



# The value of patient experience

## Hospitals with better patient-reported experience perform better financially

### Executive summary

Improving the patient experience can help a hospital improve its financial performance by strengthening customer loyalty, building reputation and brand, and boosting utilization of hospital services through increased referrals to family and friends. Furthermore, research has shown that better patient experience correlates with lower medical malpractice risk for physicians<sup>1</sup> and lower staff turnover ratios.<sup>2</sup>

Payers looking for better value are also helping to drive hospitals to focus on patient experience: Programs such as Medicare's Hospital Value-Based Purchasing Program (VBP) are financially rewarding hospitals that have better patient-reported experience scores. As a result, patient experience scores for factors as diverse as nighttime noise level and doctors' and nurses' communication skills have become a key hospital performance measure.

Because of the patient and payment factors, one might expect that hospitals with better patient experience scores might perform better financially – but the relationship has not been well studied. To gain greater insight into the association between better patient-reported experience scores and hospital financial performance, the Deloitte Center for Health Solutions conducted descriptive and regression analyses using the most widely tracked measures of patient experience – the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores – and examined their association with hospital performance measures such as net and operating margins and return on assets (ROA). To more clearly delineate the contribution of patient experience, Deloitte Center for Health Solutions controlled for hospital and local area characteristics that can also affect hospital performance, including hospital ownership, location, teaching status, payer and patient case mix. Our analyses point to two main findings:



- **Hospitals with high patient-reported experience scores have higher profitability.** Hospitals with “excellent” HCAHPS patient ratings between 2008 and 2014 had a net margin of 4.7 percent, on average, as compared to just 1.8 percent for hospitals with “low” ratings.<sup>3</sup>
- **The association of patient experience with financial performance is large, even after controlling for other hospital characteristics that can drive hospital performance.** Compared to other hospitals in the same market (hospital referral region (HRR)), and controlling for hospital characteristics, a 10 percentage point increase in the number of respondents giving a hospital a “top-box” (9 or 10 out of 10) rating is associated with an increase in net margin of 1.4 percent and in ROA of 1.3 percent compared to hospitals receiving a “bottom-box” (0 to 6 out of 10) rating. However, unlike lower-rated hospitals, those hospitals receiving “top-box” experience ratings also have other characteristics that are potentially associated with both patient experience and financial performance, and such factors might not be as easily replicated by lower performers.

The Deloitte Center for Health Solutions also studied the mechanisms through which the association between patient experience and hospital financial performance likely occurs. The results indicate that:

- **Hospitals with better experience levels earn disproportionately more than they spend compared to those with lower ratings.** Although higher patient experience scores appear to be associated with increases in revenue per adjusted patient day as well as in adjusted expenses, the magnitude of the effect is stronger for revenue. These results suggest that investments in patient experience increase costs but increase revenue even more, or hospitals with higher scores might have more resources to invest in patient experience.



- **A highly engaged staff likely boosts patient experience, translating into better performance.** Patient experience scores pertaining to interactions with nurses have the strongest association with hospital financial outcomes.
- **VBP incentives likely contribute a small amount to the association of patient experience with hospital financial performance.** Medicare VBP incentives (tied to patient experience) account for only seven percent of the association between patient experience and hospital financial performance, as measured by net margins.

Faced with multiple priorities and resource demands, health systems and hospitals may question the business value of collecting, analyzing, and acting upon patient experience data. However, these results suggest that good patient experience is associated with higher hospital profitability, and that this association is strongest for aspects of patient experience most closely associated with better care (in particular, nurse-patient engagement). The results could also suggest that better-performing hospitals make larger patient experience investments. However, given the market shift towards patient-centered care and renewed payer emphasis on patient experience as a core element of care quality, these analyses show that hospital executives should consider investing in the tools and technologies necessary to better engage patients and enhance patient experience. Furthermore, although patient-experience scores don't always reflect quality-of-care outcomes, these analyses suggest that those aspects of patient experience most closely associated with better care (communication with nurses), also have the strongest association with hospital financial performance.

## Introduction

Meeting patients' needs and earning better margins have become major focus areas for hospital executives facing payment pressures and the market shift towards value-based and patient-centered care. In a 2009 *Health Leaders* survey, over 90 percent of top-level hospital executives said that enhancing patient experience is one of their top priorities, and an overwhelming majority stated that the impact on patient experience is an important consideration in their decisions.<sup>4</sup>

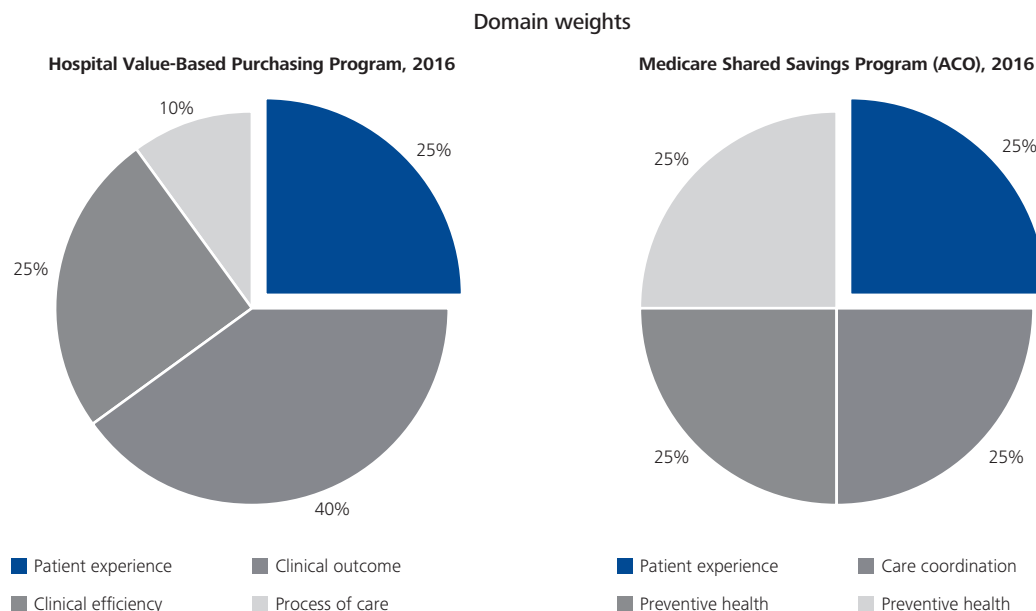
As patients increasingly "shop" for health care services, enhancing patient experience is regarded as a potential driver of hospital performance, since it may strengthen customer loyalty, build reputation and brand, and boost utilization of hospital services through increased referrals to family and friends. One of every two individuals surveyed in Deloitte's *2015 Survey of US Health Care Consumers* noted that brand and reputation were an important consideration in choosing a hospital.<sup>5</sup>

In addition, hospitals' reimbursements from Medicare and private insurers are increasingly tied to quality performance metrics that capture patient experience as well as clinical outcomes (Figure 1). Improving patient experience is one of the fundamental concepts underlying the Triple Aim approach to optimizing health system performance, and it is regarded as distinct from improving the technical quality and efficiency of care. Good patient experience is an

important outcome unto itself, as patients intrinsically value the interpersonal aspects of the clinician-patient relationship, such as communication, compassion, and an overall sense of being treated with dignity and respect.<sup>6</sup> Furthermore, although patient experience doesn't always correlate with high-quality care,<sup>7</sup> patient experience measures can address attributes of care that promote and increase quality.<sup>8</sup> For instance, eliciting the patient's perspective is considered essential in shared decision-making, understanding safety and confidentiality information, and understanding how care impacts the entirety of a patient's life.<sup>9</sup>

As such, many public and private payers have begun to recognize patient experience as a core element of quality. Since 2012, under the Hospital Value-Based Purchasing Program (VBP), hospital Medicare DRG payments are adjusted based on performance in three domains of care, of which patient experience currently accounts for 25 percent.<sup>10</sup> As Centers for Medicare and Medicaid Services (CMS) officials wrote regarding this decision, "Delivery of high-quality, patient-centered care requires us to carefully consider the patient's experience in the hospital inpatient setting." Private insurers and employers are increasingly tying payment to quality and patient experience, as well. For instance, value-based contracts represented 30 percent of Aetna's medical spend in 2014, and the insurer's goal is to increase this to 75 percent by 2020.<sup>11</sup>

**Figure 1. Patient experience is a major component of VBC program payments**



Source: Centers for Medicare and Medicaid Services

As a result, patient experience scores for factors as diverse as nighttime noise level and doctors' and nurses' communication skills have become a key performance measure for hospitals, as well as of at-risk pay for hospital executives. In 2014, two-thirds of not-for-profit institutions included quality incentives in their top executives' compensation (compared to only 45 percent in 2009), according to a survey by Sullivan Cotter & Associates.<sup>12</sup>

Despite these increased incentives for hospitals and executives, the business case for patient experience remains unclear, and relatively few hospitals score highly on patient-reported experience measures. For instance, in the new star-rating system CMS rolled out in 2015, of more than 3,500 hospitals to be evaluated only 251 got the highest score of five stars for patient experience.<sup>13</sup> In a different survey, over 45 percent of top-level executives noted either a lack of funding or an abundance of other (and presumably better-funded) priorities as stumbling blocks to implementing more strategies to enhance patient experience.<sup>14</sup>

However, our research suggests a strong association between enhancing patient experience and improving hospital performance. The results could also suggest that better-performing hospitals make larger patient experience investments. However, our analyses show that hospitals with higher patient experience ratings financially outperform lower-rated hospitals even after controlling for hospital and local area characteristics. We also identify some potential mechanisms through which the association between patient experience and hospital financial performance likely ensues. Given the market shift towards patient-centered care and renewed payer emphasis on patient experience as a core element of care quality, our analyses show that hospital executives should consider investing in the tools and technologies necessary to better engage patients and enhance patient experience – while also being mindful of their investments into other aspects of quality.

## The association between patient experience and hospital financial performance is strong

### Higher patient experience ratings are associated with higher profitability

To examine the relationship between patient experience and hospital performance, we analyzed hospital-level patient experience measure scores from the HCAHPS survey (see box), and hospital characteristics and local market metrics from the American Health Association (AHA) annual survey database and Truven Health.

#### HCAHPS survey experience scores

The HCAHPS survey is the first national, standardized, publicly reported survey of patients' perspectives of hospital care, and is administered between 48 hours and six weeks after discharge to a random sample of adult inpatients in the medical, surgical, and maternity care service lines.

Individual survey responses are adjusted for demographic patient mix and mode of administration, and are publicly reported in an aggregated manner as a set of 11 measures:

- Seven composite measures summarizing how well nurses, and respectively, doctors communicate with patients, how responsive hospital staff are to patients' needs, how well hospital staff help patients manage pain, how well the staff communicates with patients about new medicines, whether key information is provided at discharge, and how well patients understood the type of care they would need after leaving the hospital;
- Two individual measures addressing the cleanliness and quietness of patients' rooms; and
- Two global measures capturing patients' overall rating of the hospital on a 0 to 10 scale, and whether they would recommend the hospital to family and friends.

For our measures of hospital profitability, we used financial metrics (operating and net profit margins, and ROA) from the health care cost reports that hospitals are required to file with CMS (provided by Truven Health). The operating margin reflects the financial condition of a hospital's primary line of business (direct patient care), while the net profit margin shows a hospital's overall financial condition, including non-patient care revenue such as investment income and donations.

In comparing margins and ROA<sup>15</sup> for hospitals with different patient experience ratings, we found a strong correlation between patient experience and profitability. Between 2008 and 2014, hospitals with "excellent" overall patient experience ratings had a net margin of 4.7 percent, on average, compared with 1.8 percent for hospitals with "low" ratings. Similarly, on average, hospitals with "excellent" ratings returned 5.6 percent on assets invested between 2008 and 2014 compared to 3.4 percent for hospitals with "low" ratings. The trend has remained relatively consistent through the years (Figure 2).

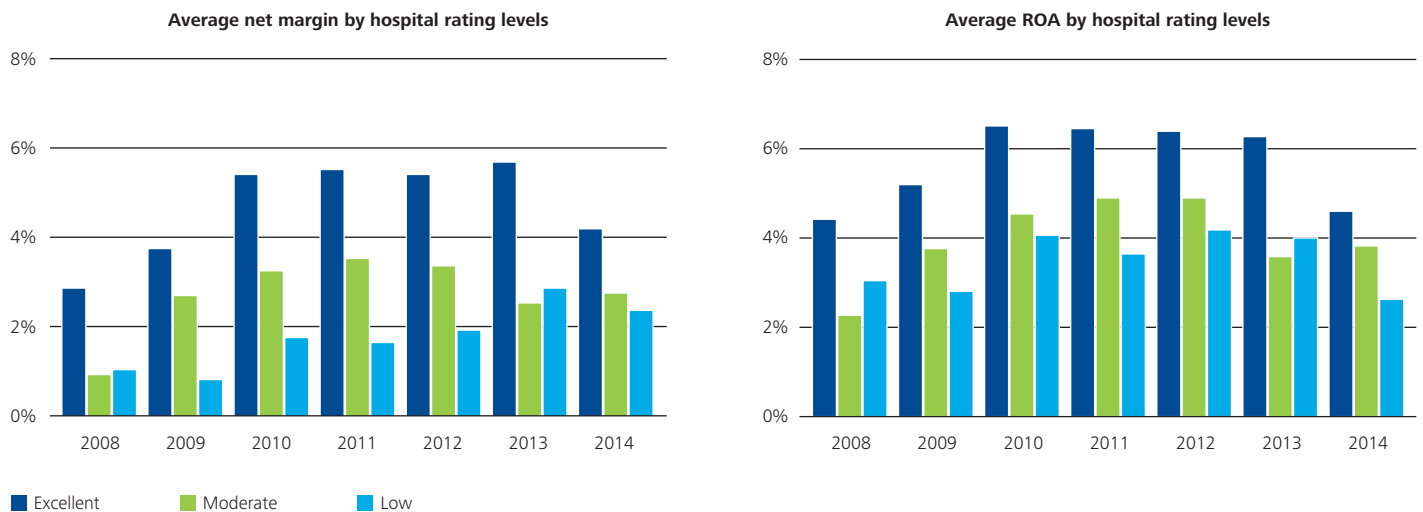
### How we classified hospitals on patient experience measures

For each of the HCAHPS measures, only the most positive ("top-box"), intermediate ("middle-box"), and most negative ("bottom-box") scores are publicly reported, so we constructed our HCAHPS experience variables as the percentage of respondents who chose "top-box" and "middle-box" responses.<sup>16</sup> The two main HCAHPS variables that we used in our regression analyses to capture overall patient experience ratings are, therefore, the percentage of respondents who gave the hospital a rating of 9 or 10 out of 10 ("top-box" responses), and the percentage of respondents who gave the hospital a rating of 7 or 8 out of 10 ("middle-box" responses).

For each of the 11 experience measures, we used the medians of the "top-box" and "middle-box" percentage of responses across all study hospitals to classify hospitals as follows:

- "Excellent" (hospitals with above-the-median "top-box" ratings)
- "Moderate" (hospitals with above-the-median "middle-box" ratings)
- "Low" (remaining hospitals)

**Figure 2. Hospitals with excellent patient ratings have higher profitability**

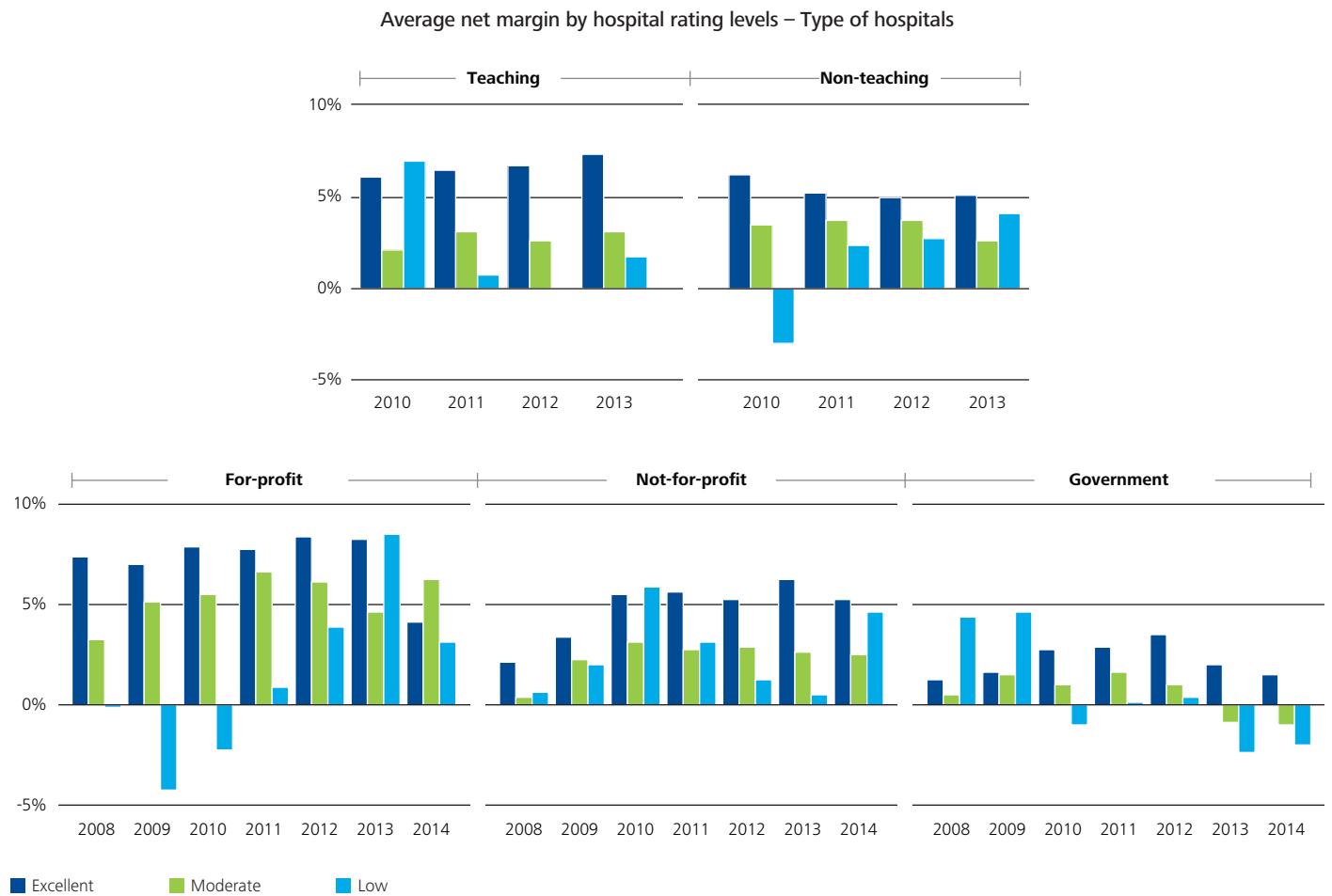


Source: Deloitte analysis of HCAHPS measures from CMS data; and financial performance data from Truven Health Medicare Cost Reports

Although both profitability and patient experience scores vary with hospital characteristics such as location (e.g., urban vs. rural), teaching status, and ownership type, the correlation between profitability and patient experience levels is present for all hospital types. For instance, government hospitals have lower margins,

on average, compared with their for-profit and not-for-profit counterparts. However, government hospitals with “excellent” patient ratings have consistently larger net margins relative to hospitals with “low” ratings (2.2 percent compared to 0.6 percent, on average) (Figure 3).

**Figure 3. Hospitals with excellent patient ratings have higher net margins irrespective of hospital type**



Note: Teaching classification (Teaching vs. Non-teaching) not available for 2008 and 2009

Source: Deloitte analysis of HCAHPS measures from CMS data; and financial performance data from Truven Health Medicare Cost Reports, and hospital characteristics from AHA annual survey database



### Regression analyses: Patient experience correlates significantly to hospital performance

Our descriptive analyses show that hospitals with “excellent” patient experience levels tend to have higher profitability than those with “moderate” or “low” levels, irrespective of hospital type. To better understand the importance of patient experience relative to other factors that could influence hospital profitability, we performed regression analyses (see Appendix) in which we used controls for hospital organizational characteristics (such as hospital size, urban/rural location, ownership type, teaching status, and being part of a system), for case and payer mix, as well as for local market HRR characteristics.

Regression results reveal that a 10 percentage point increase in the number of respondents giving a hospital a “top-box” (9 or 10 out of 10) rating is associated with an increase in net margin, operating margin, and ROA of 1.4 percent, 1.1 percent, and 1.3 percent, respectively, relative to hospitals receiving a “bottom-box” rating (0 to 6 out of 10). For hospitals receiving “middle-box” ratings (7 or 8 out of 10), an increase of 10 percentage points in the number of respective respondents is associated with an increase in net margin, operating margin, and ROA of 0.7, 0.4, and 0.7 percentage points, respectively, relative to “bottom-box” rated hospitals.<sup>17</sup>

To evaluate the contribution of patient experience relative to other factors that could influence hospital profitability, we also calculated how much of the difference in financial performance between hospitals can be explained by differences in patient experience scores, rather than, say, location, hospital ownership type, or payer and case mix. The average net margin difference between “excellent” and “moderate” hospitals was 2.6 percent between 2008 and 2014 (Figure 4). The regression results suggest that patient experience accounts for over 60 percent of this margin difference – after accounting for the association of other internal and external factors such as hospital size, location, ownership type, teaching status, part of a system, case and payer mix – indicating that patient experience strongly

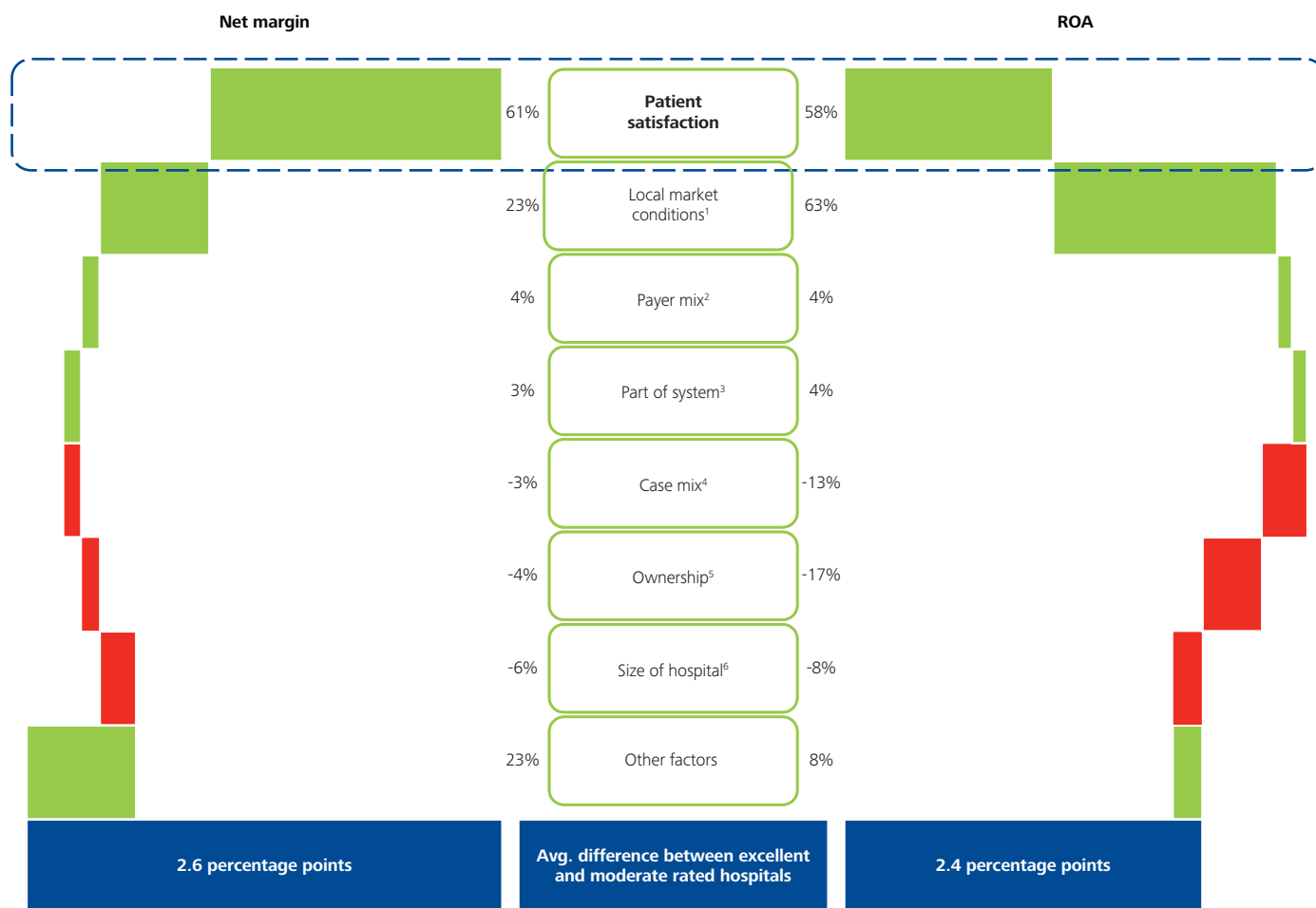


correlates to a hospital’s financial performance. Although we control for numerous observable hospital and local market characteristics, there are potentially *unobservable* factors that could confound the effect of patient experience. Examples of such qualitative hospital characteristics that are potentially associated with both patient experience scores and financial performance could include hospital culture, board and management practices, and leadership quality, among others. To account for such factors that could impact financial performance, we also performed “hospital fixed effect” regression analyses (see Appendix for details). In these type of analyses, rather than contrasting the financial performance of *different* hospitals (with different patient experience ratings) in the same local market, we examined whether year-to-year changes in patient experience *for the same hospital* are systematically related to changes in that hospital’s financial outcomes.

The regression results suggest that such unobservable factors may be more strongly associated with the financial performance of “top-box” rated hospitals than that of “medium-box” rated hospitals. In these analyses, a 10 percentage point increase in number of respondents giving a particular hospital a “top-box” rather than “bottom-box” rating is associated with an increase in net margins of 0.3 percent (rather than 1.4 percent in the previous regression analyses). However, for hospitals with “middle-box” ratings the increase in net margins associated with patient experience relative to “bottom-box” rated hospitals is essentially the same (0.7 percent) compared to previous regression analyses. The association of patient

experience with hospital profitability in the fixed effects analyses, though still considerable, might, in fact, be an underestimate since some of these unobservable factors could also bolster the effect on patient experience. For instance, a recent *Health Affairs* article found that hospitals with boards that relied on and valued clinical quality metrics had stronger financial performance as well as better quality outcomes.<sup>18</sup> Such board and management practices could be complementary to, and help increase the likely financial returns on investments in patient experience. Nevertheless, such factors might not be as easily replicated by lower-performing hospitals.

**Figure 4. Patient experience scores are strongly associated with hospital financial performance**



Source: Deloitte analysis of HCAHPS measures from CMS data; and financial performance data from Truven Health Medicare Cost Reports, and hospital characteristics from AHA annual survey database. See Appendix for a description of these variables.



### Mechanisms through which patient experience could improve hospital financial performance

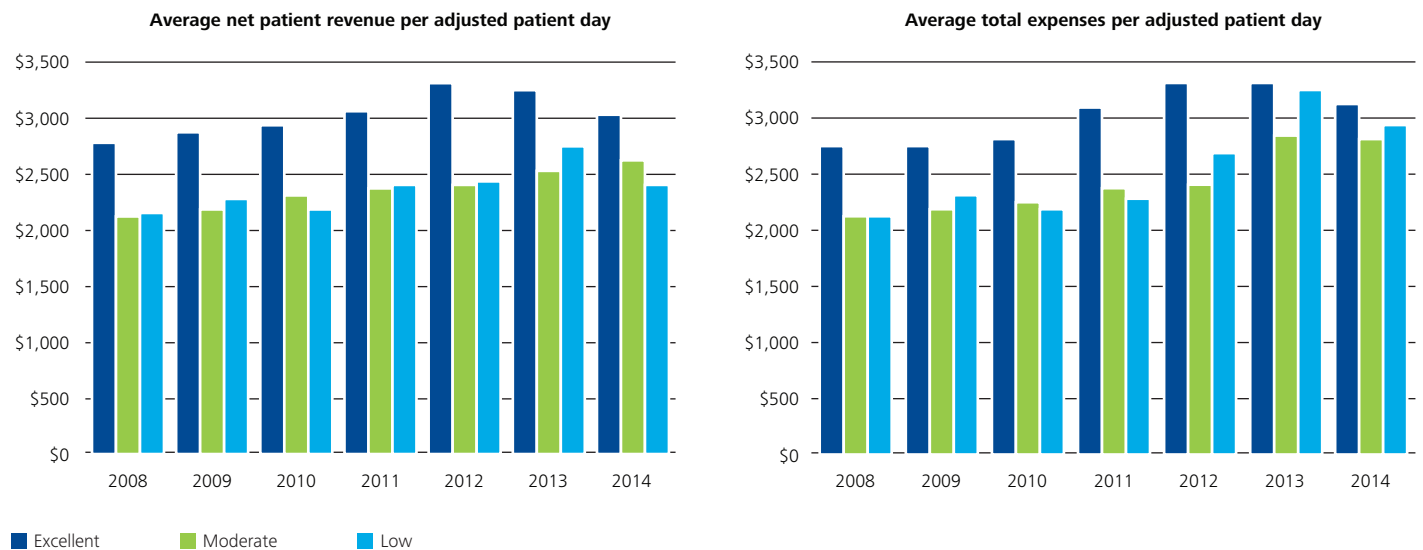
What are the mechanisms through which patient experience could potentially contribute to improving hospital financial performance? Although the association between the two is complex and multi-faceted, we are able to shed light on some of the potential pathways through which it might occur.

#### Hospitals with better patient experience appear to focus more on revenue than costs

Organizations that outperform their peers and the market in the long term tend to focus on “revenue before costs.”<sup>19</sup> In other words, they tend to drive profits through price and volume, rather than cost-cutting. This practice appears to hold true for patient experience-enhancing strategies, as well.

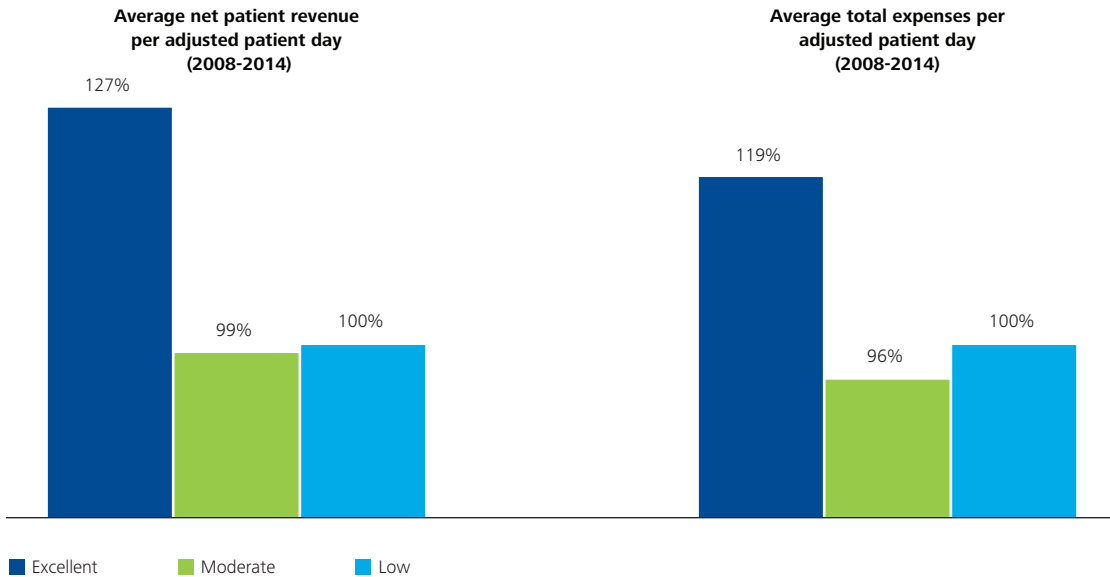
We analyzed net patient revenue and total expenses per adjusted patient day for different HCAHPS patient experience ratings. In both the descriptive analyses and when we control for hospital and market characteristics in regression analyses, we found that hospitals with better overall patient ratings had higher revenue as well as higher total expenses per adjusted patient day compared to those with lower ratings (Figure 5). For instance, hospitals with better experience levels earn \$444 more revenue than those with lower ratings but spend only \$357 more (Figure 6). These results suggest that while investments in patient experience increase costs they increase revenue even more; or that hospitals with higher rankings might have more resources to invest in patient experience.

**Figure 5. Hospitals with better patient ratings have higher revenue and expenses per patient day**



Source: Deloitte analysis of HCAHPS measures from CMS data; and financial performance data from Truven Health Medicare Cost Reports

**Figure 6. Hospitals with better patient ratings earn disproportionately more revenue per patient day than those with low ratings**



Source: Deloitte analysis of HCAHPS measures from CMS data; and financial performance data from Truven Health Medicare Cost Reports

### VBP incentives may contribute little to the patient experience effect

Since Medicare’s Hospital Value-Based Purchasing (VBP) program ties patient experience to higher incentive payments, we also checked whether the patient experience-hospital performance association could simply be ascribed to increased revenue from VBP incentive payments.

In our regression analyses, controlling for the VBP scores used by CMS to adjust Medicare payments to hospitals only slightly reduces the association of patient experience with net margins. In other words, even when we compare hospitals with similar VBP scores (as well as other similar hospital characteristics) the association of patient experience with net margins is still considerable.

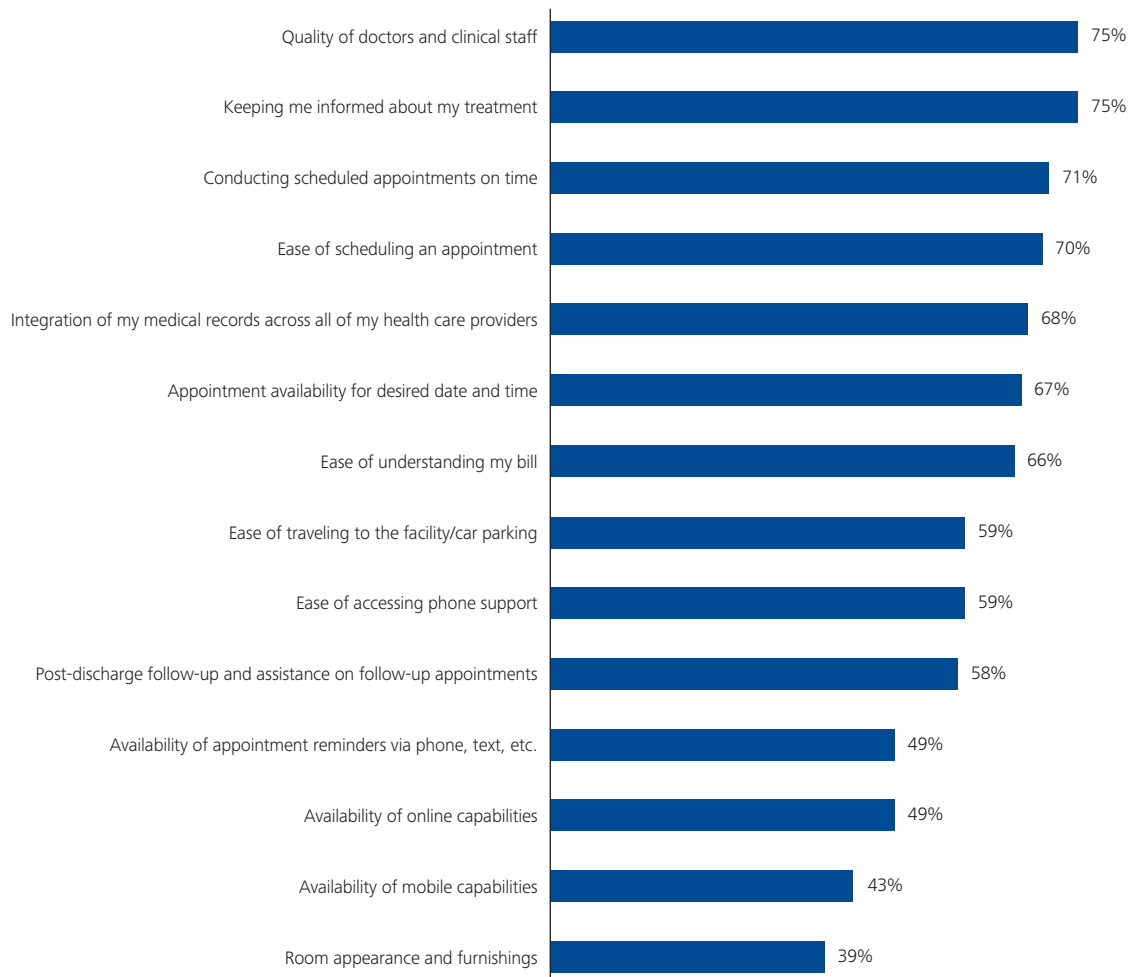
Only a small fraction (seven percent) of the association between higher patient experience and increased net margins likely is due to higher VBP payments when we compare “excellent” hospitals with “moderate” hospitals. The reason for this appears to be that hospitals with “excellent” and “moderate” ratings have relatively similar shares of Medicare patients compared to lower-rated hospitals; however, they have only slightly higher shares of patients with complex or more severe conditions or in intensive care facilities, and only slightly higher (if at all) VBP scores.

### An engaged staff might boost patient experience

What are some of the main drivers of patient experience in health care? Deloitte’s 2015 Survey of US Health Care Consumers found that staff engagement measures (such as quality of staff, staff communication and responsiveness, and appointment ease), among others, were the most important drivers of patient experience (Figure 7). Improving hospital staff’s and, in particular, nurses’ work environment may lead to improvements in patient experience. A 2009 *Health Affairs* study of 430 hospitals showed that a better nurse work environment was associated with higher scores on patient-experience survey questions.<sup>20</sup>

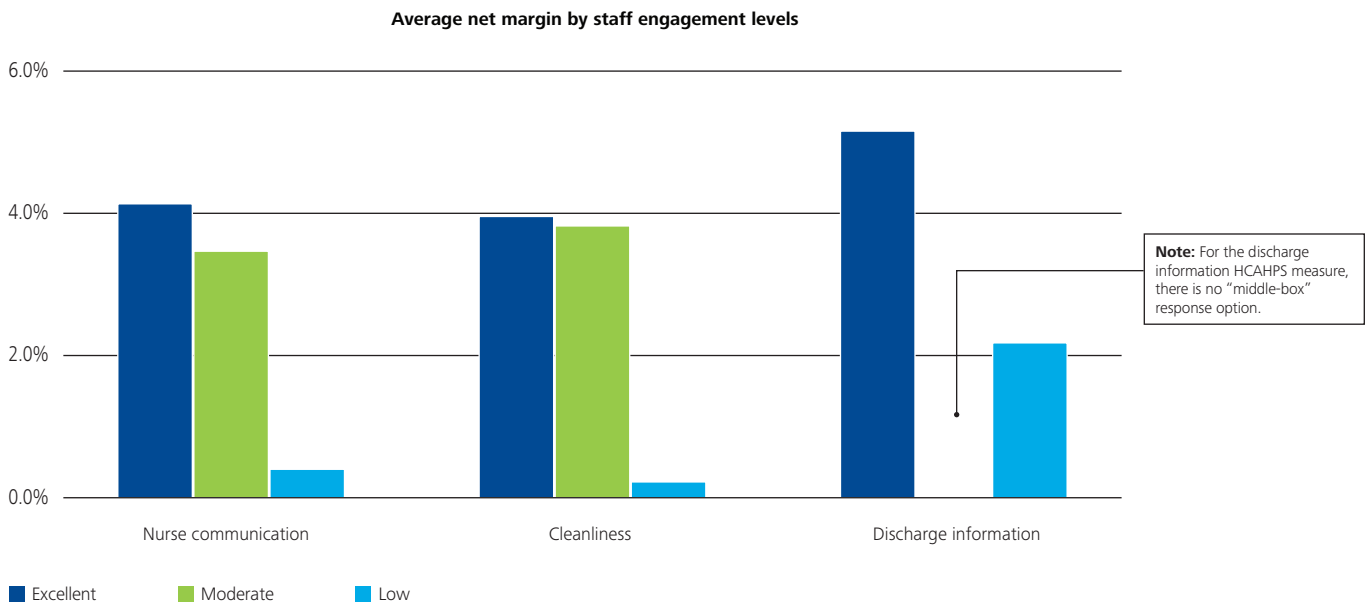
Analyses of the association between HCAHPS domains of patient experience and hospital financial performance are consistent with these survey findings. Of the eight non-global HCAHPS measures for which we had data, only nurse communication, discharge information, and cleanliness had a strong correlation with hospital financial performance in the descriptive and regression analyses (Figure 8); the association with increased profitability was strongest for high nurse communication scores.<sup>21</sup>

**Figure 7. Important factors in patient health care experience**



Source: Deloitte Center for Health Solutions: 2015 Survey of US Health Care Consumers

**Figure 8. Better staff engagement is associated with higher profitability**

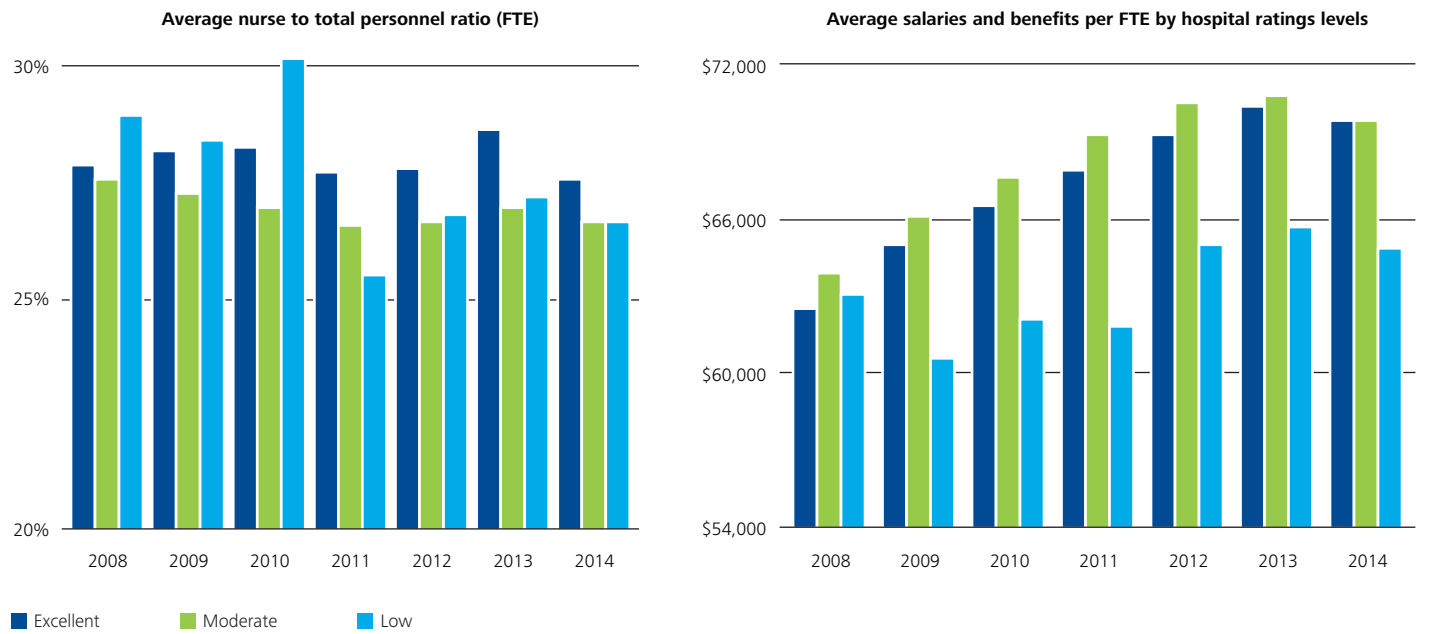


Source: Deloitte analysis of HCAHPS measures from CMS data; and financial performance data from Truven Health Medicare Cost Reports

Our analyses also show that hospitals with high patient experience levels have slightly higher nurses and physicians to total full-time equivalents (FTEs) ratios. These hospitals also tend to have higher salaries and better benefits, on average, than hospitals with lower experience ratings, but not moderately ranked hospitals (Figure 9). When we controlled for the proportion of nurses in the FTE mix (as

well as total FTEs and salaries) in the regression analyses, we found that the association of the nursing staff variable with profitability was significant, and that the association of the overall experience measures with hospital performance was reduced. These results are consistent with nurse staffing as a potential lever for the association between better patient experience and increased hospital profitability.

**Figure 9. Hospitals with higher engagement ratings have a higher nurse FTE ratio, higher staff salaries, and better benefits**



Source: Deloitte analysis of HCAHPS measures from CMS data; and financial performance data from Truven Health Medicare Cost Reports, and hospital characteristics from AHA annual survey database

## Investing in patient experience

Our results show that patient experience has a strong association with hospital financial performance as measured by margins and ROA. Although the results also could be suggestive of better-performing hospitals making larger patient experience investments, hospitals with higher patient experience ratings financially outperform lower-rated hospitals even after controlling for hospital and local area characteristics. Given the market shift towards patient-centered care and renewed payer emphasis on patient experience as a core element of care quality, our results suggest that hospitals should consider investing in the mechanisms, tools, and technology necessary to better

engage patients and enhance patient experience – from making appointment scheduling easier to increasing shared decision-making to offering convenient payment processes and effective care follow-up.

Patient expectations regarding engagement, transparency, quality, and the overall health care experience have been increasing (Figure 10). In the Deloitte 2015 Survey of US Health Care Consumers, over 50 percent of respondents said that they would likely switch hospitals due to inadequate information-sharing and communication, and difficulty in reaching a health professional by phone or email.<sup>22</sup>

**Figure 10. Today's patients have higher expectations of health care providers**





## Are patient-reported experience measures valuable and valid or are they leading care astray?

Patient-reported experience measures and tools that track satisfaction with different care aspects are increasingly used to evaluate patient experience. Although both supporters and opponents of patient-reported experience measures agree that they are important, they disagree about their uses and potential consequences.

### Valuable and valid



**Patient's perspective.** Eliciting the patient's perspective is essential to shared decision-making and understanding how care impacts the entirety of a patient's life.<sup>26</sup> In addition, patient-experience measures might capture aspects of care (such as compassion and respect) that may not affect health outcomes but might improve a patient's sense of dignity and well-being.



**Transparency.** Given the increasingly active role that consumers play in choosing health care providers (and the greater share of costs borne by patients), transparency is essential. Patient experience measures can provide valuable information to help patients make informed choices and help providers identify and target opportunities for improvement.



**Quality and safety.** Patient experience measures can address attributes of health care that promote care quality. For instance, effective patient communication with clinicians can aid in successful care planning and decisions about most clinical interventions, as well as in understanding safety and confidentiality information. Patient experience has been shown to be positively associated with many quality and safety outcomes, such as adherence to clinical guidelines, increased preventative behaviors, and lower inpatient mortality.<sup>27</sup> Although patient (rather than provider)-level studies exist that show a more mixed or even negative effect on care quality, with regards to CAHPS surveys, a recent study noted that they are not developed or validated for patient-level analysis, and that "no scientifically credible research conducted at the provider level... has found an empirical linkage between higher scores on patient-experience surveys and lower technical quality, inferior health outcomes, or higher costs of care."<sup>28</sup>



**Validation.** Improving patient experience (together with improving technical quality and care efficiency) is one of the fundamental concepts underlying the Triple Aim approach to optimizing health system performance, and it is recognized as such by key stakeholders including CMS. Improvement in any of the Triple Aims is regarded as a worthwhile goal, especially when it is achieved without sacrificing performance in other aims. Internationally, patient-reported experience measures are also used to evaluate health care in terms of clinical effectiveness and economic efficiencies.<sup>29</sup>

### Leading health care astray



**Subjectivity.** Patient-reported experience measures are inherently subjective, and sick patients are not necessarily "cool-headed consumers."<sup>30</sup> Factors as diverse as sociodemographic characteristics, health status, and personality can influence patient experience.<sup>31</sup> Although respondent randomization in studies like HCAHPS accounts for these factors for a given provider, comparisons across providers is more complex without additional information on patient mix.



**Unobservable care aspects.** Certain facets of care – such as a doctor's skill and judgement, staff teamwork, and compliance with surgical protocols – cannot be directly observed by patients and, thus, cannot be accurately reflected by experience metrics.<sup>32</sup> For example, an anaesthetized patient's experience would not capture the skill or safety of procedures within the operating theatre. However, the patient could still rate care processes outside of the operating theatre, such as administrative procedures, ward cleanliness, and discharge practices, which would be relevant to overall quality of care.



**Unnecessary or inappropriate care.** Catering to patient experience might lead to the provision of unnecessary or even inappropriate care. For instance, providers might feel reluctant to deliver bad news and, therefore, hold back important information, or might feel pressured to comply with all patient requests, even unreasonable ones, such as making unnecessary referrals or prescribing brand-name medications.<sup>33</sup>



**Unintended consequences.** Too narrow a focus on patient experience may lead to unintended consequences such as cosmetic changes to improve hospital ratings, teaching to the test, and outright gaming of the system. For instance, some anecdotal evidence suggests that in pursuing higher experience ratings, some hospitals have made investments in "four-star-hotel" amenities unlikely to be related to care quality, such as valet parking, live music, flat-screen televisions, and VIP lounges to patients in their "loyalty programs."<sup>34</sup> Although such reports are concerning, unintended provider responses to performance measures are not uncommon and can be addressed through oversight, monitoring, and incentive design refinement.



Given today's changing industry landscape, health care providers that are able to anticipate, meet, and even exceed patient needs are more likely to be financially successful. Leadership and employee alignment and accountability for patient experience as a strategic imperative should be backed by investments that leverage digital technology as well as patient insights. For instance, investments in such areas as high-touch customer interactions and omni-channel patient access could empower patients to make quick and informed decisions. In the Deloitte consumer survey, two out of three health care customers noted that using health technology (for purposes such as measuring fitness, checking cost of care, and receiving reminders and alerts) has changed their health care behavior to a "moderate" or a "great" extent.<sup>23</sup>

However, patient experience investments should not come at the expense of reduced investments in clinical quality.<sup>24</sup> It is important to recognize that patient expectations do not always map to provider requirements (Figure 10). Patients sometimes place greater weight on care aspects that are not as strongly associated with better care outcomes; for instance, valuing more amenities rather than clinical ability. Furthermore, too narrow a focus on patient experience may lead to unintended consequences, such as making non-care-related cosmetic changes to hospitals to improve ratings, or effectively teaching to the test.<sup>25</sup> As such, hospital executives should be mindful of prioritizing patient experience that does not also enhance quality.

Although patient-experience scores might not always or fully reflect hospital care quality, our results suggest that those aspects of patient experience most closely associated with better care (such as communication with clinicians, especially nurses) have the strongest impact on hospital financial performance. In our analyses, improving nurses' work environments, including staffing, may lead to improvements in patient experience as well as help bolster financial performance. Enhanced nurse work environments have been shown to improve quality, as measured by fewer patient deaths, reduced failure-to-rescue rates, shorter hospital stays, and lower readmission rates.<sup>35</sup> As such, focusing on the commitment of hospital staff – nurses in particular – to consistent and productive engagement with patients and caregivers could assist hospitals in transitioning to a true patient-centered culture while also potentially improving quality and financial performance.

## Appendix

### Regression analysis

Deloitte performed regression analyses to analyze the association between HCAHPS scores and hospital financial performance. To understand the importance of patient experience relative to other factors that could influence hospital profitability we used controls for hospital organizational characteristics (such as hospital size, urban/rural location, ownership type, teaching status, and being part of a system) for case and payer mix, as well as for local market conditions.

### Main regression models

Our main regression specification was of the following linear form:

Financial performance metric = f(patient experience scores, hospital organizational characteristics, case and payer mix, local market characteristics, year indicators)

where the regression variables are as follows:

- Hospital financial performance metric: either net margin, operating margin, or return on assets (ROA). We followed previous work and categorized the top and bottom percentiles of our financial measures as missing data, so as to diminish the potential for outlier values to affect the analyses<sup>36</sup>
- Patient experience variables:
  - “Top-box” and “middle-box” overall patient experience scores: the percentage of respondents who gave the hospital a rating of 9 or 10 out of 10 (“top-box” responses), and the percentage of respondents who gave a particular hospital a rating of 7 or 8 out of 10 (“middle-box” responses)
  - In alternate specifications, “top-box” patient experience scores for the eight non-Global HCAHPS domains for which we had data: nurse and doctor communication with patients, responsiveness of hospital staff to patients’ needs, staff communication about new medicines, provision of key information upon discharge, and understanding of care needs after leaving the hospital<sup>37</sup>
- Payer and case mix variables: Medicare and Medicaid shares in payer mix, an indicator for disproportionate (i.e., larger than median) share of Medicaid patients relative to other hospitals in a similar location, case mix index, intensive care indicators, and non-acute share in total patient days

- Hospital organizational characteristics: indicator for the hospital being part of a system, ownership (indicators for government and not-for-profit hospital ownership) and size (indicators for small and medium hospitals)
- Local market conditions: area wage mix index, critical access indicator, urban location indicator, 457 hospital referral region indicator
- Indicators for each year between 2009-2014

In these regression models, the unit of observation is the hospital-year cell. Since we include hospital referral regions and year indicators, the association between patient experience and hospital financial performance is estimated from changes in HCAHPS experience ratings in a given hospital over time, as compared to other hospitals with similar characteristics in the same hospital referral region (HRR). We correct the standard errors for clustering on state and year.<sup>38</sup>

### Hospital fixed-effects regression models:

The main regression model uses year and HRR indicators to account for potentially unobservable trends over years and across HRRs. Nevertheless, even with this HRR fixed-effects approach there are potentially unobservable factors (such as hospital culture, board and management practices, and leadership quality, among others) that could confound the effect of patient experience.

To account for such factors that might be less amenable to quantification, we also took advantage of the longitudinal nature of our data, and performed additional hospital fixed-effects analyses, where we replaced the HRR indicators with individual hospital indicators in our regression model. In these analyses, rather than contrasting the financial performance of hospitals (with different patient experience scores) within the same HRR, we analyzed whether year-to-year changes in patient experience for the same hospital were systematically related to changes in that hospital’s financial outcomes.

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15. We trimmed our ROA variable at 5 percent so as to diminish the potential for outlier values to affect the analyses.
16. The "top-box" response is "Always" for the first nine measures except discharge information, "Yes" for the discharge information and "Definitely yes" for the recommend the hospital item. The "middle-box" response is "Usually" for the first nine measures except discharge information, "Probably yes" for the Recommend the Hospital item. There is no "middle-box" response in the Discharge Information composite.
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### Acknowledgements

We wish to thank Mitch Morris, Sarah Thomas, Kenneth Abrams, Felix Matthews, Jerald Bruno, Lynn Gonsor, Ian Mast, Samantha Sheridan, Samantha Gordon, Kathryn Robinson Honeycutt, Aleem Khan, Kiran Vipparthi, Clare Kaczmarek, Casey Korba, and the many others who contributed their ideas and insights to this project.



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