AMERICAN SOCIETY OF PLASTIC SURGEONS (ASPS)

Autologous Breast Reconstruction

Performance Measurement Set

ASPS Approved : October, 2017

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These Performance Measures and related data specifications were developed by the American Society of Plastic Surgeons (ASPS) through a multi-disciplinary physician workgroup and are based on a systematic review of published literature and/or relevant clinical practice guidelines to facilitate quality improvement activities by physicians. These Performance Measures are not clinical guidelines and do not establish a standard of medical care, and have not been tested for all potential applications. They are not intended to establish fixed protocols, but rather to serve as metrics by which a health care provider's or facility's performance may be compared with national benchmarks. Patient care and treatment should always be based on the clinician's independent medical judgment, given the individual patient's clinical circumstances. The Performance Measures, while copyrighted, can be reproduced and distributed, without modification, for noncommercial purposes, for example, use by health care providers in connection with their practices. Commercial use is defined as the sale, license, or distribution of the Measures for commercial gain, or incorporation of the Measures into a product or service that is sold, licensed or distributed for commercial gain. Commercial uses of the Performance Measures require a license agreement between the user and the ASPS. The ASPS nor its members shall be responsible for any use of the Performance Measures.

Measure #1 (ASPS8): Coordination of Care for Patients Undergoing Autologous Breast Reconstruction
Measure #2 (ASPS10): Performance on Patient Satisfaction Questionnaire
Measure #3 (ASPS9): Length of Stay Following Autologous Breast Reconstruction
Measure #4 (ASPS1): Operative Time for Autologous Breast Reconstruction
Measure #5(ASPS7): Rate of Blood Transfusion for Patients Undergoing Autologous Breast Reconstruction

Work Group Members

Work Group Members (no relevant conflicts of interest):

Aamir Siddiqui, MD (Co-Chair)
Henry Ford Hospital, Michigan
Academic Medical Center

Bernard Lee, MD, MBA, MPH (Co-Chair)
Harvard Medical School, Massachusetts
Academic Medical Center

Jayant Agarwal, MD
Huntsman Cancer Hospital, Utah
Academic Medical Center

Edward Chang, MD
MD Anderson, Texas,
Academic Medical Center

Minas Chrysopoulo, MD
PRMA Plastic Surgery, Texas
Private Practice

Michele Manahan, MD
Johns Hopkins, Maryland
Academic Medical Center

Evan Matros, MD
Memorial Sloan Kettering, New York
Academic Medical Center

Michael Newman, MD
South Bay Plastic Surgeons, California,
Private Practice

Dana Khuthaila, MD
New York
Private Practice

Oren Tessler, MD
Louisiana State University Health Services Center, Louisiana
Academic Medical Center

Cristiane Ueno, MD
West Virginia University, West Virginia
Academic Medical Center

David Song, MD
Washington DC
Executive Committee Advisor

Olivia Ho, MD
Fellow- non-voting

Akhil Seth, MD
Resident- non-voting

Eric Whitacre, MD
American College of Surgeons (ACS) Liaison

Michelle Sowden, DO
American Society of Breast Surgeons (ASBS) Liaison

Lisa A. Newman, MD MPH
American Society of Clinical Oncology (ASCO) Liaison

Evelyn Calip
Evelyn's BFF, www.evsbff.org
Patient Representative

Caroline Morton, MS, MBA
Patient Representative

Work Group Staff

American Society of Plastic Surgeons
Caryn Davidson, MA
Catherine French
Lauren Loeding, MPH

American College of Surgeons
Jill Sage, MPH

Measure Development Process

The Measures are not clinical guidelines, do not establish a standard of medical care, and have not been tested for all potential applications. ASPS Performance Measures follow a rigorous development process that includes a multi-disciplinary work group, management of conflicts of interest, and patient input. The process can be found on our Performance Measures web-page: https://d2wirczt3b6wjm.cloudfront.net/medical-professionals/quality-resources/Standardized-Measure-Development-Process-External.pdf.

Intended Audience, Care Setting and Patient Population

These measures are designed for use by physicians and other health care professionals who provide plastic surgery services to patients 18 and older.

These measures are meant to be used to calculate performance and/or reporting at the individual clinician level.

Importance of Topic

Incidence, Prevalence, & Cost

Breast Reconstruction

According to procedural statistics from the American Society of Plastic Surgeons (ASPS), member surgeons performed 109,256 breast reconstruction procedures in 2016, a 39% increase from 2000. Among these procedures, nearly 20% were performed with autologous tissue, or "flaps" taken from the abdomen, back, buttocks, or thigh to form the reconstructed breast (ASPS 2015). Studies suggest that breast reconstruction may result in improved breast satisfaction compared with other surgical options for treating breast cancer (Atisha et al 2015; Aguiar et al 2017).

Technical Specifications: Introduction

The performance measures found in this document have been developed to enable the physician to track his or her performance in individual patient care across patient populations. ***Please note that the provision of surgical procedures must be based on individual patient needs and professional judgment.*** Performance measures are not to be used as a substitute for clinical guidelines and individual physician clinical judgment. There may be instances where an individual patient falls outside the parameters for the performance measure(s); however, this does **not** necessarily mean that they should not have the procedure. Whether or not a patient should undergo a specific procedure is a decision that needs to be made between the patient and the physician while weighing the risks and benefits of the procedure, along with individual patient preference.

There are several data sources available for collecting performance measures; generally different data sources require different sets of measure specifications, due to the structure of the systems storing the data.

Quality measure technical specifications for administrative data sources are developed with administrative code sets –ICD-10-CM and CPT®, for example. A measure intended for administrative data source use or reporting may have significant differences in the specifications due to the nature of the various data sources. In administrative data sources, administrative or billing codes are typically

used to identify eligible populations and reported immediately following the provision of care.

Measure Exceptions

Measure Exclusions
ASPS follows the PCPI® process of distinguishing between measure exceptions and measure exclusions (PCPI® 2013). Exclusions arise when the intervention required by the numerator is not appropriate for a group of patients who are otherwise included in the initial patient or eligible population of a measure (ie, the denominator). Exclusions are absolute and are to be removed from the denominator of a measure and therefore clinical judgment does not enter the decision.

Measure Exceptions
Exceptions are used to remove a patient from the denominator of a performance measure when the patient does not receive a therapy or service AND that therapy or service would not be appropriate due to patient-specific reasons. The patient would otherwise meet the denominator criteria. Exceptions are not absolute, and are based on clinical judgment, individual patient characteristics, or patient preferences.

For process, structural, and outcome measures, the PCPI® provides two categories of exception reasons for which a patient may be removed from the denominator of an individual measure.

Medical reason(s)

- Contraindicated in patient (potential allergy due to previous reported allergic history, potential adverse drug interaction, other)
- Already received/performed
- Intolerant (therapy was tried and the patient was intolerant)
- Other medical reason(s)

Patient or Non-medical reason(s)

- Patient refused/declined
- Access issues or insurance coverage/payor-related limitations (patient not covered for treatment)
- Patient functional limitations
- Patient preference: Social reason(s) (eg, family or support system not supportive of intervention/treatment); Religious

These measure exception categories are not available uniformly across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. For some measures, examples have been provided in the measure exception language of instances that would constitute an exception. Examples are intended to guide clinicians and are not all-inclusive lists of all possible reasons why a patient could be excepted from a measure. There are different approaches for reporting measure exceptions, depending on whether the measure is being reported from an electronic clinical data source or an administrative data source.

Administrative Data Sources
Exceptions reported from administrative data sources can be reported using a Quality Data Code (QDC), which may be a CPT® Category II code or a G-code.

Although this methodology does not require the external reporting of more detailed exception data, the PCPI® recommends that physicians document the *specific* reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI® also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement. For example, it is possible for implementers to calculate the percentage of patients that physicians have identified as meeting the criteria for exception.

Please refer to documentation for each individual measure for information on the acceptable exception categories and the codes and modifiers to be used for reporting.

This measure set may be used for accountability purposes

Measure #1: Coordination of care for patients undergoing breast reconstruction

Measure Description

Percentage of female patients aged 18 years and older with genetic susceptibility to malignant neoplasm of the breast, current diagnosis or history of breast cancer AND breast reconstruction with or without a tissue expander or implant who had documentation of coordinated care* prior to their procedure

Measure Components

Numerator Statement	Patients who had documentation of coordinated care* prior to their procedure *Definitions:* **Documentation of coordinated care = documentation of a formal care coordination agreement as defined by the Patient-Centered Medical Home Neighbor (PCMH-N);* ***OR*** *documentation of discussion with physician currently managing care or referring physician (oncologist, radiologist, other specialist, or primary care physician)*
Denominator Statement	All female patients aged 18 years and older with genetic susceptibility to malignant neoplasm of the breast, current diagnosis, or history of breast cancer AND breast reconstruction
Denominator Exceptions	None
Supporting Evidence	The following evidence statements are quoted verbatim from the referenced position statement: **The policy paper (THE PATIENT-CENTERED MEDICAL HOME NEIGHBOR: THE INTERFACE OF THE PATIENTCENTERED MEDICAL HOME WITH SPECIALTY/SUBSPECIALTY PRACTICES: A Position Paper of the American College of Physicians) makes the following specific recommendations:** **1. The ACP recognizes the importance of collaboration with specialty and subspecialty practices to achieve the goal of improved care integration and coordination within the Patient-Centered Medical Home (PCMH) care delivery model.** **2. The ACP approves the following definition of a Patient-Centered Medical Home Neighbor (PCMH-N) as it pertains to specialty and subspecialty practices:** **A specialty/subspecialty practice recognized as a PCMH-N engages in processes that:** • Ensure effective communication, coordination, and integration with PCMH practices in a bidirectional manner to provide high-quality and efficient care • Ensure appropriate and timely consultations and referrals that complement the aims of the PCMH practice • Ensure the efficient, appropriate, and effective flow of necessary patient and care information • Effectively guides determination of responsibility in co-management situations • Support patient-centered care, enhanced care access, and high levels of care quality and safety • Support the PCMH practice as the provider of whole-person primary care to the patient and as having overall responsibility for ensuring the coordination and integration of the care provided by all involved physicians and other health care professionals.

	3. The ACP approves the following framework to categorize interactions between PCMH and PCMH-N practices: **The clinical interactions between the PCMH and the PCMH-N can take the following forms:** • Preconsultation exchange—intended to expedite/prioritize care, or clarify need for a referral • Formal consultation—to deal with a discrete question/procedure • Co-management 0 Co-management with Shared Management for the disease 0 Co-management with Principal care for the disease 0 Co-management with Principal care of the patient for a consuming illness for a limited period • Transfer of patient to specialty PCMH for the entirety of care. **4. The ACP approves the following aspirational guiding principles for the development-of-care coordination agreements between PCMH and PCMH-N practices.** • A care coordination agreement will define the types of referral, consultation, and co-management arrangements available. • The care coordination agreement will specify who is accountable for which processes and outcomes of care within (any of) the referral, consultation, or co-management arrangements. • The care coordination agreement will specify the content of a patient transition record/core data set, which travels with the patient in all referral, consultation, and co-management arrangements. • The care coordination agreement will define expectations regarding the information content requirements, as well as the frequency and timeliness of information flow within the referral process. This is a bidirectional process reflecting the needs and preferences of both the referring and consulting physician or other health care professional. • The care coordination agreement will specify how secondary referrals are to be handled. • The care coordination agreement will maintain a patient-centered approach including consideration of patient/family choices, ensuring explanation/clarification of reasons for referral, and subsequent diagnostic or treatment plan and responsibilities of each party, including the patient/family. • The care coordination agreement will address situations of self-referral by the patient to a PCMH-N practice. • The care coordination agreement will clarify in-patient processes, including notification of admission, secondary referrals, data exchange, and transitions into and out of hospital. • The care coordination agreement will contain language emphasizing that in the event of emergencies or other circumstances in which contact with the PCMH cannot be practicably performed, the specialty/ subspecialty practice may act urgently to secure appropriate medical care for the patient. • Care coordination agreements will include: 0 A mechanism for regular review of the terms of the care coordination agreement by the PCMH and specialty/subspecialty practice. 0 A mechanism for the PCMH and specialty/subspecialty practices to periodically evaluate each other's cooperation with the terms of the care coordination agreement, and the overall quality of care being provided through their joint efforts. **(ACP- PCMH-N, 2010)**
Measure Importance	<u>Rationale/Opportunity for Improvement:</u> Communication among all medical team members is important to optimize outcomes for patients with breast cancer seeking breast reconstruction. A 2016 study by Milucky

et al looked at communication between medical oncologists and plastic surgeons. Both plastic surgeons and medical oncologists had substantial knowledge deficits which can have important implications for the timeliness of chemotherapy initiation (Milucky et al 2016).

Several care coordination models have looked at collaboration with subspecialists. The goal of the PCMH model is to promote integrated, coordinated care throughout the health care system; however, it recognizes that the effectiveness of the PCMH care model to achieve this goal is dependent on the cooperation of the many subspecialists, specialists, and other health care entities (e.g., hospitals, nursing homes) involved in patient care. The success of the PCMH model depends on the availability of a "hospitable and high-performing medical neighborhood" that aligns their processes with the critical elements of the PCMH. The Perioperative Surgical Home (PSH) is another model gaining traction. Conceptually, the PSH model aims to reduce variability in perioperative care given that variability increases the likelihood for errors and complications. One way in which this variability can be reduced is through assuring continuity of care and treating the entire perioperative episode of care as one continuum rather than discrete preoperative, intraoperative, postoperative, and postdischarge episodes. (Kain et al, 2014).

GAP IN CARE:

Milucky et al (2016) found that medical oncologists did not strongly consider whether a patient had had breast reconstruction when planning chemotherapy, and plastic surgeons did not strongly consider the likelihood of adjuvant chemotherapy when planning immediate breast reconstruction. Plastic surgeons reported knowing the likelihood of chemotherapy for a patient undergoing reconstruction 62% of the time. For patients without complications, both specialties reported communicating few times. For patients with complications the frequency of communication was increased. We can make an assumption that a similar knowledge gap exists between plastic surgeons and other specialists or primary care physicians managing the care of patients with breast cancer.

Measure Designation

Measure Purpose	• Quality Improvement • Accountability
Type of Measure	• Process
Care Setting	• Inpatient or Surgical Center, Ambulatory Care
Data Source	• Medical record

Jump to Measure Specifications

Measure Description

Percentage of patients aged 18 years and older who had breast reconstruction who reported a score of 65 or higher on the BREAST-Q Satisfaction with Information scale, within 120 days of the procedure.

This measure is reported as three rates stratified by procedure:

- Reporting Criteria 1: Implant Breast Reconstruction Procedures
- Reporting Criteria 2: Autologous Breast Reconstruction Procedures
- Total Rate: All breast reconstruction Procedures

Numerator Statement	Patients who reported a score of 65 or higher on the BREAST-Q Satisfaction with Information scale, within 120 days of the procedure.
Denominator Statement	All patients aged 18 years and older who had breast reconstruction
Denominator Exclusions	None
Denominator Exceptions	Patient refusal to complete the survey.
Guidance	Only procedures performed during January 1 - August 31 of the reporting period will be considered for this measure, in order to allow for collection of the patient satisfaction scale within 120 days following the breast reconstruction procedure. Breast reconstruction procedures performed during September 1 - December 31 are excluded from the initial population.
Supporting Evidence	The following evidence statements are quoted verbatim from the referenced clinical guidelines. **4.2.1 Based on little or no systematic empirical evidence, it is the consensus of the Work Group that clinicians may treat patients undergoing mastectomy and autologous breast reconstruction with either surgical technique (pedicled TRAM flap or DIEP flap) since there was no differences in patient satisfaction noted. However, it was found that the level of patient satisfaction is high among both procedures.** **Level IV Evidence** **Recommendation Grade: D** **ASPS ABR Guideline (2017)**

Measure Importance

Rationale/ Opportunity for Improvement	Patient-reported outcome measures (PROMs), wherein the patient's perception of his or her outcomes is quantified, have become increasingly important as the surgical community attempts to curb health care costs and move past traditional outcome measures such as morbidity and mortality. In plastic surgery, patient-centered outcomes data is of particular importance as the majority of operative interventions aim to improve appearance, function and/or quality of life. One important advantage (among many) is that use of BREAST-Q provides researchers with the ability to quantify and compare patient perspectives, which is essential to demonstrate the value of potentially more time intensive or costly reconstructive options, such as free-tissue flap based reconstruction. (Cohen WA, Mundy LR, Ballard TN, et al, 2016). In a 2014 critical study of unilateral immediate breast reconstruction using the patient-reported outcomes instrument BREAST-Q, microsurgical abdominal flap breast reconstruction (MAFBR) had higher scores in psychosocial and sexual wellbeing, satisfaction with outcome, breast, information, and plastic surgeon when compared with patients who underwent staged expander-implant breast reconstruction (EIBR). For patients eligible for both MAFBR and EIBR, MAFBR is associated with higher levels of satisfaction and quality of life. Between February 2012 and July 2014, 2093 patients were recruited from 11 centers in Canada and the United States. Of these, 1534 patients (73.3%) completed the BREAST-Q Satisfaction with Care scales (satisfaction with information, surgeon, medical team, and office staff) at 3 months after reconstruction and were included in this study. Overall, patients scored lowest on the Satisfaction with Information scale compared to all other Satisfaction with Care scales: satisfaction with information, 72.8 (SD, 17.7); surgeon, 89.49 (SD, 16.0); medical team, 92.3 (SD, 16.4); office staff, 95.5 (SD, 12.0). (Cohen WA, Mundy LR, Ballard TN, et al, 2016). One SD below the mean score for satisfaction with information is 55 (73-18=55). 10% above is 65, so we are using this as our cut-point for defining satisfaction with information. This is further justified because ½ SD is 9 (which we would consider to be a 'minimally important clinical difference) and we are setting 10 as 'meaningful change.' Understanding women's reasons for wanting or not wanting breast reconstruction can assist clinicians to help women make choices most aligned with their individual values and needs (Flitcroft K, Brennan M, Spillane 2017). Patients receiving breast reconstruction as opposed to only mastectomy generally reported higher satisfaction rates with the surgical outcome (Aguiar et al 2017)

Measure Designation

Measure Purpose	• Quality Improvement • Accountability
Type of Measure	• Outcome
Care Setting	• Inpatient or Surgical Center, Ambulatory Care
Data Source	• Administrative data • Medical record

Jump to Measure Specifications

Measure #3: Length of stay following autologous breast reconstruction

Measure Description

Percentage of female patients aged 18 years and older who had breast reconstruction via autologous reconstruction (not including latissimus flap) with or without a tissue expander or implant who were discharged from the hospital by the end of post-operative day 4

Measure Components

Numerator Statement	Patients who were discharged from the hospital within 4 days of the initial procedure.
Denominator Statement	All female patients aged 18 years and older who had breast reconstruction via autologous reconstruction (not including latissimus flap) with or without a tissue expander or implant
Exclusions	Patients who had an unplanned second operation within the same hospital stay *(this exclusion is included as there is another ASPS measure tracking unplanned return to the OR)*
Denominator Exceptions	Patient/non-medical reason exception for delays in discharge outside the physicians control, such as lack of support at home, disposition delay.
Supporting Evidence	The following evidence statements are quoted from relevant studies: Length of stay is a widely accepted marker for health care quality, and possible reduction measures include earlier subspecialist consultation, preoperative counseling regarding the anticipated length of stay, and the wider adoption of a formal multidisciplinary, clinical pathway. (Offodile, Aherrera, and Guo 2014 NSQIP Analysis) Prolonged length of stay was defined as a length of stay greater than or equal to the 75th percentile, the top quartile of postoperative hospitalization duration. For patients undergoing breast reconstruction with free tissue transfer, 5 days marked the 75th percentile. The 75th percentile also represents the benchmark grouping for length-of-stay calculations in the majority of published series using the American College of Surgeons National Surgical Quality Improvement Program database. (Offodile, Aherrera, and Guo 2014 NSQIP Analysis). Billig et al 2017 conducted a Nationwide analysis for cost variation for autologous free flap patients and found that the median length of stay was 4 days across the country. The median represents the 50th percentile, so this is where we are setting our marker for improvement. Operative time, especially when exceeding 12 hours in duration, was the most predictive of prolonged length of stay in both study groups (breast reconstruction and non-breast reconstruction with free tissue transfer) (Offodile, Aherrera, and Guo 2014 NSQIP Analysis)

Measure Importance

Rationale/ Opportunity for Improvement	In today's health care climate of limited resources and rising cost, it is important that clinicians evaluate the quality of health care delivery in the framework of reconstructive surgery. Hospital beds represent a fixed resource in almost universal demand, and thus, length of hospital stay exerts considerable influence on health care resource allocation and use. (Offodile, Aherrera, and Guo 2014 NSQIP Analysis) Length of stay is a widely accepted marker for health care quality, and possible reduction measures include earlier subspecialist consultation, preoperative counseling regarding the anticipated length of stay, and the wider adoption of a formal multidisciplinary, clinical pathway. These coordinated, multidisciplinary, clinical pathways or "fast-track protocols" deliver a goal-directed approach to patient management that entails appropriate procedure selection, intraoperative management, and postoperative care. Numerous studies have established their efficacy at reducing length of stay and total costs across a variety of major surgical procedures such as esophagectomy, aneurysm repair, and colon resections. (Offodile, Aherrera, and Guo 2014 NSQIP Analysis) Gap in care: The median length of stay in a Nationwide study was 4 days. Thus, 50% of patients were discharged by 4 days and 50% were not.

Measure Designation

Measure Purpose	• Quality Improvement • Accountability
Type of Measure	• Outcome
Care Setting	• Inpatient
Data Source	• Administrative data • Medical record

Jump to Measure Specifications

Measure #4: Operative time for autologous breast reconstruction

Measure Description

Percentage of female patients aged 18 years and older who had **unilateral** breast reconstruction via autologous free tissue reconstruction with or without a tissue expander or implant whose operative time* did not exceed 8 hours.

Measure Components

Numerator Statement	Patients whose operative time* did not exceed 8 hours. *Definition Operative Time- NSQIP only collects full operative time, defined as the duration between first incision and wound closure.
Denominator Statement	All female patients aged 18 years and older who had unilateral breast reconstruction via autologous free tissue reconstruction with or without a tissue expander or implant.
Denominator Exceptions	None
Supporting Evidence	The following evidence statements are quoted from relevant studies: Operative time, especially when exceeding 12 hours in duration, was the most predictive of prolonged length of stay in both study groups (breast reconstruction and non-breast reconstruction with free tissue transfer). Operative time, defined as the duration between first incision and wound closure, was categorized as follows: less than 4 hours, 4 to less than 8 hours, 8 to less than 12 hours, and greater than or equal to12 hours (Offodile, Aherrera, and Guo 2014 NSQIP Analysis). Cases whose operative times were >604 min in length had twice the rate of reoperation compared to cases which were <372 min in length (8.85% vs 17.08%, respectively). (Kwok and Agarwal 2015 NSQIP Analysis) After controlling for other variables, cases whose operative time was equal to or greater than the 75th percentile (625.5 min) were twice as likely to experience flap failure (Wong et al 2015 NSQIP Analysis).

Measure Importance

Rationale/ Opportunity for Improvement	Prolonged operative time has been found to be a significant predictor of flap failure and re-operation. Cases whose operative times were >604 min in length had twice the rate of reoperation compared to cases which were <372 min in length (Kwok, Agarwal 2015). After controlling for other variables, cases whose operative time was equal to or greater than the 75th percentile (625.5 min) were twice as likely to experience flap failure (Wong et al 2015). Most of the studies did not control for unilateral vs. bilateral reconstruction, nor did they differentiate reconstruction with or without concurrent mastectomy or situations where difficult clinical situations arise necessitating increased length of surgery and inherent value judgement that longer in the OR/hospital might be worth it to patient if other choice is no breast reconstruction. Consensus of the work group was to limit this measure to unilateral free flap reconstruction, and thus the metric of 10 hours was decided after significant consideration. Gap in care: 50% of relevant cases in the NSQIP database had operative time greater than 8 hours (Kwok et al 2015)

Measure Designation

Measure Purpose	• Quality Improvement • Accountability
Type of Measure	• Outcome
Care Setting	• Inpatient
Data Source	• Administrative data • Medical record

Jump to Measure Specifications

Measure #5: Rate of blood transfusion for patients undergoing autologous breast reconstruction

Measure Description

Percentage of female patients aged 18 years and older who had breast reconstruction via autologous reconstruction (not including latissimus flap) with or without a tissue expander or implant who received blood or blood product transfusion during hospitalization (inverse measure, lower score = better performance)

Numerator Statement	Patients who received blood or blood product transfusion during hospitalization
Denominator Statement	All female patients aged 18 years and older who had breast reconstruction via autologous reconstruction (not including latissimus flap) with or without a tissue expander or implant
Exclusions	Patients who had an unplanned second operation within the same hospital stay *(this exclusion is included as there is another ASPS measure tracking unplanned return to the OR)*
Denominator Exceptions	Medical Exception for patients with known bleeding disorders
Supporting Evidence	The following evidence statements are quoted from relevant studies: A NSQIP review of free flap patients found that increased anesthesia time correlates with increased postoperative transfusions in these patients. As a result, limiting blood loss and avoiding prolonged anesthesia times should be goals for the microvascular surgeon (Kim et al May 2014 NSQIP Analysis).

Measure Importance

Rationale/ Opportunity for Improvement	In a NSQIP analysis of free tissue transfer patients, intraoperative transfusion (IOT) was significantly associated with higher rates of overall complications, medical complications, postoperative transfusion, and reoperation. However, IOT was not associated with surgical complications or free flap loss. (Kim et al Feb 2014). A prospective review of all patients undergoing breast reconstruction receiving blood transfusions found that transfusions were independently associated with higher rates of medical complications. A significantly lower rate of medical complications was observed when a restrictive transfusion (HgB level, <7 g/dL) was administered (P=0.04). A cost analysis demonstrated that each blood transfusion was independently associated with an added $1,500 in total cost (Fischer et al 2014). A retrospective review of women undergoing DIEP flap breast reconstruction found that bilateral reconstruction and length of surgery were the only factors to significantly increase the risk of perioperative blood transfusion. Patients receiving blood transfusions had an increased risk of experiencing a postoperative complication (Appleton et al 2011).

	Gap in Care Transfusion rates in DIEP flap procedures range from 9.1% (Lymperopoulos et al 2013) to 18.8% (Appleton et al 2011). Fischer et al (2014) found the rate of blood transfusion for all autologous breast reconstruction to be 8.2%.

Measure Designation

Measure Purpose	• Quality Improvement • Accountability
Type of Measure	• Outcome
Care Setting	• Inpatient
Data Source	• Administrative data? • Medical record

Jump to Measure Specifications

ASPS Evidence Rating Scales Through 2016

Evidence Rating Scale for Therapeutic Studies

Level of Evidence	Qualifying Studies
I	High-quality, multi-centered or single-centered, randomized controlled trial with adequate power; or systematic review of these studies
II	Lesser-quality, randomized controlled trial; prospective cohort or comparative study; or systematic review of these studies
III	Retrospective cohort or comparative study; case-control study; or systematic review of these studies
IV	Case series with pre/post-test; or only post test
V	Expert opinion developed via consensus process; case report or clinical example; cadaver study; or evidence based on physiology, bench research or "first principles"

Evidence Rating Scale for Diagnostic Studies

Level of Evidence	Qualifying Studies
I	High-quality, multi-centered or single-centered, cohort study validating a diagnostic test (with "gold" standard as reference) in a series of consecutive patients; or a systematic review of these studies
II	Exploratory cohort study developing diagnostic criteria (with "gold" standard as reference) in a series of consecutive patient; or a systematic review of these studies
III	Diagnostic study in nonconsecutive patients (without consistently applied "gold" standard as reference); or a systematic review of these studies
IV	Case-control study; or any of the above diagnostic studies in the absence of a universally accepted "gold" standard
V	Expert opinion developed via consensus process; case report or clinical example; cadaver study; or evidence based on physiology, bench research or "first principles"

Evidence Rating Scale for Prognostic/Risk Studies

Level of Evidence	Qualifying Studies
I	High-quality, multi-centered or single-centered, prospective cohort or comparative study with adequate power; or a systematic review of these studies
II	Lesser-quality prospective cohort or comparative study; retrospective cohort or comparative study; untreated controls from a randomized controlled trial; or a systematic review of these studies
III	Case-control study; or systematic review of these studies
IV	Case series with pre/post-test; or only post test
V	Expert opinion developed via consensus process; case report or clinical example; cadaver study; or evidence based on physiology, bench research or "first principles"

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APPENDIX A

Autologous Breast Reconstruction
Measurement Specifications

Coding Added March, 2017

Measure #1: Coordination of Care for Patients Undergoing Breast Reconstruction

<table>
<tr><td>Denominator (Eligible Population)</td><td>All female patients aged 18 years and older with genetic susceptibility to malignant neoplasm of the breast, current diagnosis or history of breast cancer AND breast reconstruction

Female

AND

Age ≥ 18 years

AND

ICD-10-CM Diagnosis Code:

Z15.01, Z85.3, C50.01, C50.11_, C50.21_, C50.31_, C50.41_, C50.51_, C50.61_, C50.81_, C50.91_ (_ = 1, 2, or 9 as the 6th digit), Z40.01, Z90.10, Z90.11, Z90.12, Z90.13, N65.0, Z98.82, Z80.3, Z45.811 – Z45.819, Z42.1, Z98.86

AND

CPT® and HCPCS Code for Encounter:

19357, 19357-50, 19340, 19340-50, 19342, 19342-50, 19361, 19361-50, 19364, 19364-50, 19367, 19367-50, 19368, 19368-50, 19369, 19369-50

<table>
<tr><td>19340</td><td>Immediate insertion of breast prosthesis following mastopexy, mastectomy or in reconstruction</td></tr>
<tr><td>19342</td><td>Delayed insertion of breast prosthesis following mastopexy, mastectomy or in reconstruction</td></tr>
<tr><td>19357</td><td>Breast reconstruction, immediate or delayed, with tissue expander, including subsequent expansion</td></tr>
<tr><td>19361</td><td>Breast reconstruction with latissimus dorsi flap, without prosthetic implant</td></tr>
<tr><td>19364</td><td>Breast reconstruction with free flap</td></tr>
<tr><td>19367</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), single pedicle, including closure of donor site</td></tr>
<tr><td>19368</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), single pedicle, including closure of donor site; with microvascular anastomosis (supercharging)</td></tr>
<tr><td>19369</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), double pedicle, including closure of donor site</td></tr>
</table>
</td></tr>
<tr><td>Denominator Exclusions</td><td>None</td></tr>
</table>

Numerator	Patients who had documentation of coordinated care* prior to their procedure Definitions: • *Documentation of coordinated care = documentation of a formal care coordination agreement as defined by the PCMH-N; OR documentation of discussion with physician currently managing care or referring physician (oncologist, radiologist, other specialist, or primary care physician) Captured by workflow within the ASPS QCDR
Denominator Exceptions	• None

Measure #2: Performance on Patient Satisfaction Questionnaire

<table>
<tr><td>Denominator (Eligible Population)</td><td>All female patients aged 18 years and older who had breast reconstruction

Female

AND

Age ≥ 18 years

AND

CPT® and HCPCS Code for Encounter:
Reporting Rate 1 (Implant Procedures): , 19340, 19340-50, 19342, 19342-50 (with or without 19357)
Reporting Rate 2 (Autologous Procedures): 19361, 19361-50, 19364, 19364-50, 19367, 19367-50, 19368, 19368-50, 19369, 19369-50 (with or without 19357)
Reporting Rate 3 (All breast reconstruction procedures): 19340, 19340-50, 19342, 19342-50, 19361, 19361-50, 19364, 19364-50, 19367, 19367-50, 19368, 19368-50, 19369, 19369-50 (with or without 19357)

<table>
<tr><td>19340</td><td>Immediate insertion of breast prosthesis following mastopexy, mastectomy or in reconstruction</td></tr>
<tr><td>19342</td><td>Delayed insertion of breast prosthesis following mastopexy, mastectomy or in reconstruction</td></tr>
<tr><td>19361</td><td>Breast reconstruction with latissimus dorsi flap, without prosthetic implant</td></tr>
<tr><td>19364</td><td>Breast reconstruction with free flap</td></tr>
<tr><td>19367</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), single pedicle, including closure of donor site</td></tr>
<tr><td>19368</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), single pedicle, including closure of donor site; with microvascular anastomosis (supercharging)</td></tr>
<tr><td>19369</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), double pedicle, including closure of donor site</td></tr>
</table>
</td></tr>
<tr><td>Denominator Exceptions</td><td>Patient refusal to complete the survey.</td></tr>
<tr><td>Numerator</td><td>Patients who reported a score of 65 or higher on the BREAST-Q Satisfaction with Information scale, within 120 days of the procedure.

Captured by workflow within the ASPS QCDR</td></tr>
<tr><td>Guidance</td><td>Only procedures performed during January 1 - August 31 of the reporting period will be considered for this measure, in order to allow for collection of the patient satisfaction scale within 120 days following the breast reconstruction procedure. Breast reconstruction procedures performed during September 1 - December 31 are excluded from the initial population.</td></tr>
</table>

Measure #3 Length of Stay following Autologous Breast Reconstruction

<table>
<tr><td>Denominator (Eligible Population)</td><td>All female patients aged 18 years and older who had breast reconstruction via autologous reconstruction (not including latissimus flap) with or without a tissue expander or implant

Female

AND

Age ≥ 18 years

AND

CPT® and HCPCS Code for Encounter:

19364, 19364-50, 19367, 19367-50, 19368, 19368-50, 19369, 19369-50 (with or without 19357)

OR

19340, 19340-50 <u>AND</u> 19364, 19364-50, 19367, 19367-50, 19368, 19368-50, 19369, 19369-50 (with or without 19357)

OR
19342, 19342-50 <u>AND</u> 19364, 19364-50, 19367, 19367-50, 19368, 19368-50, 19369, 19369-50 (with or without 19357)
<table><tr><td>19340</td><td>Immediate insertion of breast prosthesis following mastopexy, mastectomy or in reconstruction</td></tr><tr><td>19342</td><td>Delayed insertion of breast prosthesis following mastopexy, mastectomy or in reconstruction</td></tr><tr><td>19364</td><td>Breast reconstruction with free flap</td></tr><tr><td>19367</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), single pedicle, including closure of donor site</td></tr><tr><td>19368</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), single pedicle, including closure of donor site; with microvascular anastomosis (supercharging)</td></tr><tr><td>19369</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), double pedicle, including closure of donor site</td></tr></table></td></tr>
<tr><td>Denominator Exclusions</td><td>Patients who had an unplanned second operation during the same hospital stay

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Registry- Captured by workflow within the ASPS QCDR</td></tr>
<tr><td>Numerator</td><td>Patients who were discharged from the hospital within 4 days of the initial procedure.

Captured by workflow within the ASPS QCDR</td></tr>
<tr><td>Denominator Exceptions</td><td>• None</td></tr>
</table>

Measure #4: Operative Time for Autologous Breast Reconstruction

<table>
<tr><td>Denominator (Eligible Population)</td><td>All female patients aged 18 years and older who had <u>unilateral</u> breast reconstruction via autologous free tissue reconstruction with or without a tissue expander or implant

Female

AND

Age ≥ 18 years

AND

CPT® and HCPCS Code for Encounter:

19364 (with or without 19357)

OR

19340 <u>AND</u> 19364 (with or without 19357)

OR

19342 <u>AND</u> 19364 (with or without 19357)

<table><tr><td>19340</td><td>Immediate insertion of breast prosthesis following mastopexy, mastectomy or in reconstruction</td></tr><tr><td>19342</td><td>Delayed insertion of breast prosthesis following mastopexy, mastectomy or in reconstruction</td></tr><tr><td>19364</td><td>Breast reconstruction with free flap</td></tr></table></td></tr>
<tr><td>Denominator Exclusions</td><td>None</td></tr>
<tr><td>Numerator</td><td>Patients whose operative time* did not exceed 10 hours.

*Definition Operative Time- NSQIP only collects full operative time, defined as the duration between first incision and wound closure

Captured by workflow within the ASPS QCDR</td></tr>
<tr><td>Denominator Exceptions</td><td>• None</td></tr>
</table>

Measure #5 Rate of Blood Transfusion for Patients Undergoing Autologous Breast Reconstruction

<table>
<tr><td>Denominator (Eligible Population)</td><td>All female patients aged 18 years and older who had breast reconstruction via autologous reconstruction (not including latissimus flap) with or without a tissue expander or implant

Female

AND

Age ≥ 18 years

AND

CPT® and HCPCS Code for Encounter:
19364, 19364-50, 19367, 19367-50, 19368, 19368-50, 19369, 19369-50 (with or without 19357)

OR

19340, 19340-50 <u>AND</u> 19364, 19364-50, 19367, 19367-50, 19368, 19368-50, 19369, 19369-50 (with or without 19357)

OR
19342, 19342-50 <u>AND</u> 19364, 19364-50, 19367, 19367-50, 19368, 19368-50, 19369, 19369-50 (with or without 19357)
<table>
<tr><td>19340</td><td>Immediate insertion of breast prosthesis following mastopexy, mastectomy or in reconstruction</td></tr>
<tr><td>19342</td><td>Delayed insertion of breast prosthesis following mastopexy, mastectomy or in reconstruction</td></tr>
<tr><td>19364</td><td>Breast reconstruction with free flap</td></tr>
<tr><td>19367</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), single pedicle, including closure of donor site</td></tr>
<tr><td>19368</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), single pedicle, including closure of donor site; with microvascular anastomosis (supercharging)</td></tr>
<tr><td>19369</td><td>Breast reconstruction with transverse rectus abdominis myocutaneous flap (TRAM), double pedicle, including closure of donor site</td></tr>
</table>
</td></tr>
<tr><td>Denominator Exclusions</td><td>Patients who had an unplanned second operation during the same hospital stay

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Registry- Captured by workflow within the ASPS QCDR</td></tr>
<tr><td>Numerator</td><td>Patients who received blood or blood product transfusion during hospitalization

Captured by workflow within the ASPS QCDR</td></tr>
<tr><td>Denominator Exceptions</td><td>• Medical reason exception for patients with known bleeding disorders, represented by ICD-10 codes: D65-D69.9</td></tr>
</table>