State of Vermont
Green Mountain Care Board
89 Main Street
Montpelier VT 05620

Report to the Legislature

CONSUMER INFORMATION AND PRICE TRANSPARENCY REPORT

In accordance with Act 54 of 2015, Section 21

Submitted to the
House Committee on Health Care, the Senate Committees on Health and Welfare, Finance, and the Health Reform Oversight Committee

Submitted by the
Green Mountain Care Board

In Conjunction with
Human Services Research Institute and NORC

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Glossary of Terms

Term	Definition
AHRQ	Agency for Healthcare Research Quality
APCD	All payer claims database
Care bundle	All healthcare services related to a particular procedure, such as the facility, physician, and related laboratory services.
CMS	Centers for Medicare and Medicaid
Cognitive Burden	The mental effort required by a person to understand, make sense of, and make use of information or other material being presented.
Commercial payer	Private insurance provider like Harvard Pilgrim or Aetna
CPT	Common Procedural Terminology
DRG	Diagnosis Related Group
Episode of care	All healthcare services related to the treatment of a given illness over a specified period of time.
Flexible Spending Account	A special account you put money into that you use to pay for certain out-of-pocket health care costs. You don't have to pay taxes on this money.
HAI	Healthcare Associated Infection
HCAHPS	Hospital Consumer Assessment of Healthcare Providers and Systems
HCUP	Healthcare Cost and Utilization Project
HEDIS	Healthcare Effectiveness Data and Information Set
ICD	International Classification of Disease
MedPar	Medicare Provider Analysis and Review
Mini Navigation	Refers to the use of tabs within the web page, i.e., navigation tabs other than the ones at the top of the web page.
NCQA	National Committee for Quality Assurance
NHSN	National Health Safety Network
PCMHCAHPS	Patient Centered Medical Homes Consumer Assessment of Healthcare Providers and Systems
Platform	The structural model for the information display
Public payer	Government insurance provider like Medicare or Medicaid
Roll-Up Navigation	Navigation is currently used on the Compare Websites for pages such as “about the data,” “resources,” and “help”
Section 508	Federal standards requiring electronic and information technology to be accessible to all individuals including those with sensory disabilities
Unit of analysis	Level at which information is provided such as the hospital level or the practitioner level
Word icon	A graphic symbol that uses words like “good” or “better” to communicate quality to a consumer

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Executive Summary

Purpose/Background

The Green Mountain Care Board (GMCB) is charged with ensuring that changes in the Vermont health system improve quality while stabilizing costs. In 2015 the Vermont legislature in Act 54 required that the GMCB "evaluate potential models for allowing consumers to compare information about the cost and quality of health care services available across the State, including a consideration of the models used in Maine, Massachusetts, and New Hampshire, as well as the platforms developed or under development by health insurers pursuant to 18 V.S.A. § 9413. On or before October 1, 2015, the Board shall report its findings and a proposal for a robust Internet-based consumer health care information system to the House Committee on Health Care, the Senate Committees on Health and Welfare and on Finance, and the Health Reform Oversight Committee."[1]

To that end, the GMCB contracted with the Human Services Research Institute (HSRI) to examine potential options and best practices for delivering consumers health care cost and quality information via the web. This report is intended to help the GMCB gauge the feasibility of administering a publicly facing transparency website, adhering to best practices and emerging standards, to empower Vermont residents to make informed decisions with regard to their health care.

Evaluation Design and Methods

For this project, HSRI and its partner, the NORC at the University of Chicago, reviewed and assessed existing literature on the efficacy and utilization of price transparency tools as well as the types of cost data they display. The HSRI-NORC Team also conducted a comprehensive review of existing consumer transparency sites and platforms; compared existing websites to best practices in public reporting; and studied the feasibility of implementing models and tools examined for use in Vermont.

In all, we reviewed 49 health transparency websites, cataloging the ways that health cost and quality data were reported and by what types of organizations. We also examined the ways in which these sites adhered or did not adhere to best practices in public reporting for consumers and website design. To complement the website review, the HSRI-NORC Team also conducted expert interviews with directors of thirteen of these transparency websites, including Vermont's three predominant insurance carriers and public and private entities that are considered national leaders in public reporting.

Results

It is unsurprising, given the relatively recent emergence of health cost and quality transparency websites, that there is little standardization among the 49 consumer sites we examined. Developing and maintaining the sites is both complex and costly, and there are widely diverging opinions on the types of cost data to display, the ways to portray the data, and the integration of quality measures. Although we identify best practices for developing and maintaining these sites in this report, more than a quarter of the sites we reviewed did not adhere to a single best practice and only one public site

[1] Act 54, (2015), Sec. 21, CONSUMER INFORMATION AND PRICE TRANSPARENCY. Available at: http://legislature.vermont.gov/assets/Documents/2016/Docs/ACTS/ACT054/ACT054%20As%20Enacted.pdf.

(defined as a site run by a state or a public advocacy group) adhered to all best practices identified. Insurer and private sites adhered to a greater number of best practices; we attribute this largely to the availability of more resources to support these tools, and among insurance plans, access to the most current member-specific cost data. The following results are organized into key best practices, challenges in developing a transparency website, and the feasibility of implementing a website.

Key Best Practices

We identified the following key best practices that serve as the foundation for the development of a robust Internet-based consumer health care information site:

1. **Cost Data** should be based on a dollar amount that represents the total amount paid for a service by both consumers and insurers. It should help consumers determine an estimated total price, and where possible, the amount the consumer can expect to pay out-of-pocket (e.g., deductible, copay) for the service. The site should provide information on exactly what is included in the estimated cost.
2. **Quality Data** should be based on methodologically sound measures that consumers care about, such as patient-centeredness, effectiveness, and safety of medical procedures. Quality measures should be displayed as symbols that clearly separate good and poor performers and vary across providers. Sites should consider using nationally accepted quality measures such as those outlined by the National Quality Forum.
3. **Cost and Quality Data** should be presented side-by-side to guide consumers away from the common misconception that high price means high quality. When displayed appropriately, this presentation makes it easier for consumers to determine the best value option.
4. **Ease of Use and Innovative Features** promote utilization. It is important to invest in search engine optimization and website design. The website should be developed for multiple electronic formats, such as computers, tablets, and smartphones. Additional resources to help with decision-making should be available on the website, such as links to patient education materials and other relevant cost and quality websites.
5. **Building an Audience** has proven challenging for transparency sites, as reflected in low utilization rates among consumers. Building a website alone is insufficient to foster changes in consumer behaviors. There should be large-scale public outreach efforts to educate consumers about transparency websites.
6. **Impact on the Market** has, to date, largely pointed to changes in insurer and provider behavior, with little research on or evidence of changes in consumer choice. Site administrators should consider how they can capture effects of the sites on consumers.

Challenges in Developing a Cost and Quality Transparency Website

Based on the data available and as confirmed by our interviews with site leaders, **transparency sites are not broadly utilized by the consumers they are intended to benefit**. If they are to be successful, the sites should adhere to best practices and should be coupled with an effort to educate consumers about the availability and utility of the sites. Additional challenges include:

- **Consumers have high expectations for information tailored directly to them.** Under Vermont law, the tools provided by health plans provide plan members their specific out-of-pocket (OOP) costs, and the state can potentially leverage these sites as part of their transparency efforts. Moreover, consumers should rely on the tools on their insurance sites for plan-specific costs.[2] However, sites run by states and other public entities respond to consumer needs for transparency across plans and providers, provide uninsured persons cost information, and provide standardized cost and quality information.
- **Maintaining a website would require the GMCB to balance the additional operational and management task alongside the management of the analytic products and stakeholder engagement activities, all of which require a multi-year commitment of resources.** The Board must weigh its limited resources and responsibilities for providing oversight of other state health care initiatives that are critical for reform. Implementing a consumer health care transparency website would require a high amount of resources—both monetary and staffing.
- **To date, little information is available regarding the actual costs associated with developing and maintaining health transparency websites.** Our interviewees were reluctant to provide precise cost estimates, and those representing state sites and private insurers were sometimes unable to disentangle the costs of regular activities, such as supporting their all-payer claims database (APCD), from that of their transparency website.
- **Lastly, there has been little, if any, rigorous attempt to capture return on investment (ROI) for either the public or private sector health transparency websites, and there is a general lack of clarity around the expected benefits of these sites.** Many of the sites we reviewed were established solely to fulfill a state mandate to provide residents with information to empower individualized health care decision-making—a goal that is somewhat amorphous and difficult to measure. Moreover, the marketplace where consumers shop largely determines the extent to which they are likely to alter their choices for care.[3]

Feasibility of Implementing Transparency Websites

Below we summarize our analysis of the feasibility of implementing transparency websites:

- **Motivation to Create the Website.** The majority of interviewees noted that they were motivated to develop their public reporting websites specifically due to a legislative mandate,[4] while others pointed to consumer and/or employer demand.
- **Consumer Engagement.** Consumer engagement—for example, participation of consumers in the development of site content—was limited, although three sites involved consumers prior to launch, and a few other sites were engaging consumers after launch.

[2] Healthcare Financial Management Association (2014). Price Transparency in Health Care: Report from the HFMA Price Transparency Task Force, Full Report accessed August 2015: http://www.hfma.org/Content.aspx?id=22305.

[3] Reinhardt, U. (2014). Health Care Price Transparency and Economic Theory. *Journal of the American Medical Association, 312*(16), 1642-1643.

[4] For example, Florida and Maine had statutory language for an Internet site.

- **Utilization and Feedback.** On the whole, interviewees reported low utilization of the websites; they also reported receiving very limited consumer feedback, and the feedback they did receive reportedly was very broad and difficult (if not impossible) to implement, reflecting the diversity of consumer needs.
- **Data Management.** Nearly all interviewees noted that data management (e.g., quality assurance, data processing/timeliness, accuracy) was a critical component to successful public reporting. Whereas states that had APCDs relied on vendors for data collection, cost estimates, and initial quality assurance, private sector sites reportedly tended to develop and implement methods in-house.
- **Required Financial and Human Resources and Funding Mechanisms.** Interviewees' estimates of the amount of human resources and funding needed to start up and maintain a transparency website varied widely, ranging from around $50,000[5] to several million, depending on such things as the type of site, the platform utilized, and the functionality provided.
- **Return on Investment.** Interviewees reported three main types of return on investment. These include 1) fulfilling a legislative mandate; 2) limited and anecdotal evidence of changes in consumer behaviors and physician referral decisions; and 3) cost recovery plans that included the sale of customized data products and extracts to offset costs.

Recommendations and Proposal Considerations

To help the GMCB fulfill the task of submitting a proposal for a robust health care cost and quality information site designed to empower consumers to make economically sound and medically appropriate decisions, we present the following recommendations. However, we preface these with some considerations specific to Vermont's unique health care environment.

Vermont Specific Considerations

Vermont stakeholders should take into consideration whether creating a website aligns with current goals within the state and whether resources are available for such a large undertaking. Perhaps the **most important consideration in Vermont is resources**. Best-practice transparency websites (as opposed to limited-functionality sites) are expensive to create and costly to maintain. For example, one state model we examined was implemented by an outside vendor. Startup costs ranged from $400,000 to $500,000 and ongoing maintenance and support cost about $200,000 annually. Ongoing support is carried out by three to four FTEs, including one full-time person dedicated to proactively managing and resolving all data errors and performing any additional data quality investigations. In addition, two respondents representing insurance plan websites estimated that startup costs ranged from $200,000 to $300,000 and annual maintenance totaled about $200,000.

Staffing would also be a challenge. Last year, the GMCB began a process to update VHCURES, the state's APCD. As part of that process, an independent reviewer evaluated the Board's capacity to take on the project. One key finding in that review was that "The GMCB has a relatively small staff and full

[5] Sites that were on the lower end of the cost spectrum only provided hospital charge information, did not meet any of our best practices, and would be of limited use to consumers.

load of mandated tasks to accomplish. Staff loading has been reasonably calculated for this project. There is a risk that unforeseeable demands on the staff, due to events in the policy and political arena, could draw dedicated staff time away from the project."[6]

Finally, VHCURES—primarily a tool to analyze broader trends in utilization and spending—inherently limits the GMCB's ability to adapt the data for a consumer-facing site that compares costs for specific procedures. Limits include:

- No process yet exists whereby payers can validate VHCURES data
- Correlating each payment to a specific provider
- Tracking and sorting secondary payments (payments made by a second payer when the patient has coverage from multiple sources)
- Identifying and evaluating particular payment models, e.g., DRG payments, episode payments, or global fees, on a basis other than line by line

In addition, we have to **understand the landscape in which Vermont consumers purchase health care insurance and where they access health care**. The Vermont large group insurance market is dominated by one very large health insurer (BlueCross BlueShield of Vermont) which holds almost 80% of the market share, with only two other insurers occupying over 5% market share (MVP Health, 13%, and Cigna, 7%).[7] BlueCross BlueShield of Vermont also controls the small and individual group markets.[8] Each of these insurers was included in our study, and all currently provide a member website with features that include key best practices. These are the only websites that we examined that are able to provide timely information on individuals' OOP costs for specific providers and procedures. Insurers have real-time access to their subscriber's benefits and claims; they can therefore provide consumers with tailored cost estimates based on each subscriber's co-pays, co-insurance, remaining deductibles and network of providers. Moreover, this personalized cost data is often provided alongside quality and practice information.

We also note that the strongest incentives to shop for lower-cost services often come from insurance companies. Changes in benefits designed to make patients more sensitive to price differences, such as high-deductible plans, may be one strategy, alongside value-based pay-for-performance reforms.

Vermont is also dominated by one large provider, the University of Vermont Medical Center, which provides an estimated 50% of all care in the state. In the southern and eastern parts of the state, however, Vermont consumers are crossing the state border for care—to Dartmouth–Hitchcock Medical Center in New Hampshire, for example. Understanding these patterns and other factors that make Vermont unique is essential to evaluating the applicability of transparency models. **No state sponsored website that we examined provided cost estimates outside state borders.**

[6] Garstki, P.E. & King, T. (2015). An Independent Review of a Proposed Replacement for the State's Current APCD. Prepared for the Vermont Division of Information and Innovation and Green Mountain Care Board.

[7] Henry J Kaiser Family Foundation (2013). Large Group Insurance Market Competition. Accessed September 2015: http://kff.org/other/state-indicator/large-group-insurance-market-competition/.

[8] Henry J Kaiser Family Foundation (2013). Health Insurance & Managed Care Indicators: Insurance Market Competitiveness. Accessed September 2015: http://kff.org/state-category/health-insurance-managed-care/insurance-market-competitiveness/.

Possible Approaches for Vermont

Act 54 included two different approaches to informing consumers about health care prices and quality. One approach was to direct individual insurers to develop websites and the other was to have the GMCB "evaluate potential models for allowing consumers to compare information about the cost and quality of health care services available across the State, including a consideration of the models used in Maine, Massachusetts, and New Hampshire, as well as the platforms developed or under development by health insurers pursuant to 18 V.S.A. § 9413." Each of these models has advantages and disadvantages. Some comparisons can be made conceptually, while others are specific to Vermont.

The **most important advantage of an insurer-based approach (and a key disadvantage of a state-based approach)** is that the insurer has information about each customer's benefit plan, specifically cost-sharing and product type. Benefit plan specifics—such as deductibles, coinsurance, copays, and in-network/out-of-network differentials—are essential in determining the patient's share of medical expenses. Specific product type (e.g., preferred provider organization or point of service plan) can sometimes have different payment rates for the same provider.

The **key disadvantage of an insurer-based model** is that it is often useful only to current members. Unless the insurer provides access to non-members, those shopping for insurance cannot make use of this information. Another disadvantage is the lack of standardization across plans with regard to how quality information is presented and how best practices are adhered to.

The **primary advantage of a centralized state-based approach**, such as that of Maine or New Hampshire, is that it is available to everyone. It provides consumers the ability to compare providers on cost and quality in a standardized way, regardless of insurer. A centralized model also supports analysis of price variation for the same service at the same facility depending on the provider.

If Vermont chose to go with the Insurer-based approach, the State could mandate changes to plan websites to adhere to best practices or to provide charge info to non-members. These changes could possibly be made through amendments to 18 V.S.A. § 9413. Requiring this of insurers would address a number of the challenges presented in the Results section.

General Recommendations

This report presents a series of best practices for a health care cost and quality information system along with general feasibility and Vermont specific considerations to assist the GMCB in making a decision on the utility of developing a statewide system for Vermont. We present the following recommendations and next steps to help guide the GMCB should it decide to further explore the usefulness of a cost and quality information system:

1. **Choose an approach.** Determine if a standalone centralized state-based website is required, or if insurer-based or private sites can institute best practices, whether through voluntary agreement with the state or legislative action.
2. **Conduct a comprehensive needs assessment**. To assess the feasibility and potential value added of implementing a consumer-facing website for Vermonters, the GMCB should empanel focus groups with likely users (e.g., consumers, employers, etc.).

3. **Clearly define goals and objectives**. From the outset, clearly define the goals and objectives for the site to maximize overall impact.
4. **Ensure that adequate funding and resources are available**. Interviewees made clear that funding was the primary driving factor for determining their public reporting solution, and emphasized that ones' goals and objectives should be tied closely to funding availability. Some presented only charge information using inexpensive out-of-the-box solutions that required few human resources (e.g., 1 FTE) but which offer limited functionality. Others implemented customized sites that present claims information and employ sophisticated methodologies; these sites required 3-4 FTEs each for maintenance and support. Clear budgets must be developed based on startup and maintenance costs.
5. **Select a financially sustainable option.** Implement the most financially sustainable online tool that meets the GMCB's goals and objectives and the needs of consumers. Whereas one customized state site had private sector funding and sold customized data products to cover costs, others had very limited resources and thus chose less expensive models to ensure sustainability.
6. **Implement best practices with regard to data management and quality assurance processes.** Make certain that best practices with respect to the data collection, cleaning, validating, and overall quality assurance processes are implemented. If these services are to be conducted by an outside vendor, the vendor should be contractually obligated to make its methodologies available to the GMCB.
7. **Engage consumers throughout the process.** It is critical to engage consumers from beginning to end—in pre-development, development, and post launch—to maximize consumer buy-in and reinforce a commitment to transparency on the part of all stakeholders.
8. **Provide information on expected OOP expenses.** Interviewees across sites noted that users are interested in learning about their potential OOP costs.
9. **Utilize consumer website recommended features**. Implement as many of the best practices included in Section 5.4 of this full report. Best practices are summarized under the following domains: cost reporting; quality reporting; comparing cost and quality; ease of use and innovative features; ensuring consumer access/promoting use

Section 1. Introduction

The Vermont legislature tasked the Green Mountain Care Board with providing a proposal for "*a consumer health care price and quality information system designed to make available to consumers transparent health care price information, quality information, and such other information as the Board determines is necessary to empower individuals, including uninsured individuals, to make economically sound and medically appropriate decisions*."

Within the nation as a whole, there is a growing consumer awareness of price variability with regard to health care services, and consumers may now be more amenable to shopping around for the highest-quality care, while taking into consideration its cost.

To this end, GMCB contracted with the Human Services Research Institute to evaluate existing tools and platforms for providing consumers health care cost and quality information via the web.

1.1 Purpose of Evaluation

This evaluation was intended to address three fundamental questions:

- What are the best practices in developing and implementing health cost and quality transparency websites?
- What models are available that would be useful to analyze when crafting such a tool for Vermont?
- How feasible is it to create and implement a statewide health cost and quality transparency tool to address the needs of Vermont consumers?

To best address these questions, we first provide an overview of existing literature on the efficacy and utilization of price transparency tools as well as the types of cost data they display. Next, we report the results of our review of 49 existing consumer transparency sites and platforms. We assess each of the sites against best practices in public reporting. Finally, we examine relevant background information with regard to site development, maintenance, utilization, and return on investment to help identify the elements that Vermont may wish to incorporate should it decide to pursue its own health cost and quality transparency website.

1.2 Background and Rationale

While many consumers favor greater cost and quality transparency,[9] the health care services industry remains one of the only markets in the United States where price and quality information are not readily accessible to the general public.[10] Many consumers are not aware of the quality measures surrounding health care and how these relate to cost of care.[11] Steven Brill, a reporter for *Time*

[9] DiJulio, B., Firth, J. & Brodie M. (2015). The Kaiser Health Tracking Poll: April 2015, Kaiser Family Foundation. Accessed August 2015: http://kff.org/health-costs/poll-finding/kaiser-health-tracking-poll-april-2015/.

[10] Reinhardt, 2014

[11] Hibbard, J.H., Greene, J., Sofaer, S., Firminger, K. & Hirsh, J. (2012). An Experiment Shows that a Well-Designed Report on Costs and Quality Can Help Consumers Choose High-Value Health Care, *Health Affairs*, *31*(3), 560-568.

magazine, conducted a widely read exposé on the variation in amounts charged between hospitals, noting that price information was very difficult to locate and did not have a relationship to quality.[12] Consumers may not be aware of what is available in terms of cost and quality data.[13] Indeed, many quality websites such as CMS's Hospital Data are not integrated with relevant cost data, and public health social marketing has not been employed in many markets to educate consumers.[14]

A recent survey examined current attitudes toward cost and quality health care services among consumers.[15] Nearly all consumers were worried about paying for services not covered by insurance, while only half had asked their provider about prices. In addition, almost two-thirds of consumers in the study did not feel confident in their ability to shop for health care services. Other studies have found that consumers believe that high cost indicates a high-quality service.[16]

Part of the work of a transparency site is to combat the misconception that expensive medical care equals higher-quality care.

1.2.1 Vermont Reforms and the Future

Act 48, the Vermont Health Reform Law of 2011, provided for the creation of the GMCB and tasked it with reducing the growth of health care costs to a sustainable rate and providing for a high-quality health care system that improves the well-being of Vermonters.[17] The GMCB and other state agencies have documented the challenges it faces in carrying out these important charges. These challenges include:

- **Mounting health care costs**—More than $8,505 spent on average per person in 2013; health care expenditures as a percentage of GSP/GDP remain higher than the national average (28.1% for VT compared to a national average of 16.4%). [18]

[12] Brill, S (2013) Bitter Pill: Why Medical Bills Are Killing Us, Corrections Appended February 26 and March 12, 2013, *Time*, Retrieved from: http://time.com/198/bitter-pill-why-medical-bills-are-killing-us/.

[13] Lynch, W., Perosino, K., & Slover, M. (2014) Altarum Institute Survey of Consumer Health Care Opinions, Altarum Institute, Accessed August 2015: http://altarum.org/sites/default/files/uploaded-related-files/Altarum%20Fall%202013%20Survey%20of%20Consumer%20Opinions.pdf;
Yegian, J.M., Dardess, P., Shannon, M. & Carman K.L. (2013). Engaged Patients Will Need Comparative Physician-Level Quality Data and Information About Their Out-of-Pocket Costs, *Health Affairs, 32(2)*, 328-37.

[14] United States Government Accountability Office (2014). Health Care Transparency: Actions Needed to Improve Cost and Quality Information for Consumers, GAO Publication No. 15-11, Accessed August 2015: http://www.gao.gov/assets/670/666572.pdf; Healthcare Financial Management Association, 2014

[15] Lynch et al., 2014.

[16] Hibbard et al., 2012; Sommers, R., Goold, S.D., McGlynn, E.A., Pearson S.D., & Danis, M. (2013). Focus Groups Highlight that Many Patients Object to Clinicians' Focusing on Cost, *Health Affairs 32*(2), 338-346; California Healthcare Foundation (2012). Moving Markets: Lessons from New Hampshire's Health Care Price Transparency Experiment, Accessed August 2015: http://www.chcf.org/publications/2014/04/moving-markets-new-hampshire.

[17] Green Mountain Care Board (2015). Annual Report to the Vermont General Assembly, p. 2. Accessed May 2015: http://www.gmcboard.vermont.gov/sites/gmcboard/files/GMCB_2015_AnnualRpt_Web.pdf.

[18] Green Mountain Care Board (2015). 2013 Vermont Health Care Expenditure Analysis, Legislative Version. Slide 7. Accessed May 2015: http://gmcboard.vermont.gov/sites/gmcboard/files/2013EA_includes_provider_FINAL_leg_short%20%282%29.pdf.

- **Accelerated spending on health care**—Spending increased by an annual average of 4.0% between 2008 and 2013, compared to an annual increase of 3.9% in this period for the nation as whole. [19]
- **Increased enrollment in high-deductible health plans (HDHPs)—**HDHPs comprised 34% of the state's commercial market in 2012, rising from 21% in 2009.[20]
- **Wide health care price variation and regional differences**—According to a price variation analysis conducted for the GMCB, average prices among Vermont hospitals ranged from 72% of the state average to over 130%.[21]
- **Ability to collect data from self-insured health plans –** Vermont and the GMCB have a case pending before the Supreme Court[22] that presents a challenge to Vermont's and other states' ability to collect claims data from self-insured plans.

As noted in its Annual Report to the Vermont General Assembly, the GMCB "continues to believe that timely and accessible information on prices for health care services can help consumers understand more about cost and related issues of quality and effectiveness of care that define value and improve health."[23] This position was underscored recently by the legislation passed in May 2015; it states that the GMCB will evaluate models for statewide cost/quality comparison tools and supply its proposal for a robust Internet-based consumer health care information system on or before October 1.

1.2.2 Making Information Available to Consumers in Vermont

Key evidence supports the GMCB's position on timely and accessible information to health cost and quality data. For example, the Kaiser Health Tracking Poll from April 2015 found that consumers favor greater cost and quality transparency. In addition, shopping behavior is linked to reduced out-of-pocket expenses.[24] Cost and quality transparency can also incentivize the health care system as a whole to compete on the basis of lower costs and higher quality.[25]

The recently passed legislation (May 2015) also states that insurers that cover more than 200 Vermont residents will establish Internet-based price comparison tools (by service/procedure and region) and quality information, as available, as well as plan-specific estimates of cost-sharing.[26] This legislation has

[19] Ibid

[20] Office of the Vermont State Auditor (2014). Opportunities for Health Care Price Transparency and Greater Consumer Information, p. 3. Accessed May 2015: http://auditor.vermont.gov/sites/auditor/files/Final%20VHCURES%20Report%206.25.2014.pdf.

[21] Jones, C., Kappel, S., Erten, M., London, K., Grenier, M., Gyurina, C., Kushner, R., Ohler, T., Peper. J. & Rustagi, K. (2014). Price Variation Analysis, Prepared for the Green Mountain Care Board, p. 6. Accessed May 2015: http://gmcboard.vermont.gov/sites/gmcboard/files/Meetings/Presentations/Price_Variation_Analysis_GMCB100214.pdf

[22] *Gobeille v. Liberty Mut. Ins. Co.*, 135 S. Ct. 2887 (2015).

[23] Green Mountain Care Board (2015). Annual Report to the Vermont General Assembly, p. 17.

[24] Whaley, C., Chafen, J.S., Pinkard, S., Kellerman, G., Bravata, D., Kocher, R. & Sood, N. (2014). Association Between Availability of Health Service Prices and Payments for These Services, *Journal of the American Medical Association, 312*(16), 1670-1676.

[25] Reid, R.O., Deb, P., Howell, B.L. & Shrank W.H. (2013). Association Between Medicare Advantage Plan Star Ratings and Enrollment, *Journal of the American Medical Association, 309*(3), 267-274; Dor, A., Encinosa, W.E. & Carey, K. (2015). Medicare's Hospital Compare Quality Reports Appear to Have Slowed Price Increases for Two Major Procedures, *Health Affairs, 34*(1), 71-77.

[26] Act 54 (2015), Sec. 20, adding. 18 V.S.A. § 9413, HEALTH CARE QUALITY AND PRICE COMPARISON.

major implications when it comes to assessing models for a statewide transparency site—particularly when it comes to achieving efficiencies through the interoperability of existing data sets, standards, and platforms.

With this changing health care environment and the need to provide timely cost and quality data, the HSRI-NORC Team examined the variety of methodologies used to analyze health cost information and to make it public. The Team, which recognizes the complexity of these issues and specializes in making them digestible to various stakeholders, then made recommendations on the best course of action for Vermont.

A 2012 report commissioned by the State of Vermont on how to best display health care quality information touches on the key components of best practices in relationship to helping consumers make better health care choices. The report states that consumers must be:

1. Aware of the information;
2. Know how to use it;
3. Decide that information is valid and relevant;
4. Use the information to make choices.[27]

[27] Lawthers, A. & Kirby, P. (2012). Best Practices in Publically Reporting Quality Information to Consumers, Commonwealth Medicine. UMass Medical School, Accessed August 2015: http://dvha.vermont.gov/administration/best-practices-in-reporting-quality-report.pdf.

Section 2. Description of Evaluation, Design and Methods

This section provides the specifics of our evaluation design and methodology for each of the four project tasks that contributed to this comprehensive report:

- Literature Review
- Comprehensive Review of Existing Sites and Platforms
- Comparison to Best Practices in Public Reporting
- Feasibility Study

2.1 Literature Review

The literature review we conducted focused on best practices for creating a venue for individuals to process cost and quality information for relevant health care services and to put that information into action. We researched and analyzed findings on the following major topics of central interest to the GMCB:

- **Cost data**: Strengths and limitations in the kinds of cost information provided on transparency sites, scope of costs presented, availability of average and/or out-of-pocket costs, and use of meaningful groups or bundles of services
- **Quality data**: Strengths and limitations of quality measures used, methods of displaying data, and the use of quality measures that consumers care about
- **Integrating cost and quality data**: How data display can help consumers assess value
- **Ease of use and innovative features**: Which features make websites easy to use, which features help account for the limitations of consumers' cognitive systems
- **Extent of use and impact on market:** Degree to which consumers use websites, tools effective on the market
- **Market potential and building an audience:** Ways to encourage and grow usage by consumers
- **Recommendations**: A summary analysis with an overview of the major strengths and weaknesses of price transparency tools as reflected in the literature

We conducted keyword searches of major sources for peer-reviewed literature (PubMed), grey literature (Google), and major trade publications (e.g., *Time* Magazine, *New York Times*, *Washington Post*). Keywords included "public reporting," "cost reporting," "quality reporting," "transparency," and "Vermont health care," among others. Articles more than ten years old were excluded.

2.2 Comprehensive Review of Existing Sites and Platforms

As part of the comprehensive review of existing sites and platforms, we conducted an extensive review of 49 health transparency websites to catalog the variety of ways in which health cost and quality data is reported and by what types of organizations. These sites were operated by the following types of entities: federal (4), state (16), state hospital associations (7), public-private partnerships (5), commercial insurers (3), and private (14). (See Appendix 1 for a complete listing of sites.) Of the

originally proposed list, two state sites, one private site, and one public-private partnership were compilations of static PDF reports and were not suitable for analysis. When possible, we found substitute sites for those we were unable to analyze.

Exhibit 1. Websites Reviewed

Site Type	Proposed	Reviewed	Analyzed
Federal	4	4	4
State	14	16	14
State Hospital Association	4	7	7
Public-Private Partnership	4	5	4
Private	17	17	15
Total	**43**	**49**	**44**[28]

We focused on five components during our assessment of the 49 sites: cost, quality, facility, general, and accessibility. We compiled a list of important elements and indicated whether a site had that particular element. Once the elements were identified, a researcher analyzed the final set of 45 websites over a period of two weeks to ensure consistency in reporting. Each site was visited and cataloged by the elements listed in Appendix 2.

An N/A was used to indicate that a particular element was not available either because the site did not report on that area (e.g., quality) or that specific element (e.g., data dates).

2.3 Comparison of existing sites to best practices in public reporting

To examine the ways in which these sites adhered or did not adhere to best practices in public reporting and website design, we first developed a best practices protocol. We created this protocol after an extensive literature review of established best practices for transparency websites, including the seminal Agency for Healthcare Research and Quality (AHRQ) reports by public-reporting experts Hibbard and Sofaer on best practices in public reporting.[29,30] The final protocol inquired about websites' user-friendly design features and focused more on sites' adherence to best practices in quality reporting than on cost reporting, given that many critical issues related to accurate cost reporting are still widely debated.

To conduct the best practices review, we scanned each website and reviewed them against the best practices protocol. The sites were evaluated on the presence or absence of twelve elements across seven domains:

[29] Hibbard, J. & Sofaer, S. (2010). Best practices in Public Reporting No. 1: How to effectively present health care performance data to consumers. Rockville, MD: AHRQ. Accessed September 2015: from http: http://archive.ahrq.gov/professionals/quality-patient-safety/quality-resources/tools/pubrptguide1/pubrptguide1.html.

[30] Sofaer, S. & Hibbard. J. (2010). Best Practices in Public Reporting No. 2: Maximizing consumer understanding of public comparative quality reports; effective use of explanatory information. Rockville, MD: AHRQ. Accessed September 2015: http://archive.ahrq.gov/professionals/quality-patient-safety/quality-resources/tools/pubrptguide2/pubrptguide2.html.

1. Use a framework to communicate elements of quality
    a. Define elements of quality, or what aspects of care are important for outcomes
    b. Use elements as reporting categories, such as patient experiences and safety
    c. Each reporting category has one summary measure, e.g., using one representative measure from each element
    d. Present all summary measures for providers on one screen
2. Present on the landing page the message that variations in quality have consequences
3. Clearly present information on quality performance
    a. Label quality performance—and, as applicable, cost performance—in a way that helps people distinguish good from poor quality
    b. Use word icons or word labels (e.g., "excellent") to label performance
    c. Allow rank ordering by performance
4. Provide additional resources for decision making, such as information on what to discuss with providers during a visit or links to other care planning tools
5. Explain how measurement values are generated
6. Provide information about data timeliness
7. Display cost and quality information side by side

If the site contained the element, they were scored a "Yes"; if they lacked the element, they were scored a "No." Sites without quality information received an "N/A" score for all elements.

2.4 Feasibility Study

Vermont Insurance Carriers
Blue Cross Blue Shield of Vermont, Member Resource Center
Cigna, MyCigna
MVP, Treatment Cost Calculator
Public Sites
CO Medical Price Compare (Colorado)
Maine HeathCost & CompareMaine[31] (Maine)
FloridaHealthFinder (Florida)
Minnesota Hospital PriceCheck (Minnesota)
New Hampshire HealthCost (New Hampshire)
Virginia Health Information (Virginia)
Virginia PricePoint (Virginia)
Wisconsin CheckPoint (Wisconsin)

[31] To be launched October 2015.

Wisconsin PricePoint (Wisconsin)
Private Site
Guroo

To assess the feasibility of creating and implementing a statewide health cost and quality transparency tool to address the needs of Vermont consumers, and to complement the website review, the HSRI-NORC Team also conducted expert interviews with directors of 13 reporting websites (shown in the following table), including insurance carrier leaders from Vermont and other public and private entities that are considered national leaders in public reporting.

The goal of this exercise was to better understand all of the behind-the-scenes issues and decision-making points that state government and insurance industry officials made on the standard elements of website design and public reporting, and to understand feasibility considerations.

Our team reviewed each website and customized our interview protocol based on the information and specific features we were able to find on the site. We then conducted 60-minute phone interviews with each interview respondent, engaging them in a semi-structured discussion around our interview protocols and/or the demonstration material. This approach helped us to tailor our conversations to the nuances of each site, create “buy-in” from respondents, and increase our efficiency, making better use of our interview time.

It is important to note that we adjusted our protocol for the insurance carriers, as we were unable to independently review and navigate through their sites, given that only beneficiaries are permitted access. To somewhat compensate for this limitation, interviewees from these organizations provided us with webinars or slide demonstrations of their sites, giving us a glance at the relevant capabilities and features.

Section 3. Evaluation Results

3.1 Literature on efficacy and utilization of price transparency tools and the types of cost data displayed

3.1.1 Cost

The best practices associated with how to display health cost data are somewhat conflicting and reflect the complexity of the payment structure for health care in the United States. The main focus of cost data on state-supported websites should be to create an environment in which consumers can make meaningful price comparisons;[32] yet, the lack of standardization is a major hurdle in this regard.

Cost is commonly defined as either the amount charged by a healthcare provider or the amount the insurer (and/or subscriber) pays. The chargemasters[33] for providers and hospitals often do not correspond to the actual cost of services paid by insured consumers, because insurers negotiate lower prices with the providers.[34] The cost data should therefore be derived from the price (i.e., the amount paid for services) and conform with the US Department of Justice and Federal Trade Commission's Statement of Antitrust Enforcement Policy in Health Care.[35,36]

Last year, the Healthcare Financial Management Association (HFMA), a group of industry stakeholders and major lobbying organization for insurers and hospitals, issued the following recommendations and standards for cost transparency information that should be available to consumers with health insurance:

- The total estimated price of the service
- A clear indication of whether a particular provider is in the health plan's network and information on where the patient can try to locate a network provider
- A clear statement of the patient's estimated out-of-pocket payment responsibility
- Other relevant information related to the provider or the specific service sought (e.g., clinical outcomes, patient safety, or patient satisfaction scores)[37]

[32] Healthcare Financial Management Association, 2014

[33] A list detailing the official rate charged by a hospital for individual procedures, services, and goods.

[34] Brill, 2013; Dusetzina, SB, Basch, E & Keatings NL (2015) For Uninsured Cancer Patients, Outpatient Charges Can Be Costly, Putting Treatments out of Reach. *Health Affairs, 34*(4), 584-591.

[35] Healthcare Financial Management Association, 2014

[36] "1. The collection is managed by a third party (e.g., a purchaser, government agency, health care consultant, academic institution, or trade association); 2. although current fee-related information may be provided to purchasers, any information that is shared among or is available to the competing providers furnishing the data must be more than three months old; and 3. for any information that is available to the providers furnishing data, there are at least five providers reporting data upon which each disseminated statistic is based, no individual provider's data may represent more than 25 percent on a weighted basis of that statistic, and any information disseminated must be sufficiently aggregated such that it would not allow recipients to identify the prices charged by any individual provider." Accessed August 2015: http://www.justice.gov/atr/statements-antitrust-enforcement-policy-health-care#CONTNUM_43.

[37] Healthcare Financial Management Association, 2014, page 3.

The total estimated price of the service should be inclusive of the total amount paid for the medical procedure, which would include the amount for which the insured individual is responsible and the amount paid by an employer or insurance company.[38] Websites should avoid including information for providers who do not have enough cases on which to base cost (e.g., a sample size of less than 30).[39]

Total estimated price should include the total amount paid for the medical procedure, which would include the amount for which the insured individual is responsible and the amount paid by an employer or insurance company.

Because prices for services are often different when an insurance company is not negotiating rates for an in-network consumer, HFMA also issued recommendations for those without insurance, those seeking out-of-network care, and those covered under casualty and workers' compensation insurance:

- Providers should offer an estimated price for a standard procedure without complications and make clear to the patient how complications or other unforeseen circumstances may increase the price.
- Providers should clearly communicate preservice estimates of prices to uninsured patients and patients seeking care on an out-of-network basis.
- Providers should clearly communicate to patients what services are—and are not—included in a price estimate. If any services that would have significant price implications for the patient are not included in the price estimate, the provider should try to provide information on where the patient could obtain this information.
- Providers should give patients other relevant information (e.g., clinical outcomes, patient safety, or patient satisfaction scores), where available.[40]

The preceding recommendations are written from the assumption that an insurer or provider would be providing the information. An APCD allows information to be displayed by providers and major insurers without placing the onus on health care providers, who have been slower to create transparency websites. For example, no Hospital Associations have created websites that display the amount paid for services; some have released the amount charged for certain medical procedures, but this does not generally represent the amount paid.

To date, a consensus has yet to emerge regarding which measure of central tendency (i.e., mean, median, mode) to use to provide more accurate cost estimates; however, mode is the least used and

[38] Healthcare Financial Management Association, 2014, page 3.
[39] Brantes, F.D. & Delbanco, P. (2015). Getting Accurate Price Estimates from Price Transparency Tools, Health Care Incentives Improvement Institute & Catalyst for Payment Reform. Accessed September 2015: http://www.hci3.org/sites/default/files/files/Price%20Transparency%20Accuracy.pdf.
[40] Healthcare Financial Management Association, 2014

accepted measure of central tendency.[41] While mean is preferred when the data are normally distributed, some advantages to using median are that it is not affected by extreme outliers (e.g., a few very high costs for a procedure at a given provider) and it is easily understood.[42] Whatever statistical method is used to calculate cost, best practices include explaining how cost was generated and the time period the estimated price represents.[43] The website should have an area where the methodology is clearly explained and consumers can easily find the elements that were used to create the cost information.[44]

Information displayed with cost data should be written in plain language to reduce cognitive burden.[45] One paper posited that recent legislation—including the Affordable Care Act, the Plain Writing Act, the Action Plan, and other legislation—could create a "tipping-point" for health literacy in the United States.[46] A nationally representative study showed that only 51% of people were able to determine what their out-of-pocket costs, with deductible and co-pay, would be for hospital stay and 16% could determine how much they would have to pay for an out-of-network lab test when the plan specified that they pay 60% of the allowed amount.[47] Providing guidance on how to calculate out-of-pocket costs and other key concepts related to insurance may be an important part of accurately representing cost for the consumer.

In deciding how to best display cost, policy makers must take into consideration the aim of the transparency website; if the main focus is to allow consumers to compare relative cost among providers, then a summary element can be helpful for consumers, allowing them to quickly and more effectively compare across providers.[48] One study found that a three-star ranking system accompanied by an explanatory phrase—for example, three stars signifies that the provider is "careful with your health care dollars," while one star indicates the provider is "less careful"—was the most effect comparative method.[49] Indeed, one group found that consumers may prefer to focus on high-level concepts of value, and not on who is responsible for the cost.[50]

[41] Manikandan, S. (2011). Measures of Central Tendency Median and Mode. *Journal of Pharmacology and Pharmatherapeutics, 2*(3), 214-215, Accessed August 2015: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3157145/

[42] Ibid

[43] Swift, E.K., Singer, R.F., Wu, T., Catterson, R.S., Johnstone, C., Alexander, T., Clavell, N., Dembo, R. & Green, M. (2013). Environmental Scan: Public Reporting of Health Quality and Efficiency Data under the U.S. Department of Health and Human Services, Prepared for the Office of the Assistant Secretary for Planning and Evaluation, U.S Department of Health and Human Service (ASPE/HHS) by NORC at the University of Chicago; Healthcare Financial Management Association, 2014

[44] Brantes & Delbanco, 2015

[45] Hibbard et al., 2012

[46] Koh, H.K., Berwick, D.M., Clancy, C.M., Baurm, C., Brach, C., Harris, L.M., & Zerhusen, E.G. (2012). New Federal Policy Initiatives To Boost Health Literacy Can Help The Nation Move Beyond The Cycle Of Costly 'Crisis Care', *Health Affairs*. Accessed September 2015: http://content.healthaffairs.org/content/early/2012/01/18/hlthaff.2011.1169.full.

[47] Norton, M., Hamel, L. & Brodie, M. (2014). Assessing Americans' Familiarity with Health Insurance Terms and Concepts, The Henry J. Kaiser Family Foundation, Accessed September 2015: http://kff.org/health-reform/poll-finding/assessing-americans-familiarity-with-health-insurance-terms-and-concepts/

[48] Hibbard et al., 2012

[49] Lawthers & Kirby, 2012

[50] California Health Care Foundation, 2012

With a summary element, consumers would be less able to determine their out-of-pocket expenses without additional information and resources on the site. Several studies along with HFMA have recommended that consumers be able to determine what share of the cost they are responsible for paying out-of-pocket.[51] This calculation requires that exact estimates for the cost of the procedure be displayed. If the symbols are used to denote low, medium and high cost, the consumer should be able to see the estimated amount by toggling over the cost symbol or through drop-down displays.

For some procedures, costs may be grouped together by episodes of care in order to estimate price and provide relevant quality data (see "Integrating Cost and Quality") rather than as a standalone procedure (e.g., the cost of one outpatient office visit).[52] One association created a framework for establishing episodes of care for the following procedures: total knee arthroplasty, top hip arthroplasty, unicompartmental knee arthroplasty, knee arthroscopy with meniscectomy, diagnostic cardiac catheterizations and angioplasty, maternity, hysterectomy, and cervical spinal fusion.[53] Other algorithms have been established to provide the costs of episodes of care by private insurance companies and have been integrated into health care transparency websites.[54] Policymakers and experts from the field should evaluate which surgical and medical conditions would provide the most meaningful data to consumers regarding cost of care when displayed as an episode cost and not as a single procedure.

3.1.2 Quality

Integrating meaningful quality data into health care transparency websites is vital to combatting the belief among consumers that higher cost equals higher quality. A 2013 report provided a definitive outline of the elements needed for displaying quality data:

1. Use a framework to communicate elements of quality.
2. Present the message that quality varies.
3. Clearly present information on quality performance.[55]

As with cost data, a methodology section should describe how the quality data were generated and the time period the data are from.[56]

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[51] Cliff, E.Q., Spangler, K., Delbanco, S., Perelman, N., and Fendrick, A.M. (2013). A Potent Recipe for Higher-Value Health Care: Aligning quality, price transparency, clinical appropriateness and consumer incentives. Center for Value-Based-Insurance-Design, University of Michigan and Catalyst for Payment Reform, Accessed September 2015 :http://www.catalyzepaymentreform.org/images/documents/Recipeforhighervalue.pdf; GAO, 2014; Healthcare Financial Management Association, 2014

[52] Health Care Incentives Improvement Institute (2015). HC13 Releases Episode of Care Definitions to Further Support Payment and Cost and Quality Analysis, Accessed August 2015: http://www.hci3.org/content/hci3-releases-episode-care-definitions-further-support-payment-reform-and-cost-and-quality.

[53] Kary, W. (2013). Bundled Episode Payment and Gainsharing Demonstration: Technical White Paper, Integrated Healthcare Association. Accessed August 2015: http://www.iha.org/pdfs_documents/bundled_payment/Bundled-Episode-Payment-Gainsharing-Demo-Whitepaper.pdf.

[54] Hostetter, M. & Klein, S. (2015). Health Care Price Transparency: Can It Promote High-Value Care? Quality Matters, April/May 2012 Issue Accessed August 2015: http://www.commonwealthfund.org/publications/newsletters/quality-matters/2012/april-may/in-focus.

[55] Swift et al., 2013

[56] Swift et al., 2013; Cliff et al., 2013

When communicating about quality, the information should be easy to understand, match what consumers care about, be actionable and relevant, and contain evidenced-based quality measures to guide the consumer in assessing which providers offer high-value health care services.[57] One study successfully used the Institute of Medicine's quality framework and found that consumers cared most about effectiveness, safety, and patient-centered quality measures, and that providing a framework allowed consumers to better understand and value the quality information.[58] A Vermont study found that collecting quality data can be burdensome for health care providers.[59] It is important to choose industry recognized standards of quality that patients care about and do not add undue burden on providers by using measures that already exist.

Many quality measures already exist across health care providers. Due to a lack of understanding, consumers may need guidance in determining which quality measures are most important to them.[60] A literature review found that consumers were most interested initially in patient experience, and needed a framework and visual cues to help with interpretation of the quality measures.[61] In 2011, the Government Accountability Office (GAO) recommended that quality measures be based on patient-reported outcomes (e.g., patients rate how well they climb stairs after a joint replacement).[62]

When displaying quality data, health care transparency sites should use symbols, rather than numbers, to represent quality as reporting categories; each reporting category should have one measure and present summary measures on one screen.[63] A summary measure or symbols that represent high and low quality is most easily understood, and elements should be consistent across measures.[64] Studies have found that star-rating measures most appeal to consumers as a way to display quality information.[65] Above all, because consumers will devote limited attention and effort,

Because consumers will devote limited attention and effort, quality information should help consumers quickly and easily distinguish good providers from bad providers and let consumers know that quality varies.

[57] Hibbard, J.H., Greene, J., and Daniel, D. (2010). What is Quality Anyway? Performance Reports that Clearly Communicate to Consumers the Meaning of Quality of Care, *Medical Care Research Review, 67*(3), 275-293; Hibbard et al., 2012; Wu, T. & Swift, E.K. (2014). Consumer-Oriented Design Issues for Quality and Public Reporting Program Websites, Prepared for the Centers for Medicare & Medicaid Services by NORC at the University of Chicago.

[58] Hibbard et al., 2010

[59] Green Mountain Care Board and Vermont Medical Society Education and Research Foundation, Recommendations for Optimizing Rural Care in Vermont, 2013. Accessed August 2015: http://www.vmsfoundation.org/sites/default/files/files/Rural_physicians_report.pdf.

[60] Hibbard et al., 2010

[61] Lawthers & Kirby, 2012

[62] United States Government Accountability Office (2011). Health Care Transparency: Actions Needed to Improve Cost & Quality Information for Consumers. Accessed August 2015: www.gao.gov/assets/670/666572.pdf.

[63] Swift et al., 2013

[64] Hibbard et al., 2010

[65] Hibbard et al., 2012; Swift, E.K. & Catterson, R. (2012). Final Medicare Quality and Public Reporting Strategic Plan: Alignment of the Medicare Compare Websites, Prepared for the Centers for Medicare and Medicaid Services, U.S. Department of Health and Human Services (CMS/HHS) by NORC at the University of Chicago.

quality information should help consumers quickly and easily distinguish good providers from bad providers and let consumers know that quality varies.[66]

3.1.3 Integrating Cost and Quality

Cost and quality data must work together to highlight low-cost, high-quality providers for the consumer in a quick and easy-to-use environment. The foundation of integrating the cost and quality data best practices is to display the two measures side by side.[67] The display should enable consumers to easily and quickly identify the high-value providers (high quality and low cost).[68]

To achieve a quick comparison, the composite measures (e.g., a summary measure that combines all quality measures) can help consumers understand the quality measure in conjunction with other information provided in a more effective manner.[69] For example, if a provider scored well on all measures related to preventing infections in surgical patients, the provider would receive have a symbol denoting that the provider is above average in this area. To help consumers determine who is a high-value provider, the quality measure or composite measure scores should vary by provider and be easily understandable in relation to the cost data.[70] By simplifying the types of quality and cost measures used on the site, consumers are more likely to understand which provider would best meet their health care needs with high quality care at the lowest cost. In the previous section, a framework was recommended for establishing quality health care and providers.[71] This framework should also be expanded to include how to identify a high-value provider.

Consumers must be able to quickly make a choice and be motivated to use the information.[72] One way to ease cognitive burden is to highlight high-value providers when asking consumers to synthesize cost and quality data.[73] Rollover display text or options to expand the display may help patients determine potential actual cost of the procedure and their payment information.[74] The ability to evaluate the data is vital; the use of a summary display, symbols, and rank order can facilitate a consumer's ability to choose high-quality and low-cost providers.[75] Health care transparency websites that do not provide these features may lead the consumers to feel they made a high-value choice even though their choices become increasingly random.[76]

Another part of integrating cost and quality is ensuring that the data elements are related to each other (e.g., the quality measure is related to the procedure being displayed). Creating episodes of care

[66] Swift et al., 2013
[67] Swift et al., 2013; Cliff et al., 2013
[68] Government Accountability Office, 2011; Swift et al., 2013
[69] Swift & Catterson, 2012
[70] Swift et al., 2013; Mehrotra, A., Hussey, P.S., Milstein, A. & Hibbard J.H. (2012). Consumers' and Providers Response to Public Cost Reports, and How to Raise the Likelihood of Achieving Desired Results, *Health Affairs, 31*(4), 843-851.
[71] Swift et al., 2013; Hibbard et al., 2010; Cliff et al., 2013
[72] Peters, E., Dieckmann, N., Dixon, A., Hibbard, J.H. & Mertz, C.K. (2007). Less Is More in Presenting Quality Information to Consumers, *Medical Care Research and Review, 64*(2), 169-90.
[73] Hibbard et al., 2010
[74] Swift & Catterson, 2012
[75] Carman, K.L. (2006). Engaging Quality Information in a Consumer Driven Era: Showing Differences is Crucial to Inform Consumer Choice, 10th National CAHPS User Group Meeting.
[76] Ibid

for surgical procedures and other complex medical care such as birth can be vital to integrating quality data. When assessing procedures to include in the calculation of episode costs, available quality measures and ability to improve quality and efficiency of procedures through cost and quality disclosure should be taken into consideration.[77]

When considering how to integrate cost and quality information, it is important that the measures can be easily promoted on the Internet, in advertisements, and in print formats.[78] This increases the chance that providers who received high ratings will market the site and its findings; the state can also more effectively promote the website in public service announcements, media campaigns, and other promotional materials.

3.1.4 Ease of Use and Innovative Features

When browsing websites, ease of use and intuitiveness of the platform are important aspects of conveying complex information. Consumers are very likely to move onto another website within twenty seconds unless they are fully engaged by what they see.[79] By creating a framework that is easily apparent to users, the cognitive burden can be reduced, improving the likelihood that consumers can use the information to make actionable decisions in regards to health care value of providers.[80]

Successful strategies include those rooted in behavioral economics. For example, sites should make it easy for consumers to opt-in to receive electronic notifications of cost and quality information. Branding is another strategy that makes it easier for high-performing health care providers and facilities to advertise website-based results on cost and quality, thereby spreading and enhancing the impact of digital data.[81] Websites can leverage search engine optimization or inclusion of features that ensure they appear on the first page of search engine results, which generates 92% of page views.[82] In addition, taking users directly to the page in a website that is most relevant to the kind of natural language query (e.g., "What's the best place for an MRI in Burlington?") is vital to providing a positive user experience.

Consumers are **likely to move on within 20 seconds** unless they are fully engaged by what they see.

Since users should be able to go directly to a relevant procedure through an outside search engine, it is important to integrate the framework for interpreting the data within each results page. An effective

[77] Kary, 2013

[78] Bye, L., Gabel, J., Hibbard, J.H., Litton, N., Swift, E.K., TenBroeck, S. & Ubri, P.S. (2014). Environmental Scan: Literature, Websites, and Reports Related to Health Plan Quality Ratings, Prepared for the Centers for Medicare & Medicaid Services (CMS) by NORC at the University of Chicago.

[79] Liu, C., White, R.W. & Dumais, S. (2010). Understanding Web Browsing Behaviors through Weibull Analysis of Dwell Time, Proceedings of the 33rd international ACM SIGIR conference on research and development in information retrieval: 379-386.

[80] Peters et al., 2007; Hibbard et al., 2010

[81] Reid et al., 2013

[82] Swift, E.K. & McCormick, D. (2013). Not Quite Ready for Prime Time: The State Health Insurance Marketplaces and Google. Accessed 2015: http://thehealthcareblog.com/blog/2013/09/17/not-quite-ready-for-prime-time-the-state-health-insurance-marketplaces-and-google/.

tool for searching within the site is also vital to creating an enjoyable, informative experience; these tools should integrate common terms with actual procedure or episode-of-care names. In addition, the website should offer mini-navigation and roll-up navigation to ensure that information is available should the consumer decide they want more in-depth information. This structure should be tied to the rest of the website and should integrate easily with the overall design. Consistency in the layout and colors across the various pages will increase ease of access and the consumer experience.[83] Consumer engagement and testing of the website is a vital component to ensure ease of use is achieved.[84]

Creators of state-sponsored health care transparency tools should take into account that consumers will not be the only visitors to their sites. Beyond potentially using the site to enhance their advertisements, researchers, health care providers and policy makers may want to use the information to help increase the value of their health care services; these users need access to numeric cost and quality data. Sites can use layering so that more complex information can be easily displayed for consumers and for those looking for more detailed information.[85]

3.1.5 Extent of Use and Impact on the Market

There is limited available literature on the extent of use of state-sponsored and private health care transparency websites and the impact of these tools on the health care market. As shown in this report, many of the state-sponsored websites do not follow all of the best practices. This makes it difficult to determine the market impact that a site could have if it did follow best practices. In addition, it is difficult to extrapolate information about return on investment from other markets due to a variety of factors that affect costs in the health care industry, including competition among hospitals, heterogeneous quality and cost measures, and the type of insurance plans.[86]

Health care markets where competition occurs may be better environments than in Vermont for responding to transparency efforts, because consumers are able to shop for services among different providers and choose higher-value options.[87] Shopping behavior is linked to reduced health care expenses for consumers.[88] This has led to the theory that cost and quality transparency can also incentivize the health care system as a whole to compete on the basis of lower costs and higher quality.[89]

Many studies of public health care cost and quality reporting have focused on the broad impact of quality measure reporting. An extensive review of available literature indicates that transparency information has a greater chance of changing health care provider service delivery than of altering the

[83] Wu & Swift, 2014
[84] Hibbard & Sofaer, 2010
[85] Swift & Catterson, 2012
[86] Austin, D.A. & Graville, J.G. (2007). Does Price Transparency Improve Market Efficiency? Implications of Empirical Evidence in Other Markets for the Health Sector, Congressional Research Services, Accessed August 2015: https://www.fas.org/sgp/crs/secrecy/RL34101.pdf.
[87] Reinhardt, 2014
[88] Whaley et al., 2014
[89] Reid et al., 2013; Dor et al., 2015

type of providers that consumers use.[90] Another recent study found that that quality measures may allow insurers and purchasers to reduce cost increases for coronary angioplasty and coronary artery bypass graft surgery.[91]

For consumers, there are three common barriers to choosing higher-quality, lower-cost services: (1) Consumers want the best quality even if the cost is high; (2) Consumers are apathetic toward the costs borne by the insurer; and (3) Consumers are not used to making tradeoffs between cost and quality when accessing health care, and may believe that higher costs translates to higher quality.[92] As a result of these challenges, states have had mixed results translating their efforts to increase transparency to consumers. In Colorado, the Center for Improving Value in Health Care has made health care prices publically available, but struggles to make the data digestible for consumers in a simple and straightforward way.[93] New Hampshire rolled out a transparency site that has not had broad appeal to consumers: approximately 15,000 people, or about 1% of the state's population, visited the website for an average of about three minutes and twenty seconds.[94] Overall, transparency tools have average usage rates of only 2% of their target audiences.[95]

States struggle to make data digestible for consumers, and this is reflected in site utilization:

- Only 1% of NH residents have visited the state's transparency site.
- Nationally, transparency tools reach only about 2% of their target audiences.

Interviews were conducted with health care industry stakeholders and policymakers to examine the potential effects of price transparency in New Hampshire. This study found that policymakers and insurers responded by working to address market discrepancies; for example, Anthem BlueCross BlueShield was able to negotiate lower rates with Exeter, a major hospital in New Hampshire, with information garnered from the health care transparency website.[96]

The most common procedures searched for in New Hampshire were first, outpatient office visits, second magnetic resonance imagining (MRI) or computed tomography (CT) scans and third emergency

[90] Totten, A., Wagner, Tiwari, A., O'Haire, C., Griffin, J. & Walker, M., (2012). Closing the Quality Gap: Public Reporting as a Quality Improvement Strategy, Agency for Health Research and Quality, Accessed August 2015: http://www.ncbi.nlm.nih.gov/books/NBK99879/.

[91] Dor et al., 2015

[92] Sommers et al., 2013

[93] Whitney, E. (2014). Elusive Goal: A Transparent Price List for Health Care, National Public Radio, February 19, 2014. Accessed August 2015: http://www.npr.org/sections/health-shots/2014/02/12/276001379/elusive-goal-a-transparent-price-list-for-health-care.

[94] Mehrotra A., Brannen, T., & Sinaiko, A.D. (2014). Use Patterns of State Health Care Price Transparency Website: What do Patients Shop For?, *INQUIRY: The Journal of Health Care Organization, Provision and Financing*, Accessed August 2015: http://inq.sagepub.com/content/51/0046958014561496.full.pdf.

[95] Catalyst for Payment Reform (2013). The State of the Art of Price Transparency Tools and Solutions. Accessed May 2015: http://www.catalyzepaymentreform.org/images/documents/stateoftheart.pdf.

[96] California HealthCare Foundation, 2012

department visits.[97] This reflects evidence that consumers are more likely to use the health care transparency sites for non-urgent care services.[98] A shoppable health care service is one where consumers have access to a variety of providers and have time to schedule and drive to the provider's facility.[99] Imaging procedures and other tests are a huge driver of cost in the US health care market[100] and are highly shoppable when not done in an emergency setting. One insurer found that when it created a targeted transparency campaign for MRIs, individuals in the program had a decrease of almost 20% in overall cost per test, and facility-based fees as a proportion of total cost dropped from 53% in 2010 to 45% in 2012.[101]

To achieve an impact on the market, several factors ideally need to exist. As mentioned previously, consumers are apathetic toward the financial impact of high health care costs on insurers and on society at large. Without a larger personal financial investment such as those found with cost-sharing arrangements, public reporting of cost and quality may do little to improve consumer use of high-value health care services.[102] Nationally and within the State of Vermont, consumers have been increasingly responsible for greater proportions of their health care costs.[103] This may mean that a health care transparency website that follows best practices would have more impact than has been seen previously.

To achieve market impact, price and quality information should be as timely as possible in order to reflect current changes in rates and provider quality.[104] If a significant time lag is present, providers who negotiate lower rates for services or improve their quality would not be reflected on the transparency website. In addition, it should be determined whether individuals in the Vermont health care market are able to meaningfully choose providers. Although large market variation has been found between hospitals within the State of Vermont,[105] it may not be feasible for consumers to drive to higher-value providers. In addition, many patients are required to go to the hospital where their doctor has admitting privileges making it difficult, if not impossible, for them to shop around for the best value.[106]

A cost-benefit analysis should be conducted when implementing a health care transparency tool aimed at consumers. This analysis should assess alternative approaches for bringing health care costs under

[97] Mehrotra et al., 2014
[98] GAO, 2011
[99] Robinson, J.C., Brown, T. & Whaley, C. (2014). Reference-Based Design Changes Consumers Choices and Employers' Payment for Ambulatory Surgery, *Health Affairs, 34*(3), 415-422.
[100] Rosenthaul, E. (2014). The Odd Math of Medical Tests: One Scan, Two Prices, Both High. *New York Times* Article Accessed August 2015: http://www.nytimes.com/2014/12/16/health/the-odd-math-of-medical-tests-one-echocardiogram-two-prices-both-high.html?emc=edit_th_20141216&nl=todaysheadlines&nlid=65354354&_r=0.
[101] Sze-Jung, W., Sylwestrzak, G., Shah C., & DeVries, A. (2014). Price Transparency for MRIs Increased Use of Less Constantly Providers and Triggered Provider Competition, *Health Affairs 33*(8), 1391-1398.
[102] Mehrotra et al., 2012
[103] Appleby, J. (2013). Expect to Pay More For Your Employer Sponsored Health Care Insurance Next Year, Kaiser Health News Accessed August 2015: http://khn.org/news/expect-to-pay-more-for-employer-health-care/Appleby, J (2013); Office of the Vermont State Auditor, 2014
[104] Brantes & Delbanco, 2015
[105] Jones et al., 2014
[106] Austin & Graville, 2007

control. The data on price transparency websites are based on a fee-for-service payment model. One recent study of rural health care providers in Vermont found that "the majority of interviewees were familiar with and endorses a new funding system based on allocating a single budget for a given population of patients."[107] It is not known how effective a transparency health care website would be if a system shifts away from a fee-for-service model.

3.1.6 Market Potential: Building an Audience

Research has shown that consumers are interested in information regarding cost and quality. [108] Because consumers are also increasingly likely to be on high coinsurance and high-deductible plans,[109] consumer interest in cost and quality information has the potential to increase. It is uncertain whether this interest will encourage the interest in or usage of a health care transparency website in Vermont; the Auditor's Report found that Vermont's Department of Financial Regulation is unable to garner a large audience for its consumer website, with almost 700 people viewing its hospital report card and less than 100 people using links for hospital assistance information.[110]

Health care transparency websites must use every tool available to generate a well-informed audience. While over 90% of page views can occur from a website appearing on the first page of search results,[111] consumers must know that the information exists, or at least have a sense that it is available, to initiate the search in the first place. As transparency increases over time, consumers may begin to have a firmer grasp of quality and cost in the U.S. health care system. As stated earlier, the site should be designed so that providers and others can easily utilize it in public service announcements and advertisements.[112] In addition, social networking, social media, and mobile applications are options for greater access and promotion.[113]

A 2010 report provided guidance and made recommendations for releasing health care quality information to the public so that results are widely disseminated and used:

1. Engage and motivate consumers to explore and use reports.
2. Deepen consumers' understanding of health care quality and quality measures.
3. Legitimize the report's sponsor and the report's credibility.
4. Provide information about the importance, meaning, and interpretation of specific measures.
5. Help consumers understand the implications of "resource use" information.
6. Help consumers avoid common pitfalls that lead to misinterpreting quality data.
7. Provide consumers guidance and support in using the information.
8. Provide consumers appropriate access to more detailed technical information.

[107] Green Mountain Care Board and the Vermont Medical Society Education and Research Foundation (2013). A Qualitative Research Project: Recommendations for Optimizing Rural Care in Vermont: Better care, better health and lower costs. Accessed August 2015: http://gmcboard.vermont.gov/sites/gmcboard/files/Rural_physicians_Rpt121213.pdf.
[108] DiJulio et al., 2015
[109] Appleby, 2013; Office of the Vermont State Auditor, 2014.
[110] Office of the Vermont State Auditor, 2014
[111] Swift & McCormick 2013
[112] Bye et al., 2014
[113] Swift & Catterson, 2012

9. Test the report before going live.[114]

The above recommendations go beyond just developing a website and ensuring that the needed features are available. Enlisting the help of key stakeholders, a public campaign may be vital to ensuring that the target audience visits the site, uses the information, and makes high-value health care decisions as a result. The steps required to build and educate the target audience require a high degree of resources from the entity responsible for carrying out the health care transparency site as well as the state government. In Vermont's rural communities, physicians are worried about maintaining quality, decreasing access, and rising health care costs; they want access to cost and quality data on services that they recommended for their patients.[115] Physicians may play a vital role in helping engage the consumer base.

3.2 Assessment of state and private sector websites and platforms

3.2.1 Cost Reporting

Cost reporting on transparency websites involves a number of variables, such as health service types, appropriate data source(s), procedure selection, cost calculation methodology, and the final data display. Twelve of the transparency sites reviewed did not report on health care cost. Consequently, the information presented below is based on findings from 32 sites.

3.2.1.1 Procedure selection

The number of health services presented on the sites ranged from 3 to 600 with an average of 99. Methods used to estimate costs varied. Sites used one or more of the following calculation types, depending on the health service:

- The cost of a single procedure (for example, an office visit)
- The cost of a bundle of procedures (for example, a mammogram with computer-aided detection)
- The cost associated with an episode of care (for example, a knee replacement)
- The total cost of care (for example, yearly cost of treating asthma)

To facilitate user interpretation, it is important for sites to indicate which services are and which are not included in the cost estimate.

[114] Sofaer, S. & Hibbard, J. (2010). Best Practices in Public Reporting No. 3: How to Maximize Public Awareness and Use of Comparative Quality Reports Through Effective Promotion and Dissemination Strategies, http://archive.ahrq.gov/professionals/quality-patient-safety/quality-resources/tools/pubrptguide3/pubrptguide3.html.

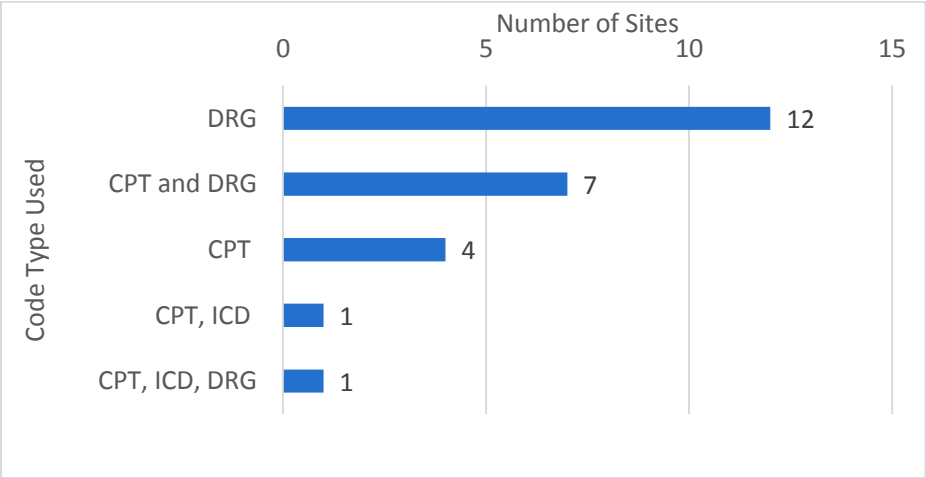
[115] Green Mountain Care Board and the Vermont Medical Society Education and Research Foundation, 2013

Exhibit 2. Healthcare Service Display

Procedure grouping	# Sites
Single (S)	2
Bundled (B)	2
Grouped	5
Single, Bundled	1
Single, Grouped	3
Single, Bundled, Grouped	1
Not Specified	18
Total	**32**

Different medical codes lend themselves to cost calculations for different types of procedures. The Common Procedural Terminology (CPT) codes, for instance, which are maintained by the American Medical Association, are often used to calculate individual procedures. Diagnosis-Related Groups (DRGs) and the International Classification of Disease (ICD) codes can be used for episodes of care. Costs can be displayed for single procedures, procedures bundled together by hand, or procedures grouped together using a procedure grouping software. The codes commonly used on websites are listed below. Seven of the reviewed sites did not indicate which codes they used to calculate costs.

Exhibit 3. Codes Used to Calculate Costs

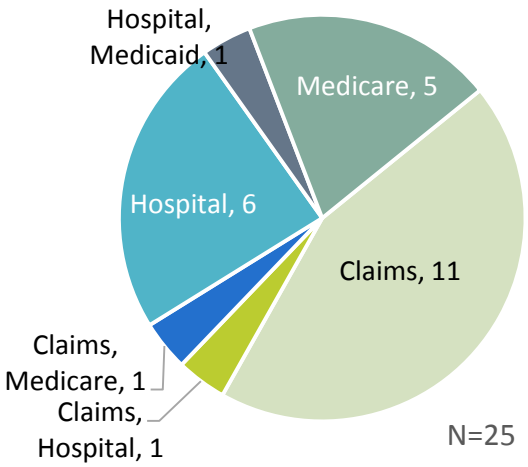


3.2.1.2 Data source

Depending on the type of healthcare reporting to be done and the codes required to do so, cost data can be obtained from a variety of sources. These sources can include commercial health insurance claims, hospital discharge data, and public payer charge data such as Medicare payment data. Data can be updated on a quarterly, bi-annually, or annual basis. It is important to prominently display the data source and date in order to promote consumer confidence.

Of the 32 sites reviewed, 25 stated the source of their data. Twenty-two sites used a single data source (either claims data, Medicaid/Medicare data, or hospital data) and 3 used a combination. Approximately half of the sites (13) used claims data, alone or in combination. Of these sites, six broke the claims estimate down into what the insurance company paid and what the subscriber paid. Three of these were state run sites; CO Medical Price Compare, NH HealthCost, and its customized University of New Hampshire site, NH HealthCost for the University System of NH.

Exhibit 4. Cost Data Source



Claims can originate from commercial or public payers. The majority of sites did not indicate the claim source, but those that did used commercial, public, and a combination of both in almost equal number.

Five states have existing APCDs (UT, MN, CO, ME, NH), three states have voluntary APCD efforts (WI, VA, CA), and two states are in the process of implementing APCDs (NY, WV).[116] Four of the sites with APCDs explicitly state that they use claims data on their transparency sites (MN, CO, ME, NH).

Exhibit 5. Claim Type

Claim Type	# Sites
Commercial	6
Public	5
Both	7
Not Reported	14
Total	32

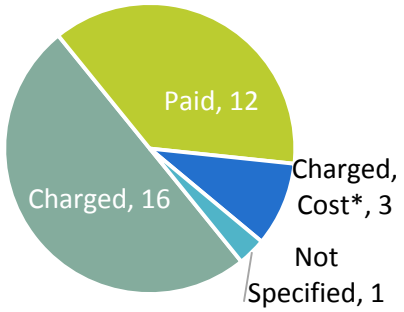
Twenty-two of the thirty-two sites provided information on the timeliness of their data: 20 sites specified the year from which their data originated, and 2 indicated that data were updated annually. The oldest data was from 2007 and the most recent from 2015.

[116] Information taken from https://apcdcouncil.org/state/map 9/10/15.

3.2.1.3 Cost Calculation

Once the data source, codes, and grouping decisions are made, a methodology must be developed to calculate a cost estimate. Cost is commonly defined as either the amount charged by a healthcare provider or the amount the insurer (and/or subscriber) pays. Defining what cost means on a site is very important for the consumer to help them anticipate if the estimates represent what they (and their insurer) may be charged or what they may pay, as the two amounts can vary.

Exhibit 6. Cost Calculation



N=32

*One site did not define "cost"

An estimate of the charged or paid amount commonly takes the form of a mean, median, or range. Given that these measures of central tendency produce different point estimates, it is important to explain to users how the particular measure is calculated and why it was chosen—and more than 90% of the sites reviewed did just that. Some sites provide only one type of estimate while others provide several to help consumers triangulate the data presented.

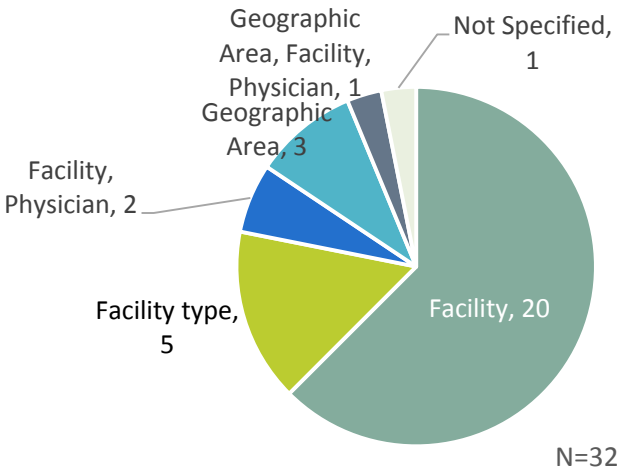
The most common single estimate used was median (8) followed by mean (6). Eleven sites presented a variety of estimates. Sites often suppressed estimates without enough data; suppression commonly occurred below 10 or 5 cases.

3.2.1.4 Display

The cost estimate should be displayed in a way that makes complicated data accessible to the consumer. Areas to consider include the unit of analysis and inclusion of references points.

Costs are most commonly calculated exclusively for facilities (63% of sites reviewed); however, they can also be calculated for geographic areas (for example, a county or town), facility types (hospitals as compared to ambulatory surgical centers), or individual healthcare professionals like doctors or registered nurses. Providing a combination of units may allow the user to interpret the data in different ways.

Exhibit 7. Unit of Analysis



Depending on the unit(s) of analysis employed, a reference point can help the consumer better understand the estimate and how it compares to costs on a state or national level. Slightly less than half the sites we reviewed (44%) provided such a reference point—typically in the form of an estimate for the city, county, region, state, or nation.

Cost was always presented at least numerically (31 sites) and frequently alongside a procedure count or volume estimate (19 sites).[117] Some sites also presented the cost estimate using a symbol (3) or a chart (1).

3.2.2 Quality Reporting

It is important to display healthcare quality rankings alongside cost to help consumers make informed decisions. Thirty sites have quality data and twenty of these also have cost data. Of the twenty with both cost and quality data, six sites displayed cost and quality information in the same table, which is a best practice.

3.2.2.1 Data source

As with cost, it is important to indicate the source of quality data, which 25 (83%) of the reviewed sites did. The majority of sites (22) do not collect quality data and instead rely on secondary data sources such as the Agency for Healthcare Research and Quality (AHRQ), CMS Hospital Compare, the CMS Hospital and Consumer Assessment of Healthcare Providers and Systems (HCAHPS), the Healthcare Effectiveness Data and Information Set (HEDIS), CMS Claims Data, Leapfrog, the Healthcare Cost and Utilization Project (HCUP), and the National Healthcare Safety Network (NHSN) among others. Several sites used claims data or hospital discharge data. The most common combination of sources was a CMS data source (Hospital Compare, HCAHPS, Medicare Provider Analysis and Review [MedPar], or Medicare Claims) and AHRQ (7 sites). The second most common combination was a secondary data

[117] One site, UCompareHealthCare, indicated cost estimates were available, but we were unable to find them.

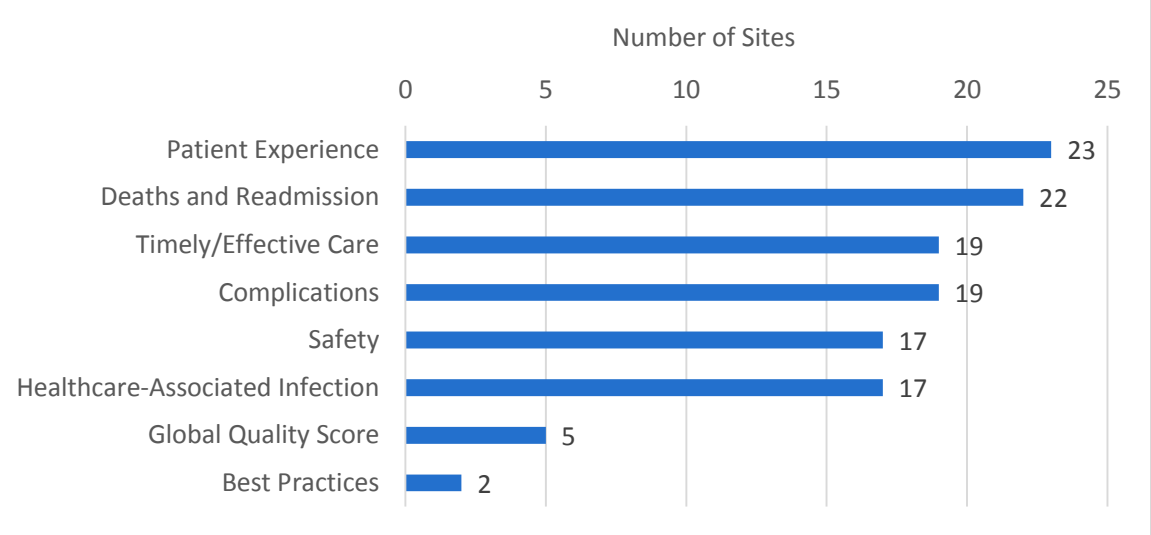
source like CMS or AHRQ with local data (hospital or claims) (6 sites). Three sites relied on primary data sources such as claims or survey data (Health Care Quality Matters, Wisconsin Check Point, and AHRQ itself).

Twenty-four sites referenced the year of the data. The oldest data were from 2008 and the most recent from 2015.

3.2.2.2 Measure selection

We noted whether websites provided quality information for the following eight dimensions. Some sites provided summary scores at the dimension level (for example, Patient Experience); more often, however, quality data were available at the measure level (for example, pain management). These measures cover a wide range of topics—*Clostridium difficile* infection rates, percentage of births that are C-sections, how often medical staff communicated well with patients, and many more.

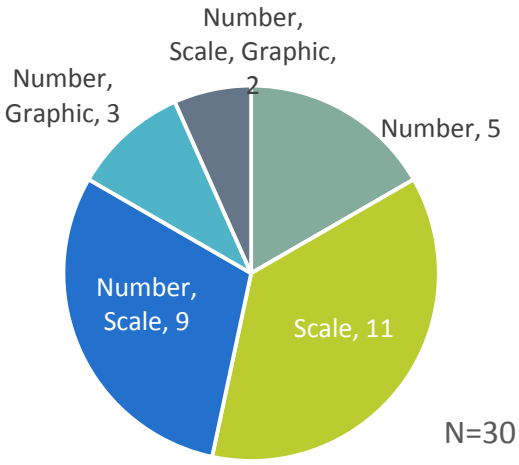
Exhibit 8. Dimensions of Quality Data



3.2.2.3 Display

Quality information can be conveyed numerically (a rate or percentage; 5 sites), by scale (either 3 or 5 points; 11 sites) or both (9 sites). Some sites also included bar charts or graphics to visually display the rating (5 sites). Twenty-four sites helped consumers easily distinguish between good and bad performance through color, charts, symbols, or words. Of these, seven sites followed the best practice of using a word icon—an image with a word such as “good” or “better” to help consumers interpret the ratings and identify a high-quality provider. All the websites reviewed provided quality information at the facility level; three sites allowed users to drill down to a provider level.

Exhibit 9. Display Elements for Quality Measures



To provide additional context for the quality ratings, 22 sites provided a reference point. The most common reference was to both the state and the nation (14), followed by only a national reference (4), and a state reference (3). One site provided a community, state, and national benchmark.

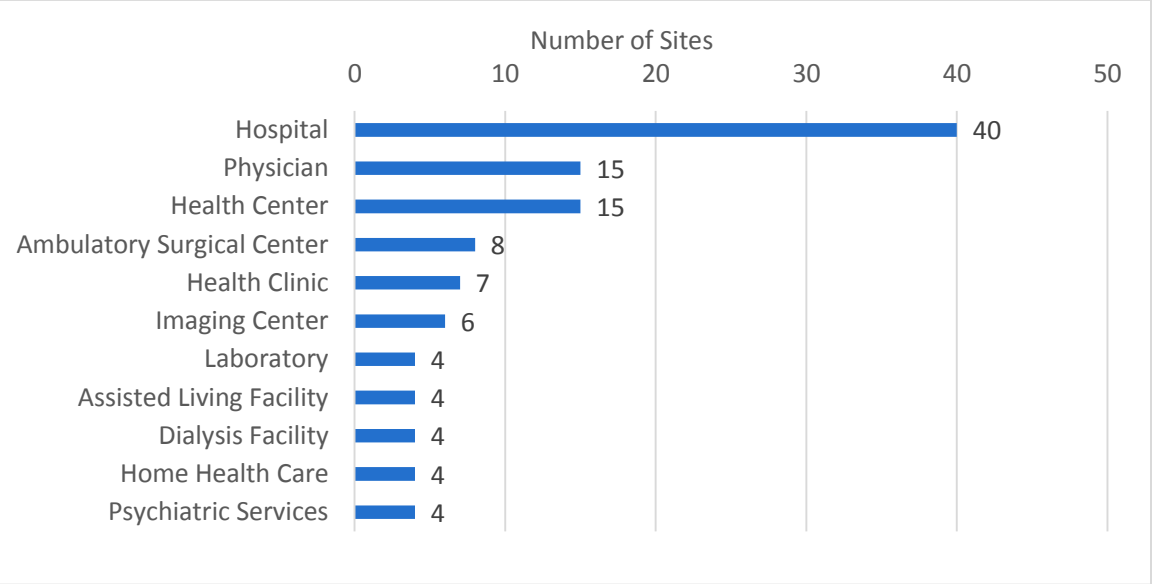
It is important to provide quality data alongside cost data. Several studies have found when cost data displayed alone, consumers often erroneously equate high price with high quality.[118]

3.2.3 Facility Reporting

Health transparency sites provide information for a variety of facility types. The most common types covered are hospitals (40 sites), health centers (15), and physicians (15). To help consumers learn more about a facility of interest, some sites provide an address (31), a phone number (28), or a link to the provider's website (20). This information is displayed in the data table itself or on a separate facility page (29) that often aggregates all cost and quality information available for that provider.

[118] Hibbard et al., 2012; Sommers et al., 2013; California Healthcare Foundation, 2012

Exhibit 10. Facility Types Covered



Eighteen sites only displayed information for one type of facility. Nineteen sites offered information for two to five facility types. Five had data for more than 6 facility types. Two sites provided information at a geographic level without reference to facility type.

Exhibit 11. Number of Facility Types Covered

# Facility Types	# Sites
1	18
2 to 5	19
6 to 9	3
10 or 11	2
Not applicable	2
Total	**44**

3.2.4. General Information

In addition to specific cost and quality reporting elements, we also looked for more general content that would provide the user with additional context for the data, answer questions they might have about the site, and offer additional resources.

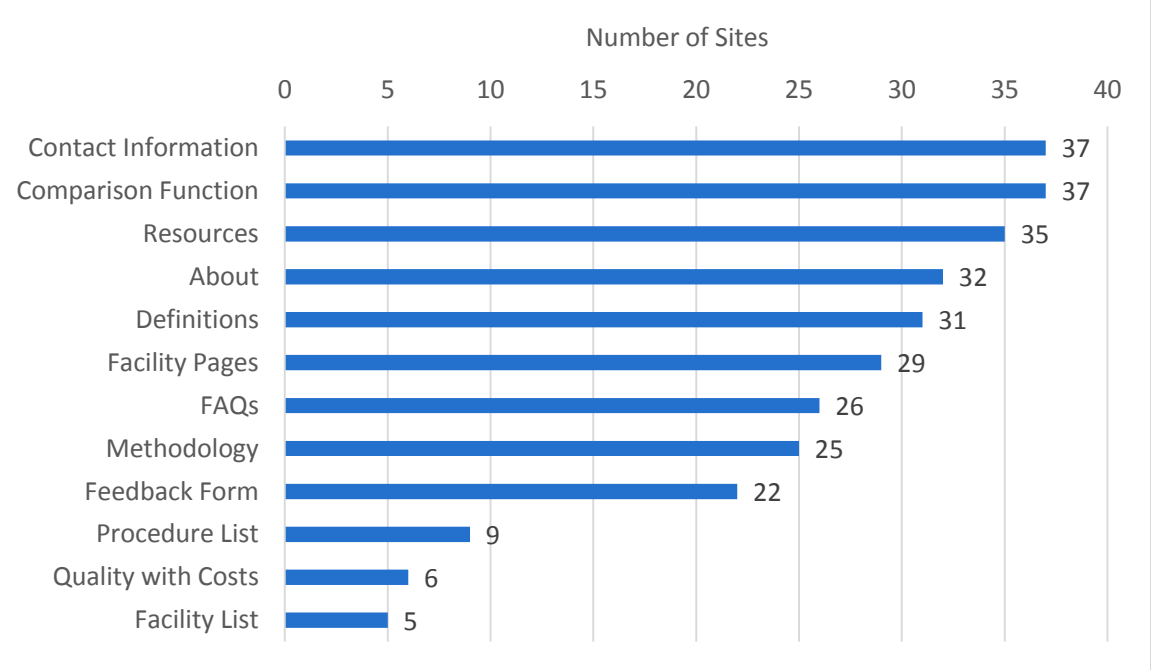
3.2.4.1 Website Elements

Most of the sites we reviewed (37) listed contact information for those interested in following up on an issue or learning more. Twenty-two sites offered a feedback form tailored specifically to the website. A majority (73%) had an “About Us” section that described the hosting organization and explained the purpose of the website. More than half (59%) address common concerns through a FAQ section.

While 70% of the sites we reviewed provided definitions of commonly used terms, only half (57%) described the process they used to calculate costs and attribute quality. These methodology sections were often far from consumer friendly.

More than three-quarters of the sites we reviewed (35) encourage the user to learn more about healthcare transparency through additional resources, whether internal articles or outside links. Often (66% of sites) consumers are able to visit a facility profile page within the site to learn more about a particular facility.

Exhibit 12. Common Website Elements



3.2.4.2 Search Functionality

Sites allowed users to search for content by geography, facility, physician, procedure, quality measure, or a combination of these fields. Five sites only allowed searches in one field and 37 allowed for a combination of searches. (Two sites were not searchable.) The most common combinations of search types were facility and geography (13 sites); geography, facility, and procedure (5); and geography, facility and physician (4).

Most sites allowed users to search by typing their term combined with a drop-down or responsive menu (22 sites), 10 searches were menu driven, 9 sites required the user to type their term, and 1 site was searchable by a map and a menu.

3.2.4.3 Audience

Almost three-quarters of the sites appeared to be designed for consumers, nine had information for both consumers and researchers, and one was really only appropriate for a research audience.

3.2.5. Accessibility

3.2.5.1 Accessibility features

There are ways in which a transparency website can make itself more visible. One way is through search engine optimization, in which results from the webpage show up in search lists. Only 6 of the 44 websites reviewed employed search engine optimization. To see if the website was easy to find, we tracked whether or not the site showed up first in a Google search. Google Analytics can be used to optimize traffic flow and tag the website with relevant search terms to ensure a higher search ranking. Of the sites, 24 were listed first in a Google search, 12 were on the first page of results, and 7 were not on the first page of results.

It is also important to ensure a good user experience once the user makes it to the site. Branding, used by over half (26) of the sites, lends credibility to a site and makes it easily identifiable. Notification options keep the user connected to the site (7). Responsive design makes the content accessible on a variety of devices; 18 sites employed this feature.

Users also want to easily find the information that sent them to the site in the first place without much searching. We reviewed 44 sites and only were easily able to find information on 17. It was hard to find information on 20 sites and challenging on 7. These ratings were based on the time it took to find the desired information and the number of search terms used; longer searches and more terms resulted in a higher rating.

Exhibit 13. Accessibility Features

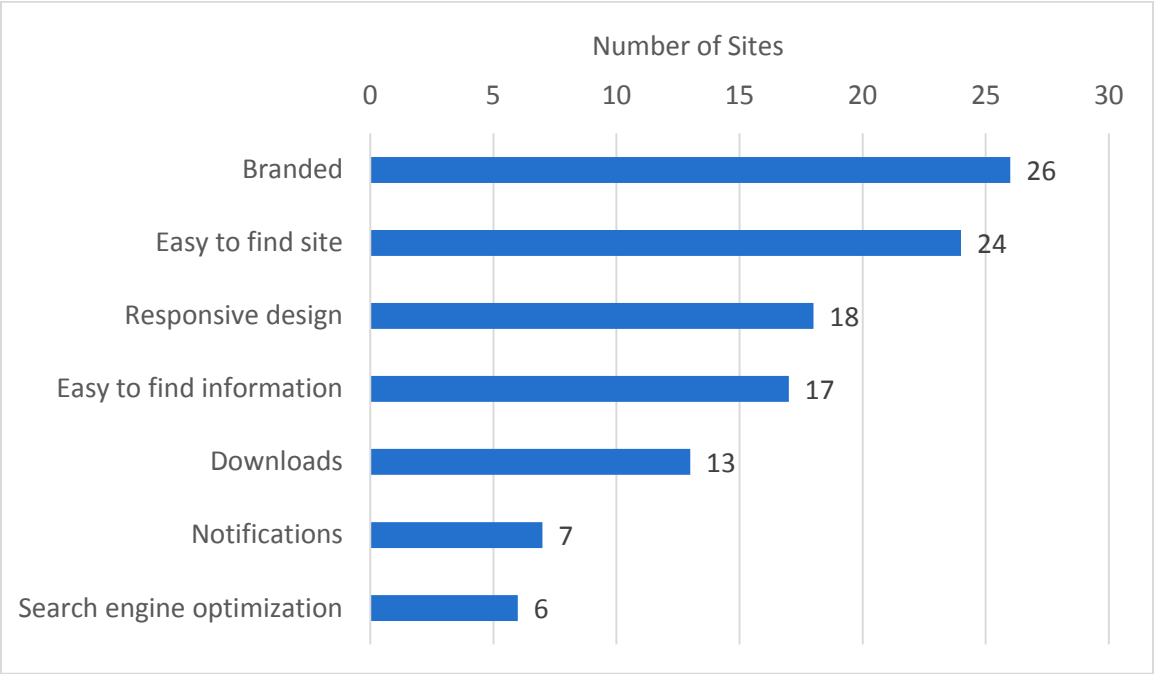
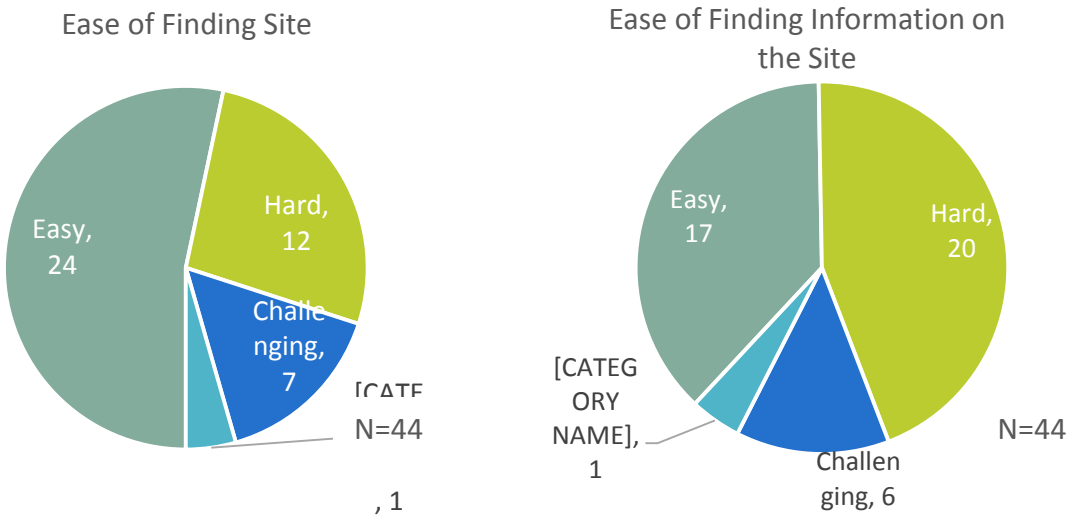


Exhibit 14. Ease of finding website and finding information



3.2.5.2 508 compliance

508 compliance makes sure that a site is accessible to those with visual impairments who use screen readers, and it is often required of state and federal websites. To evaluate whether web content is accessible to people with disabilities, we tested compliance using the WAVE Web Accessibility Tool - Chrome Browser Extension. We counted the number of errors detected by the software and found that most websites had multiple errors. The homepages of the 44 sites reviewed had an average of 13 errors with a range of 9 to 111. The data display pages averaged 54 errors and ranged from 0 to 486.

Exhibit 15. 508 Compliance Errors

508 Compliance	Homepage	Data Display
Fewest Errors	0	0
Most Errors	111	486
Average Errors	13	54
Under Ten Errors	26	14
Unable to Review	3	3
Total Sites Reviewed	44	44

3.3 Comparison of major elements of sites to best practices in public reporting

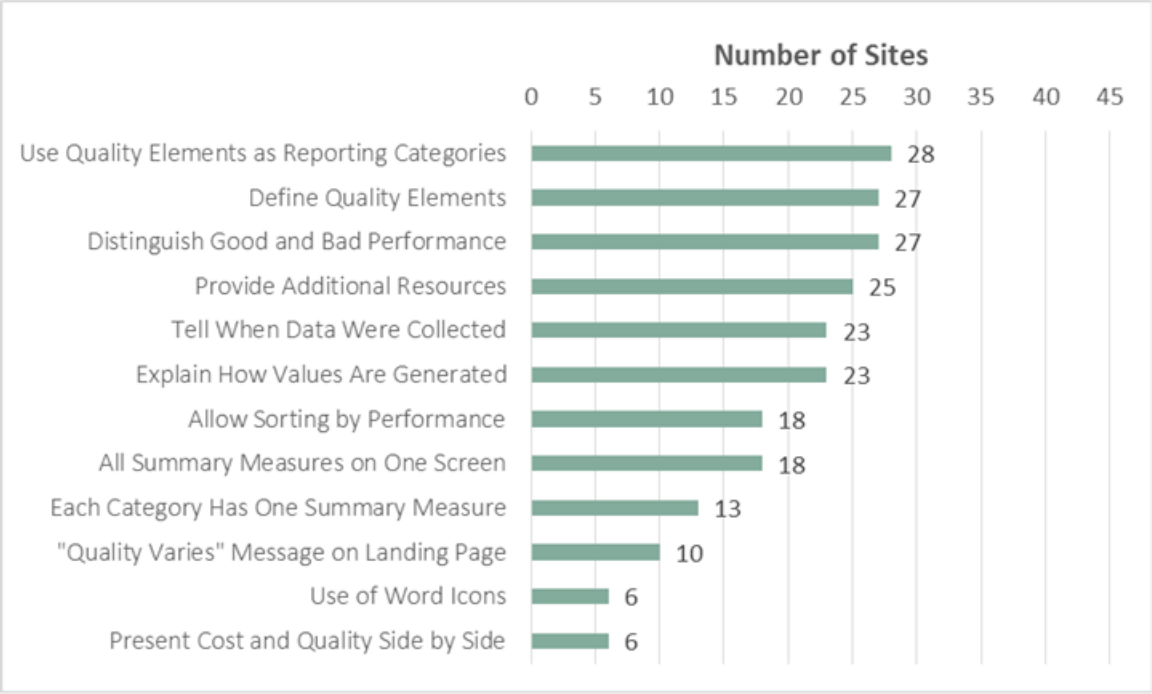
In the following sections we discuss the websites' adherence to best practices across the seven categories previously noted and provide mini-case studies of standout sites. We then provide a summary of findings from our expert interviews.

3.3.1 Best Practices Review

The overall adherence to best practices is low; however, this is unsurprising given that our best practices protocol emphasizes quality reporting while many public reporting websites focus only on cost. Only one website (CompareMaine) adhered to all 12 of the best practice elements we identified. Of the 45 websites we reviewed, 11 (24%) achieved all elements in the "quality framework" category. Only five (11%) achieved all elements in the "clearly present quality information" category. As shown in Exhibit 16, the more common elements were: "distinguishing between good and bad performance," "providing additional resources," and "using quality elements as reporting categories" (at least 25 out of 45 websites, or 55%). Less than one-third (13) of the sites did not follow any of the best practices. See Appendix 3 to see the full review and rating of each website against the each of best practice elements.

One element that proved particularly troublesome for sites was "displaying cost and quality information side by side" (6 of 45). See the "Expert Interviews" section of this report for some discussion of this issue.

Exhibit 16. Adherence to Best Practice Elements



3.3.1.1. Case Studies

In this section, we provide a discussion of three exemplary sites to review as case studies. Please note that we purposely excluded the Vermont Insurance Carrier websites from our case studies as their models are not directly comparable to the public-facing website contemplated for Vermont.

3.3.1.1.1. Guroo

Guroo is a privately owned site dedicated to the reporting of accurate health care procedure/treatment costs based on national data from health plans. We highlight Guroo because of its adherence to best practices in displaying cost data in ways that consumers can easily understand.

The site provides cost (prices paid by insurance plans) information for care bundles as well as individual services and procedures. Care bundles combine inpatient, outpatient, and ancillary costs to build an example of a treatment episode from the onset of care until treatment is complete. A care bundle may consist of one or several services spanning different lengths in time, depending on the health condition being treated. Each care bundle is derived by care diagnosis and the CPT codes that are typically associated with the care diagnosis. Guroo consumer-tested the care bundle concept, and found that consumers understood it and likened it to an Internet or phone service bundle. For each care bundle, Guroo also allows the consumer to navigate through the components of the care bundle. For example, when the tool displays cost information for a vaginal birth, it displays overall cost, which is sufficient information for the average consumer, but also provides the breakout of services and procedures associated with a vaginal birth (e.g., physician and facility charges) for the more interested consumer (see Exhibit 17). Recently, the site incorporated more information to provide consumers information on patient experiences, location features and educational content.

Exhibit 17. Cost display on Guroo

If Guroo has access to and permission to use the data, it displays the overall costs as well as costs at the national, state, and local levels for comparison. Users can use a toggle feature to see the range of costs, which demonstrates variance of the cost estimate.

In addition to displaying cost in a meaningful way, Guroo also makes it easy for consumers to find the information they need. For example Guroo allows consumers to search by condition, care bundle, procedure, or service. The site also lists all of its searchable conditions and procedures from A-Z.

Each condition, care bundle, procedure, or service includes additional information—including what to expect, questions to ask your provider, how to prepare, and related links to help consumers make informed decisions about their care.

3.3.1.1.2. CalQualityCare

CalQualityCare is a nationally recognized California-based site that focuses on reporting quality of care. CalQualityCare adheres to all four elements in the best practice category "using a framework to communicate elements of quality": 1) defining the quality elements displayed; 2) reporting quality using distinct categories (e.g., Patient Experience, Re-Hospitalizations, and Patient Safety); 3) reporting one summary measure for each category of quality; and 4) presenting all of the summary measures on one screen.

Exhibit 18. Quality display on CalQualityCare

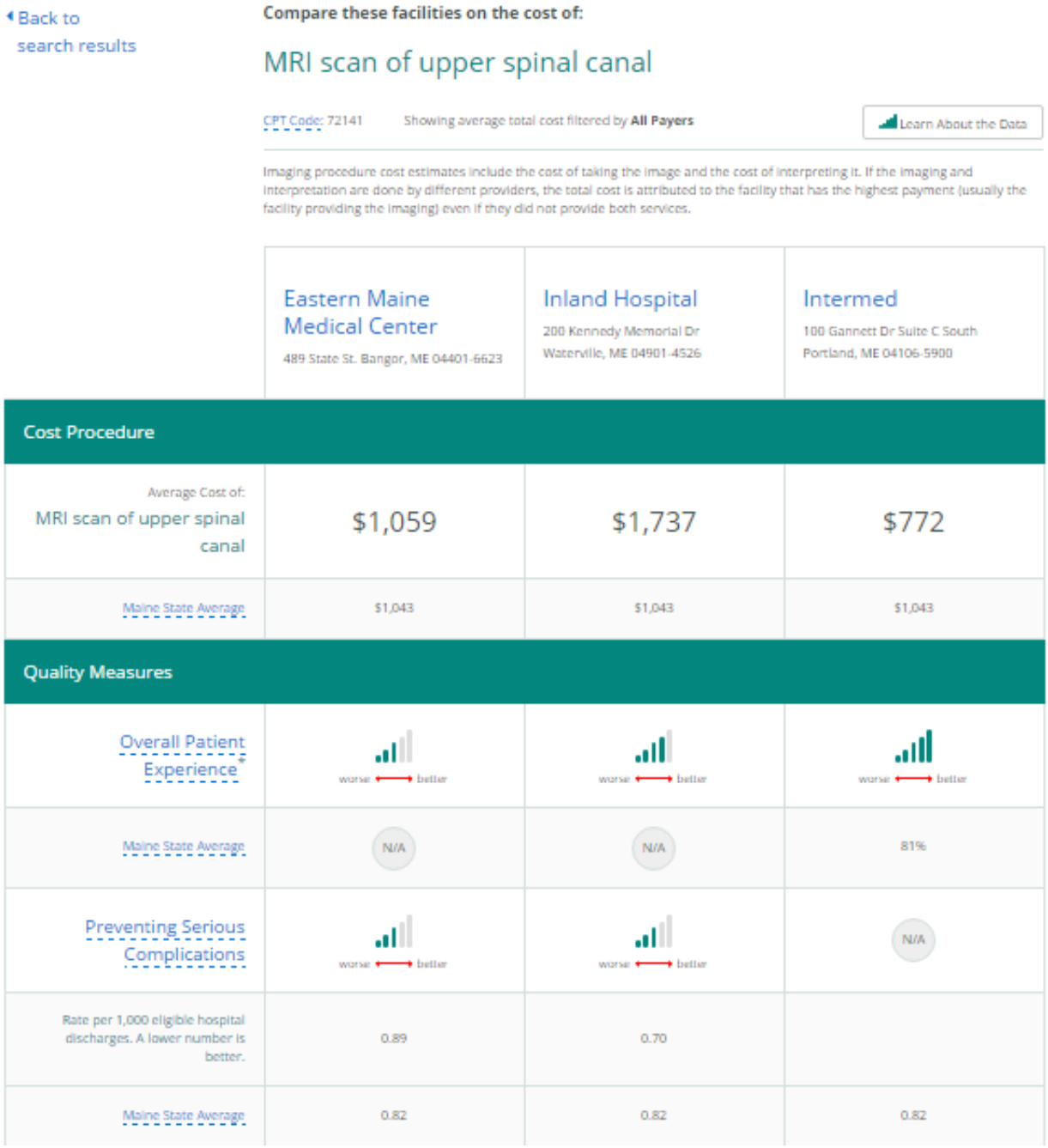
The site also follows best practices by explaining to consumers what quality is, why quality should be an important consideration when making health care decisions, and how to discuss care issues with providers. Additionally, CalQualityCare clearly uses evaluative language (e.g., "Superior") to describe a facility's performance; this helps consumers make decisions about quality performance. As shown in Exhibit 18, the site indicates performance by using a word icon and color (dark green, light green, yellow, orange, red). It also provides the state or national average (selectable through a drop-down menu) for each quality measure. CalQualityCare allows users to sort by quality when searching for a

procedure. In addition, the site adheres to best practices by providing additional resources for decision-making such as information on what to look for in a hospital. Finally, the site provides a helpful description of how the values for the quality measures were generated and information about the timeliness of the data.

3.3.1.1.3. CompareMaine

CompareMaine, developed by the Maine Health Data Organization and slated to go live on October, 2015, was the only public site that provided both cost and quality information side by side. CompareMaine followed all of the best practices for displaying quality and cost information in a way that is meaningful to consumers (e.g., methodology for quality measures, timeliness of data, links to external resources for decision-making). The site also uses a framework to communicate elements of quality by 1) defining the elements used to inform quality to the user; 2) reporting quality using distinct categories (e.g., Overall Patient Experience, Preventing Serious Complications, and Preventing Healthcare-Associated Infections); 3) reporting one summary measure for each category of quality; and 4) presenting all of the summary measures on one screen (see Exhibit 19). CompareMaine also presents a message that quality varies by using language on the landing page and language that explains that variations in quality have consequences. The site also clearly presents information about quality performance. CompareMaine labels quality performance in a way that people can distinguish good from poor performance by using a bar chart icon where an increasing number of bars indicates better performance. When a user compares facilities, they see a scale from “worse” to “better” below the icon—reinforcing the idea that more bars are better. CompareMaine also provides the state average for each quality measure; this allows consumers to understand how the provider compares to others within the state. Like CalQualityCare, the site also allows users to sort by quality when searching for a procedure, meeting the best practice of being able to sort by performance.

Exhibit 19. Cost and quality display on CompareMaine



Back to search results

Compare these facilities on the cost of:

MRI scan of upper spinal canal

CPT Code: 72141 Showing average total cost filtered by **All Payers** Learn About the Data

Imaging procedure cost estimates include the cost of taking the image and the cost of interpreting it. If the imaging and interpretation are done by different providers, the total cost is attributed to the facility that has the highest payment (usually the facility providing the imaging) even if they did not provide both services.

	Eastern Maine Medical Center 489 State St. Bangor, ME 04401-6623	Inland Hospital 200 Kennedy Memorial Dr Waterville, ME 04901-4526	Intermed 100 Gannett Dr Suite C South Portland, ME 04106-5900
Cost Procedure			
Average Cost of: MRI scan of upper spinal canal	$1,059	$1,737	$772
Maine State Average	$1,043	$1,043	$1,043
Quality Measures			
Overall Patient Experience*	worse ⟷ better	worse ⟷ better	worse ⟷ better
Maine State Average	N/A	N/A	81%
Preventing Serious Complications	worse ⟷ better	worse ⟷ better	N/A
Rate per 1,000 eligible hospital discharges. A lower number is better.	0.89	0.70	
Maine State Average	0.82	0.82	0.82

3.3.2 Expert Interviews

In this section we present the results of the expert interviews, summarized across four major domains: platform selection, information architecture, comparison capability, and cost/quality display.

3.3.2.1 Platform Selection

From our review of the 13 major transparency sites, we found that each website varied in terms of its platform—that is, the structural model for the information display. Four of the sites used the

PricePoint or CheckPoint models developed by the Wisconsin Hospital Association in response to requests from the employer and consumer communities; nine sites, while influenced by the work of other transparency websites, developed their own platforms from scratch (four with the assistance of contractors).

The Wisconsin Hospital Association platform was developed in 2005, when a transparency task force consisting of mainly hospital CEOs and CFOs convened in the state. The original impetus for the website came out of a Wisconsin Hospital Association contract with the state to collect discharge data and state-mandated fiscal and annual survey data in 2004. There was no mandate to develop the website itself, only to report the data; thus, the PricePoint website was a voluntary effort that focused on cost data alone. PricePoint reports cost data for inpatient, outpatient, and emergency care settings among others. The data points displayed include: volume, length of stay, average charge, average charge per day, median charge, median patient age, and male/female patient ratio. CheckPoint was a separate effort that focused on the reporting of quality data and began in 2003, and includes both ratings by condition and measures by condition. Data sources for CheckPoint include CMS, HCAHPS, and AHRQ, among others. Due to the Wisconsin Hospital Association's reservations about aligning cost and quality, the two websites remain separate. (We present more information on the subject of aligning cost and quality in the "Cost/Quality Display" section that follows.) The websites that used these Wisconsin platforms cited the following reasons for doing so: cost effectiveness, ease of implementation, ease of maintenance, and minimal time dedication for starting and maintaining the site.

The other nine sites used a combination of in-house web development and contracted development, based on resources and expertise available. The cost of developing the website limited the involvement of contracted work. Where states lacked the in-house knowledge and capacity to do the work, they sought vendor support. For example, the decision-makers behind New Hampshire HealthCost had a strong desire to keep the project and operations relatively small, so they kept the entire operation in house. Others, such as FloridaHealthFinder, had to abide by rigorous state mandates in developing their sites, and contracted out services to develop these sites.

3.3.2.2 Information Architecture

We asked the website directors about the decisions behind their site's information architecture, which is the way information is organized on a website, as this is an important factor in a site's user-friendliness. The user navigates this architecture in part through searches for information (cost, quality, facility information, etc.). For data-heavy sites like those in our review, the way that search functionality is set up will affect the entire user experience. The websites' search functionality ranged from simple (searching primarily by procedure or facility) to complex (searching by age group, measure type, insurance carrier and other categories), with the option to filter by geographic area (e.g., zip code).

When we asked the experts about how they selected procedures, some noted that decisions were based on state mandates while others said they were based on volume in the claims or other data. Other reasons included selecting procedures that were highly cost-variant, prevalent in user searches, most common, most shoppable—and, in the case of MVP, driven by the procedures that their vendor offers through its Cost Calculator Solution. Some sites attempted—or at least felt it was important—to

allow plain language searches or modify the AMA language for procedures. Only one site, Guroo, used the "care bundle" model when presenting procedures, which includes all aspects of care related to the procedure/treatment such as office visits, surgeries, pharmacy, physical therapy, and follow-up office visits.

Sites appeared more focused and organized when you could search all facilities by procedure/treatment/condition and then narrow by geographic area. The simplicity in searching was a strength of New Hampshire's site, as well as of Guroo and the Colorado site. These sites had few decision points and required little input from the user to reach actionable information, such as the cost estimate (e.g., three or four mouse clicks). In contrast, FloridaHealthFinder required eight clicks to obtain the cost estimate; the user first has to select facility/provider type, then select from a subgroup of facility types, then several other categories.

3.3.2.3 Comparison Capability

The ability to compare the cost of providers on procedures is the cornerstone of many transparency websites, which aim to arm the consumer with actionable information for decision making. The degree to which comparisons were possible (and the elements compared) varied greatly across the sites we reviewed. Websites offered the option to compare multiple facilities or physicians across a number of dimensions, including: cost, quality, cost and quality, volume, patient mix/complexity, male/female ratios, and length of stay.

On three websites—including Cigna, Maine, and MVP—it is possible to compare cost and quality together (although quality was not always procedure-specific). Six websites provided a cost comparison capability either alone or separate from quality, while four allowed the user to compare on quality alone or separate from cost. The two websites that provided comparisons on cost and quality separately were Colorado and Florida. Many others, namely the PricePoint-based sites, displayed volume (number of procedures performed), length of stay, and male/female patient ratios. New Hampshire and Colorado provided patient complexity as another point of comparison. Guroo was the only website for which no comparison across facilities or providers was possible.

In terms of the factors affecting the decisions for the comparison capabilities, the experts we interviewed cited statute/mandate-driven requirements, committee-driven requests, and technical resources. Florida's statute required a comparison tool that allowed users to make decisions about physicians, hospitals, health plans, nursing homes, and prescription drug prices. In Maine, the statute mandates that the website report on the 15 most common procedures for comparison purposes. For other sites, the ability to compare care was driven by a commitment to transparency for their customers (such as in the insurance plans' cases), and the technical resources available to do so. Some websites opted to keep quality and cost separate for comparison purposes given that aligning the two is challenging, since cost is reported at the procedure level, but that is often not the case for quality. The next section, "Cost/Quality Display," delves further into this issue.

3.3.2.4 Cost/Quality Display

Predictably, the subject of cost and quality displays generated lively discussion in our interviews; this was unsurprising given that these displays are arguably the anchor point of transparency websites.

3.3.2.4.1 Cost

For site developers, the cost component of the websites proved to be the more variable and challenging of the two displays, which may explain the paucity of true best practices in literature and practice.[119] Sites differed in their decision to provide medians, averages, an average of medians, or ranges. The insurance websites tended to provide out-of-pocket costs after the deductible for a given procedure at the physician level, whereas other sites had facility-level cost data for a procedure. Some sites, particularly the insurance sites and New Hampshire's site, were able to provide estimated consumer out-of-pocket costs alongside insurance coverage. Additionally, sites varied with regard to whether they provided an overall cost or a full breakout—including office visits, pharmacy, and other costs—associated with an episode of care. Some of these choices were dictated by a state mandate, others by the available data, and still others based on internal preferences.

Guroo provides a superior example for displaying cost among the websites for which we conducted interviews. The site utilizes a national set of claims data from multiple insurance carriers; this approach allows them to display national, state, and local average costs for a given procedure. The cost estimate is an average of a set of medians, which the user can toggle to reveal a range by clicking on "show range" (see Exhibit 20). The site uses the framework for an episode of care, also called a "care bundle," which is broken down into its component parts so that the cost is truly transparent for the consumer. It should be noted that Vermont is one of eight states that do not have sufficient data to show a state or local average. A state must have at least 10% of its population in Guroo's claims database or a user will only be shown national data.

Exhibit 20. Toggle Between Cost Averages and Ranges on Guroo

[119] One debated point was whether to display "cost," "charge," or "price." For the purposes of this report, we use the term "cost" to mean any of the three.

The insurance websites have highly tailored cost displays. Procedure costs are physician-specific, personalized based on the user's plan, and adjusted for out-of-pocket costs versus insurance coverage. These displays also include any available account funds, such as those associated with a flexible spending account. The cost is also broken down into the components of physician services and facility services, similar to Guroo.

3.3.2.4.2 Quality

Among our interviewees, quality was often regarded as an important and attainable feature to display.

It was generally agreed upon by the interviewees that the concept of quality, as it relates to health care, is a combination of patient satisfaction and safety/infection measures. Usually patient satisfaction refers to the Hospital Consumer Assessment of Healthcare Provider Systems (HCAHPS) or other CAHPS measures from the Center for Medicare and Medicaid Services (CMS). The other quality measures included safety and infection measures from CMS, AHRQ patient safety and quality measures, or the National Committee for Quality Assurance (NCQA) HEDIS[120] measures. As with cost, some sites chose to display national or state benchmarks for quality, where available.

Cigna chose to develop its own composite measures for quality, with their inclusion of a "Cigna Care Designation" indicator as a measure of quality, along with "Evidence-Based Medicine Standards" and "Cost Efficiency." Documentation on the development of these measures reveals the principles Cigna followed: using nationally recognized measures that are NQF-endorsed, dissuading consumers from relying solely on the measures, and a commitment to collaboration with physicians on and improvement of the site. Similarly, MVP used such measures as "Appropriate Antibiotic Use," "Diabetes Care Management," and "Preventive Services." The complex methodology was developed in house, and the substantial supporting documentation is provided on the site.

Some points of divergence for these websites included their choice to use icons to represent quality, and which kind. Examples include stars, scales, bars and other shapes—and appearances of these vary by number of tiers, use of coloring, and use of evaluative language. Our interview respondents reported that the use of stars stemmed from the CMS Compare websites. Another respondent preferred a thematic icon to match the measure category (e.g., heart icons for cardiac care), to appeal to consumers.

The use and display of specific quality measures depended oftentimes on a state mandate's specifications and other times on the internal preferences of the hosting organization. With regards to evaluative language, some interviewees expressed strong opinions: some thought it was not in their best interest to be using such language to judge the performance of providers. On the option to present summary measures as opposed to more department-specific measures at hospitals, one informant felt that the summary measure muddied the data.

[120] Healthcare Effectiveness Data and Information Set

3.3.2.4.3 Cost and Quality Together

Only three websites from our interviews displayed cost and quality information side by side. These sites expressed a strong commitment to transparency and to their customers, and felt that this could not be done without the dual decision aids of cost and quality together. For those that did not, most of their decision-makers at least believed in the value of displaying cost and quality together to provide context to the numbers.

Convincing reasons for displaying cost and quality separately included: a desire to simplify the user interface, the challenge in measuring and conveying value to a consumer, and the difficulty in aligning cost and quality, given there is often not available procedure-level quality data to match up with the cost data. There is limited research on the use of procedure-level quality in consumer reporting, and the measures are typically not consumer friendly and either are not available from claims data or require complex calculations from claims data. Although the notion of displaying cost and quality data together is compelling, there are many complexities in measurement alignment and how to define and convey health care value to a consumer. High-value care is often defined as that which is low-cost and high-quality, though plans and providers are among the first to point out that cost may not represent the full picture of value.

MVP had a comprehensive and user-friendly display for juxtaposing cost and quality—especially considering its quality measures and the cost breakdown were both very detailed.

3.4 Feasibility of implementing models and tools examined for use in Vermont

3.4.1 Motivation for development

One of the main drivers for developing healthcare transparency was fulfilling a legislative mandate, and, subsequently, setting up and implementing effective processes to increase the likelihood that consumers, payers, physicians, and employers would utilize the site. Interview respondents further noted that consumers and employers were critical in moving the discussion forward on cost and quality transparency, and that statutory mandates helped expedite calls for transparency. They also noted that transparency in health care was an emerging, prominent issue in the hospital industry before the legislation; and subsequent to legislative mandates, provider groups and other organizations supported the goal of the legislation to help consumers make cost- and quality-conscious health care choices. In addition, our key informants noted that industry support for their sites was strengthened by the Patient Protection and Affordable Care Act legislation that provided funding specifically to develop sites and required hospitals to publish charges for certain diagnosis-related groups.

3.4.2 Consumer engagement, utilization and feedback

Respondents in general reported limited use of consumer input when designing, building, and updating their websites. By contrast, they did coordinate with providers and health plans (e.g., having them review and vet cost information before posting the website). Two state-sponsored sites (Colorado and Maine) worked with consumer representatives and/or consumer councils during the development phase to better understand consumer needs; and one respondent reported conducting consumer testing of some display content prior to launch. Although our respondents generally reported receiving only a limited amount of consumer feedback, as noted earlier in Task 1, this is unsurprising given that most websites had either no or limited mechanisms to obtain feedback from users. Consumers also

reportedly contacted the sites directly, sending emails or phoning the main point(s) of contact listed on the site, for example. Only two sites (Guroo and CompareMaine) conducted consumer testing prior to launch, and also reported receiving email feedback on the overall validity and utility of the site. Another site (Virginia Health Information, or VHI) reported seeking feedback on their site's display but only after it was launched.

One consistent theme that resounded throughout the interviews was that much of the consumer feedback received was either too broad (e.g., "improve the user experience") or simply outside the scope of the site and thus very difficult, if not impossible, to implement (e.g., providing detailed information on out-of-pocket costs). Only two sites (Florida and Guroo) actively engaged in outreach efforts. In addition to distributing press releases, they reached out to a broad group of stakeholders—insurers, employer groups, hospital associations, and medical associations—to promote awareness of their sites. Although most sites had analytic tools to collect data on site traffic, number of hits, duration of visit, etc., they varied in terms of how they analyzed and leveraged that information to improve the site or to inform outreach efforts. Our respondents reported very low consumer utilization of health care cost and quality tools; consumers who did utilize the sites reportedly did so to find a provider more often than to compare costs of providers.

3.4.3 Data management

Around half of the study sites displayed commercial claims data. Most respondents reported that they contracted with outside vendors to handle claims data, specifically for their data management and quality assurance processes. Several respondents noted that their internal staff also performed various quality assurance checks—for example, examining trends in cost estimates, the frequency of records by month, and the distributions of patient characteristics and duplication of records. Sites also reported having validation processes in place wherein they shared the cost and/or quality data, prior to displaying it on their sites, with providers to verify that the cost estimates were valid and accurate. Providers and insurers were generally provided three to four weeks to vet the data.

Most of our key informants reported that their site used diagnostic-related software tools to process the data into searchable procedures for the site. Five sites used 3M Core Grouping Software and/or the 3M™ All Patient Refined DRG (APR DRG) Classification System for adjusting data for the severity of illness. Two state sites did not report the use of grouping or risk-adjustment software. One site (Maine) used the Truven Medical Episode Grouping Software and another (New Hampshire) reported using the Chronic Illness and Disability Payment System (CDPS), a diagnostic classification system developed by the University of California, San Diego. The Guroo site and the sites operated by insurance companies used proprietary methods of bundling procedures, each using its own methodology.

3.4.4 Human and financial resources

The level of effort and financial resources required to build and maintain public reporting websites varied greatly, depending on the amount of funding available and the specific model implemented. Often, the respondents were not able to provide precise price estimates of their sites. States and insurance plans were sometimes unable to disentangle the costs of supporting their regular activities, such as supporting their APCD, from that of their transparency website, making it difficult to compare implementation and maintenance costs.

The majority of sites were managed and supported by one to four staff members. Although it was difficult for respondents to provide detailed information about startup and annual maintenance costs, the Wisconsin Price Point required about .75 full time equivalent (FTE) for 6 months to build the site, and then .1 FTE to maintain it. In addition, they employed a medical coder full time for 4 months. Upgrades to the site require .75 FTE for a developer and another .5 FTE for language development on the site.

In terms of cost, at one end of the spectrum, those implementing charge-based sites using software such as PricePoint or PriceCheck paid $100,000 or less to start up and maintain their sites. On the other end, those implementing claims-based sites, which for the most part contract with outside vendors and create custom solutions, have paid hundreds of thousands of dollars (or more) to develop and maintain their sites. The Colorado model was implemented by an outside vendor. Startup costs ranged from $400,000 to $500,000 and ongoing maintenance and support cost about $200,000 annually. Ongoing support is carried out by three to four FTEs, including one full-time person dedicated to proactively managing and resolving all data errors and performing any additional data quality investigations. In addition, two respondents representing insurance plan websites estimated that startup costs ranged from $200,000 to $300,000 and annual maintenance totaled about $200,000.

3.4.5 Return on investment (ROI)

As noted in the results of our literature review, there has been little, if any, rigorous attempt to capture ROI for either the public or private sector health transparency websites. To date, studies have focused more on the extent to which tools are used rather than ROI, with some limited analysis of changes in costs associated with changes in consumer behaviors after using a site. Only one site (MVP) examined whether consumer behavior changed as a result of information gleaned from their website, and, anecdotally, our key informant suggested that it did have an effect on consumers' choice of providers.

When we asked key informants about the perceived ROI benefits, such as savings to the consumer, changes in consumer behaviors, site influence on policy, or influence on the provider community, three refrains stood out across their responses. The first was that our interview respondents were unable to definitively quantify what one referred to as the "intangible benefits" (i.e., returns) of providing consumers, employers, and other stakeholders with timely and accurate information about the price and/or quality of health care. Indeed, to date there is only limited evidence that these types of efforts are reducing health care costs. Although transparency tools can help consumers make more informed decisions about their health care, the geography of the marketplace where they shop largely determines the extent to which they are likely/unlikely to alter their choices for care.[121] For example,

A second, often-repeated response from our respondents was simply that ROI was not the focus or motivation for creating these sites. Rather, a key goal, at least initially, was "to fulfill a mandate" and develop a system by which residents could easily find actionable information to empower individualized health care decision-making.

[121] Reinhardt, 2014

Lastly, respondents frequently provided anecdotal evidence with respect to changing consumer behaviors. For example, they reported that consumers and employers were using their sites to determine where to go for shoppable procedures. Other non-consumers used the sites, for instance, to identify the most affordable, high-quality physicians for referral purposes.

Section 4. Discussion

Findings from our interviews and the literature strongly suggest that simply building a website and providing information is insufficient to change consumer behavior with regard to decision-making and lowering health care costs. However, health care cost and quality data, when presented in a consumer-friendly manner, can provide consumers valuable and timely information regarding health services. Consumers are increasingly responsible for more of their costs but may lack the health literacy needed to make high-value health care choices.

4.1 Key Considerations

Below we summarize some key considerations that our respondents offered up to other entities interested in implementing a consumer-facing public reporting website. Our discussion below draws on the results of both our key informant interviews and the supporting literature.

- **Evaluate consumer awareness and use of existing tools.** Before developing a new website, the GMCB should gauge consumers' awareness of existing health care cost and quality data websites in Vermont, such as those provide by private health insurance carriers.
- **Engage consumers in care**. Transparency alone will not lead to better quality care. It is equally important that consumers become engaged in their care, only part of which may involve the use of quality and cost assessment tools. Consumers also need tools that will help them become better educated in their health care shopping, such as knowing what questions to ask during encounters with health care providers or how to develop care plans for chronic conditions.
- **Use state legislation to encourage further reforms.** It may be advantageous to pursue legislative initiatives to make charge information available on the general pages of insurance websites (that is, on the portion of the sites that can be accessed without a member/subscriber login). This would allow uninsured persons and employers who are considering purchasing plans to compare prices, and possibly promote site use by members.
- **Leverage existing efforts**. States should carefully review other similar initiatives already in place to avoid unnecessary duplication of efforts and to learn from what others have in place. For instance, similar tools are currently hosted in Vermont by health plans wherein members may access up-to-date information and view their out-of-pocket (OOP) expenses.

4.2 Platform and Functionality Considerations

Selection or development of a platform for a consumer transparency website depends entirely on resources and goals. The simpler the site, the more user-friendly it is. Thus, sites that are easy to navigate are more likely to be successful in arming consumers with actionable information. On top of this, simplifying the information architecture of a website to focus on procedures/conditions as the primary search condition (and filtering by geographic area) lends itself to a simple and practical approach. One website proprietor mentioned that they desired to transform their site to simplify the search process.

Selecting an out-of-the-box solution such as the PricePoint or CheckPoint models would yield low-cost, low-maintenance options for a transparency website. However, these models do not provide much in the way of user-friendliness. Both sites are cumbersome and often provide extraneous information that is difficult to interpret. An example is provided in Exhibit 21, which shows that all measures for one hospital are displayed in a "spreadsheet" format; the website director noted that this format was designed for hospitals rather than consumers.

Exhibit 21. Wisconsin CheckPoint Measures for One Hospital

Medical Services

Measurement data are from 10/1/2013 — 9/30/2014

Heart Attack	Hosp. Score	State Benchmark	State Average	National Average
PCI within 90 minutes	—	100	96	96

Heart Failure	Hosp. Score	State Benchmark	State Average	National Average
LVF assessment (%)	99	100	99	99

Pneumonia	Hosp. Score	State Benchmark	State Average	National Average
Appropriate Antibiotic	95	100	97	96

Surgical Care

Measurement data are from 10/1/2013 — 9/30/2014

Surgical Care - All Procedures	Hosp. Score	State Benchmark	State Average	National Average
Start antibiotic (%)	100	100	99	99
Appropriate antibiotic (%)	99	100	99	99
Stop antibiotic (%)	99	100	99	98
Clot Prevention Given (%)	99	100	100	99
Urinary Catheter Removal (%)	+	100	99	98
Beta Blocker Received (%)	100	100	99	98

Error Prevention

Measurement data are from 7/1/2014—12/31/2014

National Safety Goals	Hosp. Score	State Benchmark	State Average
Medication reconciliation (%)	99	100	94

Deaths Data (2013)

Deaths due to Illness	Experience	Nat'l Avg(%)	State Avg(%)
Acute stroke mortality rate	As Expected	9.13	9.44
Gastrointestinal (GI) hemorrhage mortality rate	As Expected	2.41	2.44
Hip fracture mortality rate	As Expected	2.78	3.39

Deaths During a Procedure	Experience	Nat'l Avg(%)	State Avg(%)
CEA mortality rate	+	0.40	0.31
Hip replacement mortality rate	As Expected	0.09	0.02

At the other end of the spectrum, transparency websites developed from scratch (but heeding the experience and advice of existing sites) may seem resource-intensive, but they can yield a much more useful experience for consumers and thus a more fulfilling appropriation of resources.

4.3 Cost/Quality Display and Comparison Considerations

As mentioned previously, many sites focus only on cost data, whereas the best practices we identified focus on the intersection of cost and quality. In conversations with decision-makers, we learned that charges are not sufficient on their own to provide to consumers, and cost methodologies are difficult and varied; aligning cost with quality is yet another hurdle. It remains unclear which (if any) of the models for displaying cost that consumers understand. However, some principles became clear through our interviews: provide aggregated costs and the option to break down the costs, and consumers understand median and average cost equally (but there are challenges with both). Some sites chose to contextualize cost with state, national, or local benchmarks while others didn't. However, studies show that although consumers may *like* to see a benchmark, the benchmarks

themselves can often be misleading. For example, simple comparisons to a benchmark can make it difficult to see how facilities compare to each other.[122]

Although procedure-level quality data does not exist for every procedure, there is still value in providing some facility-level quality data alongside cost. Separating the two only increases the cognitive burden on the user, forcing them to make decisions based on two different screens of information. A websites ability to compare facilities on cost and quality simultaneously for a procedure is essential not only for minimizing cognitive burden but also for helping users come to a conclusion quickly.

Users should be able to shop for health care as quickly as they are able to shop for other goods. This is not to make light of the serious implications of selecting the most appropriate care; it is simply intended to point out that transparency websites should take responsibility for directing the consumer to the highest value care.

4.4 The Advantages and Limitations of Private versus Public

The state of adherence to best practices is unequal across private sites and public (or state-sponsored) sites: private sector sites are more able to adhere to the best practices due in large part to the resources available to them. The consumer-specific out-of-pocket cost estimates are a critical feature. The public sites respond to consumer needs for transparency *across* plans and providers, but there is an extent to which the desirable features of the private sites can be implemented, and that the more generalizable nature of public sites is advantageous in terms of the breadth of data they can cover.

[122] L&M Policy Research, Quality Reporting on Medicare's Compare Sites: Lessons Learned from Consumer Research, 2001-2013, a report prepared at the request of the Centers for Medicare & Medicaid Services, Washington, D.C.

Section 5. Recommendations and Proposal Considerations

To fulfill the statute of providing a proposal for a robust health care cost and quality information system designed to empower consumers to make economically sound and medically appropriate decisions, we present the following recommendations and next steps which we preface with some considerations specific to Vermont's unique health care environment.

5.1 Vermont Specific Considerations

Vermont stakeholders should take into consideration whether creating a website aligns with current goals within the state and whether resources are available for such a large undertaking. Perhaps the **most important consideration in Vermont is resources**. Best-practice transparency websites (as opposed to limited-functionality sites) are expensive to create and costly to maintain. For example, one state model we examined was implemented by an outside vendor. Startup costs ranged from $400,000 to $500,000 and ongoing maintenance and support cost about $200,000 annually. Ongoing support is carried out by three to four FTEs, including one full-time person dedicated to proactively managing and resolving all data errors and performing any additional data quality investigations. In addition, two respondents representing insurance plan websites estimated that startup costs ranged from $200,000 to $300,000 and annual maintenance totaled about $200,000.

Staffing would also be a challenge. Last year, the GMCB began a process to update VHCURES, the APCD. As part of that process, an independent reviewer evaluated the Board's capacity to take on the project. One key finding in that review was that "The GMCB has a relatively small staff and full load of mandated tasks to accomplish. Staff loading has been reasonably calculated for this project. There is a risk that unforeseeable demands on the staff, due to events in the policy and political arena, could draw dedicated staff time away from the project."[123]

Finally, there are limitations in VHCURES that have been identified in previous price variation analyses. These include:

- There is currently no process whereby payers can validate VHCURES data
- It is difficult to identify all payments to a specified provider
- It is difficult to eliminate secondary payments (payments made by a second payer when the patient has coverage from multiple sources)
- It is difficult to identify and correctly interpret payments on a basis other than line by line (e.g., hard to create DRG payments, episode payments, global fees)

In addition, we have to **understand the landscape in which Vermont consumers purchase health care insurance and where they access health care**. The Vermont large group insurance market is dominated by one very large health insurer (BlueCross BlueShield of Vermont) which holds almost 80% of the market share, with only two other insurers occupying over 5% market share (MVP Health, 13%, and Cigna, 7%).[124] BlueCross BlueShield of Vermont also controls the small and individual group

[123] Garstki & King, 2015

[124] Henry J Kaiser Family Foundation (2013). Large Group Insurance Market Competition. Accessed September 2015: http://kff.org/other/state-indicator/large-group-insurance-market-competition/.

markets[125]. Each of these insurers was included in our study, and all currently provide a member website with features that include key best practices. These are the only websites that we examined that are able to provide timely information on individuals' OOP costs for specific providers and procedures. Insurers have real-time access to their subscriber's benefits and claims; therefore, they can provide consumers with tailored cost estimates based on each subscriber's co-pays, co-insurance, remaining deductibles and network of providers. Moreover, this personalized cost data is often provided alongside quality and practice information.

We also note that the strongest incentives to shop for lower-cost services often come from insurance companies. Changes in benefits designed to make patients more sensitive to price differences, such as high-deductible plans, may be one strategy, alongside value-based pay-for-performance reforms.

Vermont is also dominated by one large provider, the University of Vermont Medical Center, which provides an estimated 50% of all care in the state. In the southern and eastern parts of the state, however, Vermont consumers are crossing the state border for care—to Dartmouth–Hitchcock Medical Center in New Hampshire, for example. Understanding these patterns, as well as other factors that make Vermont unique, is essential to evaluating the applicability of transparency models. **No state sponsored website that we examined provided cost estimates outside state borders.**

5.2 Possible Approaches for Vermont

Act 54 included two different approaches to informing consumers about health care prices and quality. One approach was to direct individual insurers to develop websites and the other was to have the GMCB "evaluate potential models for allowing consumers to compare information about the cost and quality of health care services available across the State, including a consideration of the models used in Maine, Massachusetts, and New Hampshire, as well as the platforms developed or under development by health insurers pursuant to 18 V.S.A. § 9413." Each of these models has advantages and disadvantages. Some comparisons can be made conceptually, while others are specific to Vermont.

The **most important advantage of an insurer-based approach (and a key disadvantage of a state-based approach)** is that the insurer has information about each customer's benefit plan, specifically cost-sharing and product type. Benefit plan specifics—such as deductibles, coinsurance, copays, and in-network/out-of-network differentials—are essential in determining the patient's share of medical expenses. Specific product type (e.g., preferred provider organization or point of service plan) can sometimes have different payment rates for the same provider.

The **key disadvantage of an insurer-based model** is that it is often useful only to current members. Unless the insurer provides access to non-members, those shopping for insurance cannot make use of this information. Another disadvantage is the lack of standardization across plans with regard to how quality information is presented and how best practices are adhered to.

[125] Henry J Kaiser Family Foundation (2013). Health Insurance & Managed Care Indicators: Insurance Market Competitiveness. Accessed September 2015: http://kff.org/state-category/health-insurance-managed-care/insurance-market-competitiveness/.

The **primary advantage of a centralized state-based approach**, such as that of Maine or New Hampshire, is that it is available to everyone. It provides consumers the ability to compare providers on cost and quality in a standardized way, regardless of insurer. A centralized model also supports analysis of price variation for the same service at the same facility depending on the provider.

If Vermont chose to go with the Insurer-based approach, the State could mandate changes to plan websites to adhere to best practices or to provide charge info to non-members. These changes could possibly be made through amendments to 18 V.S.A. § 9413. Requiring this of insurers would address a number of the challenges presented in the Results section.

5.3 General Recommendations

This report presents a series of best practices for a health care cost and quality information system along with general feasibility and Vermont specific considerations to assist the GMCB in making a decision on the utility of developing a statewide system for Vermont. We present the following recommendations and next steps to help guide the GMCB should it decide to further explore the usefulness of a cost and quality information system:

1. **Choose an approach.** Determine if a standalone centralized state-based website is required.
2. **Conduct a comprehensive needs assessment**. To assess the feasibility and potential value added of implementing a consumer-facing website for Vermonters, the GMCB should empanel focus groups with likely users (e.g., consumers, employers, etc.).
3. **Clearly define goals and objectives**. From the outset, clearly define the goals and objectives for the site to maximize overall impact.
4. **Ensure that adequate funding and resources are available**. Interviewees made clear that funding was the primary driving factor for determining their public reporting solution, and emphasized that ones' goals and objectives should be tied closely to funding availability. Some presented only charge information using inexpensive out-of-the-box solutions that required few human resources (e.g., 1 FTE) and offered limited functionality. Others implemented customized sites that present claims information and employ sophisticated methodologies; these sites required 3-4 FTEs each for maintenance and support. Clear budgets must be developed based on startup and maintenance costs.
5. **Select a financially sustainable option.** Implement the most financially sustainable online tool that meets the GMCB's goals and objectives and the needs of consumers. Whereas one customized state site had private sector funding and sold customized data products to cover costs, most others had very limited resources, and thus chose less-expensive models to ensure sustainability.
6. **Implement best practices with regard to data management and quality assurance processes.** Make certain that best practices with respect to the data collection, cleaning, validating, and overall quality assurance processes are implemented. If these services are to be conducted by an outside vendor, the vendor should be contractually obligated to make its methodologies available to the GMCB.

7. **Engage consumers throughout the process.** It is critical to engage consumers from beginning to end—in pre-development, development, and post launch—to maximize consumer buy-in and reinforce a commitment to transparency on the part of all stakeholders.
8. **Provide information on expected OOP expenses.** Interviewees across sites noted that users are interested in learning about their potential OOP costs.
9. **Utilize consumer website recommended features**. Implement as many of the best practices included in Section 5.4, below. Best practices are summarized under the following domains: cost reporting; quality reporting; comparing cost and quality; ease of use and innovative features; ensuring consumer access/promoting use.

5.4 Consumer Website Recommended Features

Should the Green Mountain Care Board decide to pursue a health care transparency website, we suggest that it consider the following recommendations based on our review of the literature, current best practices, common approaches and our interviews with experts.

Feature	RECOMMENDATIONS BASED ON LITERATURE, BEST PRACTICE, AND COMMON APPROACHES
Cost Reporting	
Data Source	Use claims data from public and private payers and update as frequently as feasible. Validate data internally and with stakeholders.
Cost Estimate	Use total amount paid for a service by both consumers and insurers; allow the user to toggle between a cost estimate and ranges. Determine whether a range, mean or median cost is desired by target audience. If possible distinguish between the contributions from the insurer and the consumer.
Medical Services	Decide what types of services to include and whether to display estimates for single, bundled, or grouped procedures. Use the "care bundle" model where appropriate for total costs of a facility and physician charges or consider episode-based costs of care; provide a breakout of cost by component[126].
Data Display	Provide estimated price at the facility level and, if possible, the physician level. Allow users to compare and rank performance.
Transparency in cost methodology	Be sure to vet the cost methodology with providers. Offer clear, consumer-friendly terms that explain to consumers what is included in the cost estimates for a given service.

[126] The costs for a given episode of care can be broken down into components, such as professional, facility, and pharmacy or could include all pre- and post-procedure services during a specified window of time.

Feature	RECOMMENDATIONS BASED ON LITERATURE, BEST PRACTICE, AND COMMON APPROACHES
Quality Data Reporting	
Data Source	Use up-to-date, third-party data sources. Use a combination of patient experience and other nationally recognized and endorsed patient quality/safety measures (for example, the National Quality Forum measures) that have stakeholder support.
Quality Measures	Use methodologically sound quality measures that have stakeholder support and that consumers care about. Organize measures into domains. Consider patient experience and patient quality/safety measures, such as Report on Patient Experience, Complications, Deaths and Readmissions, Effectiveness, Safety, and Healthcare-Associated Infection.
Quality Estimate Display	Use symbols or word icons to convey performance instead of or in conjunction with numbers. Display performance data using a three- or five-point scale. If possible use evaluative words embedded in the icon to tell consumers what is good or excellent care and what is not. Allow users to toggle between the symbol or word icon denoting the level of the quality measure and a numeric estimate.
Data Display	Display estimates at the measure level and provide domain summary scores. Provide estimates at the facility level and, if possible, the clinic and physician level. Allow users to compare and rank performance.
Transparency in quality methodology	Offer clear, consumer-friendly terms that explain to consumers where the quality measures come from and how they are estimated.
Comparing Cost and Quality	
Display	Provide estimates at the facility level and, if possible, the physician level. Display cost and quality information side by side, using symbols. Allow consumers to rank order providers for a procedure in a given geographic area from high value to low value, highlighting high-value providers. Offer state and national reference points and volume estimates.
Design	The tool should model replicate, to the extent possible, the way consumers comparatively shop for other products on the web.
Ease of Use and Innovative Features	
Additional elements	Provide access to other health care resources. Increase credibility through an “About Us” and “Contact” section and allow users to provide feedback. Define terms, especially for medical services and quality ratings.
Filters	Filter by geographical area, insurance carrier if possible, and facility type.

Feature	RECOMMENDATIONS BASED ON LITERATURE, BEST PRACTICE, AND COMMON APPROACHES
Procedures	Select 'shoppable'[127] medical procedures based on volume, cost variation, and prevalence within user searches. Allow for plain language searches on procedures.
Primary Search Parameter	Allow searching by condition or procedure across all facilities.
Functionality	Allow users to search site in a variety of ways (procedure type or menu driven) and for a variety of fields (facilities, quality measures, geographic area).
Ensuring Consumer Access/Promoting Use	
Branding	Use consistent branding to add credibility, improve searchability and increase user recognition.
Encourage consumer input	Develop site for consumers. Involve consumers in the visioning and development stages of the website. Include an easy channel for consumers to provide feedback on the live site. Add additional elements for researchers if necessary. Create user consumer personas to guide development and ensure accessibility.
Building an audience	Include a marketing campaign to educate consumers on both the website and how to use it. Additional education, information and awareness may encourage more usage by consumers of health care. Make results transferrable to other media such as advertisements and public service announcements.
Search engine optimization	Use search engine optimization to enable the site to appear quickly in popular search engine results. Use sponsored, or paid, search engine results.
Apps	Develop apps for the site for use on mobile phones, tablets and other electronic devices.
Syndication	Allow website content to be used on other websites.
508 Compliance and Accessibility	Develop a website that is accessible to people with disabilities.

[127] The term 'shoppable' here refers to procedures that a typical consumer would want to compare prices on, such as elective surgeries, immunizations, and treatments for chronic conditions.

Appendices

Appendix 1: Websites Reviewed

	Site	Hosting Organization	Info on VT	Cost	Quality	Analyzed
	Federal					
1	CMS Compare: Dialysis Facility Compare http://www.medicare.gov/dialysisfacilitycompare/	Centers for Medicare & Medicaid Services	●		●	Yes
2	CMS Compare: Home Health Care Compare https://www.medicare.gov/homehealthcompare/	Centers for Medicare & Medicaid Services	●		●	Yes
3	CMS Compare: Hospital Compare http://www.medicare.gov/hospitalcompare/search.html	Centers for Medicare & Medicaid Services	●	●	●	Yes
4	CMS Compare: Physician Compare http://www.medicare.gov/physiciancompare/search.html	Centers for Medicare & Medicaid Services	●		●	Yes
	State					
5	CO Medical Price Compare https://www.comedprice.org/#/home	Center for Improving Value in Health Care		●	●	Yes
6	CompareCare WV http://www.comparecarewv.gov/index.aspx	WV Health Care Authority		●	●	Yes
7	FloridaHealthFinder.gov http://www.floridahealthfinder.gov/CompareCare/SelectChoice.aspx	Florida Agency for Health Care Administration		●	●	Yes
8	Health Data NY https://health.data.ny.gov/Health/Hospital-Inpatient-Cost-Transparency-Beginning-200/7dtz-qxmr	New York Department of Health		●		Yes
9	HealthCare Atlas http://gis.oshpd.ca.gov/atlas/topics/financial/common_surgery	California Office of Statewide Health Planning and Development		●		Yes*
11	Healthcare Information Division http://oshpd.ca.gov/HID/DataFlow/	California Office of Statewide Health Planning and Development		●	●	No
12	Illinois Hospital Report Card and Consumer Guide to Health Care www.healthcarereportcard.illinois.gov	Illinois Department of Public Health		●	●	Yes
13	Maine Health Data Organization's MONAHRQ Website http://gateway.maine.gov/mhdo/monahrq/index.html	Maine Health Data Organization & Agency for Healthcare Research and Quality		●	●	Yes
14	CompareMaine – to be released in Fall 2015 https://mhdo.maine.gov/healthcost2014/	Maine Health Data Organization		●	●	Yes
15	MyHealthCare in Utah https://health.utah.gov/myhealthcare/ https://health.utah.gov/myhealthcare/hospital.htm	Utah Department of Health		●	●	No
16	Utah PricePoint System http://utpricepoint.org/	Utah Department of Health, Utah Hospital Association		●		Yes*
17	Nevada Compare Care www.nevadacomparecare.net	Center for Health Information Analysis, Nevada Division of Health Care Policy and Financing		●	●	Yes
18	NH Health Cost for the University System of New Hampshire http://nhhealthcost.usnh.edu/default.aspx	New Hampshire Insurance Dept. and Advisory Committee		●		Yes

	Site	Hosting Organization	Info on VT	Cost	Quality	Analyzed
		on Health Insurance				
19	NH HealthCost http://nhhealthcost.org/	New Hampshire Insurance Department		●		Yes
20	Ohio Hospital Compare http://publicapps.odh.ohio.gov/facilityinformation/HospitalMeasuresHomePage.aspx	Ohio Department of Health		●	●	Yes
21	Pennsylvania Health Care Cost Containment Council http://www.phc4.org/hpr/	Pennsylvania Health Care Cost Containment Council		●	●	Yes
	Public Private Partnerships					
22	Nevada Health Choices http://www.chiaunlv.com/Reports/HealthChoices.php	Nevada Departments of Health and Human Services and Statistics, and UNLV		●	●	No
23	Virginia Health Information - Healthcare http://www.vhi.org/healthcare.asp	Virginia Health Information		●	●	Yes
24	Virginia Health Information - Outpatient http://www.vhi.org/outpatient_compare.asp	Virginia Health Information		●		Yes
25	Virginia Health Information - Obstetrics http://www.vhi.org/ob_guide/ob_intro.asp	Virginia Health Information		●	●	Yes*
26	Virginia Health Information – Physicians http://www.vhi.org/physicians.asp	Virginia Health Information				Yes
	Private					
27	Aligning Forces for Quality (AF4Q) http://www.aligning4healthpa.org/	AF4Q-South Central PA			●	Yes
28	Aligning Forces for Quality—Humboldt http://www.aligningforceshumboldt.org/find_quality_care.php	California Center for Rural Policy		●	●	No
29	American Hospital Directory http://www.ahd.com/freesearch.php	American Hospital Directory	●	●	●	Yes
30	Blue Cross Blue Shield (BCBS) of Vermont http://www.bcbsvt.com/login/resource-center	BCBS	●	●		No
31	CalQuality.org http://www.calqualitycare.org/ratings-and-data-sources/hospitals	California HealthCare Foundation (CHCF)			●	Yes
32	Cigna (tool for providers) Cost of Care Estimator	Cigna		●	●	Yes
33	ConsumerReports.org – Health http://www.consumerreports.org/cro/health/index.htm	Consumer Reports	●		●	Yes
34	Guroo http://www.guroo.com/#!	Health Care Cost Institute	●	●		Yes
35	Health Care Quality Matters http://healthcarequalitymatters.org/?p=fqc	Common Table Health Alliance		●	●	Yes
36	Healthcare Blue Book https://healthcarebluebook.com/page_Default.aspx	Health Care Blue Book	●	●		Yes
37	Healthgrades http://www.healthgrades.com/	Health Grades	●		●	Yes
38	Hospital Safety Score http://www.hospitalsafetyscore.org/	Leapfrog	●		●	Yes

	Site	Hosting Organization	Info on VT	Cost	Quality	Analyzed
39	Medical Cost Lookup http://fairhealthconsumer.org/medicalcostlookup.php	Fair Health	●	●		Yes
40	Minnesota Health Scores http://www.mnhealthscores.org/	MN Comm. Measurement		●	●	Yes
41	MVP Health Care Treatment Cost Calculator	MVP Health Care	●	●	●	Yes
42	UCompareHealthCare http://www.ucomparehealthcare.com/	UCompareHealthCare	●		●	Yes
43	Why Not the Best? http://whynotthebest.org	IPRO	●	●	●	Yes
	State Hospital Associations					
44	Minnesota Hospital Price Check http://www.mnhospitals.org/data-reporting/minnesota-hospital-price-check/hospital-report	Minnesota Hospital Association		●		Yes
45	Virginia Hospital & Healthcare Association PricePoint System http://www.vapricepoint.org/Basic_INP.aspx	Virginia Hospital & Healthcare Association		●	●	Yes
46	Wisconsin PricePoint http://www.wipricepoint.org/	Wisconsin Hospital Association		●		Yes
47	Wisconsin CheckPoint http://www.wicheckpoint.org/reports_detail.aspx?hospitalId=87	Wisconsin Hospital Association			●	Yes*
48	Colorado Hospital Price Report http://www.cohospitalprices.org/hprices/index.php	Colorado Hospital Association & Depart. of Regulatory Agencies		●		Yes
49	Colorado Quality Report Hospital Comparison http://www.cohospitalquality.org/	Colorado Hospital Association & Depart. of Regulatory Agencies			●	Yes*

Note: An * indicates additional website that was not part of the originally proposed list.

A “No” indicates that we were unable to review the website because it was a static list of reports that was not comparable to an interactive healthcare transparency website.

Appendix 2: Elements of Transparency Sites

Cost

- Methodology
  - Cost Amount
  - Cost Calculation
  - Payer Type
  - Medical Code
  - Procedure Count
  - Procedure Grouping
  - Number of Procedures
  - Data Source
  - Data Year
- Display
  - Unit of Analysis
  - Reference
  - Subscriber/Insurer Contributions

Quality

- Methodology
  - Estimate Type
  - Points on Scale
  - List of Measures
  - Data Source
  - Data Year
- Display
  - Unit of Analysis
  - Reference
- Quality Dimensions
  - Patient Experience
  - Patient Safety
  - Healthcare-Associated Infection
  - Timely and Effective Care
  - Complications
  - Deaths and Readmissions
  - Best Practices
  - Global Quality Score

Facility

- Type
  - Hospital
  - Physician
  - Health Center
  - Health Clinic
  - Imaging Center
  - Ambulatory Surgical Center
  - Laboratory
  - Dialysis Center
  - Assisted Living Center
  - Home Health Care
  - Psychiatric Facility
- Contact information
  - Address
  - Website
  - Phone Number
  - Fax Number
  - Email Address
  - Satellite Locations
  - Links

General

- Search
  - Function
  - Type
- Track
- Elements
  - Definitions
  - Methodology
  - Resources
  - FAQs
  - About
  - Contact Information
  - Feedback Form
  - Quality with Cost
  - Facility List
  - Procedure List
  - Comparison Function

Accessibility

- Search Engine Results
- Search Engine Optimization
- Notifications
- Branded
- 508 Compliant
- Easy to Find Site
- Easy to Find Information
- Responsive Design

Appendix 3: Adherence of Websites to Best Practices

Site Title	# best practices adhered to	1a. Define elements of quality	1b. Use elements as reporting categories	1c. Each reporting category has one summary measure	1d. Present all summary measures for providers on one screen	2. Present the message that variations in quality have consequences, on the landing page	3a. Label quality performance and in a way people can distinguish good from poor quality	3b. Use word icons or word labels to label performance	3c. Allow rank ordering by performance	4. Provide additional resources for decision making	5. Explain how measurement values are generated	6. Provide information on how recent the data are	7. Display cost and quality side by side
CompareMaine – to be launch Sept 30, 2015	12	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CalQualityCare	11	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Maine Health Data Organization's MONAHRQ Website	10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Minnesota Health Scores	10	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No
FloridaHealthFinder.gov	10	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Aligning Forces for Quality (AF4Q)	9	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No
Hospital Safety Score	9	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No
Virginia Health Information - Healthcare	9	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No
CMS Compare: Home Health Care Compare	9	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	N/A
Virginia Health Information - Obstetrics	9	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Nevada Compare Care	9	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Cigna (tool for providers)	8	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	No	Yes
MVP Health Care	8	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	No
Illinois Hospital Report Card and Consumer Guide to Health Care	8	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No
Wisconsin CheckPoint	8	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No
Why Not the Best?	8	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No
CO Medical Price Compare	8	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No
Health Care Quality Matters	8	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No
Utah CheckPoint	7	Yes	Yes	No	Yes	Yes	No	No	No	Yes	Yes	Yes	No
ConsumerReports.org – Health	7	Yes	Yes	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No
Ohio Hospital Compare	7	Yes	Yes	No	No	No	Yes	No	No	Yes	Yes	Yes	Yes

Site Title	# best practices adhered to	1a. Define elements of quality	1b. Use elements as reporting categories	1c. Each reporting category has one summary measure	1d. Present all summary measures for providers on one screen	2. Present the message that variations in quality have consequences, on the landing page	3a. Label quality performance and in a way people can distinguish good from poor quality	3b. Use word icons or word labels to label performance	3c. Allow rank ordering by performance	4. Provide additional resources for decision making	5. Explain how measurement values are generated	6. Provide information on how recent the data are	7. Display cost and quality side by side
CMS Compare: Hospital Compare	7	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	Yes	No
CMS Compare: Dialysis Facility Compare	6	Yes	Yes	No	No	No	Yes	No	Yes	Yes	Yes	No	N/A
Healthgrades	6	Yes	Yes	No	No	No	Yes	No	No	Yes	Yes	Yes	No
CompareCare West Virginia	5	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	No
Colorado Quality Report Hospital Comparison	4	No		No	No	No	Yes	Yes	No	Yes	Yes	Yes	No
Blue Cross Blue Shield (BCBS) of Vermont	4	Yes	Yes	No	No	No	Yes	No	Yes	No	No	No	No
Pennsylvania Health Care Cost Containment Council	3	No	No	No	No	No	Yes	No	Yes	No	No	Yes	No
UCompareHealthCare	3	Yes	Yes	No	No	No	Yes	No	No	No	No	No	No
American Hospital Directory	1	N/A[128]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes
NH Health Cost for the University System of New Hampshire	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	No
Guroo	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	No
CMS Compare: Physician Compare	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colorado Hospital Price Report	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No
Health Data NY	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No
HealthCare Atlas	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No
Healthcare Blue Book	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No
Medical Cost Lookup	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No
Minnesota Hospital Price Check	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No
NH HealthCost	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No
Utah PricePoint System	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No

Site Title	# best practices adhered to	1a. Define elements of quality	1b. Use elements as reporting categories	1c. Each reporting category has one summary measure	1d. Present all summary measures for providers on one screen	2. Present the message that variations in quality have consequences, on the landing page	3a. Label quality performance and in a way people can distinguish good from poor quality	3b. Use word icons or word labels to label performance	3c. Allow rank ordering by performance	4. Provide additional resources for decision making	5. Explain how measurement values are generated	6. Provide information on how recent the data are	7. Display cost and quality side by side
Virginia Health Information - Outpatient	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No
Virginia Health Information – Physicians	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No
Virginia Hospital & Healthcare Association PricePoint System	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No
Wisconsin PricePoint	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No
TOTAL:		27	28	13	18	10	27	6	18	25	23	23	6

Note: 'N/A' indicates that the site focuses solely on cost and therefore does not adhere to any of the quality-focused best practices.