

Health Care Price Transparency for Consumers

A Review of Original and Prior Research on Best Practices for the Development of State-Based Web Resources

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Executive Summary

In late 2013, *HealthInsight* commenced a project in partnership with the Utah Department of Health and other local organizations to publish health care pricing data for Utah consumers. This information will ultimately be displayed on *HealthInsight's* existing public report of health care quality, the web-based consumer resource utahhealthscape.org. This report summarizes research conducted by *HealthInsight* to guide the further development of [utahhealthscape](http://utahhealthscape.org), including (a) a review of the public reporting literature, (b) a scan of existing, primarily state-based pricing websites, (c) key-informant group discussions with local health care community stakeholders, (d) consumer focus groups, and (e) the prior experience of our team members. In addition to informing our own work, report findings have been and will continue to be shared with this group of local health care community stakeholders, the Transparency Advisory Group, which is tasked with providing feedback and guidance throughout the duration of the project. Report findings will also be disseminated more widely to inform the development of public reports nationwide.

Who We Are

Healthinsight

Healthinsight is a private, non-profit, community-based organization dedicated to improving health and health care that is composed of locally governed organizations in three western states: Nevada, New Mexico and Utah. *Healthinsight* is a recognized leader in quality improvement; transparency and public reporting; health information technology programs; health care system delivery and payment reform efforts; and human factors science research and application.

The Project

This report was developed as part of the Grants to States to Support Health Insurance Rate Review and Increase Transparency in Health Care Pricing - Cycle III initiative. Under this grant, the Utah Department of Health—in partnership with *Healthinsight*, the University of Utah, Utah Health Information Network, and the Utah Insurance Department—is working to:

1. Improve Utah's All Payer Claims Database (APCD) system security, quality, completeness, and patient-provider attribution by working with participating stakeholders and using appropriate methods and technology to collect all necessary data elements, including fee schedules, for rate review and risk adjustment.
2. Develop and implement analytics information technology infrastructure, capacity and appropriate statistical methods to produce meaningful information for online reporting and querying of health care cost and quality information.
3. Develop web applications to broadly disseminate available health care cost and price information for selected health services by patient population, geographic area, health care setting, and providers if the data quality is acceptable.

Healthinsight is engaged primarily with the third aim, enhancing our existing consumer resource website on health care quality, utahhealthscape.org, to display pricing information from the APCD. This report summarizes work conducted from Fall 2013 to Summer 2014 that informs the development of [utahhealthscape](http://utahhealthscape.org) and identifies best practices for presenting health care pricing information to consumers. Our team used a variety of methods and sources in compiling this information, including (a) a review of the public reporting literature, (b) a scan of existing, primarily state-based pricing websites, (c) key-informant group discussions with local health care community stakeholders, (d) consumer focus groups, and (e) the prior experience of our team members.



The health care community stakeholders form the Transparency Advisory Group (TAG), which provides feedback and guidance on the Cycle III work as well as other health care data transparency efforts. The TAG functions as a subgroup of both the Utah Partnership for Value, a large collaborative that works with provider, payer, purchaser, and public representatives to improve quality and reduce costs in health care, and the Health Data Committee, which advises the Legislature and Governor of Utah on how health data can be used to improve health outcomes, as set out in statute.

Note: Importantly, this project is defined as being about “price” transparency as opposed to “cost” transparency. Based on distinctions made by the Agency for Healthcare Research and Quality (AHRQ), Robert Wood Johnson Foundation and other community actors, we define price as the amount paid for a health care service, including payer and consumer contributions. Cost, by contrast, encompasses the amount of resources required to deliver that service—which is often quite different from the price.¹

Public Reporting for Consumers

Consumers want more information to help them make health care decisions.² One source of information is public reports of health care quality. Although public reporting began in the 1980s and has been widely available online since at least 2005, actual use by consumers is limited.³ A 2014 survey found that 23 percent of Americans claimed to have seen some information comparing doctors in the last year but only 11 percent said they actually used this information—and the majority of this information came from friends and family, not a provider, insurance plan, government, or other third party source.⁴ Communities that have invested in public reporting websites themselves often report low use by consumers. In addition to quality measures, increasing numbers of public reporting websites are beginning to display pricing information. Recent media attention and data releases by the Centers for Medicare & Medicaid Services (CMS) have sparked a national conversation around the need for transparency in health care pricing.^{5,6,7,8}

Efforts to publicly report health care information have two main goals: 1. Facilitate consumers choosing a higher quality and/or lower priced provider for the immediate benefit of themselves or their loved ones, and 2. Drive health care providers to improve their care quality and reduce their prices for the benefit of all consumers. The second goal is theorized to operate through two “pathways,” the “consumer pathway” and the “provider pathway.”⁹ The basis for the consumer pathway stems from economic theory, that correcting the information asymmetry that exists in health care (e.g., consumers have little or no information of true price), will fix the market failure and ultimately improve the performance of the market for everyone. Essentially, consumers will demand better value and take their health care dollars to the higher quality and lower priced providers, creating an economic imperative for lower value providers to improve. The provider pathway—not the original intended function of public reports but possibly the more effective one—suggests that even if members of the general public never use a report to make decisions, a combination of the possibility that they could look and the likelihood that other health care providers do look could effectively drive providers to offer higher value care.

Part of the reason that the provider pathway has been more effective thus far in improving health care quality is the inherent challenge in driving use of public reports among consumers. This challenge is the result of two key areas: low health literacy in the population at large and the principles identified by the field of behavioral economics, which seeks to explain seemingly non-rational human behavior.



In contrast to “literacy,” which is usually associated with education, “health literacy” is not strictly a function of education; even well-educated individuals may exhibit low health literacy. Health literacy is “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.”¹⁰ Rates of health literacy are troublingly low. In 2004, the Institute of Medicine reported that 90 million Americans cannot interpret or act upon complex information, including health information.¹⁰ A mere 12 percent can accomplish complicated tasks such as determining the employee share of health insurance costs from a table.¹¹ Actual language barriers are a component: in 2011, 13.6 million Americans spoke English “not well” or “not at all.”¹² However, when one compares medical terminology—such as echocardiogram (English) and ecocardiograma (Spanish)—it is clear that good translation and interpretation are necessary but not sufficient to overcome the challenges of low health literacy. Low health numeracy, or the ability to “obtain, process, and understand basic health information” related to numbers, comprises a major part of the issue; while health numeracy is associated with the level of basic numeracy, it is often worse than general math skills and even financial numeracy.¹³ Understanding medical performance ratings requires both sophisticated health literacy and numeracy skills, and thus it is not surprising that public reports have experienced low rates of utilization by consumers.

The emerging field of behavioral economics has expanded the collective knowledge of how people make decisions. In a nutshell, “the picture that emerges is one of busy people trying to cope in a complex world in which they cannot afford to think deeply about every choice they make.”¹⁴ At first glance, this news is worrisome for public report sponsors trying to guide health care consumers to make informed, carefully reasoned decisions. Further, not only are people unlikely to take the time necessary to make careful decisions,¹⁵ even when they are paying attention comprehension is often poor and retention even worse. A 2003 study found that physicians thought 89 percent of their patients understood medication side effects after an explanation, but only 57 percent of patients actually understood.¹⁶ AHRQ has reported that 40-80 percent of medical information explained to patients is forgotten immediately and half of what is retained is incorrect.¹⁷ It is clear that public report information cannot be presented in too simple or obvious a manner.¹⁸ Experts in web usability are similarly acquainted with the constraints on human cognition and attention span. One best-selling book on usability is even titled *Don’t Make Me Think*.¹⁹ Web users are willing to spend mere nanoseconds interpreting information before bouncing off a site and back to their search results to try another option. In designing a website of health care information, the interface needs to be interpretable at first glance and the navigation structure utterly obvious—a tall order for sites with medical performance ratings and pricing. In the case of price information in particular, the benefit design of traditional health insurance plans has shielded consumers from the true cost of care, leaving them little incentive to seek out and work to interpret this information. However, the movement to high-deductible health plans—now nearly one-third of private plans²⁰—is increasing this incentive and the demand for transparent pricing. Some have suggested that the increasing use of insurance exchanges will drive a greater interest in “shopping” for health care services as well as plans.²¹ Behavioral economics also affords opportunities to effectively guide consumer decision-making. Since behavior can be vastly influenced by subtle elements of the environment, “choice architects” can set up decisions in a way that makes the right choice the easy choice.¹⁴ The creation of intuitive, easy-to-use tools for moments when consumers have the time to make an important decision is one means to do this.

To create a web-based public report of health care quality and pricing that is in line with the principles of behavioral economics and seeks to overcome, to the extent possible, the limitations presented by low health literacy, we have conducted extensive research and compiled this report as a synthesis of existing and newly-gathered best practices to inform both our own efforts and future efforts in other communities to present actionable healthcare information to consumers.



Consumer Perspectives on the Health Care System and Transparency

In Spring 2014, we conducted focus groups with a sample of Utah residents. We are all health care consumers at some time or another, but the aim of these groups was to assess how to meet the needs of our intended audience of non-expert consumers. As with any type of market research, we used these groups to focus on our audience's interests rather than our own—or defaulting to presenting the data that are available or convenient to publish. As we progress through the development process of adding pricing information to our public report of health care quality, UtahHealthScape.org, we will conduct multiple rounds of usability testing as well, but only the formative focus groups are discussed here.

We held three focus groups, interviewing a total of 29 consumers. Participants were both male and female, with slightly higher numbers of women. They were of a range of ages between 18 and 65, and either commercially insured or uninsured, due to the reduced price sensitivity of beneficiaries of public programs. Utah's population is predominantly Caucasian, although it is changing²²; as such we over-sampled from minority communities, including those who have recently immigrated, to obtain more diversity of experience and opinions and anticipate the needs of the future population. Participants were not recruited on health status, but a number of them self-identified during their group session as having a chronic disease or having had extensive experience with the health care system.

In addition to presenting consumer perspectives on price transparency, we include here additional perspectives on the health care system itself. Although not directly instructive for web resource development, these kinds of comments provide a lens through which to examine how consumers look for and use health care information, as well as what kinds of information they need.

Difficulties Understanding and Navigating the Health Care System

In line with our discussion of issues related to health literacy and behavioral economics, consumers have great difficulty understanding and navigating the health care system, both related to pricing and in general. These concerns were highly salient and voiced repeatedly during the focus groups. We encountered a number of highly activated, engaged consumers with an impressive depth of knowledge; but even many articulate, well-educated, adequately insured consumers expressed intense frustration and in some cases mistaken ideas about the health care system.

Few focus group participants had a clear grasp of how the health care system is structured and financed. Health insurance was one source of confusion, which appeared to be true across participants with commercial insurance—either employer-sponsored or individual—and those who were uninsured. Several participants had recently looked for a plan on Healthcare.gov and others had shopped for plans on other websites. While shopping for plans was a common past experience and reasonably well understood, many elements of insurance were not. Most participants did not understand insurance concepts such as allowed amounts and risk pools. Many had a “boogey man” view of insurance carriers.

The insurance company just sits there and let's say I don't use my medical for two years, they just got three thousand dollars.



Many participants expressed frustration and confusion over the need to remain “in-network,” with limited understanding of why some providers were in or out of a network—which is that they have either contracted with the carrier or not. Participants raised reasonable concerns, such as the sentiment that in or out-of-network pricing should not apply in case of true emergencies or travel. Discussions of pre-authorization for services met with similar reactions. Some participants suggested that people in their communities had very limited understanding of how to use their insurance benefits.

Navigating health care services was similarly described with frustration and confusion. Several participants told stories about others who had tried to avoid needed emergency care, whether they had insurance or not, out of fear of the completely unknown financial burden they would incur. These sentiments were prominent among, though not exclusive to, immigrant populations. Even in less extreme situations, participants expressed intense emotions resulting from the uncertainty they face when seeking health care services, again, whether they had insurance or not.

And even my husband [. . .] he was doing the grass and he cuts his finger, they were chopped, he called me, he’s like what do I do? [. . .] And I said, well, call 9-1-1 and he was like, no. Just thinking about the emergency, he didn’t want to call.

The Price of Health Care

One of the most frequent comments made by consumers in our focus groups was about the high price of health care services and plans. There was a great deal of emotion surrounding these comments, frustration in particular. Participants in general could not understand why services and plans are so costly. A number of participants described how they were in the process of paying off very large medical bills.

We always have different things we have to pay for and I mean \$325 that’s a car payment and you can’t afford that for health insurance.

I know it’s like over a thousand dollars just to get that shot to put you to sleep. It’s like one second. It’s just . . .



The Social Context of Health Care

Other comments related to the health care system overall touched on the influence of social interactions and cultural viewpoints on health care decision-making. Participants described how, even if they try to be engaged, they may not always feel capable of making a choice due to their lack of expertise relative to a medical professional. One participant spoke about a significant other undergoing multiple tests over several days in the hospital and the care team ordering another test just as they were scheduled to leave. The team stated that this participant and the patient could leave if they preferred, but without a diagnosis having been made, the participant did not feel sufficiently confident to decline care. This information asymmetry could be a serious barrier to activation in consumers. Further, participants noted that usually people receiving medical care are sick and therefore not in a position to make informed choices.

It's just kind of like how do you say no? And I kept asking too. What is this test for? What is it going to conclude? Because I'm thinking he's got insurance and he's self-employed, they're just going to keep on running with that ball. That's how I felt. He's not going to really speak up because he's kind of tired. He's had something happen and we don't really know.

Participants also shared insightful comments related to their personal or cultural views of seeking care that further fine tune the lens we have attempted to create.

I also go and look for people of color. [. . .] But I do look for people who have studied my body, my ethnic group.

I know from the Pacific Islander community it's cultural for most of them that the women go see women [doctors]. They're more comfortable with that and their husbands are more comfortable with that.

It's hard because for my family, even I can speak with for my community, it's like you can't get sick here especially if you don't have health insurance.

Example would be getting tonsillitis on the reservation you might think, well, the [Indian Health Service] pays for it but actually if my daughter would have got a [tonsillectomy] on the reservation most likely she would have had complications, you know, because of the service as opposed to here where medical services are a lot more better here than you find on most reservations. So she waited until she was an adult.

In Japan nobody is afraid to go to the doctor because you know cost of doctor is so much cheaper and nobody is afraid to be in ambulance because it doesn't cost anything to be in an ambulance, or any emergency.



How Consumers Research Health Information

The opening discussion with our focus group consumers was around how they look for health information online. Nearly all reported using the internet to find health information. Predominantly they used Google searches to find content, with a preference for websites that they were familiar with such as WebMD and Mayo Clinic. They expressed some skepticism about these sites, and said they would look to multiple online sources and their providers to gather sufficient information. Some participants said they have used these sites to find possible diagnoses for symptoms they were experiencing, but most used them to find more information about current diagnoses and medications. One participant said he uses online searches to find out when his medications will be available as generics. A number of participants used their plan sites to review their benefit structure and the level of coverage for certain services. No participants reported looking for or finding information on health care quality.

I like the People's Pharmacy as well. It's about natural healing—a lot of it is about natural, how to take care of yourself without taking medicine. So I kind of like that.

Participants had used a variety of online sources to search for a provider. Through Google searches and plan sites they had evaluated providers on criteria that they viewed as proxies for quality: medical school attended, other degrees such as a Ph.D., years of experience, and board certifications. Several noted that they would appreciate a resource that showed whether a provider was accepting new patients and how long the wait would be for an appointment. Although location was important, at least one participant indicated that appointment availability was more important.

Participants were not able to find specific pricing for providers online, but many used their plan sites to determine the level of cost-sharing for a given provider. They would determine if the provider was in or out of network and the resulting copay. One reported a star rating that would approximate how much of a visit with that provider would be covered by the plan. Some participants said they use their health plan or large retailer websites to find pricing information for medications; no one had found pricing for other health care services online. Several participants had used websites to find pricing for health plans, including Healthcare.gov. Participants that had searched for a plan on Healthcare.gov mentioned searching for their preferred physicians in order to choose a plan, but often were not able to get the plan they could afford and their preferred providers—these participants chose the cheaper plan.

Health plan sites were a significant source of health information for participants, for both plan-specific and general information: tips for managing asthma was one example. Importantly, most expressed some mistrust of these sites, likely commensurate with their feelings about insurance carriers in general. Some participants had experience with outright inaccuracies on plan sites, such as an incorrect listing of a provider's specialty. This lack of trust could prove a barrier to consumer use of carrier-sponsored price transparency resources.



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The Need for Transparency

Participants expressed clearly the need for greater transparency in health care. They were particularly concerned about the process of medical billing. Because it is hidden from the consumer and requires specialized knowledge to interpret, many felt that there was no accountability for how providers bill services and therefore consumers could be overcharged, either intentionally or not. This contributed to their concerns about trying to investigate health care pricing, that even if they found out the price up front from a provider or a website, that price might not end up being the one they would ultimately pay.

There's just too many situations where they may run so many other tests that people might get mad because they expected to pay \$2,000 because that's what they saw on the website, when the doctors decide to issue a lot more tests and it was because of the condition.

Although many participants stated that they had never thought to ask about price up front, it was interesting how some of the participants had actually tried to find out pricing information. A few were quite sophisticated in their processes to call billing offices, sometimes in advance of a procedure, and to ask about financial assistance and cash discounts. Not surprisingly, the most engaged participants tended to be those with significant health issues, though not exclusively.

So what I do when I need something done that's more expensive is wherever I want it done I'll call the billing people even before they send me the bill. [...] And then I'll tell them my income or how much I make and then they tell me hypothetically how much financial aid I would qualify for. Then I'll ask them if I pay this much of it cash down can you give me a discount and usually they're like--they say yes or no. And then I set all of that up and then they tell me once you get your bill this is where you want to go to fill out the financial assistance paperwork and send it in. [...] And then they ask me to send my tax returns so that they can see how much I make. [...] But that's obviously really complicated. No one wants to do that.



Participants had found limited pricing information online, except for medication pricing on certain plan websites. However, many consumers spoke positively about filling prescriptions through large retailers like Costco. At Costco, cash prices for medications are clearly posted and the website shows prices by insurance plan—though consumers would still need to determine where they are in their deductible. Some experiences cited by consumers relevant to dental and pet care demonstrated the extent to which consumers appreciate up front transparency.

Generally, participants had positive views of their providers but some had concerns about less than ideal or above-board practices in medicine. For example, many were concerned about duplication of tests due to lack of communication and electronic connections across providers. They also felt that providers sometimes order unnecessary care due to defensive medicine or the desire to make more money. Some suggested that they have experienced questionable referral patterns or expressed concerns that the pharmaceutical industry has too much influence on prescribing behavior. Many felt that greater price transparency could alleviate some of these concerns.

Multiple participants cited the desire for more transparency to open up a dialogue between patients and providers, allowing them a voice in choosing what services to undergo. Many mentioned hearing about “hidden costs” and “add-ons,” unnecessary charges or services often bundled with other services, for which consumers are not given the opportunity to consciously consider and decide to accept those services. They wanted itemized pricing before and after services and they wanted all services to come in a single bill, rather than separate ones from a hospital, a surgeon, an anesthesiologist, and so forth. Multiple participants gave examples of having declined care, or situations where they would have declined care if they had had requisite knowledge at the time.

I started working at the hospital a little over a year ago—but I’m not medical staff—but I see a lot of this going on. And I’ve seen a lot of patients deny service like, no, I can’t afford that. I don’t want it.

Benefits to Consumers with Transparent Health Care Pricing

Participants in our focus groups repeatedly expressed the desire for transparency in pricing as something that they just felt should be available to them, as it is in any other commercial industry. They also expressed how transparency would reduce significant stress and greatly improve their peace of mind when seeking health care services.

I just think knowing how much things cost, it really empowers you to walk in and go and be happy about getting the care that you need. I feel like I walk into the doctor and I’m just scared because I have no idea how much this is going to cost and it’s like Vegas you know, I just wait for the bill and then who knows how much it’s going to be and so I go in scared and wanting him to do the minimum because I don’t know what’s going to happen.



Participants also saw large potential benefits in their ability to save money by comparison shopping for providers and services and being more able to afford treatments by spacing them out or saving up in advance. Since many hospitals offer discounts for paying in full at the time of the first bill, participants saw opportunities to save for a service—assuming it was not urgent—and then taking advantage of that discount. With greater transparency of add-on, unessential services, participants said they would be empowered to discuss these services with their provider and decline care that they ultimately saw as unnecessary, also saving them money. Participants brought up several examples of consumers making a wrong choice that could be ameliorated by transparency: poor self-care, not seeking needed care, and seeking care when it was not needed. Further, participants said price information would make it much easier for them to identify the right provider or health plan for their situation.

If you were able to compare and find [providers] to go to who were more affordable maybe people would find care that, needed care, and vice versa, people who didn't really need care wouldn't go because they knew how expensive it would be in the long run.

Finally, participants noted that an online resource for pricing would be an excellent opportunity to provide consumer education, on topics such as how to use health plan benefits and how to seek care in the appropriate and least expensive setting. Many were aware of the Affordable Care Act provision that ensures free preventive care but none knew how to find out what services it includes. There was notable enthusiasm for a website on pricing to include this information. It is possible that such a service could have the unintended consequence of driving up health care costs—at least in the short-term through increased use of fully-covered preventive services, though ideally long-term population health would be improved. Some participants had experience to realize that this provision still has caveats, and these types of insights would be valuable to include in a consumer resource.

Sometimes the insurance covers just the routine mammogram, but they call you again for the diagnosis mammogram, they charge you and it was my problem years ago because [. . .] if you are called again for something you have to pay the second one.



Benefits to the Health Care System with Transparent Health Care Pricing

Participants said that price transparency would improve the dialogue between patients and providers, which would not only benefit individual patients but also reduce costs to the system by avoiding unnecessary services. They also thought it could improve provider and plan accountability, reiterating concerns about the obscure nature of how services are coded and billed, also leading to avoided unnecessary costs. Nearly all participants demonstrated a clear grasp of basic economic theory—of the relationship between demand and price and the role of competition in the marketplace. They were cautiously optimistic that transparency could drive consumers to cheaper providers, causing providers to low their prices in order to compete.

I would hope that making all the costs and everything transparent that things would even out a little [...] that other providers would see, “oh, they’re charging much less.” I don’t know. Maybe that would be too ideal.

Challenges for Creating and Driving Use of a Price Transparency Resource

Participants clearly wanted greater transparency in health care pricing but they identified a number of barriers as well. Practically speaking, participants were skeptical about whether the site could provide the information they needed in order to take action. They were aware that prices could vary by health plan benefit design; by individual progress toward a deductible and/or out-of-pocket maximum; by unanticipated but necessary additional services related to a procedure; and by how services are coded and billed. Many had had the experience of receiving multiple separate bills for a service, spread out over time, and questioned whether a pricing website would be able to take all of those component bills into account in predicting a price. A few participants questioned whether prices actually vary meaningfully across providers and facilities and a couple were outright pessimistic, suggesting essentially that “if you have to go, you have to go”—in other words, that this information would not be relevant or sufficiently actionable.

My dad has passed away two years back, still we get bills.

Another potential problem raised was the inability of consumers to understand the information on a pricing website. Participants discussed the lack of understanding about health care issues in their circles and communities and wondered if the information could be presented in an interpretable way to those with low health literacy. Related to behavioral economics, participants recognized the time investment and cognitive burden involved in seeking out and interpreting a report and expected that many consumers would not put in the effort.



Participants noted that some consumers lack access to technology, especially older people. They also thought that consumers might mistrust the source of information, whether it was a lesser-known independent site or their health plan's site. A few participants reported positive experiences with discussing price concerns with their providers, but posited that not all providers would be open to engaging with patients in that way, with the resultant effect of discouraging consumers from looking up or acting on price reports.

Lastly, several participants noted that the key challenge inherent in attempting to support consumer activation in health care decision-making was that the audience is comprised of sick individuals. They gave examples of when they had tried to ask questions during a health care encounter and been told not to worry or simply lacked the wherewithal to inquire about everything that was happening to them, due to their illness. Thus, focusing on health care needs that are not urgent, including wellness and preventive services, and targeting family members or caregivers could improve report usage.

I think I tried to ask my doctor but at the time I did have insurance. [. . .] They said something like, "oh, don't worry about it, your insurance will pay for it." But I wasn't feeling well so it wasn't like I was really thinking about the cost.

Although the participants in our focus groups had limited experience with shopping for health care services based on price, nearly all expressed a desire for greater transparency in health care. They saw barriers to the success of a web-based pricing resource, but also many potential benefits. Perspectives that they shared about the system itself have provided us with valuable insights into the consumer health care experience and the particular needs that a consumer-oriented resource should meet.

Existing Price Transparency Resources

Though not an exhaustive evaluation, we examined several existing price transparency websites to assess their key attributes, strengths and weaknesses. We focused on 11 state-based sites, but included a few payer-sponsored, provider-sponsored, and commercial sites as well (see Appendix). Currently there are at least 62 state-based pricing sites²³; ²¹ are supported by legislation, though they may be mandatory or voluntary according to statute.²⁴ There are many more private sites.



Data Source

Data sources for the state-based sites that we reviewed are fairly evenly split between discharge and claims databases. Discharge databases contain charge information only and while relatively straightforward from a data gathering and analysis perspective, charges often bear little resemblance to the amount that a patient or payer would pay, given the substantial difference between charges and the payer-negotiated rate.⁵ Uninsured consumers could be charged the full price but it is usually possible to negotiate a discount with a cash payment, though likely a smaller discount than that obtained by payers. By contrast, claims databases can offer the actual amount paid, which is far more relevant to the consumer. However, ascertaining prices by working backwards from claims is an arduous process, which we have experienced first-hand in Utah. High quality data submission and much analytic work are required to make the data usable and relevant.

Payer-sponsored sites are apt to have the most robust data source for that specific payer, in that they know their contracted rate and each member's benefit structure and progress toward his deductible—only these sites would be able to give a precise pricing figure for a given consumer. The few health care facilities that offer upfront pricing, such as Surgery Center of Oklahoma, which has garnered significant media attention, are similarly able to provide an exact price but would not be able to layer an individual's health plan on top of their prices.²⁵ New Hampshire HealthCost is one of the few state-based sites that can provide some intersection of provider and plan pricing.⁴ One emerging data source is “crowdsourcing,” in which consumers add information from their personal medical bills voluntarily to a website, making pricing estimates available to others. While an intriguing new opportunity, crowdsourcing may be a challenge in smaller states or in areas with less-than-tech-savvy populations, given the need to reach a critical mass of entries to obtain a valid price estimate.

Level of Attribution

Most state-based sites report pricing information at the facility level, such as by hospital, surgical center, or clinic. Several report only by geography, at the county or zip code level. Two sites that we reviewed report at the level of payer type (e.g. HMO, PPO) and two report by actual insurance carrier.

Especially when working with claims data, which can suffer from missing data fields, reporting at the geographic level is much simpler than the facility level. For example, Colorado HealthData publishes the total prescription costs per person per county or zip code, compared by brand name versus generic. In general, claims are attributed by patient zip code or county, not the zip code or county where the service was rendered. While useful for some efforts, this process can skew the results in a particular way, especially in rural states where patients frequently travel to urban centers for care. In dense urban areas, one can imagine that it would be easy to cross into another small geographic area to visit a health care facility, further removing the available information from what would be intuitive to a consumer.



Geographic reports are most relevant to policymakers and public health practitioners. While it could be useful to consumers to find a ballpark price for a given health care service before undergoing that service, for general knowledge or to negotiate a lower price with a provider, this kind of information has limited actionability. The ability to compare specific providers or facilities on price for a given service is far more in line with how consumers shop for other goods and services.

Virginia Health Information offers a distinctive presentation of facility level data. Rather than presenting the price for the same procedure at different hospitals, for example, it presents the mean and range of prices for a given procedure at a hospital versus an ambulatory surgery center versus a clinic. Essentially, this information communicates to consumers that prices vary considerably by care setting and that they should seek out the less expensive option when possible.

Measure Type

State-based sites report different kinds of pricing information. Measures may include procedures (knee replacement), preventive services (mammogram), office or emergency department visits (pediatric sick visit) or long-term diagnoses (a year of diabetes care). No sites that we reviewed report data on individual medication prices, although some private sites have stepped into this space including GoodRx and the journalistic transparency site ProPublica.

Different types of reported measures have different types of utility for consumers. For example, reporting the price of one year of asthma care could allow consumers to save up or invest an appropriate amount in a health savings account. While useful, these reports would be relevant only to quite sophisticated consumers. One focus group participant suggested that seeing those expenses could encourage those with poor health behaviors to take better care of themselves to avoid worsening chronic conditions and complications.

However, measures for more isolated events such as a colonoscopy or a routine office visit would likely be more intuitive for consumers, again because of their similarity to other shopping experiences. Some of these measures will be rendered almost obsolete for insured consumers though, with the free preventive care provisions of the Affordable Care Act. Procedures like tonsillectomy that are time and preference sensitive may be more actionable for consumers.

Unit of Measurement

Most state-based sites we included are able to report on “bundled costs of care,” which include both professional (physician) and facility fees. Of the sites we reviewed, only New Hampshire HealthCost reports a breakdown of payer and patient paid amounts, allowing site users to find the patient out-of-pocket amount. Only Maine HealthCost reports on the “discount,” or the amount equal to charges minus amounts paid. Certainly the closer to actual patient paid amount is displayed, the more relevant the information will appear to consumers and the more likely they are to use the resource.



Metric

One private site, Healthcare Blue Book, reports on a “fair” price, which they calculate as a percentage below the median; the percentage varies by procedure. Most state-based sites report a mean or median price (or charge) and nearly all provide a range. In deciding between a mean and median, it would be advisable to conduct sensitivity analyses to see the extent to which outliers could skew the mean. Providing a range, in addition to mean or median, would likely be the more accurate form of presentation as compared to a mean or median only; however, it may be more difficult for consumers to compare across providers when each one has their own range, which would likely involve significant overlap and ranges of varying size.

Strengths

The variability across price transparency sites leads to varying strengths and weaknesses in terms of consumer utility. The main strengths we noted are clean, simple design and clear explanation of the symbols and other information presented. While some sites have quite sophisticated interactive maps and trend lines, these features are more relevant to an expert audience. Other key strengths include use of claims data, rather than charge data, and reporting at the facility type or individual facility level, rather than geographic level. Measures that are discrete and intuitive in nature, such reporting on price for a hip replacement, are more “shoppable.” Finally, sites should look for creative opportunities: a couple of sites offer different tracks for insured and uninsured consumers and at least one offers a simple linkage to sources of additional information about procedures.

Weaknesses

A key weakness of state-based sites is limited data. A few sites have long lists of procedures, making the resource appear robust, while many of those procedures actually return “no data” messages when they are queried. This could be quite frustrating to a consumer user, who would likely give up on her information search. Another problem is weak usability. Many sites are cumbersome to navigate. Some have decent information but look like they are a decade old, which is likely to be unappealing to savvy internet users—and those consumers are the ones most likely to look up detailed health information online.

Overall, many sites are not consumer-friendly. The usability of the site, the types of data presented, or both contribute to making sites under-utilized by consumers. There are many barriers to consumer use of public reports, to be discussed further in the next section, but site characteristics need not be among them. Many of these sites were pioneers in public reporting, but as we update these sites and build the next generation of resources we must apply new information on best practices to drive substantial increases in consumer use—befitting the value of this information.



Best Practices in Price Transparency Reporting

In a 2011 report, AHRQ identified the essential characteristics of public reports for them to be used successfully by consumers: reports must be “acceptable/appropriate, actionable, and accessible.”¹⁷ In many cases, available data are not relevant to an individual consumer’s situation—in other words, they are not “appropriate.” For example many quality sites, including UtahHealthScape, use data gathered by the Centers for Medicare & Medicaid Services (CMS) because they are readily available; although these data may include all payers, they tend to be focused on conditions relevant to Medicare beneficiaries, namely heart attack, heart failure, and pneumonia, which are less relevant to younger consumers. Notably, heart attack and some other measures are emergency situations, when no one would take the time to look up the local hospital quality scores on a website.

Pricing information has already encountered comparable appropriateness challenges. Claims data, the usual source for pricing data, lend themselves to calculations such as “total cost of care.” Although interesting to policymakers and data analysts, this information is not as relevant to consumers who are interested in how much they will have to pay out-of-pocket. Even isolating a “patient paid” amount would not inform consumers of what they would actually pay, considering their plan benefit structure and progress toward their deductible. Ideally, consumers want to see a price that is specific to a certain provider and their health plan.⁹ States such as New Hampshire have succeeded in publishing this information with the support of legislation that removed concerns about anti-trust suits, due to theoretical collusion among health plans by cooperating to reveal their contracted rates.²⁶ However, other states without legislative support must tread lightly in this area, at least for the present time.

The “acceptable” criterion expands that of “appropriate” to include the idea that users of the report must have confidence in the quality and accuracy of the data. As noted by consumers in our focus groups, pricing varies by a number of factors within a given health care service, including health plan structure, complications that occur during the service, and how the service is coded and billed. Participants were also aware of the many separate but component bills that can accompany a service, which may not all be included in a report of pricing for that service. Knowing these limitations, consumers may be disinclined to trust the information on a pricing site and therefore less likely to use it. The inevitable time lag between when report data are gathered and when the information is available on the site could further erode consumer confidence. Finally, while independent reporting sites could enjoy more trust from consumers than health plan sites, the data source and score calculations might seem more obscure with non-plan sites. This is a core dilemma in public reporting: how to provide information that is simple enough to be easily understood, yet is not such a “black box” as to appear untrustworthy.

On that point, much research has been done into how to display performance data in a way that is “accessible” to the consumer. Despite these best practices, accessibility remains one of the most difficult challenges in public reporting. Often the data are not amenable to simplification, especially in the interest of being fair to the provider or facility.^{15,18} Additionally, health care data experts producing reports want to present information as accurately as possible; however, providing too much detail can render the report unintelligible and reduce its chances of being utilized by consumers, who have quite different interests and needs. These trade-offs have important implications for validity, fairness, and usability that all report sponsors must weigh carefully.

Finally, consumers need information at the time that they are making a health care decision in order for the report to be “actionable.” The other criteria support actionability in that consumers need to be aware of the value of public reporting to them and the report needs to be understandable and trustworthy, but having access to it at the decision point is the last key step.



Consistent with these guiding principles of appropriate/acceptable, accessible, and actionable, we have identified 10 best practices for creating a state-based public report of health care pricing for consumers, based on our review of the public reporting literature and original research on existing sites, local consumer needs and preferences, and input from local healthcare community stakeholders. These practices are:

1. **Identify a clear purpose and audience.**
2. **Establish trust.**
3. **Involve consumers in the development process.**
4. **Demonstrate the utility of the report.**
5. **Target report content and marketing by consumer group.**
6. **Provide information on “shoppable” health care services.**
7. **Drive consumers to high value care.**
8. **Provide clear, insightful explanatory information.**
9. **Leverage evidence-based principles of report design.**
10. **Expand the report beyond quality and price information.**

1. Identify a clear purpose and audience.

If a public report is for consumers, that must be the stated purpose from the beginning and throughout site development.²⁷ Report sponsors must identify their audience: “who they are, what they care about, and what actions they can take”²⁸ as well as their “cultural context, decision context, and literacy levels.”²⁹ Research suggests that consumers want more information for health care decision-making,³⁰ but low use of public reports suggests that reports are not yet meeting consumer needs. Simply making information available to the public does not mean that the public will seek it out or use it meaningfully.^{28,31} Only highly sophisticated consumers will use information that has not been digested specifically for a non-expert audience, and health literacy statistics suggest that this is a small subset of the population. The primary purpose of public reporting is to support decision-making: sponsors need to think carefully through what decision-making processes consumers need help with and how they can provide information to support those processes, rather than publishing data based solely on what is available.²⁸ Sponsors should also consider the opportunity to provide general education, in addition to the mission of supporting decision-making. Lastly, more thought should be given to how to connect target consumers with the information through promotion and outreach so that public reporting achieves its purpose and does not become “an end in itself.”³²



2. Establish trust.

In line with AHRQ's "acceptable" criterion, it is essential to establish the credibility of the information source—the reporting website. Report sponsors must show independence and neutrality and explain their purpose in producing the report.^{31,33} Sponsors must also establish credibility for the quality and accuracy of the data itself.³⁴ Consumers are sensitive to whether any party has an interest, especially a financial one, in how data are reported;³⁵ thus disclosure of funding sources is of great import.³⁶ In particular, consumers are skeptical of information from employers and health plans,⁹ which we found to be true in our focus groups as well. The initial appearance of the site should indicate its credibility, with more detail about the sponsor, data sources, and methodology on other pages that are easily accessible.³⁵

Certain aspects of the report itself can indicate trustworthiness. Transparency of methods is highly important: the recommendation from the literature is to provide sufficient detail to facilitate independent replication of results.²⁷ While this is a useful goal for quality metrics, pricing data is much more complex; sponsors should provide a significant level of detail and then provide contact information to allow highly interested users to connect with report analysts directly. Because too much detail can clutter a site and confuse the message, details about data source and methodology should live in a separate section from the report itself, though navigation to that area of the site should be clearly indicated. This technical section can include specifics on data collection, letters of endorsement, caveats for data interpretation, links to other reports, and additional resources.³⁵ Even the technical section of the site should be presented as clearly and simply as possible. Consumers may not dive into all the details, but the ability to see the documentation and not find it completely obscure will support positive perceptions of the site.

Within the report itself, any potentially confusing features should be explained. The reasons for missing data must be made transparent.²⁴ Any unfamiliar—such as medical or statistical—terms should be defined clearly without redirecting to a glossary, as most users will not take the additional step of clicking on or hovering over a link.³⁵ Data presented on the site should also be as up-to-date as possible for actionability as well as credibility.²⁹

3. Involve consumers in the development process.

One obvious but powerful and underutilized strategy in developing public reports is simply to talk to people. In our experience, focus groups and usability testing have yielded significant insights about the perceived value and limitations of our site, UtahHealthScape. The literature further reinforces the need to involve consumers throughout the development process.³¹ Although healthcare experts are also healthcare consumers at times, our perspectives are quite different; direct testing is needed to determine the appropriateness of a report²⁹ and to keep the "initiative grounded in the perspective of the intended audience."²⁸

Once a tool has been launched, it is equally important to continually re-test and refine it over time. The use of the report beyond initial testers provides an opportunity to gather usage data, such as through Google Analytics, and feedback from actual users.²⁴ This data gathering can be supported by including a contact form and by adding brief surveys to



the site.³⁶ On-going evaluation allows report sponsors to adapt to changing internet trends¹ and to identify and address unintended consequences.²⁹ Continual monitoring of site traffic can also inform the effectiveness of promotional and marketing efforts.

4. Demonstrate the utility of the report.

An important barrier to consumer use of reports is that consumers and health care experts define quality differently. Consumers are more likely to see quality as measured by “affordability of care, doctor’s qualifications, and access to care for everyone.”³⁷ As such, existing reports may not seem relevant to their conceptions of quality and are therefore ignored.³⁸ Additionally, and equally important, consumers are not aware that there is a “quality gap”—that some providers are better than others. Without variation in quality there would be little need for public reporting.³⁷

Consumers tend to view health care pricing in much the same way they view pricing for other goods: as a proxy for quality.^{9,32,35,39,40} For better or worse, health care prices actually bear little resemblance to quality, evidenced by the extreme variability that exists in pricing.⁵ Given the fact that consumers view low cost care as low quality—either through less competent providers or care being withheld—encouraging them to shop for high value is a difficult challenge.^{32,39} Research with consumers, including our own, suggests that many consumers do care about value and would be willing to shop, at least hypothetically,³⁹ but some will continue to demand the “best possible care regardless of cost to themselves or society.”²¹

Clearly, there is a need to demonstrate to consumers the utility of public reports. First, the information in a public report needs to be relevant to what consumers already care about; otherwise they will not seek out the report in the first place and there will be no opportunity for education.³⁵ Once report sponsors have a sense of what consumers want, they should develop frameworks to put the information into context for consumers.²⁹ A framework should demonstrate how quality and price are relevant to consumer desires, including key points like wide variation in quality and price. Specific examples, stories, and testimonials illustrating how consumers could use the report information can all help translate educational information into action.^{28,35} The nature of data can be dispassionate and people respond more strongly to emotional signals: using emotional language, such as explaining why a reported measure could help a consumer avoid harm when seeking a health care service, could better encourage engagement. Many health care decisions involve anxiety and suggesting that the report information could help alleviate negative affect is another example of leveraging emotional connections.³¹ Of note, negative framing can be more powerful than positive framing—in other words, reports should focus on avoiding harm rather than obtaining benefits.^{31,41} Highlighting ways to save money can also be quite powerful.⁴²

It is important for sponsors to keep in mind that utilizing public reports, especially in the context of price, is a complex task and one that differs from most consumer shopping experiences. First, the task requires processing large amounts of information, differentially weighing multiple factors, and then making a choice—a very burdensome activity, both in terms of time and cognitive effort.³⁷



Even providers may be unable to predict in advance what services a patient will need, making the consumer's research task quite challenging.²¹ Further, a range of mean prices from a public report could be misleading as to the full range of prices or the individual's actual payment responsibility given her plan structure.⁴⁰ Insurance plan benefit structures frequently shield consumers from the true price of their care, especially for expensive procedures, potentially leaving consumers with little incentive to invest the time and cognitive effort in engaging in price comparisons.⁹ Finally, while consumers value quality, it is difficult to measure health care in a way that makes intuitive sense to consumers.⁴⁰

On a positive note, public reporting provides ample opportunity for education once users have discovered the site. Importantly, "when people are in a situation that is both complex and unfamiliar, they likely do not have fixed ideas about what is important to them," creating a chance to mold their opinions.³⁸ Reports can help deepen understanding of quality and price variation using the framework strategies described earlier and can provide tips and tools for obtaining higher value care even without using data from the report.

5. Target report content and marketing by consumer group.

In addition to recognizing that consumer needs differ from those of report sponsors and data analysts, it is important to recognize that needs vary significantly within the broad category of "consumers." Marketers of commercial products know that products appeal to a certain subset of people, to different people in different ways, and to some consumers sooner than others. In some cases, they modify the product itself for different audiences. Considering market segmentation allows a product to be designed more specifically to the needs of a population, increasing its value to that group and the chances that it will be adopted. Segmentation also facilitates the concentration of promotional resources, allows development and refinement of the product with smaller scale initial production, and creates a base of satisfied customers.^{43,44} This kind of marketing wisdom can be insufficiently applied in the non-profit and government sectors, including among public report sponsors. Of course, building multiple reports may be infeasible. There are however principles that can be co-opted, such as targeting an audience that is likely to be early adopters and then expanding marketing or modifying the report to reach a larger audience over time, consistent with the Diffusion of Innovations Theory.⁴⁵ For example, an initial report could target those with medium levels of health literacy; as sponsors gain experience with the data, they could work to simplify the presentation and then market the report to those at lower health literacy levels.

Another consideration is that different consumers are at various points on a "decision journey."⁴⁶ Generic decision support tools assume all users will find the information relevant, when in reality, individuals need different information at different times depending on where they are in the health decision process. Some consumers may be still trying to understand the basic terms and context of a condition or decision point and may not be ready for an active role in the decision. Some may ultimately decide to defer to their physician or a friend's recommendation, rather than engage in a complex contemplation of tradeoffs.^{31,47} Others may be further along and desire some educational information, but are not to the point of evaluating highly complex information, such as data regarding the relative performance and price of different hospitals.⁴⁶



To leverage market segmentation techniques and identify consumers at the right point on their decision journey is not simple, but opportunities exist. Because of the cognitive complexity of using them, reports should target people that are relatively healthy, such as those undergoing finite elective procedures.³¹ Older consumers may have more experience with the health care system, making them capable of and interested in using public reports, if they are sufficiently healthy and tech-savvy.³¹ Caregivers are another segment that could be an effective target audience. Consumers with high cost-sharing health plans have more incentive to be engaged in price shopping,⁴⁰ as do uninsured consumers.³⁹ In general, a wise strategy is to look for consumers that are activated, need the information the most, and whose behavior can be changed the most with the least amount of resources invested.^{28,41}

A study of hospital comparison sites found that they were used primarily by consumers that were white, college-educated, and over age 45. Vulnerable populations barely used them at all.³² Health literacy contributes to the ability to use public reports and is related to level of education, making this finding unsurprising, but this evidence highlights an important caveat to market segmentation: there are ethical concerns in designing reports for those most able to use them. Market segmentation will conserve resources, but it will also benefit those that are already better served by the health care system. One practical strategy is to disseminate the tool to early adopters first but retain a commitment to reach more vulnerable populations in the future. Nonetheless, sponsors should be aware of and sensitive to this challenge.

6. Provide information on “shoppable” health care services.

The measures provided in a public report must be suited to the action of shopping. Public reporting facilitates carefully reasoned choices about finding a health care provider or service but using a report, no matter how well designed, requires significant time and cognitive effort. The first criterion of shoppability is whether the measure relates to a decision point. Consumers are unlikely to seek out the information available in a public report unless they are making a health care decision.⁴⁸ If, for example, a consumer already has a relationship with a primary care physician he is unlikely to invest the time and mental resources in searching for a new one. Research suggests that even with a price differential consumers may be unwilling to switch providers²⁴; however, two members of our focus groups reported recently purchasing health plans that did not include their preferred providers due to plan prices, reinforcing the fact that consumer behavior is more elastic at key decision points. A recent survey also identified the phenomenon of certain types of plan purchasers valuing price over provider access.⁴⁹

Other measure characteristics also contribute to shoppability. The more advance planning time that a consumer has, the more likely she will be to seek out resources to inform her decision³¹: certainly no one will engage in price comparisons during an emergency. Common situations are appropriate for price reporting, such as obstetric care, as are elective non-life-threatening procedures, such as joint replacements.⁹ Procedures available in multiple care settings, such as hospitals and ambulatory surgery centers, can have notable price differences which would be useful information for consumers.⁴⁰ Less complex procedures lend themselves to price transparency as well because consumers may be less concerned about repercussions associated with choosing a low cost, possibly low quality, provider or facility.⁴⁰ Less complex procedures include preventive care, prescriptions, imaging services, and some specialty services.²⁴ Displaying procedures where price varies significantly but quality does not is another promising opportunity.⁹

We asked our focus group consumers and the Transparency Advisory Group to brainstorm and discuss shoppable procedures for UtahHealthScape, in addition to reviewing what other websites have already done. Identifying these potential measures was a complicated task for experts and consumers alike; shopping for health care is still an obscure concept. The practical feasibility of these measures will depend largely on the data capabilities of our APCD, but the lists serve to illustrate the kinds of measures that could be of value to consumers.

<u>Transparency Advisory Group</u> <i>Ranked Priority Order</i>	<u>Consumer Focus Groups</u> <i>Approximated Priority Order</i>
<ol style="list-style-type: none"> 1. Surgical Procedures 2. Pharmacy 3. Chronic Conditions 4. Maternity 5. Emergency Department Visits 6. Urgent Care 7. Preventive Visits 8. Radiology 9. Mental Health 10. Substance Abuse 11. Sleep Studies 	<ul style="list-style-type: none"> •Maternity •Preventive Visits •Laboratory Tests •Surgical Procedures •Radiology •Pharmacy •Dental •Emergency Department Visits •Urgent Care Visits •Mental Health •Vision •Chronic Conditions •Cancer •Cosmetic Procedures •Immunizations



7. Drive consumers to high value care.

As discussed, consumers tend to equate high priced medical care with high quality medical care. Reports must therefore help consumers understand the concept of value—the intersection of quality and price—in a framework that makes sense from their perspective. First, the right kind of data must be produced and displayed. Consumers need bundled amounts that include professional and facility fees and any other attendant expenses for a particular episode²⁴; they also need amounts that reflect their personal out-of-pocket expenses, preferably with consideration for their health plan structure and deductible progress.⁹ They need quality measures that are interpretable and actionable. Then, report sponsors need to help consumers understand that both price and quality are highly variable in the health care system.⁵¹

To demonstrate parity between quality and price the visual presentation should include both, side by side.⁹ This display strategy also reduces the cognitive burden on the consumer to keep information in mind while navigating between multiple pages on the site. Easy-to-understand symbols and explanations should support the display.²⁴ Options for consideration are to present pricing within quality strata, or vice versa,³⁷ or just to note whether prices are at a reasonable level or not.²⁴ Whether public reports should display a value metric, one that rolls up price and quality into one measure, is a question that has yet to be settled. Many think it is better to allow consumers to make their own relative weighting of price and quality—plus it is much less fraught, methodologically speaking.⁵² On the other hand, evidence from consumers suggests that while more sophisticated consumers want to interpret value for themselves, many would prefer the simplicity of a single value metric.³⁹

8. Provide clear, insightful explanatory information.

In order to communicate about value and make public reports interpretable and useable, clear explanations are necessary. Importantly, this information has been shown to help users across demographic groups, not only those with lower health literacy.³⁸ Several key concepts inform strong explanations. First, explanations should motivate site users to learn more and explore the resource. They should deepen consumer understanding of value in health care and make it clear that the data source and report itself are trustworthy. They should guide users through the site by providing information about the importance and interpretation of the information, as well as help them avoid common pitfalls. Finally, they should guide users to more detailed information, such as methodology, if it is desired and then present those specifics just as clearly.³⁵

Specific attention should be paid to the language employed in explanations. Although reading level is not synonymous with health literacy, sponsors should aim for an eighth grade reading level or below. Unavoidable technical terms should be explained in immediately adjacent text, as separate glossaries and even definitions that require hovering are seldom utilized.^{35,36} Report verbiage should also make it obvious whether higher or lower scores are better³⁵ and should describe in detail how to interpret charts and graphs.³⁵

Of great importance is testing all verbiage with actual consumers, as experts cannot accurately assess consumer perceptions.³⁵ Sponsors should also keep in mind that when consumers do not understand something, they tend to ignore it or consider it to be less important. Consumers are unlikely to dig through complex information to work their way to understanding; thus, the importance of clear top-level presentation cannot be underestimated.³⁸



9. Leverage evidence-based principles of report design.

Data display for consumers should be simple and easy to understand; it should remove barriers to taking action based on the information, not add to them. It should incorporate knowledge of the population's characteristics, including level of health literacy and the best means for creating a contextual framework.²⁸ Sophisticated consumers may want slightly more complex information but research suggests that nearly all consumers prefer information that is presented so as to minimize cognitive burden.³⁹ Overall, it is useful to take a “less is more” approach: especially for those with lower health numeracy, evidence shows that easing cognitive burden leads to consumers making better choices.¹⁸

The general attractiveness and usability of the homepage form a user's first impression. If it appears dated or untrustworthy, users are unlikely to work to interpret the information.³¹ Users will spend nanoseconds evaluating if they want to navigate further or return to their search results to try again. Clear, concise messaging is essential at this moment in order to demonstrate that the information on the site will be useful to that individual.³⁵ The homepage should also inform users of the range of things they can do on the site⁴⁸ and provide a search button that is immediately obvious.³⁶ Users should then be able to access multiple pathways to get to the information they seek.⁴⁸

When deciding what information to include in a report, sponsors tend to “err on the side of inclusion, and the result, unfortunately, can be a visual overload for consumers.” Instead, the design should include plentiful white space, without too much text or too many pictures. It should be immediately clear what is most important on a given page.³⁶ Information should be aggregated and presented in summary form as much as possible. Graphics, rather than verbose text, should be used and data presentation styling should be consistent across areas of the report.³⁴ To address the challenge of providing both a simple display and technical details, the details should be placed in another section of the site that users can access easily.³⁵ Presenting raw data should be avoided,³⁶ as should presenting confidence intervals; confidence intervals may be statistically appropriate but they lack intuitive meaning for the non-expert report user and may contribute to confusion and frustration.³⁷ It is important for sponsors to avoid the temptation to publish measures simply because they are available.⁵³ Facts may have inherent value but that does not mean that information is actionable for consumers.²⁸

The process of scoring on quality and price should adhere to several key concepts. First, report sponsors should make it easy for consumers to compare scores. It should be obvious who the high and low performers are, in part through ranking by performance or price rather than alphabetically,⁵⁴ and it should be clear who the outlier performers are.⁹ Users should be able to view all information on a single screen, without having to mentally retain any information to make a comparison.^{48,53} The use of inherently meaningful symbols, that do not require a legend to interpret, are vastly preferable over using numbers exclusively³⁶: half the population has difficulty deriving information from numbers.³⁷ When reporting on price, dollar signs are the least effective symbol, often leading to greater confusion about value.⁵⁰ Symbols should include interpretation that identifies the provider as “best,” “fair,” and so forth.^{36,53} These labels should be intuitive to consumers: terms like “efficient” and “high-value” do not carry intuitive meaning.⁹ In sum, it is necessary to have the meaning of the report clearly “pop out” to the consumer without any extraordinary effort on her part.⁵³



A recent study found that if reports included ordering of providers, symbols in place of numbers, an overall summary measure, and a limited number of reporting categories, 89 percent of participants were able to correctly identify the top three and bottom three providers. In contrast, when viewing reports with none of these elements, only 16 percent of participants could assess the information correctly, suggesting that these elements can be quite effective in driving consumers toward better health care decisions.⁵⁴

Finally, reports should accommodate practical consumer needs, a strategy that will drive use through a positive user experience. One example is the desire to personalize the information-gathering process,⁵⁵ a main advantage of the internet over other types of media like pamphlets or television programs. Specifically, reports should allow consumers to search for providers based on information that is aligned with their own preferences, such as geography^{36,47}—location was particularly important to our focus group participants. Users should then be able to select which providers to compare as they pare down the options in their decision-making process. Reports should also be printable without spreading awkwardly across multiple sheets or losing interpretability.²⁴ Many consumers, especially older ones, prefer to view information on paper

10. Expand the report beyond quality and price information.

Data display for consumers should be simple and easy to understand; it should remove barriers to taking action based on the information, not add to them. It should incorporate knowledge of the population's characteristics, including level of health literacy and the best means for creating a contextual framework.²⁸ Sophisticated consumers may want slightly more complex information but research suggests that nearly all consumers prefer information that is presented so as to minimize cognitive burden.³⁹ Overall, it is useful to take a "less is more" approach: especially for those with lower health numeracy, evidence shows that easing cognitive burden leads to consumers making better choices.¹⁸

The general attractiveness and usability of the homepage form a user's first impression. If it appears dated or untrustworthy, users are unlikely to work to interpret the information.³¹ Users will spend nanoseconds evaluating if they want to navigate further or return to their search results to try again. Clear, concise messaging is essential at this moment in order to demonstrate that the information on the site will be useful to that individual.³⁵ The homepage should also inform users of the range of things they can do on the site⁴⁸ and provide a search button that is immediately obvious.³⁶ Users should then be able to access multiple pathways to get to the information they seek.⁴⁸

Conclusion

The information presented in this report represents months of research by our team, undertaken with the goal of identifying principles to guide the development of our public report, UtahHealthScape.org, as we add pricing data from Utah's All Payer Claims Database. In addition to informing the internal efforts of *HealthInsight*, this information will be shared with Cycle III partners and with the Transparency Advisory Group that guides our work. We also aim to inform and support alignment of transparency efforts in the state of Utah, under the best practices identified here.



Although not a best practice for site development, we would be remiss not to mention the importance of promotion in driving use of public reports; this point cannot be overemphasized. Even a perfect state-based report, one with clear utility and excellent usability, will not enjoy widespread use through organic web traffic alone: commercial sites will invariably show up higher in internet search results. Once the target audience is identified, as it should be before site development even begins, a plan for reaching that audience should be put in place. As with any other product, advertising is needed to create awareness in the marketplace. Report sponsors should leverage the expertise that exists in the field of marketing and involve professionals as needed. That said, social media has created many opportunities for promotion that are far less expensive than traditional forms of advertising, and strategies like search engine optimization provide new opportunities as well. The take-away is that, regardless of budget, a promotion strategy that is continually re-evaluated and improved is essential to driving consumer use of public reports.

A final thought is that price transparency and state-based reporting is still in an early and uncertain stage. The slow but increasing rate of providers deciding to publish up front pricing is an intriguing trend—Surgery Center of Oklahoma and Central Utah Clinic are examples. Whereas the calculation of pricing for consumers based on claims is cumbersome, provider-supplied pricing is straightforward and more reliable, given the lack of data quality concerns and time lag between data gathering and display. Payer-sponsored sites also obviate many of the challenges of claims data, at least from the consumer perspective. It will be interesting to see the growth of these types of consumer resources and whether they succeed in engaging consumers, especially with changing insurance benefit designs and incentive programs. Nonetheless, state-based reporting has an important role to play in fostering competition across the marketplace, not just within one insurance network. It also contributes to driving providers and payers toward more transparent pricing and pushes the conversation forward in many states around the nation. State-based public reporting is an essential driver in increasing transparency in our health care system—as such, while the science and practice of public reporting has come a long way, we must continue to work to improve the quality, usability, and actual use of reports by consumers through on-going research and innovative projects, all the while learning and sharing knowledge as a community of report sponsors.

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Appendix

Existing Price Transparency Sites Reviewed

Website Type	Website Name	URL
State-Based	Utah Price Point	http://www.utpricepoint.org
	Minnesota Health Partners	http://www.healthpartners.com/empower/costofcare/Welcome.do
	Minnesota HealthScores	http://www.mnhealthscores.org/index.php?p=cost_landing&category=all&sf=group
	New Hampshire HealthCost	http://www.nhhealthcost.org/costByProcedure.aspx
	Colorado CIVHC	http://www.cohealthdata.org
	California Healthcare Atlas	http://gis.oshpd.ca.gov/atlas/topics/financial/common_surgery
	Florida HealthFinder	http://www.floridahealthfinder.gov/Comparecare/SelectProcedureCondition.aspx
	Arkansas Hospital Consumer Assist	http://www.hospitalconsumerassist.com/inpatient.htm?provid=041305
	Kentucky Hospital Charge Information	http://info.kyha.com/Pricing/MSDRG/about.htm
	Virginia Health Information	http://www.vhi.org/health_care_prices.asp
	Maine HealthCost	http://gateway.maine.gov/MHDO/healthcost/
Payer - for members	Aetna	http://www.aetna.com/individuals-families/aetna-navigator.html
	Anthem	http://www.healthpartners.com/empower/costofcare/Welcome.do
	Baptist Memorial	http://bolapps.bmhcc.org/estimator/
	Altius	http://www.www.firsthealth.com/costEstTool
	United Healthcare	http://www.uhc.com/individuals_families/member_tools/myhealthcare_cost_estimator.htm
	Public Employees Health Plan (Utah)	https://www.pehp.org



Website Type	Website Name	URL
Healthcare Facility	Surgery Center of Oklahoma	http://www.surgerycenterok.com/pricing/
	Central Utah Clinic	http://www.centralutahclinic.com
Private - Open Access	Surgery Center of Oklahoma	http://www.surgerycenterok.com/pricing/
	Central Utah Clinic	http://www.centralutahclinic.com
	Healthcare Blue Book	http://www.healthcarebluebook.com
	Health Care Cost Institute	http://www.healthcostinstitute.org/news-and-events/major-us-health-plans-agree-give-consumers-free-access-timely-information-about-heal
	Pricing Healthcare	https://pricinghealthcare.com/
Payer - for members	Castlight Health	http://www.castlighthealth.com/request-more-information/
	Change Healthcare	http://www.changehealthcare.com/contact/index.html
	HealthSparq (Blue Cross Blue Shield)	HealthSparq (Blue Cross Blue Shield) http://www.healthsparq.com/transparency-solutions/cost-estimator/
	ClearCost Health	https://www.clearcosthealth.com/Services.aspx
	Truven Health Analytics	http://truvenhealth.com/products/treatment_cost_calculator.aspx#modalWindow/0/

Bold = Utah sites