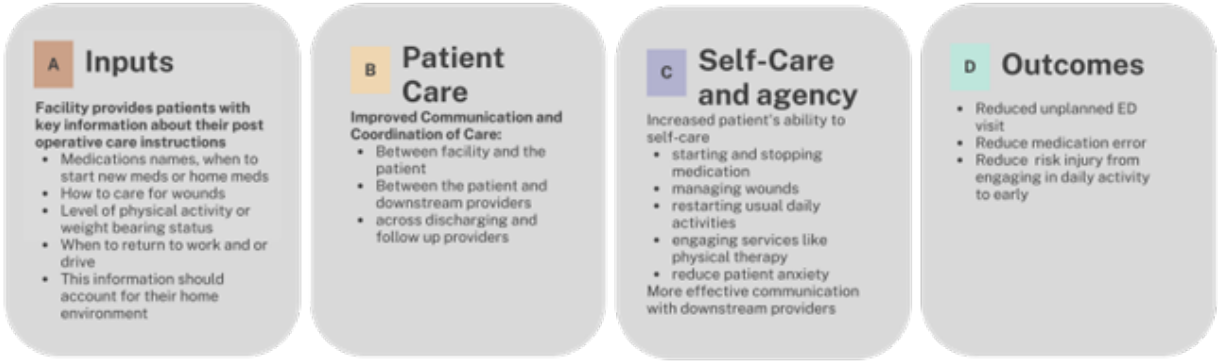
Information Transfer PRO-PM Table of Contents

Information Transfer PRO-PM Logic Model



Information Transfer CBE Submission Form: List of Tables and Figures

Figure 1. Information Transfer PRO-PM Logic Model

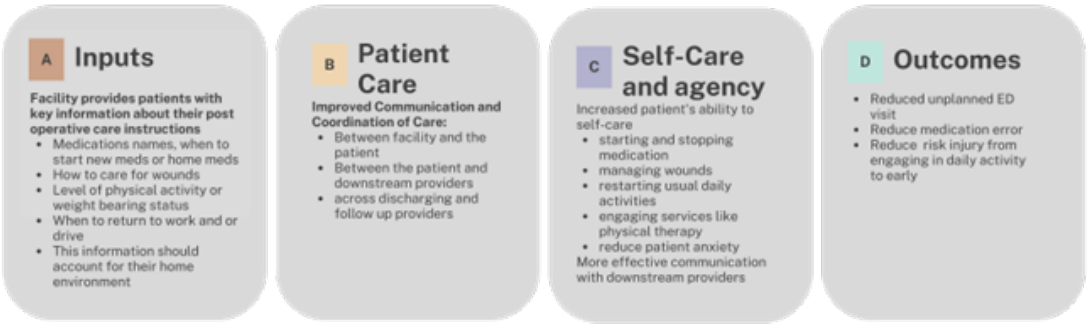


Table 1. Description of Participating HOPDs

Facility Characteristics	**N = number of facilities**
Total number of Facilities	26
Teaching facility	19
Inpatient capacity	19
Rural	0
Median Monthly Case Volume	758
Mean Inpatient Bed size	266

Table 2. Survey Respondent Demographics

Demographic Variables	**N**	**% (SD)**
Age (Mean) Source (EHR)	64.32	13.55 (19-94)
Gender (Male) Source (EHR)	1,286	41.9%
Self-reported Race Native Hawaiian or other Pacific Islander Multi Black or African American Preferred not to answer Hispanic or Latino Asian White Source (PROPM)	- 13 64 141 167 216 225 1,798	- 0.5% 2.4% 5.4% 6.4% 8.2% 8.6% 68.5%
Language Spanish Other English Source (EHR)	 58 117 2,448	 2.2% 4.5% 93.3%
Education 8th grade or less Some high school, did not graduate High school graduate or GED	- 11 49 344	- 0.4% 1.9% 13.1%

Some college or 2-year degree	876	33.3%
College-4 years	563	21.4%
More than 4-year college degree	784	29.8%
Source (PROPM)		
Surgery	-	-
Minor	695	22.6%
Major	1,240	40.4%
Missing	1,134	37.0%
Source (EHR)		
Number of Surgeries	-	-
0	867	32.8%
1-3	1,442	54.6%
>4	334	12.6%
Source (PROPM)		

Table 3. HOPD Performance Scores, Signal to Noise Reliability (facilities with >100 respondents)

-	Overall	Mean	Min	Q1	Median	Q3	Max
Reliability	.6894	.6894	.5724	.6025	.6968	.7665	.8172

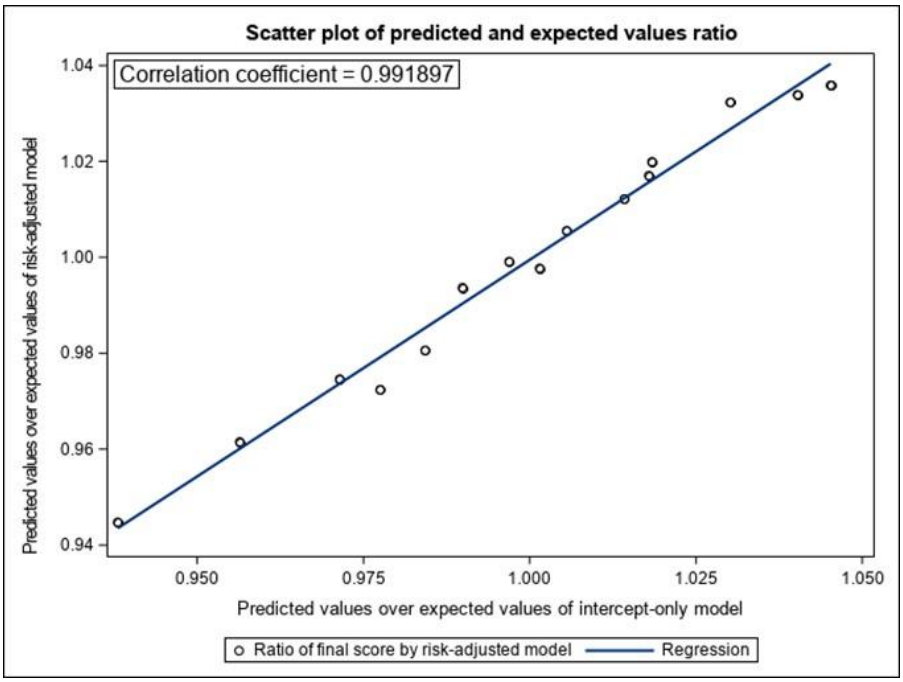
Table 4. Respondent versus Non-Respondent Data

-	Respondents n=3,069		Non-Respondents n=27,070		p-value
Age	64	± 14	58	± 16	<0.001
Female	1,783	58%	15,140	56%	0.022

Table 5. Association of Patient Characteristic with Performance Score

Variables	Count	P-value
Gender Percent Male	1,286 (41.9)	0.734
Mean Age (years)	64.32 (13.55)	0.128

Figure 2. Predicated and Expected Values, Risk Adjustment Model



Full Measure Submission to PQM

Instructions: You must complete all required fields (denoted by *) to submit your measure. You may save your progress as a draft prior to submitting your measure.

Some fields are required only if your measure is an electronic Clinical Quality Measure (eCQM), an initial (new) measure, or a maintenance measure. These are indicated at the beginning of the questions in brackets, e.g., *[For initial submissions only]*.

Measure Specifications

Note: *If you have changes to information submitted via the Intent to Submit, please edit the original content for the Full Measure Submission.*

If applicable, provide a rationale for why measured entities should report this measure with other measures to appropriately interpret results. *

Not applicable

Provide a URL to a web page specific for this measure containing current detailed specifications, including code lists, risk model details, and supplemental materials. *

Do not enter a URL to a home page or to general information. If no URL is available, indicate "not available."

Not applicable

[If the measure is an eCQM] If your measure is an electronic clinical quality measure (eCQM), please attach the zipped output from the Measure Authoring Tool (MAT). *

If you did not use the MAT, please contact PQM Support. Use the specification fields for the plain-language description of the specifications.

☐ MAT output attached

☒ MAT output not attached (explain)
If you select "MAT output not attached" a text box will open for you to provide an explanation.

Not applicable; this measure is not an eCQM

Do you have a data dictionary, code table, or value sets (and risk model codes and coefficients, if applicable)? *

☒Yes
☐No

☒ Attached Excel or csv file -- attach file here if answered yes
Please put all information into one workbook. Excel formats are preferred (.xlsx or .csv).

☐If no, attest that all information will be provided in other fields in the submission.

Provide details needed to calculate the numerator.*
All information required to identify and calculate the cases from the target population (denominator) with the target process, condition, event, or outcome such as definitions, time period for data collection, specific data collection items/responses, code/value sets. If your list of codes with descriptors is greater than will fit in this text box you must attach an excel or csv file in the previous question. Please provide lists of individual codes with descriptors that exceed one page in an Excel or csv file in response to the field requesting the data dictionary, code table, or value sets.

The numerator is the sum of all individual scores a facility received from eligible respondents. An individual score is calculated for each respondent by taking the sum of items for which the respondent gave the most positive response ("Yes" or "Very Clear") and dividing by the number of items the respondent deemed applicable to their procedure or surgery. Applicable items are calculated by subtracting the sum of items for which the respondent selected "Does not apply" from the total number of items (nine).

Provide details needed to calculate the denominator. *
All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets. Please provide lists of individual codes with descriptors that exceed one page in an Excel or csv file in response to the field requesting the data dictionary, code table, or value sets.

The denominator is the total number of eligible respondents for the facility. Respondents are eligible if they are 18 years or older, had a procedure or surgery, and were discharged alive with a stay less than two midnights.

Describe denominator exclusions. *
Briefly describe exclusions from the denominator cases, if any. Enter "None" if the measure does not have denominator exclusions.

None

Provide details needed to calculate denominator exclusions. *
Enter "None" if the measure does not have denominator exclusions. All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets. If the lists of codes with descriptors exceeds one page in Word, then please provide these lists in an Excel or csv file in response to the field requesting the data dictionary, code table, or value sets.

None

Please select the most relevant type of score. *
☐ Categorical, e.g., yes/no
☒ Continuous variable, e.g., average
☐ Count
☐ Rate/proportion
☐ Composite scale
☐ Other scoring method
Please specify (text box)

Select the appropriate interpretation of the measure score. *

☒ Better quality = Higher score
☐ Better quality = Lower score
☐ Better quality = Score within a defined interval
☐ Passing score defines better quality
☐ N/A
Please specify (text box) For example, cost and efficiency measures

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Diagram or describe the calculation of the measure score as an ordered sequence of steps. *
Identify the denominator, denominator exclusions, denominator exceptions, numerator, numerator exclusions, time period of data collection, risk adjustment, and any other calculations.

Upload diagram if applicable (file types: PDF, visio, jpg, png)

1) The target population is identified by having an age >=18, who had a procedure or surgery, and a length of stay less than 2 midnights. This is calculated by subtracting the date of discharge from the date of admission and dividing it by 24 hours. Patients discharged alive is defined as not expired at disposition. This population is sent the survey.
2) Determine the eligible respondents by removing any incomplete surveys. This is the denominator.
3) Calculate individual scores for patients in the denominator. The individual score is calculated for each respondent by summing the items to which they responded positively with "Yes" or "Very Clear" and then dividing this sum by the total number of items that respondents found applicable to their procedure or surgery. Applicable items are determined by subtracting the sum of items marked as "Does not apply" from the total number of items, which is 9 for this instrument. The sum of these scores is the numerator.
4) The facility's measure score is the arithmetic mean of all individual scores calculated by dividing the numerator by the denominator.

Provide all information required to stratify the measure results, if necessary. *
Include the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate. Please provide lists of individual codes with descriptors that exceed one page in an Excel or csv file in response to the field requesting the data dictionary, code table, or value sets.

There is no stratification for this measure.

Select the data sources for which you have tested and specified the measure. *
Select all that apply.

☐ Administrative Data
☐ Claims Data
☐ Electronic Health Records
☐ Other Electronic Clinical Data
☐ Paper Patient Medical Records
☐ Registries
☐ Standardized Patient Assessments
☒ Patient-Reported Data and/or Survey Data *(opens the questions noted below if selected)*
☐ Non-Medical Data
☐ Other Data Source
Please specify (text box)

If you selected Patient-Reported Data and/or Survey Data you will see these questions:

Provide the survey, tool, questionnaire, or scale used as a data source for your measure.
☐ Available at measure-specific web page (provide the URL)
Please specify (text box)

☒ Attached

Please indicate the responder for your survey, tool, questionnaire, or scale.
☒ Patient
☒ Family or other caregiver
☐ Clinician
☐ Other
Please specify (text box)

Are proxy responses allowed?

☒ Yes
☐ No

If yes, please describe how. *
Required if checked yes above

The survey instructions allow proxy caregivers to respond to the survey. Responses do not indicate if the respondent was a proxy.

For survey/patient-reported data, provide instructions for data collection and guidance on minimum response rate. Provide the data needed to calculate the response rates for reporting with performance measure results. *

This measure has never been implemented but could be implemented through a third party or self-administered by a hospital. The measure was tested in two pilots.
During the pilots, survey administration, data collection, and submission were facilitated by a third-party vendor. A hospital could also choose to perform these activities itself. The survey is designed to be electronically distributed to batches of patients on a rolling basis using a web-based platform. Patients can choose to receive an SMS text and/or email with a survey invitation, followed by a reminder after 7 days. A minimum of 100 responses are needed for reporting. Response rates are calculated by dividing respondents by the total number of individuals who were sent a survey, regardless of whether the survey bounced back or failed to send due to missing contact information.

Identify the specific data source or data collection instrument. *
For example, provide the name of the database, clinical registry, collection instrument, and describe how the measured entities will collect the data (e.g., the standard methods, modes, and languages of administration).

We developed a nonproprietary, novel, 9-item instrument and piloted it in both English and Spanish. During pilot testing in hospital outpatient departments (HOPDs), survey administration, collection, and submission were facilitated via a third-party vendor. The survey was piloted using a web-based mode, in which patients provided the facility with their phone number and email, as well as permission to contact them via text and/or email. Patients were sent a link to the survey using the contact method(s) they opted into. All patients that failed to respond to the survey within 7 days were sent a single reminder. Responses were recorded on the platform and could be downloaded as a CSV file.

Indicate whether the measure has a minimum sample size to calculate the measure and provide any instructions needed for obtaining the sample and guidance on minimal sample size. *

A minimum of 100 survey responses are necessary to calculate the measure.

Importance

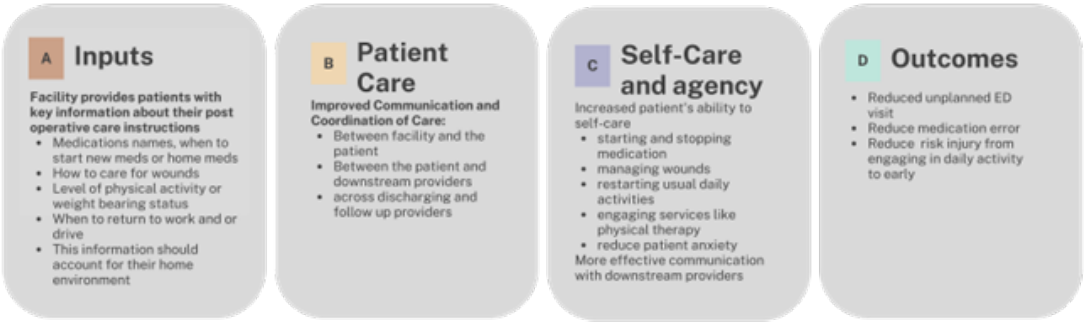
Attach a logic model and provide a description of the relationship between structures and processes and the

desired outcome. *

Briefly describe the steps between the health care structures and processes (e.g., interventions, or services) and the desired health outcome(s). The relationships in the diagram should be easily understood by general, non-technical audiences. Indicate the structure, process, or outcome being measured.

Attachment (pdf, word)

Figure 1. Information Transfer PRO-PM Logic Model



A. The facility provides patients with key information about their post-operative care instructions including medications names; starting and stopping new medications; how to care for any wounds; level of physical activity and/or weightbearing status (if applicable); return to work; and return to driving. The information should account for their home environment.

B. Improved Communication and Coordination of Care: between facility and the patient; between the patient and downstream providers; and across discharging and follow up providers.

C. Improved communication and coordination increase the patient's ability to care for themselves.

D. Patient's improved ability to care for themselves results in reduced unplanned ED visits, reduced medication errors, and reduced risk of injury from engaging in daily activity too early.

Summarize evidence of measure importance from the literature, linking the structure/process/intermediate outcome to the desired health outcome. *

Please cite supporting evidence.

The number of outpatient surgeries and procedures have been steadily rising since 2009[1-3]. During the COVID-19 pandemic, the percentage of outpatient procedures such as lumpectomy, mastectomy, and cholecystectomy rose significantly.[3] As the scale and complexity of outpatient surgical procedures increase, so does the concern that the patient sent home after undergoing general anesthetic may not have full understanding of the information they received.

A study comparing inpatient and outpatient surgery procedures found that inpatient providers were better at communicating discharge instructions to patients more frequently, including continuing medication names and instructions (96% vs. 40%); new medication names and instructions (99% vs. 29%); and pending diagnostic test names and instructions (90% vs. 61%).[4] A lack of consistently written documentation in the outpatient setting is associated with worse patient understanding and lower patient activation, defined as a measure of an individual's understanding, competence, and willingness to participate in care decisions, during their recovery.[4-6] As a result, information that is simpler to read and more complete has been associated with fewer follow-up calls to providers as well as less frequent hospital readmissions.[7-9]

The strongest evidence that providers can improve patient understanding of discharge information comes from a systematic review of 58 studies and 5,721 participants discharged after an inpatient surgical procedure, which found patients had a greater understanding of self-care and better symptom experience after receiving education in which the content was individualized and given in a combination of media on an individual basis and in more than one session.[10]

There is also evidence that the outcome this PRO-PM focuses on is tied to clinical outcomes. Several studies show decreased readmissions in patients who received enhanced, clear discharge instructions. Receipt of discharge instructions that were easier to read following inpatient admission for surgery was associated with a lower proportion of patients calling after hospital discharge versus usual care that did not include discharge instructions with improved readability (9.0% v 21.9%; *P*<.0001).[11-13]

Citations:

1.) DelSole EM, Makanji HS, Kurd MF. Current trends in ambulatory spine surgery: a systematic review. J Spine Surg. 2019;5(Suppl 2):S124-S132. Doi:10.21037/jss.2019.04.12

2.) Kondamuri NS, Miller AL, Rathi VK, et al. Trends in Ambulatory Surgery Center Utilization for Otolaryngologic Procedures among Medicare Beneficiaries, 2010-2017. Otolaryngol Head Neck Surg. 2020;162(6):873-880. Doi:10.1177/0194599820914298

3.) Shariq OA, Bews KA, Etzioni DA, Kendrick ML, Habermann EB, Thiels CA. Performance of General Surgical Procedures in Outpatient Settings Before and After Onset of the COVID-19 Pandemic. JAMA Netw Open. 2023;6(3):e231198. Doi:10.1001/jamanetworkopen.2023.1198

4.) Downey E, Olds DM. Comparison of Documentation on Inpatient Discharge and Ambulatory End-of-Visit Summaries. J Healthc Qual. 2021;43(3):e43-e52.

5.) Hoek AE, Anker SCP, van Beeck EF, Burdorf A, Rood PPM, Haagsma JA. Patient Discharge Instructions in the Emergency Department and Their Effects on Comprehension and Recall of Discharge Instructions: A Systematic Review and Meta-analysis. Ann Emerg Med. 2020;75(3):435-444.

6.) Kang E, Gillespie BM, Tobiano G, Chaboyer W. Discharge education delivered to general surgical patients in their management of recovery post discharge: A systematic mixed studies review. Int J Nurs Stud. 2018;87:1-13.

7.) Choudhry AJ, Younis M, Ray-Zack MD, et al. Enhanced readability of discharge summaries decreases provider telephone calls and patient readmissions in the posthospital setting. Surgery. 2019;165(4):789-794.

8.) Mitchell JP. Association of provider communication and discharge instructions on lower readmissions. J Healthc Qual. 2015;37(1):33-40.

9.) VanSuch M, Naessens JM, Stroebel RJ, Huddleston JM, Williams AR. Effect of discharge instructions on readmission of hospitalised patients with heart failure: do all of the Joint Commission on Accreditation of Healthcare Organizations heart failure core measures reflect better care? Qual Saf Health Care. 2006;15(6):414-417.

10.) Fredericks S, Guruge S, Sidani S, Wan T. Postoperative patient education: a systematic review. Clin Nurs Res. 2010;19(2):144-164. doi:10.1177/1054773810365994

11.) Choudhry AJ, Younis M, Ray-Zack MD, et al. Enhanced readability of discharge summaries decreases provider telephone calls and patient readmissions in the posthospital setting. *Surgery.* 2019;165(4):789-794.

12.) Mitchell JP. Association of provider communication and discharge instructions on lower readmissions. *J Healthc Qual.* 2015;37(1):33-40.

13.) VanSuch M, Naessens JM, Stroebel RJ, Huddleston JM, Williams AR. Effect of discharge instructions on readmission of hospitalized patients with heart failure: do all of the Joint Commission on Accreditation of Healthcare Organizations heart failure core measures reflect better care? *Qual Saf Health Care.* 2006;15(6):414-417.

[For initial endorsement] **If implemented, what is the measure's anticipated impact on important outcomes?** *

Please cite evidence to identify adverse events and costs avoided. Cite business case, if applicable.

If implemented, the expected effect of the Information Transfer PRO-PM is outpatient providers and facilities enhancing patient education around post-discharge self-care instructions. Patients prefer discharge education that provides relevant, concise, and personalized information.[1] Patients with improved understanding have demonstrated having greater activation, making fewer calls to facilities, and having lower readmissions.

1.) Newnham H, Barker A, Ritchie E, Hitchcock K, Gibbs H, Holton S. Discharge communication practices and healthcare provider and patient preferences, satisfaction and comprehension: A systematic review. *Int J Qual Health Care*. 2017;29(6):752-768

[For maintenance review] **Provide evidence of performance gap or measurement gap by providing performance scores on the measure as specified (current and over time) at the specified level of analysis. * Please include mean, standard deviation, minimum, maximum, interquartile range, and scores by deciles. Describe the data source including number of measured entities, number of patients, dates of data. If a sample, provide characteristics of the entities included. If performance scores are unavailable for the measure, please explain.**

Not applicable, this is not maintenance review.

[For initial endorsement] **Please explain why existing measures/quality improvement programs are insufficient for addressing this health care need. ***

The Information Transfer PRO-PM is unique in that it quantifies patients' perceived understanding in 3 key domains of post-operative self-care that have been identified in the literature and by patients and experts as fundamental. This measure is similar to, but distinct from, the OAS CAHPS 37 item survey that deals with a variety of patient related experiences, including a global assessment of patient-provider communication. Our survey provides feedback to providers on what elements of discharge instruction could be improved.

Provide evidence the target population (e.g., patients) values the measured outcome, process, or structure, and finds it meaningful. *
Please describe how and from whom you obtained input.

Our four-person Patient Working Group (PWG) was surveyed regarding the meaningfulness of the performance score. All four PWG members found the Information Transfer PRO-PM hospital mean score conveyed important information AND could help improve the clarity of self-care instructions for all patients undergoing an outpatient surgery or procedure.

We interviewed 13 patients in second pilot who took the survey. Patients interviewed stated they took the survey because they wanted to improve the hospital or share what they did well. Most patients felt the survey length was appropriate and brief enough for them to complete; they also felt that the pertinency of this type of healthcare survey was a large part of the reason for completing it and additionally agreeing to complete an interview on their experience. Furthermore, several interviewees had completed the OAS CAHPS survey and found this survey to be much more reasonable in length and the complexity of the questions. All interviewees found the survey language to be clear, direct, and easy to comprehend. Several patients had poor experiences with care and felt strongly about advocating to improve such experiences for patients in the future; some of the topics they mentioned included poor communication around wound care for specific procedures, medication changes, and generally a poor perception of care from their healthcare team. Other interviewees had profoundly great experiences in care, in the communication from their provider and nursing staff. Overall, patients with differing opinions and experiences found this survey to be of great importance to safe, quality care, especially as more complicated procedures they experienced are performed in the outpatient setting.

Feasibility

[*For Initial Endorsement]* **Describe the feasibility assessment conducted showing you considered the people, tools, tasks, and technologies necessary to implement this measure**. If an eCQM, please also attach your completed feasibility scorecard. *
Please explain and upload the feasibility scorecard if applicable.

Feasibility Assessment
After the survey was completed, we interviewed QM staff responsible for gathering data. All facility staff interviewed felt that survey administration with a vendor was burdenless on front end staff and providers and required minimal effort from quality improvement staff.

During the survey administration period, we monitored key performance indices of each facility, such as the monthly volume of a site, and organizational indices, such as the survey batch response rate, the survey batch failure rate, missingness of patient data elements, and the lag time (the time between the surgery or and procedure and the survey response date). This monitoring identified some implementation challenges.

The challenges encountered during the second pilot survey administration can be effectively addressed with the following strategies:

Email Capture in Facilities:

- Issue: Six facilities belonging to one organization had a 50% failure rate of the survey due to front line staff not capturing patient emails in their records.
- Overcoming: Implement a systematic approach to capture patient email addresses during the registration process. This can include training staff to ask for email addresses, introducing digital forms for patient intake, or partnering with IT to integrate email capture into the electronic health records system.

Facility Eligibility Criteria:

- Issue: Some facilities with the participating organizations were eliminated due to low monthly case volumes and high failure rates resulting in an inability to reach the minimum number of responses.
- Overcoming: Expanding the data capture period beyond the period used in the pilot could increase the number of facilities that can achieve the minimum survey response necessary for the measure. Survey administrators can monitor the batch failure rate and monthly case volumes to determine if a site needs to adjust their front-end procedures.

OAS CAHPS Participation and Special Permissions:

- Issue: Nine facilities faced delays in survey administration to patients due to their participation in OAS CAHPS, which requires special permission to administer a survey with overlapping survey items to same or similar population. Patients received the survey well outside the optimal time window of 2-7 days.
- Overcoming: We harmonized the measure to eliminate overlapping items, reduced the total number of items to further reduce patient burden, allowing the 9-item survey to be administered in conjunction with OAS CAHPS.

By addressing these issues encountered in the second pilot survey administration future survey administration is expected to be more efficient and effective.

Data element feasibility

Patient demographics, such as the first name, last name, race, birth sex, date of birth, ethnicity, preferred language, email address, and phone number, and procedure were all required data elements in the USCD v1, encounter type, encounter location, and time were required data elements in USCD v2. The current ONC certification required EHR or HIT to support the capture and exchange of all elements used for administering the survey. With the exception of race for procedures which had a high degree of missingness, this information was universally available in all participating organizations. The measure calculation is based solely on the information provided by patients responding to the instrument.

Describe how the feasibility assessment informed the final measure specifications, indicating any decisions made to adjust the measure in response to feasibility assessment. *

In order to reduce the overlap between our instrument and OAS CAHPS and to reduce patient burden, the original 21-item survey used in the first pilot was reduced to eliminate any overlapping questions. It was then further shortened using an empirical approach to produce the shortest survey with the highest internal reliability/consistency. Lastly, we dropped all questions in the about-you section of the survey as the measure is not risk adjusted. This resulted in a streamlined 9-item survey instrument.

Indicate whether your measure or any of its components are proprietary, with or without fees. *

☐ Proprietary measure or components (e.g., risk model, codes)
☐ Proprietary measure or components with fees

☒ Not a proprietary measure and no proprietary components

_____-

_____

Describe any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, algorithm). *
Required if checked in previous question that this is a proprietary measure or components (with or without fees)

Not applicable, not a proprietary measure and no proprietary components.

Scientific Acceptability

Describe the data or sample used for testing (include dates, source). If you used multiple data sources for different aspects of testing (e.g., reliability, validity, risk adjustment), identify how the data or sample are different for each aspect of testing. *

The survey was administered between 08-01-2022 - 03-01-2023 at 26 facilities. Seven facilities and one hospital shared a single CCN and were grouped together as a single facility for analysis, resulting in a final count of 19 measured entities or HOPDs.

Data from these HOPDs are described in the patient demographic table and were used to assess the reliability of the instrument; however, the reliability of the performance score is reported for HOPDs with a minimum of 100 respondents.

Please provide descriptive characteristics of measured entities included in the analysis (e.g., size, location, type). *
If you used a sample, describe how you selected measured entities for inclusion in the sample.

We required facilities included in measure testing to have a minimum monthly case volume of 250 outpatient procedures to facilitate reaching the required response rate within the testing period. The survey was administered and tested in 26 facilities in the Western or Northeastern regions of the United States. Of these, 19 facilities were collocated within a HCUP-defined medium-to-large urban teaching medical center. The remaining 7 facilities that were not located on the premises of a hospital, all shared a single CCN with one of the 19 facilities. All 8 were grouped together as a single facility for analysis, yielding a final facility count of 19 (Table 1).

Table 1. Description of Participating HOPDs

Facility Characteristics	N = number of facilities
Total number of Facilities	26
Teaching facility	19
Inpatient capacity	19
Rural	0
Median Monthly Case Volume	758
Mean Inpatient Bed size	266

Identify the number and descriptive characteristics (e.g., age, sex, race, diagnosis), of the level(s) of analysis, for example, patient, encounter or episode, separated by level of analysis and data source. *
If you used a sample, describe how you selected the patients for inclusion in the sample. If there is a minimum case

count used for testing, you must reflect that minimum in the specifications.

All patient-level analysis was conducted on the full sample of respondents from all 19 HOPDs. However, all accountable-entity level analysis for performance score calculations are reported for facilities with the minimum number of survey responses (100). (See the demographic Table 2 for patient level analysis)

Table 2. Survey Respondent Demographics

Demographic Variables	**N**	**% (SD)**
Age (Mean) Source (EHR)	64.32	13.55 (19-94)
Gender (Male) Source (EHR)	1,286	41.9%
Self-reported Race Native Hawaiian or other Pacific Islander Multi Black or African American Preferred not to answer Hispanic or Latino Asian White Source (PROPM)	- 13 64 141 167 216 225 1,798	- 0.5% 2.4% 5.4% 6.4% 8.2% 8.6% 68.5%
Language Spanish Other English Source (EHR)	 58 117 2,448	 2.2% 4.5% 93.3%
Education 8th grade or less Some high school, did not graduate High school graduate or GED Some college or 2-year degree College-4 years More than 4-year college degree Source (PROPM)	- 11 49 344 876 563 784	- 0.4% 1.9% 13.1% 33.3% 21.4% 29.8%
Surgery Minor Major Missing Source (EHR)	- 695 1,240 1,134	- 22.6% 40.4% 37.0%
Number of Surgeries 0 1-3 >4 Source (PROPM)	- 867 1,442 334	- 32.8% 54.6% 12.6%

If there are differences in the data or sample used for different aspects of testing (e.g., reliability, validity, exclusions, risk adjustment), please identify how the data or sample are different for each aspect of testing. *

The data sources are the same, the count or sample varies as above.

Reliability

Select the level of reliability testing conducted. *
Please select all that apply.

☒ Patient or Encounter-Level (e.g., inter-abstractor reliability)
☒ Accountable Entity-Level (e.g., signal-to-noise analysis)

For each level of reliability testing conducted, describe the method of reliability testing and what it tests. *
Describe the steps, do not just name a method. What type of error does it test? Provide the statistical analysis used.

Data elements of PRO Reliability
We measured the instrument or data element reliability using the Cronbach Alpha score, which assesses the internal consistency of the 9-item scale, or the extent to which the 9 items within the scale reliably measure the same underlying construct.

Accountable Entity Level
We used signal-to-noise ratio to assess the reliability of the performance score for 15 facilities that met the completed 100-survey threshold. We used a mixed-effect intercept only model to estimate the variance among facilities and facility specific errors, based on which we then calculated the reliability scores for all facilities.

Provide the statistical results from reliability testing. *

Data Element-PRO Reliability
We examined the internal consistency of the entire survey instrument (9 items), the Cronbach alpha tests the internal consistency or agreement of patient responses of items in the survey. An alpha score of 0.80 is considered very good. The overall alpha score of the 9-item survey was 0.8941, which indicates that all measure the same concept, global quality (clarity and applicability) of discharge instructions.

Accountable Entity Level Signal to Noise Ratio
A mean value of 0.689 indicates moderate reliability with 68.9% of the variance of the mean score due to between hospital difference. A value less than 0.5 would be considered poor reliability, a value of 0.5 to 0.75 would be considered moderate reliability.

If you conducted accountable entity-level testing, provide the reliability results for each decile in the table.

We have 15 hospitals in our performance score and cannot split them into deciles (Table 3).

Table 3. HOPD Performance Scores, Signal to Noise Reliability (facilities with >100 respondents)

-	Overall	Mean	Min	Q1	Median	Q3	Max
Reliability	.6894	.6894	.5724	.6025	.6968	.7665	.8172

Interpretation of Reliability Results: Provide your interpretation of the results in terms of demonstrating reliability. How do the results support an inference of reliability for the measure?

Data Element-PRO Reliability Interpretation

An alpha score of 0.80 is considered very good. The overall alpha score of the 9-item survey was 0.8941, which indicates that all measure the same concept, global quality (clarity and applicability) of discharge instructions. Our instrument uni dimensional.

Accountable Entity Level Signal to Noise Ration Interpretation
Our results indicate moderate reliability with 68.9% of the variance of the mean score due to between hospital difference. A value less than 0.5 would be considered poor reliability, a value of 0.5 to 0.75 would be considered moderate reliability.

Validity

Select the level of validity testing conducted. *
Please select all that apply.

☐ Patient or Encounter-Level (e.g., inter-abstractor reliability)

☒ Accountable Entity Level (e.g., signal-to-noise analysis)

Select the type of validity testing conducted. *
Please select all that apply.

☒ Empirical validity testing
☒ Systematic assessment of face validity of performance measure score as an indicator of quality or resource use (i.e., the score is an accurate reflection of performance on quality or resource use and can distinguish good from poor performance).

For each level of testing conducted, describe the method of validity testing and what it tests. *

Describe the steps, do not just name a method and what you tested (e.g., accuracy of data elements compared with authoritative source, relationship to another measure as expected). What statistical analysis did you use? Include analysis of missing data and any exclusions.

Empirical validity testing of the measure score:
To validate the performance score, our team compared hospital performance on the 9-item instrument to their performance on the OAS CAHPS. OAS CAHPS is a previously validated survey of outpatient surgery patients' experience with care they received following a surgery or procedure. The OAS CAHPS has 37 items and includes several questions in a domain titled “communication about your procedure.” We evaluated the criterion validity using a Pearson’s correlation coefficient to assess the strength and direction of the linear relationship between the Information Transfer PRO-PM hospital mean score to the OAS CAHPS linear mean score for the domain “communication about your procedure” for 9 of the 15 HOPDs. Empiric validity testing of the performance score was tested for these 9 facilities as they were the only facilities with publicly available OAS CAHPS linear mean scores for “communication about your procedure” (using data from patients surveyed between January 2021 – December 2021).

Systematic assessment of face validity:
Face validity was captured by administering specific questions to the TEP (n=10), requesting their vote on the measure’s ability to distinguish between good and poor quality of care at measured facilities.

We polled the TEP on two separate questions:
1) “The unadjusted Information Transfer PRO-PM, as specified, will provide valid assessment of the transfer of key information to patients at discharge from the facility,” and
2) “The unadjusted Information Transfer PRO-PM, as specified, can be used to distinguish between better and worse quality care at measured facilities”

The possible answer categories were: Strongly disagree, moderately disagree, somewhat disagree, somewhat agree, moderately agree, strongly agree.

Analysis of missing data
We identified the extent and distribution of missing items among respondents. We evaluated the pattern of missingness to assess if items were missing completely at random. Finally, we conducted a complete case analysis.

Assessment of Non-Response bias
We carefully examined if there were systematic differences in the patient-characteristics of the respondents versus the non-respondents, by comparing their age and sex, however CPT codes, race/ethnicity/language/insurance data was not consistently available and/or standardized across entities to make accurate comparisons

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Provide your interpretation of the results in terms of demonstrating validity. *

How do the results support an inference of validity for the measure?

Empiric Validity assessment
Our hypothesis was that the Info Transfer PRO-PM rates hospital's ability clearly communicate key information about recovery is similarly related to the OAS CAHPS domain about global communication around a patient's outpatient surgical procedure. A Pearsons correlation of 0.64 with p-value 0.06, indicates that while the Information Transfer PRO-PM's 9-item survey instrument mean score appeared moderately positively correlated with the previously validated OAS CAHPS provider communication domain, the results were not statistically significant. We failed to reject the null hypothesis. Only 9 out of the 15 facilities had publicly available CAHPS data.

Systematic assessment of face validity
In responses to the first TEP question (“The unadjusted Information Transfer PRO-PM, as specified, will provide valid assessment of the transfer of key information to patients at discharge from the facility”), six of 10 TEP members (60 percent) agreed that the measure was a valid assessment of the transfer of key information to patients at discharge from the facility.

Specifically, TEP responses to the first question were:
Strongly agree: 2

Moderately agree: 4
Somewhat agree: 2
Somewhat disagree: 1
Moderately disagree: 1
Strongly disagree: 0

In response to the second TEP question, eight of 10 TEP members (80 percent) agreed that the measure could be used to distinguish between better and worse quality of care at facilities.

Specifically, TEP responses to the second question were:

Strongly agree: 1
Moderately agree: 5
Somewhat agree: 2
Somewhat disagree: 1
Moderately disagree: 1
Strongly disagree: 0

Analysis of missing data
Item-missingness was evaluated across all respondents, graphing the missingness as bar plots for each item. Items in the same domain had similar percents missingness, and the percentage of missingness increased with each subsequent domain. Approximately 12.2% of all respondents skipped questions about applicability, 12.9% of respondents skipped questions about medications, and 13.7% skipped questions about activity. The data pattern suggests patients skipped entire domains, rather than skipping specific items. The minimum number of items skipped was 4, corresponding to questions in the last domain activity.

Non-response
The team evaluated non-response by assessing differences in patient characteristics between respondents and non-respondents and whether such differences were associated with the performance scores. While there were statistically significant differences between respondents and non-respondents by age, and sex, however these patient risk factors were not associated with performance score (Table 4). The age and sex are not associated with outcome, with p-value 0.734 and 0.128, respectively. Due to issues with data quality, it was not possible to examine differences in race, ethnicity, or insurance status (Table 5).

Table 4. Respondent versus Non-Respondent Data

-	**Respondents n=3,069**		**Non-Respondents n=27,070**		**p-value**
Age	64	± 14	58	± 16	<0.001
Female	1,783	58%	15,140	56%	0.022

Table 5. Association of Patient Characteristic with Performance Score

Variables	**Count**	**P-value**
Gender Percent Male	1,286 (41.9)	0.734
Mean Age (years)	64.32 (13.55)	0.128

Interpretation of Validity Results
With this submission we provide two independent sources of evidence in support of the validity of the Information Transfer PRO-PM. First, our TEP face validity assessment supports that the measure can be used to distinguish between better- and worse-performing facilities. Second, our empiric validity testing shows, as we hypothesized, a strong association in the correct direction (positive correlation) between the Information Transfer PRO-PM measure score and the OAS CAHPS domain about global communication around a patient's outpatient surgical procedure. Taken together, these results support the validity of the Information Transfer PRO-PM.

Risk Adjustment

Check all methods used to address risk factors *

☐ Statistical risk model with risk factors

Specify number of risk factors (text box)

☐ Stratification by risk category

Specify number of categories (text box)

☐ Other

Specify other (text box)

☒ No risk adjustment or stratification.

If select no, this question appears

Is the measure an outcome or resource measure?

☒ Yes

☐ No

IF you select yes this question appears: **If an outcome or resource use measure is not risk adjusted or stratified, provide rationale and analyses to demonstrate there is no need to control for differences in patient characteristics (i.e., case mix) to achieve fair comparisons across measured entities.** *

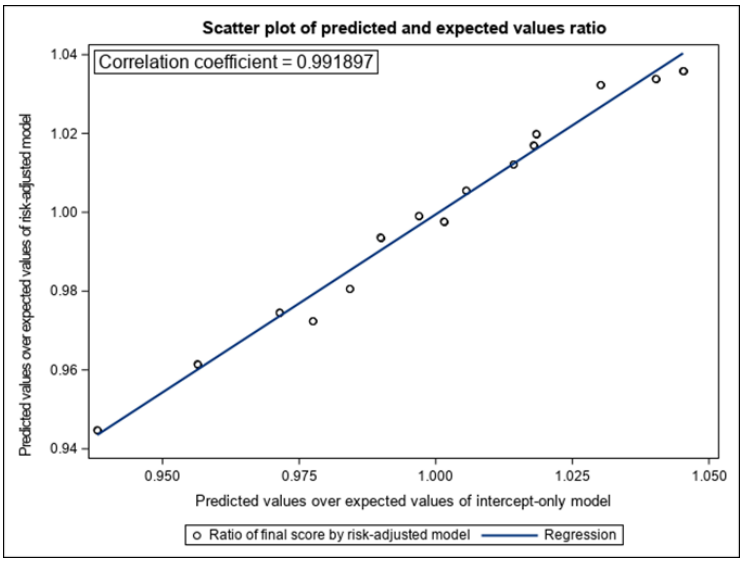
Following extensive discussions with clinicians and patient stakeholders, the measure developers and CMS reached a consensus that Hospital Outpatient Departments (HOPD) should tailor discharge instructions to accommodate patients' unique characteristics, such as age, education, health status, and prior experience with surgeries.

It is essential for clinicians to connect with patients on their level and provide clear, personalized guidance for post-discharge self-care. This is a measure of patient centered communication. Risk adjusting for patient-level social factors that can be influenced by the HOPD discharge process could unintentionally encourage different/ disparate outcomes between social disadvantaged patient care. Therefore, the unadjusted measure effectively captures the average patient's assessment of the clarity of discharge instructions provided by HOPD.

Furthermore, we analyzed data collected from the second pilot to evaluate the potential impact of adjusting the performance measure for patient factors identified in our exploration of the literature. These candidate variables, including self-reported race, ethnicity, age, education, self-reported health status, and history of procedures, were identified in an environmental scan and literature review as having an association with perceived and assessed understanding of medical and surgical patients discharge instructions. However, we found that there were no statistically significant differences between the scores obtained from the adjusted and unadjusted measures. The Figure 2 below illustrates this relationship, showing a strong correlation with a coefficient of 0.992.

Our analysis of the pilot data revealed that patients with higher education levels tended to be less satisfied with the discharge information they received. However, there is no evidence to suggest that hospitals would limit access to socially advantaged group (those with higher education) as a consequence of publicly reporting an unadjusted PRO-PM. Ultimately, the performance differences between the adjusted and unadjusted measures were minimal, and both exhibited moderate reliability.

Figure 2. Predicted and Expected Values, Risk Adjustment Model



The following questions are shown and required if the user selects Statistical risk model with risk factors, Stratification by risk category or Other above:

Attach a conceptual model that illustrates the pathway between the social and/or functional status-related risk factors, patient clinical factors, quality of care, and the measured outcome. Please explain the rationale for the model. *

Consider age, gender, race/ethnicity, urbanicity/rurality, Medicare/Medicaid dual eligibility status, indices of social vulnerability (e.g., Centers for Disease Control and Prevention Social Vulnerability Index), and markers of functional risk in the conceptual model. If social and/or functional risk factors are not available but are included in the conceptual model, consider potential bias in the risk model, and describe its direction and magnitude. Address the validity of the measure in light of this bias.

Attachments (word, pdf)

Statistical risk model not selected, so not applicable.

Provide descriptive statistics on the distribution across the measured entities of the risk variables identified in the conceptual model. *

Statistical risk model not selected, so not applicable.

If using statistical risk models, provide detailed risk model specifications (query or algorithm), including the risk model method, risk factor data sources, and equations. Please attach an excel file providing the risk factors, coefficients, codes with descriptors, and definitions. *
Attachment (excel)

Statistical risk model not selected, so not applicable.

Detail the statistical results of the analysis used to test and select risk factors for inclusion in or exclusion from the risk model/stratification. *

Statistical risk model not selected, so not applicable.

Provide the approach and results of calibration and discrimination testing. Describe any over- or under-prediction of the model for important subgroups. Please attach results of calibration and discrimination testing. *
Attachment (pdf, jpg, png)

Statistical risk model not selected, so not applicable.

Equity

Describe how this measure contributes to efforts to advance health equity (*optional*). *Provide a description of your methodology and approach to empirical testing of differences in performance scores across multiple socio-contextual variables (e.g., race, ethnicity, urbanicity/rurality, socio-economic status, gender, gender identity, sexual orientation, age). Provide an interpretation of the results, including interpretation of any identified differences and consideration of negative impact or unintended consequences on subgroups.*

We did not select that we would provide information on Equity in our intent to submit form.

Use & Usability

Use

[For initial endorsement] **Check all current or planned uses** *
☒ Public Reporting
☐ Public Health/Disease Surveillance
☐ Payment Program
☐ Regulatory and Accreditation Programs
☐ Professional Certification or Recognition Program
☒ Quality Improvement with Benchmarking (external benchmarking to multiple organizations)
☒ Quality Improvement (Internal to the specific organization)
☐ Other
Please specify (text box)

[For maintenance review] **Check all current uses:** *

☐ Public Reporting
☐ Public Health/Disease Surveillance
☐ Payment Program
☐ Regulatory and Accreditation Programs
☐ Professional Certification or Recognition Program
☐ Quality Improvement with Benchmarking (external benchmarking to multiple organizations)
☐ Quality Improvement (Internal to the specific organization)
☐ Other
(please specify (text box)
☐ Not in use
Please provide more information as to why the measure is not in use (text box)

[For maintenance review] **Please provide the following information describing the program(s) in which the measure is used**: *

Name of the program and sponsor (text box)
URL (text box)
Purpose (text box)
Geographic area and percentage of accountable entities and patients included (text box)
Level of analysis and care setting. (text box)

You may add additional programs or sponsors

Usability

What are the actions measured entities must take to improve performance on this measure? How difficult are those actions to achieve? *

This measure is currently not in use for performance improvement; however, the results may inform providers and facilities about the quality of discharge/post-procedure information provided to patients receiving an outpatient procedure or surgery. Specifically, the survey allows for tracking and improvement on discharge instructions related to information specific to the patient, medication, and daily activities, which is a gap in measured quality. We interviewed quality officers of the organizations that participated in the pilot about the meaningfulness of the performance score. They indicated that the scores aligned with known issues raised by patients in an open-ended survey and accurately quantify known issues with the discharge process.

Each organization's quality officer was interested in their overall score, its correlation with OAS CAHPS, and in learning how to improve their process of communicating discharge instructions based on feedback of the survey. The body of literature referenced in the evidence section demonstrates that providers can effectively improve patient's understanding of instructions for self-care by giving clear, personalized instruction via more than one medium, such as conversation, written instruction, or video. Discharge instructions are better retained and understood by patients when they receive the same instructions on different occasions. Providers would need to ask patients about their home environment and ask patients about their preferences concerning pain medication, physical therapy, and other medical problems, before advising them accordingly.

[For maintenance only] **Summarize the feedback on measure performance and implementation from the measured entities and others. Describe how you obtained feedback.** *

This measure is not being submitted for maintenance; not applicable.

[For maintenance only] **Describe how you considered the feedback when developing or revising the measure specifications or implementation, including whether you modified the measure and why or why not.** *

This measure is not being submitted for maintenance; not applicable.

[For maintenance only] **Discuss any progress on improvement (trends in performance results, including performance across sub-populations if available, number and percentage of people receiving high-quality healthcare, geographic area, number and percentage of accountable entities and patients included). If use of the measure demonstrated no improvement, provide an explanation.** *

This measure is not being submitted for maintenance; not applicable.

[For maintenance only] **Explain any unexpected findings (positive or negative) during implementation of this measure, including unintended impacts on patients.** *

This measure is not being submitted for maintenance; not applicable.

Appendix A: Survey Instrument

Introduction
This is a brief survey that should take you 5 minutes.

You are receiving this survey because you recently had a procedure at [Facility Name]. Either before or after your operation you should have been given information about what to do during your recovery process. We would like to know if this information was easy-to-follow.

Your survey responses will help your doctors and hospital improve the quality of care they provide. Your responses are completely anonymous, neither your name nor any other identifying information will be shared with your doctor or hospital. This survey can be filled out by you or your caregiver.

Information Took Into Account My Needs
The information you got about your recovery considered:
1.) Your health needs (for example: medical conditions, pain management, treatment preferences, etc.)
- Yes
- Somewhat
- No

2.) Your personal situation (for example: transportation needs, insurance coverage, financial status, etc.)
- Yes
- Somewhat
- No

Medications
How clear was the following information about your recovery:
3.) Why you should take any new medications
- Very clear
- Somewhat clear
- Not clear
- Does not apply

4.) Possible side effects of new medications
- Very clear
- Somewhat clear
- Not clear
- Does not apply

5.) When to stop any medications
- Very clear
- Somewhat clear
- Not clear
- Does not apply

Daily Activities
How clear was the following information about your recovery:
6.) Changes to your diet
- Very clear
- Somewhat clear
- Not clear
- Does not apply

7.) Changes to physical activities, including exercise.
- Very clear
- Somewhat clear
- Not clear
- Does not apply

8.) When you could return to work

- Very clear
- Somewhat clear
- Not clear
- Does not apply

9.) When you could drive
- Very clear
- Somewhat clear
- Not clear
- Does not apply

Appendix B: Code Set

Variable	Format	Definition
FACNAME	Character	Facility name
DATE_OF_BIRTH	Date	Patient date of birth
LENGTH_OF_STAY	Numeric	Length of stay, or difference of discharge date from admission date
ADMIT_DATE	Date	Date of procedure/admission
AGE	Numeric	Age in years
DISCH_DATE	Date	Date of discharge
Encounter_Disposition	Character	Expired