

Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

Supplement to: Jha AK, Orav EJ, Zheng J, Epstein AM. Patients' perception of hospital care in the United States. *N Engl J Med* 2008;359:1921-31.

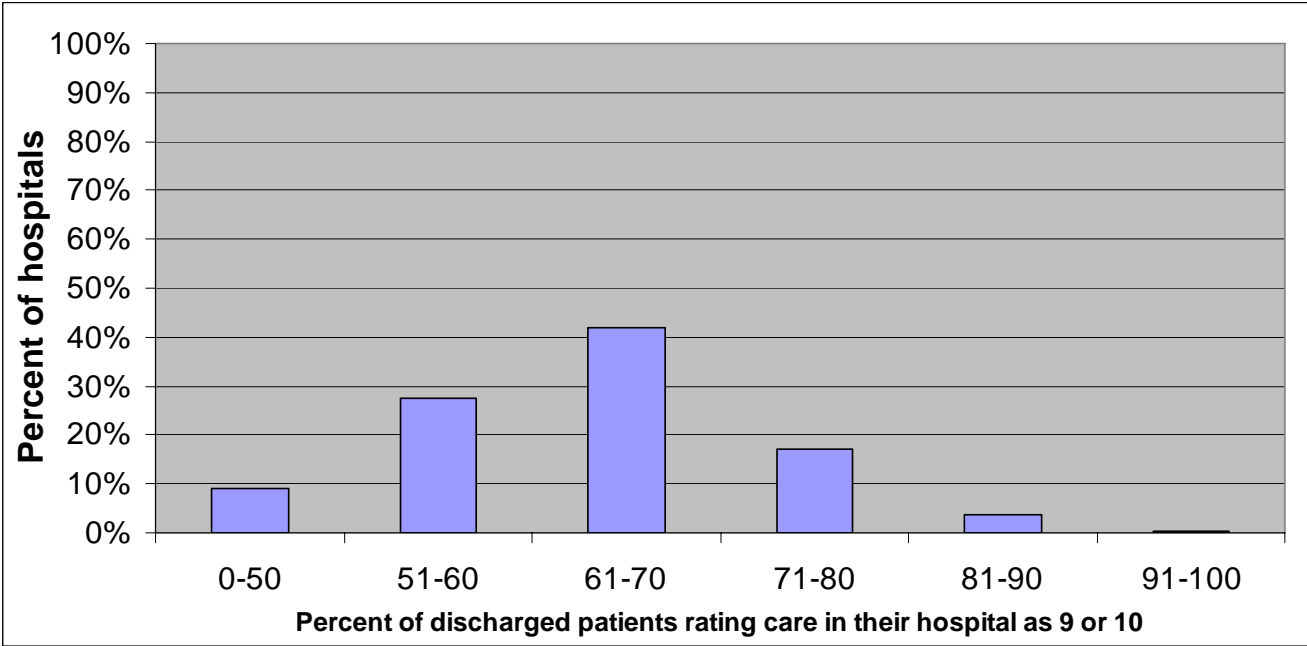
Appendix 1: HCAHPS Survey Questions

<i>Dimensions of Care</i>	<i>Question</i>
Domain #1: Communication with nurses	Q1 During the hospital stay, how often did nurses treat you with courtesy and respect?
	Q2 During the hospital stay, how often did nurses listen carefully to you?
	Q3 During the hospital stay, how often did nurses explain things in a way you could understand?
Domain #2: Communication with doctors	Q5 During the hospital stay, how often did doctors treat you with courtesy and respect?
	Q6 During the hospital stay, how often did doctors listen carefully to you?
	Q7 During the hospital stay, how often did doctors explain things in a way you could understand?
Domain #3: Communication about medication	Q16 Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?
	Q17 Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?
Domain #4: Nursing Services	Q4 During the hospital stay, after you pressed the call button, how often did you get help as soon as you wanted?
	Q11 How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?
Domain #5: Discharge information	Q18 After you left the hospital, did you go directly to your home, to someone else's home, or to another health facility?
	Q19 During your hospital stay, did hospital staff talk with you about whether you would have the help you needed when you left the hospital?
	Q20 During your hospital stay, did you get information in writing about what symptoms of health problems to look out for after you left the hospital?
Domain #6: Pain control	Q13 During this hospital stay, how often was your pain well controlled?
	Q14 During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?
Domain #7: Clean Environment	Q8 During the hospital stay, how often were your room and bathroom kept clean?
Domain #8: Quiet Environment	Q9 During the hospital stay, how often was the area around your room quiet at night?
Overall Experience: Rating 1 to 10	Q21 Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital?
Overall Experience: Recommending Hospital	Q22 Would you recommend this hospital to your friends and family?
About you	Q23 In general, how would you rate your overall health?
	Q24 What is the highest grade or level of school that you have completed?
	Q25 Are you of Hispanic or Latino origin or descent?
	Q26 What is your race? Please choose one or more.
	Q27 What language do you mainly speak at home?

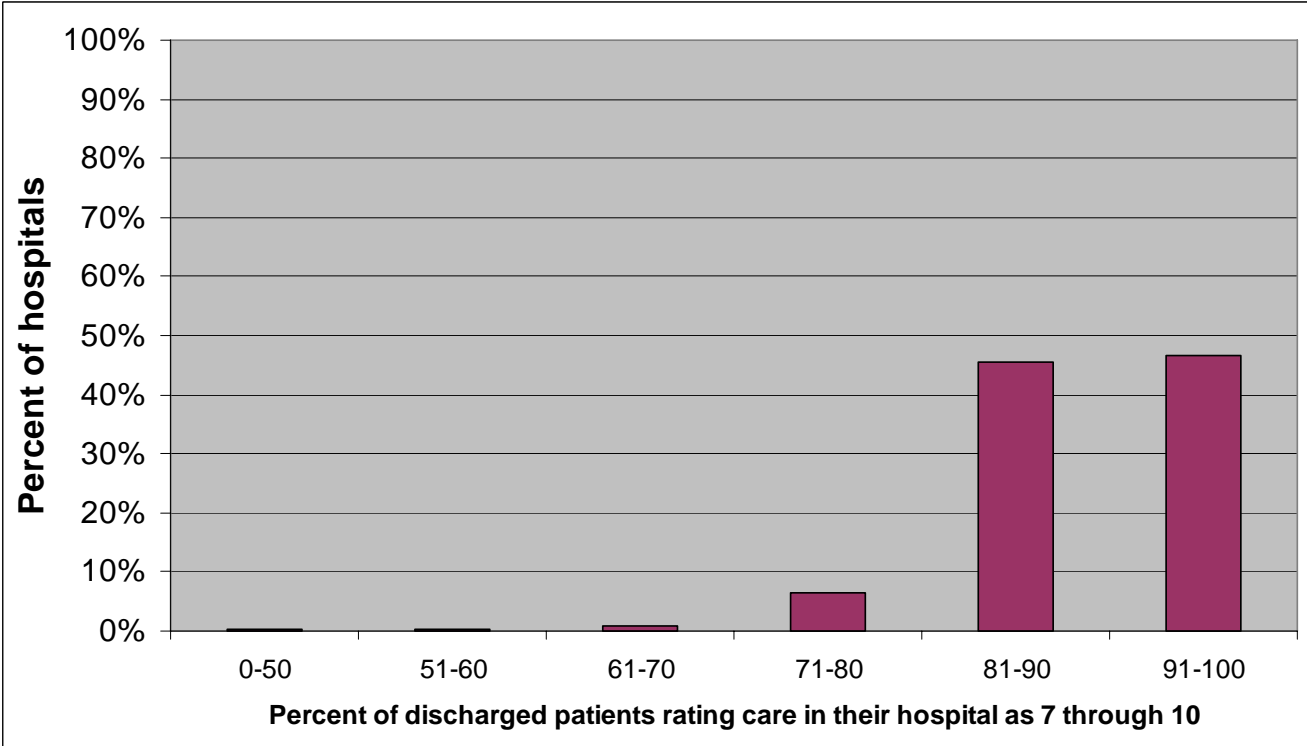
Appendix 2: Hospital Quality Alliance Quality of Care Process Measures

Acute Myocardial Infarction	Aspirin within 24 hours of admission
	Aspirin at the time of discharge
	Angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) for left ventricular systolic dysfunction (LVSD)
	Beta-blocker within 24 hours of admission
	Beta-blockers at the time of discharge
	Fibrinolytic medication received within 30 minutes of hospital arrival
	Percutaneous coronary intervention (PCI) Received Within 90 Minutes Of Hospital Arrival
	Smoking cessation advice or counseling among smokers
Congestive Heart Failure	Evaluation of left ventricular systolic function
	ACE inhibitor or ARB for LVSD
	Discharge instruction that address activity level, diet, medications, follow-up appointment, weight and symptom monitoring
	Smoking cessation advice or counseling among smokers
Pneumonia	Oxygenation assessment
	Initial antibiotic therapy begun within 6 hours of arrival
	Pneumococcal vaccination status
	Influenza vaccination status
	Blood cultures performed prior to antibiotics being started
	Appropriate initial antibiotic selection
	Smoking cessation advice or counseling among smokers
Surgical Care Improvement	Prophylactic antibiotic received within 1 hour prior to surgical incision
	Prophylactic antibiotics discontinued within 24 hours after surgery end time
	Appropriate prophylactic antibiotic selection
	Recommended venous thromboembolism prophylaxis ordered
	Received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery

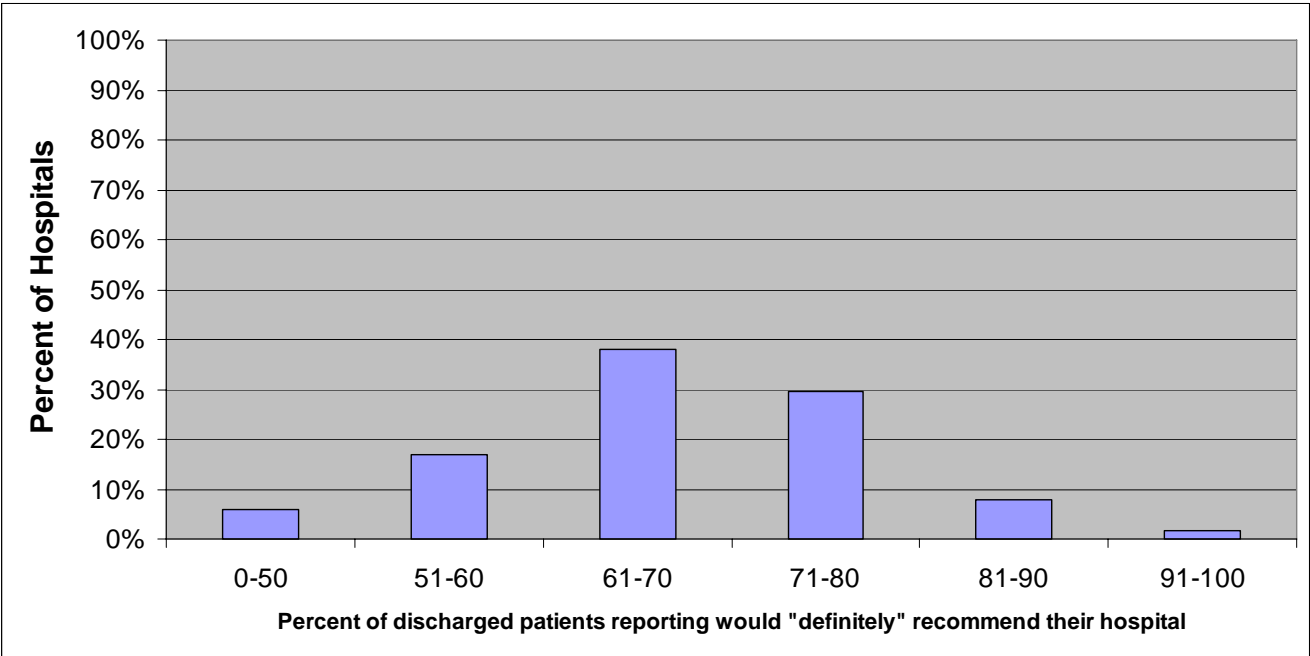
Appendix 3a. Distribution of performance on percent of patients who rated hospital care as 9 or 10.



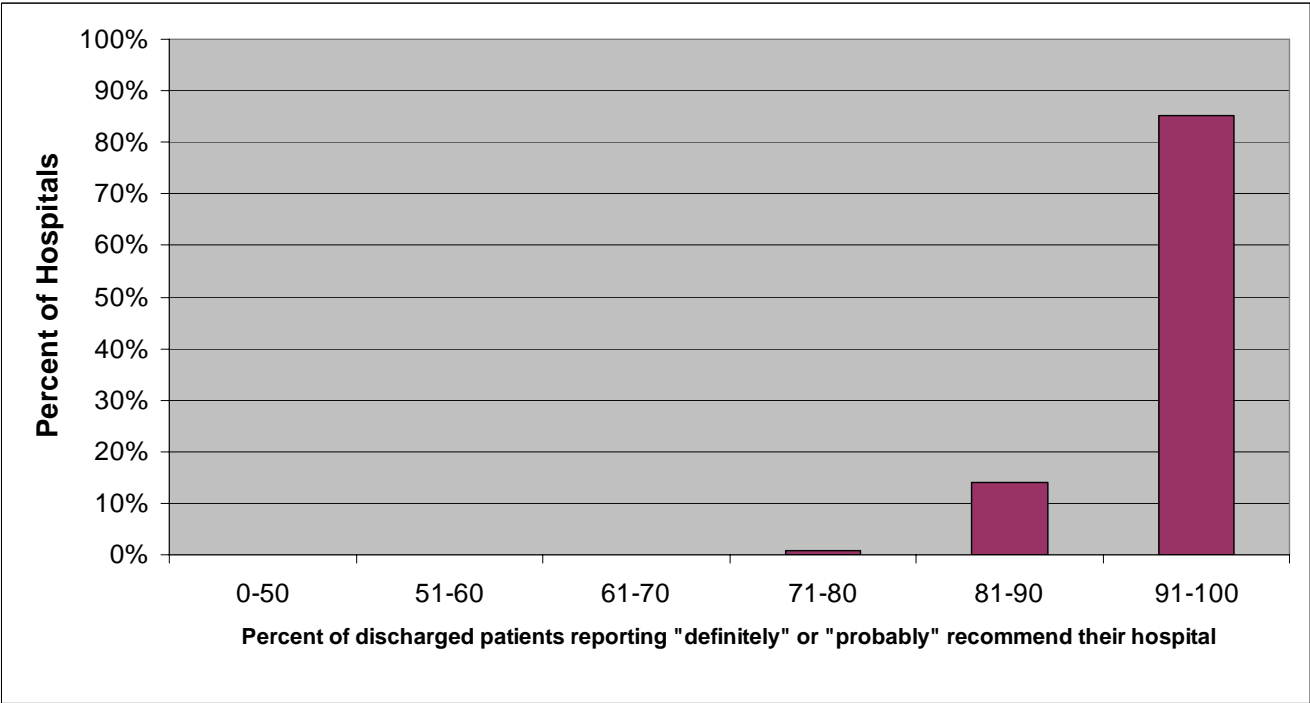
Appendix 3b. Distribution of performance on percent of patients who rated hospital care as 7 to 10.



Appendix 3c. Distribution of performance on percent of patients who definitely recommend hospital.



Appendix 3d. Distribution of performance on percent of patients who definitely or probably recommend hospital.



Appendix 4. Correlations among Individual Domains of Patient Experience

	Communication with doctors	Communication with nurses	Nursing service	Communication about medications	Pain control	Room quiet	Room clean	Discharge instructions	Recommend hospital	Overall Rating
Communication with doctors	1	0.81	0.61	0.77	0.75	0.64	0.60	0.44	0.55	0.62
Communication with nurses		1	0.75	0.81	0.86	0.58	0.70	0.58	0.70	0.77
Nursing service			1	0.56	0.63	0.40	0.62	0.32	0.46	0.56
Communication about medications				1	0.78	0.58	0.63	0.61	0.63	0.69
Pain control					1	0.59	0.63	0.57	0.69	0.75
Room quiet						1	0.51	0.32	0.48	0.56
Room clean							1	0.46	0.52	0.62
Discharge instructions								1	0.60	0.61
Recommend hospital									1	0.91
Overall Rating										1

Technical appendix:

Sampling: All patients who spent at least one night in the hospital, were 18 years of age or older, were admitted with a non-psychiatric diagnosis, and were alive at the time of discharge were eligible for the survey. A small number of patients was excluded because the patients had requested not to be contacted after discharge, were prisoners, had a foreign home address, were discharged to hospice care, or were excluded for state regulations. The details of the inclusion and exclusion criteria are available from CMS at www.hcahpsonline.org.

Modes of administration: Hospitals are required to use approved vendors for data collection. The surveys are available in English, Spanish, and Chinese and administered using up to four different modes: mail, telephone, interactive voice recognition, and a mixed mode approach. Because the different modes have varying levels of response rates and response levels (i.e. patients are generally more favorable about their care on the phone than via mail), mode-type adjustments are made to the data to ensure comparability across hospitals that use different survey administration modes.

Sample size and response rates: Hospitals reported results based on surveys of varying number of patients: 1898 hospitals (76%) had 300 or more completed responses, another 540 hospitals (21%) had between 100 and 299 completed responses and 79 hospitals (3%) reported data based on fewer than 100 completed responses. The response rates for surveys varied between hospitals with a mean response rate of 35.9%. The data were adjusted, as described below, to account for non-response bias.

Case-mix and non-response bias adjustment: Pilot studies using HCAHPS surveys consistently found that patient factors, such as age, education, self-reported health status, primary language (English

versus not), source of admission (ER versus not), type of care received (medical versus surgical versus obstetric) each had important effects on whether patients responded to the survey and how favorably they rated their hospital care. All HCAHPS data were therefore also adjusted for these patient-level factors. The preliminary work on HCAHPS data found that the adjustment for these variables helped reduce the non-response bias substantially. The details of the adjustment by mode, patient-factors, and for non-response, including specific models and adjustment coefficients are available from at www.hcahpsonline.org.

Public Reporting of Composites: There are six domains that are reported as composite scores (communication with nurses, communication with doctors, communication about medications, nursing services, discharge information, and pain control). In order to calculate composite scores, the response to each item within the composite was averaged together in a manner analogous to the "opportunities" model used to calculate the HQA summary scores for individual conditions. For example, the domain "communication with nurses" is a composite of three items: How often did the nurses treat you with courtesy and respect? How did the nurses listen carefully to you? And, how often did the nurses explain things in a way that you could understand? To produce a composite score for this domain, the proportion of patients in each response category for each question is calculated. Subsequently, the average proportion of those responding to each category is then calculated across all three questions in this domain. For example, a hospital's score of nurses "always" communicated well is the average of the proportion of patients who answered "always" to the individual questions within this domain. In domains with two questions, such as adequacy discharge information, the score is the average of the proportion of patients who answered "yes" to the two individual questions within that domain.