Results of two-sample t-test with unequal variances

	Ranked by U.S. News	Unranked by U.S. News	t-value
Full-time equivalents	4,627 FTE	746 FTE	27.0116***
Sole community provider	441 hospitals	18,288 hospitals	16.8459***
Adjusted average daily census	692.2685 patients	164.9223 patients	30.0385***
Number of beds	551.7496 beds	144.0916 beds	29.0052***
N	607	23,864	

*** p < .001

Table 12 shows that U.S. News-ranked hospitals have significantly more full-time equivalents, are significantly less likely to be the sole community provider, and have significantly more patients and beds.

Table 13: Hospital Compare and U.S. News Best Hospitals, 2011: Results of two-sample t-test with unequal variances

Total hospitals in the U.S. in 2011	4,655 hospitals		
Hospitals that perform well on both lists	36 hospitals (0.77% of total hospitals; 33.33% of those ranked by U.S. News; 7.23% of those rated as "better than national average" by MHC)		
Hospitals ranked (by U.S. News) or "better than national average" (MHC)	606 hospitals (13.02% of total hospitals)		
	U.S. News		**Medicare Hospital Compare (MHC)**
	108 hospitals (2.32% of total hospitals)		498 hospitals (10.70% of total hospitals)

Table 13 shows that perceived quality is not the same as actual quality, where U.S. News is perceived quality and actual quality is Medicare Hospital Compare. The U.S. News ranked hospitals also have higher daily censuses for patients coming through, and are presumably dealing with more complicated cases, which could hurt their mortality and readmission scores. Here are the 36 hospitals that were exceptional according to both lists.

Table 14: Ranked by U.S. News, better than national average for Hospital Compare

1	Abbott Northwestern Hospital
2	Barnes-Jewish Hospital
3	Baylor University Medical Center
4	Beaumont Hospital
5	Beth Israel Deaconess Medical Center
6	Brigham and Women's Hospital
7	Carolinas Medical Center
8	Cedars-Sinai Medical Center
9	Cleveland Clinic
10	Cleveland Clinic Florida
11	Emory University Hospital
12	Florida Hospital Orlando
13	Froedtert Hospital
14	Hackensack University Medical Center
15	Harper University Hospital
16	Henry Ford Hospital
17	Loyola University Medical Center
18	Massachusetts General Hospital
19	Mayo Clinic Hospital
20	Memorial Hermann-Texas Medical Center
21	Methodist Hospital
22	Montefiore Medical Center
23	Mount Sinai Medical Center
24	New York-Presbyterian Hospital
25	Northwestern Memorial Hospital
26	NYU Langone Medical Center
27	Ohio State University Hospital
28	Ronald Reagan UCLA Medical Center
29	Rush University Medical Center
30	Scripps La Jolla Hospitals and Clinics
31	Shands Hospital at the University of Florida
32	Thomas Jefferson University Hospital
33	University of Miami, Jackson Memorial Hospital
34	University of Michigan Hospitals and Health Centers
35	Washington Hospital Center
36	Yale-New Haven Hospital

5.2.2 Survey: quality transparency

The U.S. News Best Hospitals provides a high-level overview of the interaction between hospital quality and other factors in the U.S. I now present the quality aspect of the survey results. I describe briefly the ways in which the quality portion of the survey differed from the price portion, and then present the results.

Figure 23: Summary of surveys 1(a), 1(b), 2(a), and 2(b) for quality transparency
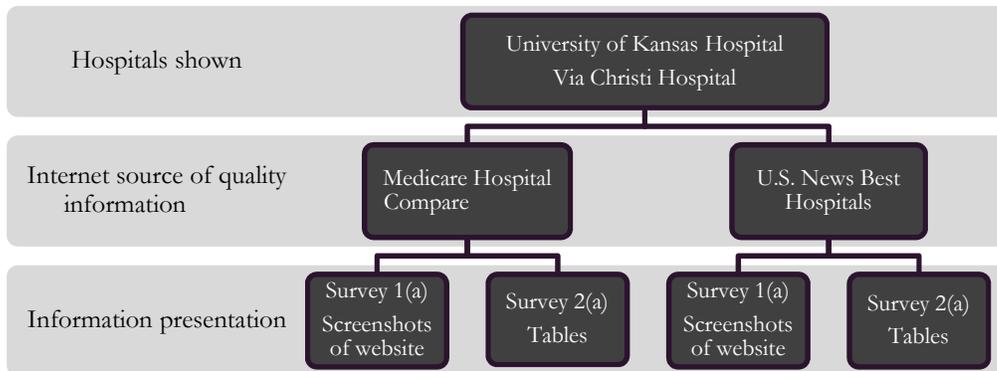
As shown in Figure 23, the quality surveys used two hospital quality websites: Medicare Hospital Compare and U.S. News Best Hospitals. 224 respondents were surveyed total. Survey 1 had 108 respondents total, while Survey 2 had 102 respondents total. The results of Survey 1 showed that everyday consumers have difficulty making better healthcare decisions based on currently available information as it is presented to the public. Survey 2 quantified the impact of the metrics chosen to present healthcare pricing information.

The first survey consisted of versions 1(a) and 1(b) to allow comparison of consumer decisions when presented with different websites providing information on the same hospitals. One of the websites searched was U.S. News Best Hospitals, a private ranking initiative. The other website searched was Medicare Hospital Compare, which is administered by the Centers for Medicare and Medicaid Services. Including screenshots of websites was intended to simulate the process by which consumers would access information on their own when preparing to make a real life healthcare decision.

Beyond conveying the price information itself, the use of screenshots retained the visual presentation of information of each website and the amount of information presented. Respondents were provided with some background information on the website, as demonstrated in Figure 5. For example, as shown in Figure 5, Survey 1(a) described Hospital Compare as a website run by the federal government that provides information on healthcare quality.

Figure 24: Excerpt from Survey 1(a): Quality information from Hospital Compare (screenshot)
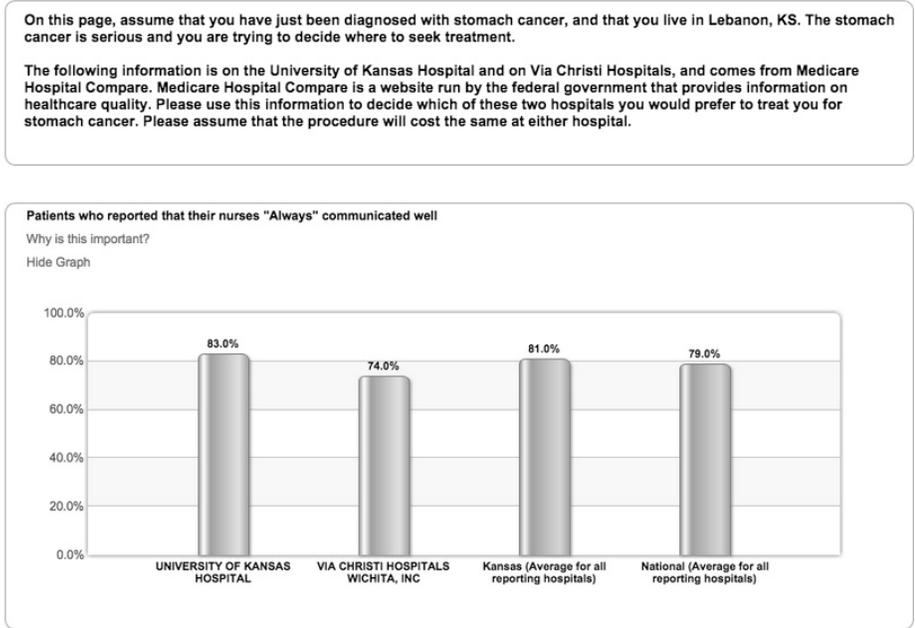
Quality transparency survey: Do respondents choose the higher quality option?

In Survey 1(a), 55 respondents were presented with quality information on University of Kansas Hospital and Via Christi Hospital. They were shown quality information from Hospital Compare, the federal website. The higher quality choice was University of Kansas. Respondents were asked to assume that the hospitals were of equal cost.

In response to Survey 1(a), a majority of respondents selected the better choice, University of Kansas Hospital (38 respondents, constituting 69.09% of the sample). A single sample two-tailed t-test was performed on Survey 1(a) to determine whether this figure was statistically significant. The percentage of respondents choosing the cheapest hospital was determined to be statistically significant at a

confidence level of 99.99% (t = 3.0371, p = 0.0036). More people selected University of Kansas than the null hypothesis of an even distribution could accommodate.

In Survey 1(b), 53 respondents were presented with quality information on University of Kansas Hospital and Via Christi Hospital through U.S. News Best Hospital rankings. The better choice was very clear. University of Kansas outranked Via Christi on every count. In response to Survey 1(b), a majority of respondents selected University of Kansas Hospital (43 respondents, constituting 81% of the sample).

In response to Survey 1(b), a majority of respondents selected the higher-quality choice, University of Kansas Hospital (43 respondents, constituting 81.13% of the sample). A single sample two-tailed t-test was performed on Survey 1(b) to determine whether this figure was statistically significant. The percentage of respondents choosing the higher quality hospital was determined to be statistically significant at a confidence level of 99.99% (t = 5.7319, p < 0.00001). More people selected University of Kansas than the null hypothesis of an even distribution could accommodate.

Figure 25: Excerpt from Survey 1(b): Quality information from U.S. News Best Hospitals (screenshot)

University of Kansas Hospital

Overview	**BEST** **Nationally Ranked Hospital**
Rankings	**BEST** **Ranked #1 in** Kansas
Patient Satisfaction	**BEST** **Recognized in** Northeastern Kansas
Stats & Services	**BEST** **Ranked #1 in** Kansas City, MO metro area
Doctors	

University of Kansas Hospital in Kansas City, KS is ranked nationally in 12 adult specialties. University of Kansas Hospital is a 623-bed general medical and surgical facility with 27,380 admissions in the most recent year reported. It performed 10,124 annual inpatient and 8,743 outpatient surgeries. Its emergency room had 47,771 visits. University of Kansas Hospital is a teaching hospital. It is also accredited by the Commission on Accreditation of Rehabilitation Facilities (CARF).

Adult Specialties

This hospital was among 144 facilities—roughly 3 percent of the 4,743 analyzed for the latest Best Hospitals rankings—to be ranked in even one of the 16 specialties.

BEST **Nationally Ranked**

- #29 in Cancer
- #21 in Cardiology & Heart Surgery
- #20 in Diabetes & Endocrinology
- #17 in Ear, Nose & Throat
- #24 in Gastroenterology & GI Surgery
- #16 in Geriatrics
- #38 in Gynecology
- #33 in Nephrology

Analysis of the survey results focused on whether respondents selected the hospital with the highest quality, when choosing based on quality. Secondary analysis focused on whether propensity to make the best decision was predicted by any particular factors, as collected by demographic and other informational questions in survey.

Table 15: Surveys 1(a) and 1(b) for quality: Results of two-tailed Student t-test

	1(a)	1(b)	Difference
Higher quality choice	38 (69%)	43 (81%)	5 (12%)[†]
N	55	53	

[†] Not significant at the 0.05 probability level

As Table 19 shows, materials in Survey 1(b) were better than those in Survey 1(a) at leading consumers to make the optimal choice, but not significantly so ($t = -1.444, p = .1518$).

Now let us move on to Survey 2. In Survey 2(a), 52 respondents were presented with quality information on University of Kansas Hospital (Hospital A) and Via Christi Hospital (Hospital B). They were shown quality information extracted from Hospital Compare, but presented in table format. The better choice was Via Christi Hospital, because it was shown to be higher quality than the University of Kansas Hospital for the metrics presented. Respondents were asked to assume that the hospitals were of equal cost.

Figure 26: Excerpt from Survey 2(a): Quality information from Hospital Compare (extracted)

On this page, assume that you have just been diagnosed with stomach cancer. You are trying to decide where to seek treatment.

The following information is on two hospitals, and comes from a website run by the federal government that provides information on healthcare quality. Please use this information to decide which of these two hospitals you would prefer to treat you for stomach cancer, making the following assumption:

- **The procedure will cost the same at either hospital**

	Hospital A	Hospital B
Uses a safe surgery checklist	Yes	Yes
Patient satisfaction: Relation to state and national average	Outperforms	Underperforms
Process of care measures for surgery: Relation to state and national average	No different	Outperforms
Unplanned readmission and death rates	No different than national rate	Better than national rate
Surgical complications	Worse than national rate	Better than national rate
Healthcare-associated infections	No different than national benchmark	Better than national benchmark
Use of medical imaging	No different than national average	Worse than national average

In response to Survey 2(a), a majority of respondents selected Hospital B (Via Christi Hospital; 33 respondents, constituting 63% of the sample). A single sample two-tailed t-test was performed on Survey 2(a) to determine whether this figure was statistically significant. The percentage of respondents choosing the cheapest hospital was determined to be statistically significant at a confidence level of 99.9% ($t = 2.0023$, $p = 0.0506$). More people selected the higher quality option than the null hypothesis of an even distribution could accommodate.

In Survey 2(b), 50 respondents were presented with quality information on University of Kansas Hospital and Via Christi Hospital extracted from U.S. News and World Report rankings and presented in table form. The better choice was very clear. University of Kansas outranked Via Christi on every count.

Figure 27: Excerpt from Survey 2(b): Quality information from U.S. News Best Hospitals (extracted)

	Hospital A	Hospital B
Nationally ranked?	Yes	No
Rank in state	#1	#2
Relation to state and national average for patient satisfaction	Outperforms	Underperforms
National cancer-specific rank	29	Not ranked nationally for cancer
Cancer-specific quality score	62.4	34.2
Reputation with specialists[1]	Modest	None
Survival statistics[2]	Much better than expected	As expected
Patient safety[3]	Moderate	Not available
Inpatient services include chemotherapy and cancer services?	Yes	Yes
Number of medical oncologists	11	1

[1] Reputation with specialists is measured as the percentage of doctors in this specialty who named the hospital as among the best for challenging patients
[2] Survival statistics are measured as the likelihood of survival 30 days after admission, adjusted for severity and other risks
[3] Patient safety is measured as the ability to prevent eight types of accidents and medical errors, including preventing postsurgical inpatient deaths from treatable complications, and in preventing harm to patients during surgery

In response to Survey 2(b), a majority of respondents selected the higher quality option (48 respondents, constituting 96% of the sample). A single sample two-tailed t-test was performed on Survey 2(b) to determine whether this figure was statistically significant. The percentage of respondents choosing the cheapest hospital was determined to be statistically significant at a confidence level of 99.99% ($t = 16.436$, $p < 0.00001$). More people selected the higher quality option than the null hypothesis of an even distribution could accommodate.

Primary analysis of the survey results focused on whether respondents selected the hospital with the highest quality. Secondary analysis focused on whether

propensity to make the best decision was predicted by any particular factors, as collected by demographic and other informational questions in survey.

Table 16: Surveys 2(a) and 2(b) for quality: Results of two-tailed Student t-test

	2(a)	2(b)	Difference
Cheapest choice	33 (63%)	48 (96%)	15 (33%)***
N	52	50	

***p < .001

As we can see in Table 20, the tables presented in Survey 2(b) were significantly better than those in Survey 2(a) at leading consumers to choose the better option (t = 4.3941$, p$ = .000028).

Respondents to Survey 2 outperformed respondents to Survey 1, but not by a statistically significant amount (t = -0.7573; p = 0.4498), as shown in Table 21.

Table 17: Surveys 1 and 2 for quality: Results of two-tailed Student t-test

	1(a&b)	2(a&b)	Difference
Highest quality choice	81 (75%)	81 (79%)	0 (4%)[†]
N	108	102	

[†] Not significant at 0.05 probability level

Quality transparency survey: Who was more likely to choose the higher quality option?

Analysis of the survey results first focused on whether respondents selected the hospital with the highest quality, when choosing based on quality, and with the lowest price, when choosing based on price. Secondary analysis focused on whether propensity to make the better decision was predicted by any particular factors, as collected by demographic and other informational questions in survey. I considered the same factors I did with price, but now in relation to information about quality. I

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found similar results—none of the characteristics of respondents were significantly predictive of their responses.

Examining political affiliation across all surveys, one sees that Republicans were not significantly more likely than those of any other political affiliation to choose the higher quality option at a confidence level of 95% ($t = 0.2532$; $p = 0.5$). Of respondents, 78.43% of Republicans ($n = 51$) and 76.73% of non-Republicans ($n = 159$) selected the higher quality option.

Examining gender across all surveys, one sees that women were no more likely than men to choose the higher quality option at a confidence level of 95% ($t = -0.3558$; $p = 0.5$). 76.15% of women ($n = 109$) and 78.22% of men ($n = 101$) selected the higher quality option. (As with the sections on price, one of the respondents to the surveys identified as "other," though all were given the option.)

Those with graduate degrees (JD, MBA, MPH, Ph.D., or other) were no more likely than those without to choose the higher quality option at a confidence level of 95% ($t = -0.478$; $p = 0.5$). Across all of the surveys, 74.47% of those with graduate degrees ($n = 47$) and 77.91% of those without graduate degrees ($n = 163$) selected the higher quality option.

Those with higher annual household incomes were statistically no more likely than those without to choose the higher quality option at a confidence level of 95% ($t = 1.1977$; $p = 0.5$). 82.26% of those with annual household incomes equal to or greater than \$60,000 ($n = 62$) and 75.00% of those with annual household incomes less than \$60,000 ($n = 148$) selected the higher quality option.

Those employed in healthcare were not statistically more likely to choose the higher quality option at a confidence level of 95% ($t = 0.277$; $p = 0.3922$). Across all

of the surveys, 80.00% of those employed in healthcare ($n = 15$) and 76.92% of those not employed in healthcare ($n = 195$) selected the higher quality option.

Those with family or friends employed in healthcare were not statistically more likely to choose the higher quality option at a confidence level of 95% ($t = -0.6546$; $p = 0.5$). Across all of the surveys, 75.24% of those with family or close friends employed in healthcare ($n = 105$) and 79.05% of those without ($n = 105$) selected the higher quality option. (Respondents who declined to answer the question were counted as not having close friends or family members employed in healthcare.)

5.3 Chapter conclusion

In the previous section, I presented the results of the surveys as pertain to quality transparency. In this chapter as a whole, I have analyzed the usefulness of current information available to consumers. The survey evidence about both price and quality supports my claim in Chapters 3 and 4 that recent reforms have not gone far enough to prompt demand-driven improvements in healthcare delivery. First, in four survey experiments to determine the impact of information on decision-making, consumers were more likely to choose the lower cost or higher quality option when relevant information was presented in straightforward ways with a minimized risk of information overload ($n = 224$, $t = -3.7065$, $p < 0.0002$). Second, hospitals on the U.S. News Best Hospital list between 2008 and 2011 were shown to be significantly more likely to be found in wealthy, highly populated areas, while unranked hospitals were more likely to be the sole community provider. Third, perceived quality (U.S. News-ranked hospitals) was shown to be out of alignment with actual quality

(hospitals performing above the national average for readmission and mortality according to Medicare Hospital Compare): 36 hospitals performed well on both lists, constituting only 0.77% of total hospitals in the U.S. in 2011. In the next chapter, I draw together these components of analysis to show that fears held by economists and private sector participants will likely not be realized in the near future—but neither will the hopes of policymakers for demand-driven change in the healthcare system.

Chapter 6 Conclusion

Assumptions about marketplace participants impact the design of healthcare systems. Chapter 2 argued that patient behavior is best understood through the lens of bounded rationality. Chapters 3 and 4 presented the current state of affairs for price and quality transparency in the U.S. hospital market, suggesting that transparency efforts have been hindered by assumption that consumers behave according to full economic rationality. Chapter 5 critically analyzed price-paid and quality information currently available to the public, presenting survey results and analysis of the U.S. News Best Hospital rankings for the years 2001 through 2014.

It might make sense to combine cost and quality and incentivize value through capitation and other links of payment to quality. However, given the information in the following table, hospitals ranked by U.S. News Best Hospitals have a significantly lower percentage of their net patient revenue paid on a capitated basis.

Table 18: Hospital information from AHA for U.S. News ranked and unranked hospitals with some percentage of net patient revenue paid on capitated basis, 2008-2011: Results of two-sample t-test with unequal variances

	Ranked by U.S. News	Unranked by U.S. News	t-value
Percentage of net patient revenue paid on capitated basis	4.6667%	10.2561%	6.1087***
N	81	1,109	

*** $p < .001$

Furthermore, as Table 19 shows, hospitals ranked by U.S. News Best Hospitals have fewer patient lives covered under capitation (although not significantly fewer).

Table 19: Hospital information from AHA for U.S. News ranked and unranked hospitals with some number of patient lives covered under a capitated basis, 2008-2011: Results of two-sample t-test with unequal variances

	Ranked by U.S. News	Unranked by U.S. News	t-value
Number of lives covered under capitation	45,971 lives	54,808 lives	0.3739[†]
N	81	924	

[†] Not significant at the 0.05 probability level

Finally, in Table 20, we see that U.S. News-ranked hospitals have a lower percentage of net patient revenue paid on a shared risk basis (although not significantly so).

Table 20: Hospital information from AHA for U.S. News ranked and unranked hospitals with some percentage of net patient revenue paid on shared risk basis, 2008-2011: Results of two-sample t-test with unequal variances

	Ranked by U.S. News	Unranked by U.S. News	t-value
Percentage of net patient revenue paid on shared risk basis	10.6667%	17.4580%	1.2322[†]
N	63	845	

[†] Not significant at the 0.05 probability level

Despite this cautionary evidence, linking prices to quality does have promise, although it runs the risk of stifling the private sector. We are seeking to achieve some

just allocation of resources, by using the best parts respectively of the political process and market dynamics.

This thesis presented the case for transparency as a demand-side and supply-side solution to the problems of high costs and low quality in the U.S. healthcare market. It highlighted the main risks of transparency, including the threat of collusion leading to higher prices across the board. Ethically and economically, our policies must seek to maximize quality and minimize cost across the board, while balancing feasibility considerations. Moving forward politically, we ought to continue building consensus on these issues, since they are serving as a point of reasonable bipartisan and stakeholder compromise.

Appendix

A.1 States with price transparency websites: state-mandated and voluntary

As of 2013, 34 states require some type of price transparency disclosures to the public, and more are in the works (Coluni, 2012). Yet, these laws are inconsistent among states. This table shows state-mandated and voluntary websites (Delbanco, 2014).

State with price transparency websites	State-mandated website	Voluntary website
Arizona		
Arkansas	X	
California	X	
Colorado	X	
Delaware		
Florida	X	
Illinois	X	
Indiana		X
Iowa	X	
Kentucky	X	
Louisiana	X	X
Maine	X	
Maryland		X
Massachusetts	X	
Michigan		X
Minnesota	X	X
Montana		X
Nebraska		X
Nevada	X	X
New Hampshire	X	X
New Jersey		X
New York		X
North Carolina	X	X
Ohio	X	
Oregon		X
Pennsylvania		X
Rhode Island		
South Carolina		X
South Dakota	X	
Tennessee		X

Texas		X
Utah	X	X
Virginia	X	X
Vermont	X	
Washington		X
Wisconsin	X	
Wyoming		X

A.2 Maryland Hospital Association quality measures

	2007	2013	2014	Percentage of years present
Heart attack	X	X	X	**100%**
Heart failure	X	X	X	**100%**
Pneumonia	X	X	X	**100%**
Surgical infection prevention	X			**33%**
Surgical care		X	X	**66%**
Patient satisfaction		X	X	**66%**
Children's asthma		X	X	**66%**
Medical imaging			X	**33%**
Emergency department care			X	**33%**
Preventative care			X	**33%**
Healthcare associated infections			X	**33%**
Stroke care			X	**33%**
Blood clot prevention			X	**33%**
30-day outcomes			X	**33%**

Note: All information to create this table was gathered by using Internet Archive Wayback Machine to peruse older versions of the Maryland Hospital Association quality measures website. The versions used were archived on: June 29, 2007; February 14, 2013; and November 19, 2014.

A.3 WCHQ quality measures

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Percentage of years present
	Physician/ medical group	X	X	X	X	X	X	X	X	X	X	100%
	Hospital	X	X	X	X	X	X	X	X	X	X	100%
	Health plan	X	X	X	X	X	X	X	X	X		89%
Provider type	Clinic							X	X	X	X	44%
Institute of Medicine categories and improvement aims	Safety	X	X	X	X	X	X					66%
	Timeliness	X	X	X	X	X	X					66%
	Effectiveness	X	X	X	X	X	X	X				78%
	Patient-centeredness	X	X	X	X	X	X	X				78%
	Efficiency		X	X	X	X	X	X				78%
	Access	X	X	X	X	X	X					66%
	Critical care	X	X	X	X	X	X					66%
	Diabetes	X	X	X	X	X	X	X	X	X	X	100%
	Health information technology	X	X	X	X	X	X					66%
	Heart care	X	X	X	X	X	X	X	X	X	X	100%
	Patient satisfaction	X	X	X	X	X	X					66%
	Pneumonia	X	X	X	X	X	X	X	X	X	X	100%
	Surgery	X	X	X	X	X	X	X	X			89%
	Women's health	X	X	X	X	X	X	X	X	X	X	100%
	Hypertension		X									11%
	Patient experience							X	X	X	X	44%
Clinical topic	Cardiac							X	X	X	X	44%

	surgery										
	Cardiovascular specialty care								X	X	22%
Ambulatory Care Measures	Chronic care		X	X	X	X	X	X	X	X	89%
	Episodic care		X	X	X	X	X				56%
	Preventative care		X	X	X	X	X	X	X	X	89%
WCHQ population results				X	X	X	X	X			56%
WCHQ measures summary									X	X	22%
Resource use measures: hospital efficiency									X	X	22%

Note: All information to create this table was gathered by using Internet Archive Wayback Machine to peruse older versions of the WCHQ website (web address: wchq.org/reporting). The versions used were archived on: April 12, 2005; February 2, 2006; June 23, 2007; July 9, 2008; November 3, 2009; June 13, 2010; April 10, 2011; July 23, 2012; September 8, 2013; and November 19, 2014.

A.4 New Hampshire HealthCost price measures

The New Hampshire Insurance Department released HealthCost version 2 on
February 28, 2007, using a substantially different methodology and presentation than
pilot version 1 (NHID, 2009). Data were not available in the NHCHIS for dates
prior to January 1, 2005. October 1 is the beginning of the fiscal year for many NH
hospitals, so this is when price changes take place. As of 2009, the procedures
included for each year in HealthCost were as follows:

- Destruction of lesion
- Arthrocentesis
- Arthroscopic knee surgery
- Tonsillectomy with adenoidectomy
- Colonoscopy
- Hernia repair
- MRIs: Brain, back, pelvis, knee
- X-rays: Chest, spine, shoulder, wrist, knee, ankle, foot
- CT scans: Chest, pelvis, abdomen
- Bone density scan
- Mammogram
- Ultrasound: Breast, pregnancy, pelvic
- Myocardial imaging

A.5 Medicare Severity Diagnostic Related Group (MS-DRG): Examples for FY 2014

LIST OF MEDICARE SEVERITY DIAGNOSIS-RELATED GROUPS (MS-DRGS), RELATIVE WEIGHTING FACTORS, AND GEOMETRIC AND ARITHMETIC MEAN LENGTH OF STAY—FY 2014 Final Rule

MS-DRG	FY 2014 FR Post-Acute DRG	FY 2014 FR Special Pay DRG	MDC	TYPE	MS-DRG Title	Weights	Geometric mean LOS	Arithmetic mean LOS
001	No	No	PRE	SURG	HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM W MCC	25.3518	28.3	35.9
002	No	No	PRE	SURG	HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM W/O MCC	15.2738	15.9	18.6
003	Yes	No	PRE	SURG	ECMO OR TRACH W MV 96+ HRS OR PDX EXC FACE, MOUTH & NECK W MAJ O.R.	17.6369	27.2	33.2
004	Yes	No	PRE	SURG	TRACH W MV 96+ HRS OR PDX EXC FACE, MOUTH & NECK W/O MAJ O.R.	10.9288	20.3	24.7
005	No	No	PRE	SURG	LIVER TRANSPLANT W MCC OR INTESTINAL TRANSPLANT	10.4214	15.1	20.1
006	No	No	PRE	SURG	LIVER TRANSPLANT W/O MCC	4.7639	7.9	9.0

This table represents just the first six rows of the FY 2014 Final Rule Table 5 released by CMS, which continues through MS-DRG 999. The table lists MS-DRGs, relative weighting factors, and geometric and arithmetic mean length of stay (CMS, 2013a).

A.6 Medicare Severity Diagnostic Related Group (MS-DRG) Reimbursement Rates: Example

MS-DRG	Description	FY2014 Final Rate	FY2013 Final Rate	$ Change (FY2014-13 Final)	% Change (FY2014-13 Final)
Interventional Cardiology					
Drug-Eluting Stents					
246	Percutaneous cardiovascular proc w drug-eluting stent w MCC	$18,460	$18,227	$233	1.28%
247	Percutaneous cardiovascular proc w drug-eluting stent w/o MCC	$11,836	$11,497	$339	2.95%
Bare Metal Stents					
248	Percutaneous cardiovasc proc w non-drug-eluting stent w MCC	$17,097	$17,324	($227)	(1.31%)
249	Percutaneous cardiovasc proc w non-drug-eluting stent w/o MCC	$10,581	$10,371	$210	2.02%
Angioplasty or Atherectomy without Stent					
250	Perc cardiovasc proc w/o coronary artery stent w MCC	$17,330	$17,316	$14	0.08%
251	Perc cardiovasc proc w/o coronary artery stent w/o MCC	$11,447	$11,108	$339	3.05%
Structural Heart - Valves					
216	Cardiac valve and other major cardiothoracic procedures with cardiac catheterization with MCC	$54,981	$54,965	$16	0.03%
217	Cardiac valve and other major cardiothoracic procedures with cardiac catheterization with CC	$36,442	$36,664	($222)	(0.61%)
218	Cardiac valve and other major cardiothoracic procedures with cardiac catheterization without CC/MCC	$31,470	$30,851	$619	2.01%

The table shows final FY2014 MS-DRG national average payment rates for select cardiovascular procedures and the percent change as compared to FY2013 MS-DRG final national average rates. The rates and percent changes shown are base payments. Actual rates may vary for individual hospitals due to geographic wage differences (Scientific, 2013).

A.7 Hospital Chargemaster: Example

CDM[1]	Description	Standard Charge	Surgery Center/Procedure Room Charge	L&D Charge	Pharm Charge Per Dose	Pharm Supply Charge Range
49000025 00	HB PROCEDURE ROOM HOURS 0.25	1,530.00	370.00			
72000100 10	HB LABOR ROOM TIME PER 1 HOUR	392.00	280.00			
72007200 15	HB LABOR ROOM TIME EA ADD 15MIN	98.00	70.00			
12500214	HB TISSUE DECALCIFICATION	60.00				
36001050 00	HB OR HOURS 10.50	26,364.00		20,882.00		
12714348	HB USTEKINUMAB SYRINGE 90MG USTE90SYR				32,801.22	
27831755 00	HB CATH INTRASPINAL					999 - 3296.7

The table shows a sample of chargemaster entries from Ronald Reagan UCLA Medical Center in 2014, acquired from the State of California Office of Statewide Health Planning and Development (OSHPD, 2015).

[1] CDM stands for "charge description master," which is often shortened to "chargemaster." In the CDM column are the codes specific to different procedures in Ronald Reagan UCLA Medical Center's chargemaster.

A.8 Practice guideline: Example
What follows is an excerpt from the American Psychiatric Association's Practice Guideline for the treatment of patients with bipolar disorder, to provide an example of a practice guideline (Association, 2010).

2. Depressive episodes

The first-line pharmacological treatment for bipolar depression is the initiation of either lithium [I] or lamotrigine [II]. Antidepressant monotherapy is not recommended [I]. As an alternative, especially for more severely ill patients, some clinicians will initiate simultaneous treatment with lithium and an antidepressant [III]. In patients with life-threatening inanition, suicidality, or psychosis, ECT also represents a reasonable alternative [I]. ECT is also a potential treatment for severe depression during pregnancy [II].

A large body of evidence supports the efficacy of psychotherapy in the treatment of unipolar depression [I]. In bipolar depression, interpersonal therapy and cognitive behavior therapy may be useful when added to pharmacotherapy [II]. While psychodynamic psychotherapy has not been empirically studied in patients with bipolar depression, it is widely used in addition to medication [III].

For patients who, despite receiving maintenance medication treatment, suffer a breakthrough depressive episode, the first-line intervention should be to optimize the dose of maintenance medication [II].

When an acute depressive episode of bipolar disorder does not respond to first-line medication treatment at optimal doses, next steps include adding lamotrigine [I], bupropion [II], or paroxetine [II]. Alternative next steps include adding other newer antidepressants (e.g., a selective serotonin reuptake inhibitor [SSRI] or venlafaxine) [II] or a monoamine oxidase inhibitor (MAOI) [II]. For patients with severe or treatment-resistant depression or depression with psychotic or catatonic features, ECT should be considered [I].

The likelihood of antidepressant treatment precipitating a switch into a hypomanic episode is probably lower in patients with bipolar II depression than in patients with bipolar I depression. Therefore, clinicians may elect to recommend antidepressant treatment earlier in patients with bipolar II disorder [II].

Depressive episodes with psychotic features usually require adjunctive treatment with an antipsychotic medication [I]. ECT represents a reasonable alternative [I].

A.9 Survey 2(a): Full

Instructions:

- On the first page, please answer the questions about you and your experiences.

- On the second page, read through information on two hospitals and use that information to decide which one to attend for stomach cancer treatment.

- On the third page, read through information on two hospitals and use that information to decide which one to attend for a knee replacement.

Once you have reported your decisions for each, you will be asked to select a statement that best describes the way in which you made your decision about which hospital to attend.

What is your gender?

[⌄]

What is your age?

[   ]

Which of the following best describes your highest achieved education level?

[⌄]

Which occupational category best describes your employment?

[⌄]

What is your combined annual household income?

[▼]

In which state do you currently reside?

[▼]

Please indicate your marital status:

[▼]

Which of the following best describes your religious affiliation, if any?

[▼]

Which of the following best describes your political affiliation?

[▼]

Do you own a computer?

○ Yes

○ No

Do you have internet at home?

○ Yes

○ No

Have you ever used online reviews to decide whether to purchase something? (e.g., Amazon reviews of a cell phone)

○ Yes

○ No

Are any of your immediate family members or close friends employed in healthcare? (e.g., doctor, nurse, hospital administrator)

[dropdown ▾]

How comfortable are you navigating the healthcare system? (e.g., making doctor's appointments, purchasing insurance)

"0" represents "very uncomfortable," and "100" represents "very comfortable"

	0	10	20	30	40	50	60	70	80	90	100
Comfort level for navigating the healthcare system											
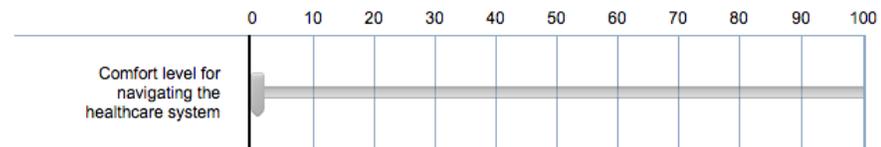
Where do you mainly get information on healthcare? (Please select all that apply)

☐ Family

☐ Friends

☐ Primary care physician

☐ The internet

☐ Other (please specify) [_____]

Have you ever used online reviews of a hospital or other healthcare provider to decide where to go for medical care?

○ No

○ Yes

Have you ever researched prices to decide where to go for medical care?

○ Yes

○ No

Do you have health insurance?

○ Yes

○ No

How long have you had health insurance?

○ My entire life

○ Just the past 5 years

○ Just the past 10 years

○ On and off my entire life

Have you heard of any of the following websites?

	Yes	No
Michigan Hospital Association Keystone Center	○	○
Hospital Compare (Medicare)	○	○
U.S. News and World Report	○	○
Patient Guide (Maryland)	○	○
MyHealthCareOptions (Massachusetts)	○	○
Wisconsin Collaborative for Healthcare Quality	○	○
New Hampshire Health Cost	○	○
The Leapfrog Group	○	○
Montana Hospital Association PricePoint	○	○
The Joint Commission	○	○
Healthgrades	○	○
Hospital Provider Charge and Actual Payment Data (Medicare)	○	○
Colorado All-Payer Claims Database	○	○
Oregon Association of Hospitals and Health Systems PricePoint	○	○

For you, what does quality of healthcare mean?

☐ How good the processes of care are (e.g., whether heart attack patients are given beta blockers to prevent another heart attack)

☐ How good patient experiences of care are (e.g., the percentage of patients that would recommend a doctor)

☐ How good the outcomes of care are (e.g., mortality rates for a given procedure)

☐ None of the above (please explain) [_____]

Have you seen a doctor in the past year?

○ Yes
○ No

0% [_____] 100%

[>>]

On this page, assume that you have just been diagnosed with stomach cancer. You are trying to decide where to seek treatment.

The following information is on two hospitals, and comes from a website run by the federal government that provides information on healthcare quality. Please use this information to decide which of these two hospitals you would prefer to treat you for stomach cancer, making the following assumption:

- The procedure will cost the same at either hospital

	Hospital A	Hospital B
Uses a safe surgery checklist	Yes	Yes
Patient satisfaction: Relation to state and national average	Outperforms	Underperforms
Process of care measures for surgery: Relation to state and national average	No different	Outperforms
Unplanned readmission and death rates	No different than national rate	Better than national rate
Surgical complications	Worse than national rate	Better than national rate
Healthcare-associated infections	No different than national benchmark	Better than national benchmark
Use of medical imaging	No different than national average	Worse than national average

Given the information presented, which of these two hospitals would you prefer to attend for your stomach cancer treatment?

○ Hospital A

○ Hospital B

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How useful did you find the quality information provided to be in making your decision?

○ I found the information to be clear and easy to understand

○ I found the information to be ambiguous and confusing

Did you want more quality information than was provided?

○ Yes

○ No

Which of the following best describes the way you made your decision about which hospital you would prefer to attend for your stomach cancer treatment?

○ The hospital I chose appeared to be better overall

○ The hospital I chose appeared to be better for treating stomach cancer

0% ▓▓▓▓░░░░░░ 100%

[<<] [>>]

On this page, assume that you need a knee replacement. You are trying to decide where to seek treatment.

The following information is on two hospitals and comes from a state-run website.

Please use this information to decide which of these two hospitals you would prefer to perform your knee replacement, making the following assumptions:

- The hospitals are of equal quality.
- The information in the table is on cost charged for knee replacements at each hospital.
- You will be paying out of pocket for your care, and do not have insurance. You will be responsible for paying the full hospital bill.

	Hospital A	Hospital B
Cost	Not different from median state cost	Above median state cost
High cost	$27,500	$29,500
Median cost	$21,500	$22,500
Low cost	$11,000	$22,000

Given the information presented, which of these two hospitals would you prefer to attend for your knee replacement? As a reminder, please assume that the hospitals are of equal quality, and that you will be paying out of pocket for your care.

○ Hospital A

○ Hospital B

How useful did you find the price information provided to be in making your decision?

○ I found the information to be clear and easy to understand

○ I found the information to be ambiguous and confusing

Did you want more price information than was provided?

○ Yes

○ No

Which of the following best describes the way you made your decision about which hospital you would prefer to attend for your knee replacement?

○ I chose the hospital that would probably cost me the most

○ I chose the hospital that would probably cost me the least

0% 100%

<< >>

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A.10 Evidence of Mount Sinai Health System getting out the vote for U.S. News rankings (emails)

From: Broadcast Communications
Sent: Monday, February 10, 2014 11:16 AM
Subject: Alert from the Dean's Office Regarding Paper Ballots for U.S. News & World Report Reputation Surveys

TO:	Faculty, Staff, and Students
FROM:	Kenneth L. Davis, MD
	Chief Executive Officer and President
	Mount Sinai Health System
	Dennis S. Charney, MD, Anne and Joel Ehrenkranz Dean
	Icahn School of Medicine at Mount Sinai
	President for Academic Affairs, Mount Sinai Health System
DATE:	February 10, 2014

RE: Alert from the Dean's Office Regarding Paper Ballots for *U.S. News & World Report* Reputation Surveys

U.S. News & World Report recently mailed paper ballots for its annual "Best Hospitals" and "Best Pediatric Hospitals" surveys to physicians around the country. The paper ballots are tabulated to determine reputational scores for *U.S. News* rankings.

If you have received a paper ballot pertaining to the Best Hospitals or Best Pediatric Hospitals rankings, please notify the office of Dennis S. Charney, MD, Anne and Joel Ehrenkranz Dean of the Icahn School of Medicine at Mount Sinai. We want to be sure that all physicians who received these ballots fill them out.

The ballots for the Best Hospitals survey were sent by first-class mail to a random selection of 200 board certified specialists across the United States in each of the 16 specialties that are ranked. The ballots for the Pediatric survey were mailed to 150 specialists in each of the 10 pediatric fields that are ranked.

Between January 2 and 31, *U.S. News* emailed the intended recipients of the paper ballots to let them know they would be receiving them. The email appeared with the subject line: "Nominations for *U.S. News* Best Hospitals Rankings."

Please check your mail carefully to see if you have received a ballot, or search your Mount Sinai, MSSM, or other personal and professional email accounts for the subject line of "Nominations for *U.S. News* Best Hospital Rankings," to see if you were notified. You can also search by the sender's address which wasBestHospitals@rti.org or MedIntel@hcpconnects.com.

The ballot asks you to list up to five U.S. hospitals that provide the best inpatient care for challenging medical or surgical conditions in your specialty. *U.S. News* uses the ballots to derive the reputational index for its rankings methodology. Other factors include Structure, Process, and Outcomes. The factors are weighted differently across specialty areas.

For the first time this year, *U.S. News* has partnered with <u>Doximity.com</u> to conduct an online reputational survey that is being used in conjunction with the paper ballots for the "Best Hospitals" overall reputational rankings index. The Doximity survey is not being used for the "Best Pediatrics Hospitals" rankings this year.

The ballot period will close in mid-April. The rankings for "Best Pediatric Hospitals" will be published in mid-June, and "Best Hospitals" will be published in mid-July.

We appreciate your assistance in ensuring that the Mount Sinai Health System is fully represented in the nomination process.

From: Broadcast Communications
Sent: Friday, February 13, 2015 2:54 PM
Subject: U.S. News & World Report Opens Online Voting for the "Best Hospitals" and "Best Pediatric Hospitals" Rankings

TO: All Faculty and Staff

FROM: Kenneth L. Davis, MD
               Chief Executive Officer and President
               Mount Sinai Health System

               Dennis S. Charney, MD
               Anne and Joel Ehrenkranz Dean
               Icahn School of Medicine at Mount Sinai
               President for Academic Affairs
               Mount Sinai Health System

DATE: February 13, 2015

RE: *U.S. News & World Report* Opens Online Voting for the "Best Hospitals" and "Best Pediatric Hospitals" Rankings

Online voting is now open via <u>Doximity.com</u> for the 2015 *U.S. News & World Report* "Best Hospitals" and "Best Pediatric Hospitals" rankings. Sixteen clinical specialties and ten pediatric specialties will be ranked in 2015/16.

All eligible adult and pediatric physicians who activated their Doximity account in December, 2014, will have the opportunity to vote within their board-certified

specialty. Eligible physicians can log on to Doximity.com at any time to take the survey. Additionally, Doximity will be sending eligible physicians an invitation to take the survey with reminder invitations to follow over the next few weeks, from either a .doximity.com or .doximity.org server. We encourage you to vote before the February 27 deadline, and support the increased rankings of individual Mount Sinai hospitals. Results will be published in July, 2015.

U.S. News & World Report made a significant change to its reputation-scoring methodology last year by teaming with Doximity to collect online votes for adult specialties. Last year, slightly more than 8,000 online votes by Doximity members were included in the calculation for adult hospital rankings. This was combined with the 3,200 printed surveys mailed to board-certified physicians.

For pediatrics, 1,500 printed ballots were mailed out, but an online Doximity survey was not available at that time. The addition of online voting for pediatrics in 2015 is surely a great benefit that will add validity to the reputation scorings.

Doximity.com is a free, online professional network for U.S. physicians. Of the network's more than 300,000 members, at least 200,000 currently meet the criteria to vote online in the *U.S. News* rankings. All Doximity votes will count toward the *U.S. News* reputation score, adjusted for accurate representation among hospitals nationwide.

In prior years, survey-eligible physicians were identified through the American Medical Association Masterfile. This year, *U.S. News* will be employing the Doximity Masterfile, which includes every physician who appears in the *U.S. News*Doctor Finder.

In the unlikely instance that you receive a printed ballot in the mail after you have already voted online, please make sure to fill it out and submit the printed ballot as well.

If you did not activate your Doximity account by December 5, 2014, you should still register on Doximity.com so you are eligible to vote next year.

Thank you for your continued commitment to advancing both the outstanding patient care of the Mount Sinai Health System, and the innovative education provided by the Icahn School of Medicine at Mount Sinai.

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