Jump to TOC

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Reconstruction After Skin Cancer Resection Performance Measurement Set

For Peer Review and Public Comment
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Table of Contents	

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Intended Audience, Care Setting and Patient Population

These measures are designed for use by physicians and other health care professionals who provide surgical care to patients 18 and older who have had a resection for skin cancer with clear margins and require reconstruction (tissue rearrangement, grafts, or flaps).

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

Importance of Topic

Incidence, Prevalence, & Cost

Skin cancer is the most common cancer in the United States (Guy, Thomas et al 2015; Guy, Machlin et al 2015). Current estimates are that one in five Americans will develop skin cancer in their lifetime (Stern 2010; Robinson 2005). It is estimated that approximately 9,500 people in the U.S. are diagnosed with skin cancer every day (Rogers 2015; American Cancer Society 2019; Siegel et al 2019). Research estimates that nonmelanoma skin cancer, including basal cell carcinoma and squamous cell carcinoma, affects more than 3 million Americans a year (Rogers 2015; AAD 2017) and that the overall incidence of BCC increased by 145 percent between 1976-1984 and 2000-2010, and the overall incidence of SCC increased 263 percent over that same period (Muzic et al 2017).

A variety of methods may be used in the treatment of skin cancer, and surgical resection is often performed. Surgical reconstruction is frequently recommended as part of the therapeutic approach. Final wound defect appearance, morphology, and anatomic location, as well as patient history and preferences (AAD, 2018) may influence the type of repair chosen. Reconstructive options may include tissue rearrangement, grafts, or flaps. The reconstruction may be performed by the same individual doing the resection or by a different qualified health care professional.

The performance measures found in this document have been developed with these guidelines, enabling the physician to track his or her performance in individual patient care across patient populations. ***Please note that the provision of surgical services 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 age range for the performance measure(s), however this does **not** mean that they should not receive the service.

Measure Harmonization

There are no existing measures for Reconstruction After Skin Cancer Resection. This was a multi-disciplinary joint project that included all relevant specialties.

Measure Testing & Implementation

Testing of the Measurement Set

The measures in the set are being made available without any prior testing.

Technical Specifications: Introduction

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.

Quality measure technical specifications for electronic data sources are developed in alignment with national standards for clinical quality measures. Based on a measure's intended data sources, coding terminology recommendations and tools are used to create specifications to allow for clinical quality measure reporting. In electronic clinical data sources, data can be aggregated over a specific time period and also allow for greater ability to express certain types of data through use of the recommended terminologies for electronic sources.

The Centers for Medicare and Medicaid Services (CMS) developed *A Blueprint for the Measures Management System*, which provides guidance related to the development, implementation, and maintenance of clinical quality measures. Specific to eCQMs, this resource includes the recommended vocabularies used to develop the value sets used in the measures. The Blueprint can be found at the following webpage: https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/MMS/MeasuresManagementSystemBlueprint.html

When expressing clinical concepts found within a measure, specifically for those electronically specified, the Value Set Authority Center (VSAC) is used as a repository for the value sets. The VSAC serves as a repository for value sets in various stages of development, from draft to published, and allows for maintenance of value sets as updates are made to terminologies. It also allows measure developers to search for value sets currently in the VSAC and stewarded by another organization which could potentially be reused in a measure, as an effort towards harmonization with existing value sets so as not to duplicate value sets already in use with the same or similar clinical concepts. The VSAC can be accessed at the following webpage: https://vsac.nlm.nih.gov/

The Quality Data Model (QDM) is a framework used to categorize clinical concepts used in quality measures, as well as the relationships among them for electronic specification. The QDM allows for an Health Quality Measures Format (HQMF) rendering of logic using the Measure Authoring Tool (MAT) to express complex measure logic, and subsequently export measures in several formats, currently including a human-readable document, which can be viewed in a web browser, and the XML.
Links to these tools are found below:
QDM: https://ecqi.healthit.gov/qdm
MAT: https://www.emeasuretool.cms.gov/

CMS and the Office of the National Coordinator for Health IT (ONC) host a website, the Electronic Clinical Quality Information Resource Center (eCQI Resource Center), which is designed to serve as a one-stop shop for all resources related to eCQM development.

The eCQI Resource Center can be accessed at: https://ecqi.healthit.gov/ecqm

Measure Exceptions

Measure Exclusions

ASPS follows the the PCPI process of distinguishing between measure exceptions and measure exclusions. 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 excluded 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.

Electronic Clinical Data Sources:
Value sets are included in the electronic clinical data source specifications for Medical Reason, Patient Reason and System Reason. These have been specified in SNOMED-CT and include a broad list of reasons that pertain to each type of exception and cover various situations. The contents of these value sets are broad, and facilitate re-use of the Medical, Patient, and System Reason value sets across measurement sets.

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.

Where CPT Category II codes are used, the exception of a patient may be reported by appending the appropriate modifier to the CPT Category II code designated for the measure:

- **Medical reasons**: modifier 1P
- **Patient reasons**: modifier 2P

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.

Jump to TOC

Measure #1: Avoidance of Post-operative Systemic Antibiotics for Office-based Reconstruction After Skin Cancer Resection Procedures

This measure may be used as an Accountability measure.

Measure Description

Percentage of patients aged 18 and older who underwent reconstruction after skin cancer resection in the office-based* setting who were prescribed post-operative systemic antibiotics to be taken immediately following surgery (inverse measure)

Measure Components	
Numerator Statement	Patients who were prescribed post-operative systemic antibiotics to be taken immediately following surgery (inverse measure)
Denominator Statement	All patients aged 18 and older who underwent reconstruction after skin cancer resection in the office-based* setting *Office based: not billed with an ASC or inpatient facility code
Denominator Exceptions	Medical reason exceptions for patients with wounds breaching the oral, nasal, genitourinary or anal mucosa; immunosuppressed patients (such as those on immunosuppressive medications); patients with lymphedema; on antibiotics prescribed by another physician; or exposed cartilage/bone
Denominator Exclusions	Patients presenting for reconstruction after skin cancer resection with Cancer involving the lower extremity or who receive cartilage grafting
Supporting Guideline	**3b. The Work Group recommends that clinicians should not routinely administer perioperative systemic antibiotics for adult patients undergoing reconstruction after skin cancer resection in the office-based setting.** **Evidence Quality: Moderate** **Recommendation Strength: Moderate** Chen et al, ASPS, Reconstruction After Skin Cancer Resection Guideline 2019, in press
Measure Importance	
Rationale/ Opportunity for Improvement	Based on the preponderance of evidence, in the *office setting*, it is recommended that clinicians *not* administer routine perioperative systemic antibiotics. Benefits of avoiding antibiotic prophylaxis include cost savings, absence of antibiotic side effects, prevention of drug-drug interactions, reduced time delay prior to reconstruction, avoidance of complications associated with oral or intravenous administration, and lack of contribution to antibiotic resistance. Potential risks and harms include medicolegal vulnerability if an infection occurs. Patient education on the need for antibiotic stewardship may help convey to patients that antibiotic prophylaxis is not without risk, and avoidance of such may be in their best interest. This measure is limited to procedures in the office-based setting. Procedures done in the hospital or

	ambulatory surgical center are often larger operations, and are governed by "SCIP" protocol for antibiotic use, the Surgical care Improvement Project which dictates antibiotic selection for surgical patients. Gap in care: A 2019 study by Barbieri et al. characterized temporal trends in antibiotic prescribing patterns of dermatologists and associated patient diagnoses and outcomes from January 2008-December 2016. During this time, postoperative oral antibiotics associated with surgical visits increased dramatically by nearly 70%, from 3.92 courses per 100 surgical visits (95% CI, 3.83-4.01) to 6.65 courses per 100 surgical visits (95% CI, 6.57-6.74). Additionally, the study authors note in their discussion that a 2012 survey sent to members of the American College of Mohs Surgery identified many surgeon prescribing patterns that were not aligned with guideline recommendations concluding that dermatologic surgeons prescribe more antibiotics than needed for infection prevention. 30% of survey members reported that they were unfamiliar with the Journal of the American Academy of Dermatology 2008 advisory statement on antibiotic prophylaxis is dermatologic surgery (Bae-Harboe & Liang, 2013). In this study, 10% of respondents prescribed a postoperative antibiotic for most of their Mohs surgery cases, while 30.4% prescribed the same for any breach of the oral mucosa, regardless of a patient's medical history; 17% also prescribed the same for surgical flap cases regardless of surgical site. Less than 40% of respondents noted that they do not routinely administer postoperative antibiotics. As a voluntary, self-report survey with no audit of provider practice, it is likely this study actually underestimates the overutilization of postoperative antibiotics.
Exception Justification	Exceptions to this recommendation and measure are appropriate for reconstructions in special high-risk populations, such as those requiring large or complex reconstructions, those with clean-contaminated or chronic wounds, or those with medical histories or co-morbidities associated with immunosuppression or elevated risk of infection. Below-knee surgery has been shown to have a higher infection rate (Heal et al 2006; Heal et al 2012; Smith et al 2014). The reasons for this are unclear, but reduced perfusion pressure in the distal limbs (Syladis 1997), higher tension closures (Rosengren et al 2012), as well as the frequent necessity for complex graft/flap surgery are postulated reasons.
Harmonization with Existing Measures	There are no relevant antibiotic overuse measures.
Measure Designation	
Measure Purpose	Accountability Quality Improvement
Type of Measure	Process
Care Setting	Ambulatory care
Data Source	Medical record, administrative claims
Guidance	

Measure #2: Continuation of Anticoagulation Therapy in the Office-based Setting for Reconstruction After Skin Cancer Resection Procedures

This measure may be used as an Accountability measure.

Measure Description

Percentage of patients aged 18 and older on prescribed anticoagulation therapy who underwent reconstruction after skin cancer resection in the office-based setting for whom anticoagulant therapy was continued prior to surgery

Measure Components	
Numerator Statement	Patients for whom anticoagulant therapy was continued prior to surgery
Denominator Statement	All patients aged 18 and older on prescribed anticoagulation therapy who underwent reconstruction after skin cancer resection in the office-based setting
Denominator Exclusions	None
Denominator Exceptions	Medical reason exceptions such as medication modification recommended by another or managing physician
Supporting Guideline	**4a. The Work Group recommends that clinicians should continue anticoagulant, antithrombotic, and antiplatelet medications for adult patients undergoing reconstruction after skin cancer resection in the office-based setting.** **Evidence Quality: Moderate** **Recommendation Strength: Moderate** Chen et al, ASPS, Reconstruction After Skin Cancer Resection Guideline 2019, in press
Measure Importance	
Rationale/ Opportunity for Improvement	Pragmatic case series and cohort studies that have detected a higher rate of bleeding in reconstructions associated with anticoagulant use recommend continuing such medications perioperatively as the same studies have noted that cases of increased bleeding did not result in serious consequences for patients (Bordeaux JS 2011; Cook-Norris RH 2011; Otley CC 1996; Billingsley EM 1997). On the other hand, there are numerous case reports of medication cessation being associated with death as well as serious adverse events (Khalifeh MR 2006; Alam M 2002; Schanbacher CF 2000; Kovich O 2003) including strokes, cerebral emboli, myocardial infarctions, transient ischemic attacks, deep venous thromboses, pulmonary emboli, and retinal artery occlusion leading to blindness.

	Potential benefits of continuing anticoagulant, antithrombotic, and antiplatelet medications include, most importantly, reduced risk of any thromboembolic event, and reduction in mortality. From a patient standpoint, not stopping medications may improve compliance, decrease patient confusion, and reduce the risk that medications will inadvertently be managed improperly. Potential risks of continuing medications perioperatively are milder, including slightly increased risk of bleeding, which may require bandage change, or further measures to secure the reconstruction with additional sutures or pressure dressings. Concurrent concerns may be a minor elevation in the risk of graft or flap loss, possible delay in wound healing, increased duration of the procedure, patient inconvenience relating to returning to the physician for a bleeding-associated complication, and the direct and indirect medical costs of additional medications, office visits, or procedures that may be required. Conceivably, surgeons concerned about a bleeding-associated complication may choose a less aesthetically or functionally optimal repair to minimize the risk. Importantly, the risks, harms, and costs of continuing oral anticoagulant, antithrombotic and antiplatelet medications can be collectively characterized as minor inconveniences and costs, while the potential benefits are reduction in the incidence of severe adverse events and death. Gap in care: A 2007 paper reported on a 2005 survey (Kirkorian et al 2007) of derm-surgeons and found that 37% discontinue medically necessary aspirin and 44% discontinue warfarin at least some of the time. Although clopidogrel was not surveyed, 78 physicians included comments about the management of this agent. The group is in the process of repeating the survey and should have new data for us by the Sept 1 QCDR submission deadline.
Harmonization with Existing Measures	N/A
Measure Designation	
Measure Purpose	Accountability Quality Improvement
Type of Measure	Process
Care Setting	Ambulatory care
Data Source	Medical record, administrative claims
Guidance	

Jump to TOC

Measure #3: Coordination of Care for Anticoagulated Patients Undergoing Reconstruction After Skin Cancer Resection

This measure may be used as an Accountability measure.

Measure Description

Percentage of patients aged 18 and older on prescribed anticoagulation medication who underwent reconstruction after skin cancer resection (in any setting) and preoperative modification* to their anticoagulant(s) regimen, 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. **Documentation of coordinated care = documentation of discussion with physician currently managing the anticoagulation therapy (such as a cardiologist or primary care physician)
Denominator Statement	All patients aged 18 and older on prescribed anticoagulation medication who underwent reconstruction after skin cancer resection (in any setting) and preoperative modification* to their anticoagulant(s) regimen *Modification is indicated by change, reduction, or discontinuation of the current anticoagulant medication(s)
Denominator Exceptions	Patient reason exceptions such as patients who choose to stop therapy on their own or by other physician recommendation, or who do not have a current physician managing their medication
Supporting Guideline	**4b. The Work Group recommends that clinicians should coordinate with the physician managing the anticoagulation medication before modifying the medication prior to reconstruction procedures in a *facility* (*non-office based*) setting.** **Evidence Quality: N/A (This is a good practice recommendation)** **Recommendation Strength: N/A** Chen et al, ASPS, Reconstruction After Skin Cancer Resection Guideline 2019, in press
Measure Importance	
Rationale/ Opportunity for Improvement	Anticoagulation management perioperatively requires decision making that should involve the surgeon, the physician managing the anticoagulation (e.g., primary care physician, cardiologist, etc) and patient. When complex reconstructive procedures involving flaps/grafts are planned in the facility setting, bleeding risk potentiates complications and possible failure of the reconstruction. In some situations, anticoagulant management is more critical than in a straightforward excision and repair where it may be continued.

	Reversible agents used in bridging treatment provide flexibility when bleeding events are encountered and may be a safer alternative. On the other hand, some patients with significant increased risk of thromboembolism (i.e. personal history of thromboembolism or bleeding disorders) may need to continue anticoagulant therapy despite risk to surgical outcomes. Consultation with the primary physician, cardiologist, or other prescribing clinician is helpful in weighing risks and benefits and allows for a coordinated approach to therapeutic management. Gap in care: Data will be available from the repeat survey mentioned in Measure 2.
Harmonization with Existing Measures	N/A
Measure Designation	
Measure Purpose	Accountability Quality Improvement
Type of Measure	Process
Care Setting	Ambulatory care, surgical center, inpatient
Data Source	Medical record, administrative claims
Guidance	

Jump to TOC

Measure #4: Avoidance of Opioid Prescriptions for Reconstruction After Skin Cancer Resection

This measure may be used as an Accountability measure.

Measure Description

Percentage of patients aged 18 and older who underwent reconstruction after skin cancer resection who were prescribed opioid/narcotic therapy* as first line therapy (as defined by a prescription in anticipation of or at time of surgery) by the reconstructing surgeon for post-operative pain management by the reconstructing surgeon. (Inverse measure)

Measure Components	
Numerator Statement	Patients who were prescribed opioid/narcotic therapy* as first line treatment (as defined by a prescription in anticipation of or at time of surgery) for post-operative pain management by the reconstructing surgeon. (Inverse measure) *List of narcotic/opioid medications included: morphine, oxycodone, fentanyl, oxymorphone, hydromorphone, buprenorphine, meperidine, codeine, butorphanol, tramadol, levophanol, sufentanil, pentazocine, tapentadol, hydrocodone
Denominator Statement	All patients aged 18 and older who underwent reconstruction after skin cancer resection
Denominator Exceptions	Medical reason exception for patients who cannot take non-opioid pain medications (i.e. patients with chronic kidney disease, COPD, allergy to non-steroidal anti-inflammatory medications and acetaminophen or documented contraindication to non-steroidal anti-inflammatory medications and acetaminophen, cirrhosis/liver disease)
Supporting Guideline	**5a. The Work Group recommends that clinicians should not routinely prescribe narcotic medication as first line treatment for pain in adult patients undergoing reconstruction after skin cancer resection.** Chen et al, ASPS, Reconstruction After Skin Cancer Resection Guideline 2019, in press
Measure Importance	
Rationale/ Opportunity for Improvement	There is increasing evidence that prescription narcotics, which surgical patients are 4 times as likely to receive upon discharge than non-surgical patients, are associated with increased risk of opioid diversion, addiction, unintentional injury, and death (Brat GA 2018). Patients who fill narcotic prescriptions after minor surgical procedures are more likely to exhibit persistent opioid use (Harbaugh CM 2018), and the duration of the prescribed use is a predictor of future misuse (Sniezek PJ 2018). In the realm of reconstruction after skin cancer removal, a randomized clinical trial comparing oral postoperative pain management regimens has not shown

	narcotics to be more effective (Harris K 2014). Specifically, patients undergoing reconstruction of head and neck wounds were assigned to receive every 4 hours after surgery one of the following: 1000 mg of acetaminophen, 1000 mg of acetaminophen plus 400 mg of ibuprofen, or 325 mg of acetaminophen plus 30 mg of codeine. Pain was assessed by patient self-report using a visual analog scale immediately after surgery, and at 2, 4, 8, and 12 hours postoperatively. Subgroups were compared based on the area of the reconstructed defect. At 2 and at 4 hours the acetaminophen plus codeine group reported more pain than the acetaminophen plus ibuprofen group. At other time points, no difference was seen in mean change in pain scores across the groups. At no time points was the regimen including the narcotic agent found to control pain better than either of the other two non-narcotic regimens. Overall patient satisfaction, measured at the end of the study, did not differ between the codeine group and either of the other two groups (Harris K 2014). Retrospective and prospective case series (Parsa FD 2017; Kelley BP 2016) that compared narcotic and non-narcotic post-operative pain strategies found no difference in surgical outcomes. Gap in care: All Mohs micrographic patients in a study by Limthongkul, Samie et al 2013) were given an opioid prescription to fill as needed, and more patients (16% vs 7.1%) used opioids for pain relief than in similar studies where the prescription was not given ahead of time. Another study comparing full-thickness skin grafts with second-intention wound healing for defects of the helix found the mean pain scores to be similar for both (2.8 and 2.5 of 10, respectively) (Hochwalt, Christensen et al 2015). Thirty-five percent of the patients in Harris et al 2104 received a postoperative opioid prescription, with a total of 851 opioid pills prescribed for 82 patients. In a survey of ASDS members regarding opioids prescribing, 36% reported prescribing opioids in > 10% of their cases, with 7% prescribing in more than 75% of cases. 59% reported prescribing >10 pills and 31% reported prescribing >15 pills after surgery (Harris et al 2014).
Harmonization with Existing Measures	There are currently no opioid measures for post-op acute pain in skin cancer patients, or even in general surgery, in MIPS or on the 2019 QCDR list.
Measure Designation	
Measure Purpose	Accountability Quality Improvement
Type of Measure	Process
Care Setting	Ambulatory care, ASC, Inpatient
Data Source	Medical record, administrative claims
Guidance	

Jump to TOC

Measure #5: Verification of Clear Margins Prior to Reconstruction After Skin Cancer Resection Procedures Performed by a Different Surgeon

This measure may be used as an Accountability measure.

Measure Description

Percentage of patients aged 18 and older who underwent reconstruction after skin cancer resection, where the reconstruction was performed by a different surgeon than the resecting surgeon, for whom the surgeon performing the reconstruction verified a negative margin status* prior to beginning the reconstruction

Measure Components	
Numerator Statement	Patients for whom the surgeon performing the reconstruction verified a negative surgical margin status* prior to beginning the reconstruction *Verification requires documentation by the reconstructing surgeon in the patient's chart that the patient's skin cancer final surgical margins are negative for residual tumor. The following lists potential communication methods of verifying that the surgical margin is negative: - The reconstructing surgeon reviewed the pathology report that documented the negative peripheral and deep margins. - The reconstructing surgeon reviewed the clinical chart from the resecting surgeon that documented the negative peripheral and deep margins. - There was verbal communication from the pathologist that the peripheral and deep margins are negative, and this was documented in the patient's chart. - There was verbal communication from the resecting surgeon that the peripheral and deep margins are negative, and this was documented in the patient's chart.
Denominator Statement	All patients aged 18 and older who underwent reconstruction after skin cancer resection where the reconstruction was performed by a different surgeon than the resecting surgeon
Denominator Exceptions	Medical reason exceptions such as: - known positive margin communicated from the resecting surgeon with the intent that the reconstructing surgeon will remove the residual tumor - Recurrent cutaneous melanoma - In transit disease - Simultaneous procedures where final pathology is not obtained prior to closure Patient reason exceptions such as: - The patient requested reconstruction and declined further skin cancer

	resection in the setting of a known positive margin. This can be for any reason – examples include patient preference, other medical conditions, or because an additional non-surgical treatment will be used (such as radiation or immunomodulators), etc. - The patient requested reconstruction and declined waiting for final pathology confirmation of a negative peripheral and deep margin. This can be for any reason.
Supporting Guideline	**Cutaneous Basal Cell Carcinoma (BCC) and Squamous Cell Carcinoma (SCC): In the setting in which a delayed repair is needed after the removal of a BCC or a SCC, these tumors are typically going to be High-Risk tumors (as defined by the NCCN). In this scenario, the NCCN recommends that "Closures like adjacent tissue transfers, in which significant tissue rearrangement occurs, are best performed after clear margins are verified." This is a category 2A recommendation.** BCC: NCCN Guideline Version 1.2019 – Basal Cell Carcinoma SCC: NCCM Guideline Version 2/2019 – Squamous Cell Carcinoma **Cutaneous Melanoma and Melanoma in-situ (MMIS): When excising melanoma, specific margins and surgical techniques are recommended by the NCCN depending on the Breslow depth and when specific anatomic and/or functional issues must be considered. The most significant challenge occurs when dealing with melanoma, in particular, lentigo maligna MMIS and/or invasive melanoma variants on the head and neck. It is in this scenario that a delayed reconstruction typically occurs due to the need for meticulous margin control either through Mohs Micrographic Surgery or a Staged Excision technique, as recommend by the NCCN.** **This is a category 2B recommendation.** Melanoma: NCCM Guideline Version 2/2019 – Cutaneous Melanoma **The Work Group finds that it is acceptable that clinicians perform reconstructive surgery in a delayed (asynchronous) fashion for adult patients after skin cancer resection.** **Evidence Quality: Low** **Recommendation Strength: Option** Chen et al, ASPS, Reconstruction After Skin Cancer Resection Guideline 2019, in press
Measure Importance	
Rationale/ Opportunity for Improvement	When customary 3-4 mm margins are used, rates of incomplete histological excision can vary from 5 to 54% and of those incompletely excised, 10-75% reoccur, depending on the tumour type. Recurrences can be very aggressive and difficult to treat. This is a strong argument for the need to monitor margins prior to repair to ensure complete excision (David, DB et al., 1999). Spontaneous regression of incompletely excised, small BCCs is a fairly common phenomenon in the literature, but recurrence rates for GBCC are consistently high. Of the five instances of incomplete excision in our series, all tumours recurred just 2 months from surgery. A skin graft at the surgical defect of one patient was

	progressively destroyed by recurring tumour, requiring more radical approach on second intervention (Zoccali, G. et al., 2012). According to the above studies, it is important for the reconstructing surgeon to verify negative margin status before starting reconstruction to mitigate costly and unnecessary repeat surgeries for the patient, especially in situations where this constitutes the deconstruction of a flap or graft. Gap in care: Conventional excision with postoperative margin assessment (CE-POMA) of facial melanomas has a 12% rate of positive margins and a 9% rate of local recurrence." IF Mohs is used, there are normally no positive margins at the end of the procedure- but not all service areas have access to a qualified Mohs surgeon and therefore other excisional techniques may be utilized which have higher rates of postoperative positive margins. The likelihood of needing a second surgical visit to remove residual melanoma was obtained by aggregating data from published rates of positive margins after excision of head and neck melanomas with CE-POMA (12%, 144/1194) and after the first stage of slow Mohs (42%, 683/1617). Subsequent surgery days are not necessary for MMS-I, since multiple stages are excised on the same day." Additionally, a preference survey of 158 skin cancer patients found that patients prioritized surgical choices that would minimize the risk for local recurrence, out-of-pocket costs, and the chance of needing a second visit for additional surgery above the timing of surgical reconstruction (either immediate or delayed). (Etzkorn et al., 2018) Among a cohort of 534 patients treated with wide local excision of primary cutaneous malignant melanoma and immediate reconstruction, 2.7% had positive margins based on results of permanent pathological evaluation. Desmoplastic melanoma and location on the cheek were significantly associated with positive margins after reconstruction, necessitating further surgery in 9 patients. (Karanetz et al., 2016)
Exception Justification	There are circumstances where it is either not possible or not practical to verify the margins, and we have made exceptions for those.
Harmonization with Existing Measures	N/A
Measure Designation	
Measure Purpose	Accountability Quality Improvement
Type of Measure	Process
Care Setting	Ambulatory care, ASC, inpatient
Data Source	Medical record, administrative claims
Guidance	It is recommended that a field be created in the surgeon's EMR to document this, outside of the free text, as this information may be stored in a scanned PDF from the pathologist and would not be readily available for electronic capture.

Jump to TOC

Measure #6: Closing the Referral Loop- Summary of Care Sent following Reconstruction After Skin Cancer Resection Procedures

This measure may be used as an Accountability measure.

Measure Description

Percentage of patients aged 18 and older who underwent reconstruction after skin cancer resection, where the reconstruction was performed by a different surgeon than the resecting surgeon, for whom a summary of care was sent from the surgeon performing the reconstruction procedure to the clinician who performed the resection procedure or the clinician managing the skin cancer within 30 days

Measure Components	
Numerator Statement	Patients for whom a summary of care was sent from the surgeon performing the reconstruction procedure to the clinician who performed the resection procedure or the clinician managing the skin cancer within 30 days
Denominator Statement	All patients aged 18 and older who underwent reconstruction after skin cancer resection where the reconstruction was performed by a different surgeon than the resecting surgeon
Denominator Exceptions	Non-medical reason exceptions such as both surgeons are in the same practice or health system and have access to the patient's medical record either in paper or by EMR.
Measure Importance	
Rationale/ Opportunity for Improvement	The evidence for delayed reconstruction shows that it is safe and the guideline states that either delayed reconstruction or immediate are acceptable. However, when delayed reconstruction is planned (that is, determined in advance of beginning the resection of the skin cancer), coordination of care is an important factor. If the reconstructive surgeon is informed and can plan for the reconstructive procedure, the patient benefits with shorter wait times, the possibility of a pre-operative consultation, and lower anxiety. It is also important for the reconstructive surgeon to report back to the referring surgeon who performed the skin cancer resection, whether or not the delay was planned in advance. A summary of care should be provided within 30 days. This measure represents the "other side" of closing the referral loop. Measure 374 is generally not able to be reported by reconstructive surgeons as they are rarely the referring physician. This measure represents the opportunity to hold recontructive surgeons accountable for reporting back to the Mohs surgeon and or dermatologist that will be managing the skin cancer patient moving forward.
Exception Justification	
Harmonization	Currently, the only existing MIPS measure is 374, receipt of the specialist

with Existing Measures	report. This measure is rarely reportable by the reconstructive surgeon, who tends to be the final provider. Adding measure 6 proposed above will close that loop and allow the end provider a measure to report that is important to the quality of care.
Measure Designation	
Measure Purpose	Accountability Quality Improvement
Type of Measure	Process
Care Setting	Ambulatory care, ASC, inpatient
Data Source	Medical record, administrative claims

Measure #7: Patient Satisfaction with Information Prior to Reconstruction After Skin Cancer Resection Procedures

This measure may be used as an Accountability measure.

Measure Description

Percentage of patients aged 18 and older who underwent facial reconstruction after skin cancer resection who responded to the Face-Q Satisfaction with Information: Appearance Module within 90 days of the procedure and scored 15 (52%) or higher or if scored lower than 15 (52%) there is documentation of a call to the patient within 30 days.

Measure Components	
Numerator Statement	Patients who responded to the *Face -Q Satisfaction with Information: Appearance Module* within 90 days and scored 15 (52%) or higher or if scored lower than 15 (52%) there is documentation of a call to the patient within 30 days
Denominator Statement	All patients aged 18 and older who underwent facial reconstruction after skin cancer resection
Denominator Exceptions	Patient reason exceptions such as patient refusal to complete the survey.
Supporting Guideline	**The work group suggests that clinicians may offer post-operative follow-up assessment to adult patients undergoing reconstruction after skin cancer resection.** **Evidence Quality: N/A** **Recommendation Strength: N/A (This is a good practice recommendation)** Chen et al, ASPS, Reconstruction After Skin Cancer Resection Guideline 2019, in press
Measure Importance	
Rationale/ Opportunity for Improvement	Reconstruction after skin cancer resection may have myriad functional and cosmetic outcomes. The return of the patient for follow-up clinic visits is an excellent opportunity to better understand and measure these outcomes, improve patient-physician communication, and foster quality improvement. Post-operative follow-up can lead to increased communication between the patient and physician, empowering patients to express satisfaction and otherwise important outcome measures. This communication is an opportunity to increase patient and family engagement and offer the patient appropriate patient reported outcome measures (PROMs). Follow-up can recognize areas for technique enhancement, improvement of patient satisfaction, and identify those patients who may benefit from further counseling or management. Quality improvement projects and scientific outcome studies can be constructed through appropriate follow-up. The FACE-Q Satisfaction with Information : Appearance subscale inquires about

	scar and healing expectations. Decreased satisfaction with information (i.e. more worry and appearance-related distress) is negatively correlated with appearance satisfaction. The scores are interpreted at the individual level to offer tangible and unique benefits for the clinician (Lee et al 2018).
Harmonization with Existing Measures	N/A
Measure Designation	
Measure Purpose	Accountability Quality Improvement
Type of Measure	Outcome
Care Setting	Ambulatory care
Data Source	Medical record, administrative claims
Guidance	This measure will only capture data from January 1, 2020 through Sept 30, 2020 to allow for 90 days to administer the survey.

Jump to TOC

Measure #8: Visits to the ER or Urgent Care Following Reconstruction After Skin Cancer Resection

This measure may be used as an Accountability measure. Only Part 2 will be reported.

Measure Description

Part 1: Percentage of patients aged 18 and older who underwent reconstruction after skin cancer resection who were contacted* within 30 days of their procedure to determine whether they visited the ER or Urgent Care within 7 days of their procedure, for a reason related to the reconstruction after skin cancer resection surgery.

Part 2: Percentage of patients, aged 18 and older who underwent reconstruction after skin cancer resection and were contacted within 30 days of the procedure, who visited the ER or Urgent Care within 7 days of their procedure for a reason related to the reconstruction after skin cancer resection surgery.

Measure Components	
Numerator Statement	Part 1: Patients who were contacted* within 30 days of their procedure to determine whether they visited the ER or Urgent Care within 7 days of their procedure for a reason related to the reconstruction after skin cancer resection surgery. * Contact can occur at a follow-up visit or be done by phone or HIPPA Secure Messaging. Part 2: Patients who visited the ER or Urgent Care within 7 days of their procedure for a reason related to the reconstruction after skin cancer resection surgery
Denominator Statement	Part 1: All patients aged 18 and older who underwent reconstruction after skin cancer resection Part 2: All patients aged 18 and older who underwent reconstruction after skin cancer resection and were contacted within 30 days of the procedure
Denominator Exceptions	None
Denominator Exclusions	None
Measure Importance	
Rationale/ Opportunity for Improvement	National studies suggest that there is a need to assess and prevent unnecessary and costly Emergency Department (ED) visits associated with the care and treatment of cancer (Molina, et. al, 2016). The growing prevalence of skin cancer has created a health and economic burden (Guy, et al, 2014). Two studies were evaluated on ED use following ambulatory surgery (Fox, et al, 2014; Molina, et al, 2016). None of these studies specifically studied post-

	skin cancer reconstruction but there seems to be a gap in understanding the potential problem of avoidable ED use associated with this type of reconstruction. In a large study of ambulatory procedures, post-operative ED visits within 7 days was commonly ≥10 per 1000 procedures with an associated cost of $51.4 million dollars (Molina, et al, 2016). In another large ambulatory surgical study with targeted endpoints of an ED visit or hospital admission within 7 days of a procedure which was risk adjusted, substantial variation was identified of 28.0-21.0 ED visits or hospital admissions per 1000 procedural discharges (Fox, et al, 2014).
Harmonization with Existing Measures	There are no existing measures in MIPS or the current QCDR list looking at ED utilization specific to reconstruction after skin cancer or even general surgery.
Measure Designation	
Measure Purpose	Accountability Quality Improvement
Type of Measure	Process and Outcome (Reported as Outcome)
Care Setting	Ambulatory care
Data Source	Medical record, administrative claims
Guidance	Patients should be asked within 30 days of their surgery: Within 1 week of your surgery, did you visit the ER or urgent care for reasons related to your surgery? Only Part 2 will be reported for accountability, but both parts must be completed to meet the measure.

Guideline Evidence Classification and Rating Schemes

Strength	Overall Strength of Evidence	Description
Strong	Strong	Evidence from two or more "High" quality studies with consistent findings for recommending for or against the intervention. Benefit or harm predominates. The vast majority of well-informed patients (> 90%) would most likely *use or not use* this patient-care strategy, compared to alternative patient-care strategies or no treatment.
Moderate	Moderate	Evidence from two or more "Moderate" quality studies with consistent findings, or evidence from a single "High" quality study for recommending for or against the intervention. Benefit or harm predominates. The majority of well-informed patients would most likely *use or not use* this patient-care strategy, compared to alternative patient-care strategies or no treatment.
Weak	Low Strength Evidence or Inconsistent Evidence	Evidence from one or more "Low" quality studies with consistent findings or evidence from a single "Moderate" quality study recommending for or against the intervention. Benefit or harm predominates or is unclear. The majority of well-informed patients would most likely *use or not use* this patient-care strategy, compared to alternative patient-care strategies or no treatment.
Option	Very Low Strength Evidence or Inconsistent Evidence	Evidence from one or more "Very Low" quality studies with consistent findings or evidence from a single "Weak" quality study recommending for or against the intervention. Potential benefits are harms are balanced. The majority of well-informed patients would most likely *use or not use* this patient-care strategy, compared to alternative patient-care strategies or no treatment.

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APPENDIX A

Reconstruction After Skin Cancer Resection

Measurement Specifications

Coding Updated: May, 2019

Measure #1: Avoidance of Post-operative Systemic Antibiotics for Office-based Reconstruction After Skin Cancer Resection Procedures

Denominator (Eligible Population)	All patients aged 18 and older who underwent reconstruction after skin cancer resection in the office-based* setting Office based: not billed with an ASC or inpatient facility code Age ≥ 18 years AND **CPT® for Encounter:** 14000, 14001, 14020, 14021, 14040, 14041, 14060, 14061 15100,15120 15200, 15220, 15240, 15260 40525, 40527 AND ICD-10 Codes for most common skin cancers: C43-C44 D03-D04 AND Place of Service Code: 11 (office)
Denominator Exclusions	Codes for exclusion of skin cancer on lower legs, for which procedures have a higher risk of infection. ICD-10 Codes: BCC – C44.71x SCC – C44.72x MM – C43.71x MMIS – D03.7x SCCIS – D04.7x Cartilage grafts: NEED CODES
Numerator	Patients who were prescribed post-operative systemic antibiotics to be taken immediately following surgery (inverse measure) Captured by attestation in the work flow of the ASPS QCDR

Denominator Exceptions	Medical reason exceptions include patients with a history of: • Lymphedema I89.X • History of immunosuppressive medications Z92.24 • Immunodeficiency syndromes D82.X • HIV B20.X • Antibiotics currently being taken for another reason (listed in documentation of current medications)

Measure #2: **Continuation of Anticoagulation Therapy in the Office-based Setting for Reconstruction After Skin Cancer Resection Procedures**

Denominator (Eligible Population)	All patients aged 18 and older on anticoagulation therapy who underwent reconstruction after skin cancer resection in the office-based setting Age $\geq$ 18 years AND **CPT® for Encounter:** 14000, 14001, 14020, 14021, 14040, 14041, 14060, 14061 15100,15120 15200, 15220, 15240, 15260 40525, 40527 AND ICD-10 Codes for most common skin cancers: C43-C44 D03-D04 AND Place of Service Code: 11 (office)
Denominator Exclusions	none
Numerator	Patients for whom anticoagulant therapy was continued Captured by attestation in the work flow of the ASPS QCDR
Denominator Exceptions	Medical reason exceptions such as medication modification recommended by another or managing physician

Measure #3: Coordination of Care for Anticoagulated Patients Undergoing Reconstruction After Skin Cancer Resection

Denominator (Eligible Population)	All patients aged 18 and older on prescribed anticoagulation medication who underwent reconstruction after skin cancer resection (in any setting) and preoperative modification* to their anticoagulant(s) regimen *Modification is indicated by change, reduction or discontinuation of the current anticoagulant medication(s). Age ≥ 18 years AND CPT® for Encounter: 14000, 14001, 14020, 14021, 14040, 14041, 14060, 14061 14301, 14350 15050 15100,15120 15200, 15220, 15240, 15260 15570, 15572, 15574, 15576 40525, 40527 15731, 15733, 15740, 15760 67971, 67973, 67974, 67975 AND ICD-10 Codes for most common skin cancers: C43-C44 D03-D04 AND Modification* to the anticoagulant(s) regimen *Modification is indicated by change, reduction or discontinuation of the current anticoagulant medication(s)
Denominator Exclusions	none
Numerator	Patients who had documentation of coordinated care** prior to their procedure. **Documentation of coordinated care = documentation of discussion with physician currently managing the anticoagulation therapy (such as a cardiologist or primary care physician Captured by attestation in the work flow of the ASPS QCDR
Denominator Exceptions	Patient reason exceptions such as: patients who choose to stop therapy on their own or by other physician recommendation, who do not have a current physician managing their medication

Measure #4: Avoidance of Opioid Prescriptions for Reconstruction After Skin Cancer Resection

Denominator (Eligible Population)	All patients aged 18 and older who underwent reconstruction after skin cancer resection Age ≥ 18 years AND CPT® for Encounter: 14000, 14001, 14020, 14021, 14040, 14041, 14060, 14061 14301, 14350 15050 15100,15120 15200, 15220, 15240, 15260 15570, 15572, 15574, 15576 15730, 15733, 15740, 15760 67971, 67973, 67974, 67975 AND ICD-10 Codes for most common skin cancers: C43-C44 D03-D04
Denominator Exclusions	none
Numerator	Patients who were prescribed opioid/narcotic therapy* as first line treatment (as defined by a prescription in anticipation of or at time of surgery) for post-operative pain management by the reconstructing surgeon. (Inverse measure) *List of narcotic/opioid medications included: morphine, oxycodone, fentanyl, oxymorphone, hydromorphone, buprenorphine, meperidine, codeine, butorphanol, tramadol, levophanol, sufentanil, pentazocine, tapentadol, hydrocodone Captured by attestation in the work flow of the ASPS QCDR
Denominator Exceptions	Medical reason exception for patients who cannot take non-opioid pain medications (patients with chronic kidney disease, COPD, allergy to non-steroidal anti-inflammatory medications and acetaminophen or documented contraindication to non-steroidal anti-inflammatory medications and acetaminophen, cirrhosis/liver disease)

Measure #5: Verification of Clear Margins Prior to Reconstruction After Skin Cancer Resection Procedures Performed by a Different Surgeon

Denominator (Eligible Population)	All patients aged 18 and older who underwent reconstruction after skin cancer resection where the reconstruction was performed by a different surgeon Age ≥ 18 years AND CPT® for Encounter: 14000, 14001, 14020, 14021, 14040, 14041, 14060, 14061 14301, 14350 15050 15100,15120 15200, 15220, 15240, 15260 15570, 15572, 15574, 15576 40525, 40527 15731, 15733, 15740, 15760 67971, 67973, 67974, 67975 AND ICD-10 Codes for most common skin cancers: C43-C44 D03-D04
Denominator Exclusions	none
Numerator	Patients for whom the surgeon performing the reconstruction verified a negative surgical margin status* prior to beginning the reconstruction *Verification requires documentation by the reconstructing surgeon in the patient's chart that the patient's skin cancer final surgical margins are negative for residual tumor. The following lists potential communication methods of verifying that the surgical margin is negative: - The reconstructing surgeon reviewed the pathology report that documented the negative peripheral and deep margins. - The reconstructing surgeon reviewed the clinical chart from the resecting surgeon that documented the negative peripheral and deep margins. - There was verbal communication from the pathologist that the peripheral and deep margins are negative, and this was documented in the patient's chart. - There was verbal communication from the resecting surgeon that the peripheral and deep margins are negative, and this was documented in the patient's chart. Captured by attestation in the work flow of the ASPS QCDR
Denominator Exceptions	Medical reason exceptions for unclear margins, such as known positive margin communicated from the resecting surgeon, recurrent cutaneous melanoma, In transit disease

	Patient reason exceptions, such as the patient requested reconstruction and declined further skin cancer resection in the setting of a known positive margin (This can be for any reason – examples include patient preference, other medical conditions, or because an additional non-surgical treatment will be used (such as radiation or immunomodulators), etc,) or the patient requested reconstruction and declined waiting for final pathology confirmation of a negative peripheral and deep margin. (This can be for any reason.)
Guidance	It is recommended that a field be created in the surgeon's EMR to document this, outside of the free text, as this information may be stored in a scanned PDF from the pathologist and would not be readily available for electronic capture.

Measure #6: Closing the Referral Loop- Summary of Care Sent following Reconstruction After Skin Cancer Resection Procedures

Denominator (Eligible Population)	All patients aged 18 and older who underwent reconstruction after skin cancer resection where the reconstruction was performed by a different surgeon than the resecting surgeon Age ≥ 18 years AND CPT® for Encounter: 14000, 14001, 14020, 14021, 14040, 14041, 14060, 14061 14301, 14350 15050 15100,15120 15200, 15220, 15240, 15260 15570, 15572, 15574, 15576 40525, 40527 15731, 15733, 15740, 15760 67971, 67973, 67974, 67975 AND ICD-10 Codes for most common skin cancers: C43-C44 D03-D04
Denominator Exclusions	none
Numerator	Patients for whom a summary of care was sent from the surgeon performing the reconstruction procedure to the clinician who performed the resection procedure or the clinician managing the skin cancer within 30 days Captured by attestation in the work flow of the ASPS QCDR
Denominator Exceptions	None
Guidance	

Measure #7: Patient Satisfaction with Information Prior to Reconstruction After Skin Cancer Resection Procedures

Denominator (Eligible Population)	All patients aged 18 and older who underwent facial reconstruction after skin cancer resection Age ≥ 18 years AND CPT® for Encounter: 14040, 14041, 14060, 14061 15120 15240, 15260 40525, 40527 AND ICD-10 Codes for most common skin cancers: C43.0-C43.39, C44.0-C44.39 D03.00D03.39, D04.0-D04.39
Denominator Exclusions	none
Numerator	Patients who responded to the Face -Q Satisfaction With Information: Appearance Module within 90 days and scored 15 (52%) or higher or if scored lower than 15 (52%) there is documentation of a call to the patient within 30 days
Denominator Exceptions	Patient reason exceptions such as patient refusal to complete the survey.
Guidance	This measure will only capture data from January 1, 2020 through Sept 30, 2020 to allow for 90 days to administer the survey.

Measure #8: Visits to the ER or Urgent Care Following Reconstruction After Skin Cancer Resection

Denominator (Eligible Population)	Part 1: All patients aged 18 and older who underwent reconstruction after skin cancer resection Part 2: All patients aged 18 and older who underwent reconstruction after skin cancer resection and were contacted within 30 days of the procedure Age $\geq$ 18 years AND CPT® for Encounter: 14000, 14001, 14020, 14021, 14040, 14041, 14060, 14061 14301, 14350 15050 15100,15120 15200, 15220, 15240, 15260 15570, 15572, 15574, 15576 40525, 40527 15731, 15733, 15740, 15760 67971, 67973, 67974, 67975 AND ICD-10 Codes for most common skin cancers: C43-C44 D03-D04 **AND (for Part 2 only)** Patients who were contacted within 30 days of their procedure to determine whether they visited the ER or Urgent Care within 7 days of their procedure for a reason related to the reconstruction after skin cancer resection surgery
Numerator	Part 1: Patients who were contacted* within 30 days of their procedure to determine whether they visited the ER or Urgent Care within 7 days of their procedure for a reason related to the reconstruction after skin cancer resection surgery. * Contact can occur at a follow-up visit or be done by phone or e-mail. Part 2: Patients who visited the ER or Urgent Care within 7 days of their procedure for a reason related to the reconstruction after skin cancer resection surgery Captured by attestation in the work flow of the *ASPS QCDR*
Denominator Exceptions	None

Guidance	Patients should be asked within 30 days of their surgery: Within 1 week of your surgery, did you visit the ER or urgent care for reasons related to your surgery? Only Part 2 will be reported for accountability, but both parts must be completed to meet the measure.