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Episode-based Resource Use Measures

Episode-of-Care for 60-day Period Preceding Breast Biopsy

This measure was developed by the American Board of Medical Specialties Research and Education Foundation for the High Value Health Care Project: Characterizing Episodes and Costs of Care—funded by the Robert Wood Johnson Foundation under grant 63609.

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Episode-of-Care for 60-day Period Preceding Breast Biopsy

Measure Description

Resource use and costs associated with breast biopsy. Women with a breast biopsy are identified and the resource use and costs associated with the biopsy in the 60 days preceding the biopsy and the seven days following the biopsy are measured.

Required Data Elements

Administrative claims data

Calculation

For patients meeting inclusion criteria, determine breast biopsy resource use and costs in the 60-day period preceding their biopsy and the seven days following their biopsy. A standard price list will be applied to the resource use to estimate the costs of the episode of care related to breast biopsy. Resources will be defined for ten categories: 1) inpatient facility; 2) outpatient facility; 3) evaluation and management; 4) procedures; 5) imaging; 6) tests; 7) DME; 8) other drugs and services; 9) medications; and 10) other. Population will be stratified based on age (+/- 30yrs) and the presence of prior diagnosis of breast cancer. For inpatient facility costs, the standard cost is based on a per diem cost for a DRG and will be multiplied by the length of stay for the index event.

Episode Definition

Resource use related to breast biopsy

Rationale

The Institute of Medicine and AQA (formerly known as the Ambulatory Care Quality Alliance) have identified breast cancer as one of 20 conditions that should be considered priority areas in need of quality improvement based on its relevance to a significant volume of patients, its impact on those patients, and the perception of opportunity to significantly improve the quality and efficiency of related care. Breast cancer had also been previously identified as a priority area in other national initiatives including Health Resources and Services Administration's Health Disparities Collaboratives and the Quality Improvement Program at Centers for Medicare and Medicaid Services.¹

In addition, episodes of breast cancer detection are costly in total in large part because of patient volume. Nearly 300,000 women received screenings with mammography during 2007 under the Center for Disease Control and Prevention's National Breast and Cervical Cancer Early Detection Program (NBCCEDP), a program for low-income,

¹ Priority Areas for National Action: Transforming Health Care Quality. Institute of Medicine. Karen Adams and Janet Corrigan Editors. March 10, 2003.

uninsured, and underinsured women, alone.² The NBCCEDP and other public health initiatives have increased significantly the number of women who receive regular breast cancer screenings, many of whom go on to undergo subsequent diagnostic tests and breast biopsies, which are costlier still. Utilization rates are likely higher among women with higher income levels and/or more complete health insurance coverage. Furthermore, costs per breast cancer screening patient can vary from one provider to the next as well as across regions, largely because of variations in practice patterns.

This measure observes variation in resource use during the 60 days prior to breast biopsy with the expectation that much of the variation will be associated with frequency of imaging and other diagnostic studies performed during this period. The measure also looks forward 7 days beyond the date of the breast biopsy to ensure all costs incident to the biopsy are captured (considering issues of claims lag).

This measure is stratified by patient age (less than 30 versus greater than or equal to 30) because of different treatment patterns for younger patients. Since all patients in the denominator must have received a biopsy, this measure requires no further risk adjustment.

Through administrative data we are unable to identify cancer stage at diagnosis, one of the key determinants of what are considered appropriate treatment patterns. Also, it cannot be assumed that two individually attributed physicians would have comparable distributions of cancer stage within a given measurement period (such that two physicians could be justifiably compared on the basis of the measure). Moreover, the supply of breast cancer screening patients is largely public-health driven and the care provided in this context is typically at the community level. For this reason, and until cancer staging information is more readily available, this measure's attribution is at the region level rather than the individual physician level.

Measures

- Breast cancer biopsy related resource use / costs
 - Inpatient Facility
 - Evaluation and Management
 - Outpatient Facility
 - Procedures
 - Imaging
 - Tests
 - DME
 - Other drugs and services
 - Exceptions / Unclassified
 - Other
 - Pharmacy

² "About the Program." CDC National Breast and Cervical Cancer Early Detection Program. <http://www.cdc.gov/cancer/nbccedp/about.htm>. Viewed March 17, 2009.

Eligible Population

Age	No age restrictions on inclusion in the measure
Enrollment Criteria	Continuous medical and pharmacy benefit enrollment for at least one year preceding the measurement year and during the measurement year, with no more than one gap in enrollment of more than 45 days during each year of continuous enrollment.
Inclusion Criteria	<p>Patients will be included in the measure if they have a procedure code for breast biopsy during the measurement period (see Table BB-A). The first occurring breast biopsy is used as the triggering event for inclusion in the cohort.</p> <p>If multiple biopsies occur on the same day both are considered the triggering event</p>
Exclusion	<p>Males</p> <p>Subsequent biopsies that occur during the measurement period (only the first occurrence is included in the measure denominator)</p>

Table BB-A: Codes to identify breast biopsy

CPT	Description
10021	Fine needle aspiration; without imaging guidance
10022	Fine needle aspiration; with imaging guidance
19100	Biopsy breast; percutaneous, needle core, not using imaging guidance
19101	Biopsy breast; open, incisional
19102	Biopsy breast; percutaneous, needle core, using imaging guidance
19103	Biopsy breast; percutaneous, automated vacuum-assisted/ rotating biopsy device, using imaging guidance
19110	Nipple exploration
19120	Excise cyst, fibroadenoma, other benign/malignant tumor aberrant breast tissue, duct lesion nipple/areolar lesion open, male/female, one/more lesions
19125	Excise breast lesion identified by preoperative place radiological marker, open; single lesion

These CPT codes, present in any field, will be used to identify Breast Biopsy patients during the identification period and group to the episode during the measurement period, regardless of corresponding ICD-9 codes.

Table BB-B: Codes to identify breast biopsy related evaluation and management codes

Description	ICD-9
Nonspecific abnormal findings on radiologic and other examination of body structure, breast	793.8
Diffuse cystic mastopathy	610.1
Mastodynia (breast pain)	611.71
Lump or mass in breast	611.72
Signs and symptoms in breast, Other	611.79
Dermatitis	692.9, 691.8
Routine gynecologic exam	V72.31
Routine medical exam	V70.0
Special screening of the breast	V76.1x

These ICD-9 codes, present in any field, will be used to identify related services during the measurement period.

Table BB-C: Imaging related codes during breast biopsy measurement period

Description	CPT
Image guided placement, metallic localization clip, percutaneous, during breast biopsy/aspiration	19295
Screening mammography, bilateral [Deleted 2007]	76092
Stereotactic localization guidance for breast biopsy or needle placement [Deleted 2007]	76095
Ultrasonic guidance for needle placement, imaging supervision and interpretation	76942
Stereotactic localization guidance for breast biopsy or needle placement (eg, for wire localization or for injection), each lesion, radiological supervision and interpretation	77031
Mammographic guidance for needle placement, breast (eg, for wire localization or for injection), each lesion, radiological supervision and interpretation	77032
Computer-aided detection (computer algorithm analysis of digital image data for lesion detection) with further physician review for interpretation, with or without digitization of film radiographic images; diagnostic mammography (List separately in addition to code for primary procedure)	77051
Computer-aided detection (computer algorithm analysis of digital image data for lesion detection) with further physician review for interpretation, with or without digitization of film radiographic images; screening	77052

mammography (List separately in addition to code for primary procedure)	
Mammary ductogram or galactogram, single duct, radiological supervision and interpretation	77053
Mammary ductogram or galactogram, multiple ducts, radiological supervision and interpretation	77054
Mammography; unilateral	77055
Mammography; bilateral	77056
Screening mammography, bilateral (2-view film study of each breast)	77057
Magnetic resonance imaging, breast, without and/or with contrast material(s); unilateral	77058
Magnetic resonance imaging, breast, without and/or with contrast material(s); bilateral	77059
Manual application of stress performed by physician for joint radiography, including contralateral joint if indicated	77071
Digital mammography	G0202, G0204, G0206

These CPT codes will be used to identify Breast Biopsy-related services during the measurement period, regardless of corresponding ICD-9 codes.

Table BB-D: Anesthesia related codes related to breast biopsy

Description	CPT
Anesthesia for procedures on integumentary system on the extremities, anterior trunk and perineum, NOS	00400
Anesthesia for procedures on the integumentary system on the extremities, anterior trunk and perineum; reconstructive procedures on breast (eg, reduction or augmentation mammoplasty, muscle flaps)	00402
Anesthesia for procedures on the integumentary system on the extremities, anterior trunk and perineum; radical or modified radical procedures on breast	00404
Anesthesia for procedures on the integumentary system on the extremities, anterior trunk and perineum; radical or modified radical procedures on breast with internal mammary node dissection	00406
Conscious Sedation	
Code deleted for 2006. To report, see 99143...99145 Sedation with or without analgesia (conscious sedation); intravenous, intramuscular or inhalation	99141
Code deleted for 2006. To report, see 99143...99145 Sedation with or without analgesia (conscious sedation); oral, rectal and/or intranasal	99142
Moderate sedation services (other than those services described by codes 00100-01999) provided by the same physician performing the diagnostic or therapeutic service that the sedation supports, requiring the presence of an	99143

independent trained observer to assist in the monitoring of the patient's level of consciousness and physiological status; younger than 5 years of age, first 30 minutes intra-service time	
Moderate sedation services (other than those services described by codes 00100-01999) provided by the same physician performing the diagnostic or therapeutic service that the sedation supports, requiring the presence of an independent trained observer to assist in the monitoring of the patient's level of consciousness and physiological status; age 5 years or older, first 30 minutes intra-service time	99144
Moderate sedation services (other than those services described by codes 00100-01999) provided by the same physician performing the diagnostic or therapeutic service that the sedation supports, requiring the presence of an independent trained observer to assist in the monitoring of the patient's level of consciousness and physiological status; each additional 15 minutes intra-service time (List separately in addition to code for primary service)	99145
Moderate sedation services (other than those services described by codes 00100-01999), provided by a physician other than the health care professional performing the diagnostic or therapeutic service that the sedation supports; younger than 5 years of age, first 30 minutes intra-service time	99148
Moderate sedation services (other than those services described by codes 00100-01999), provided by a physician other than the health care professional performing the diagnostic or therapeutic service that the sedation supports; age 5 years or older, first 30 minutes intra-service time	99149
Moderate sedation services (other than those services described by codes 00100-01999), provided by a physician other than the health care professional performing the diagnostic or therapeutic service that the sedation supports; each additional 15 minutes intra-service time (List separately in addition to code for primary service)	99150

These codes group to the episode *only* if present on the day of a biopsy

Table BB-E: Prescription medications identified as related to breast biopsy (all during the measurement period)

Class	Medications	Redbook THERCLS or HCPCs
Benzodiazepines	alprazolam, bromazepam, chlordiazepoxide, clonazepam, clorazepate, diazepam, lorazepam, medazepam, nordazepam, oxazepam, prazepam	64
Antibiotics	Include antibiotics within +/- 7 days of biopsy date. Antibiotics are excluded if there is an E&M claim with a diagnosis of an acute respiratory infection during that	4, 6, 7, 9, 10, 11, 12, 16, 17 J0200, J0278, J0290,

	period (ICD-9 460.x – 466.x)	J0295, J0456, J0530, J0540, J0550, J0560, J0570, J0580, J0690, J0692, J0694, J0696, J0697, J0698, J0710, J0713, J0715, J0720, J0744, J1335, J1364, J1580, J1590, J1840, J1850, J1890, J1956, J2020, J2280, J2460, J2510, J2540, J2543, J2700, J2770, J3243, J3260, J3370, S0021, S0032, S0034, S0039, S0040, S0073, S0074, S0077, S0081
Pain medications		57, 58, 59, 60, 61, 62

Risk Adjustment Method

Sample will be stratified on two criteria: 1) age < 30 yrs and ≥ 30 yrs; and 2) presence of breast cancer diagnosis in year preceding measurement year

Episode Severity / Disease Staging

None

Outlier Methodology

All individuals are included in the analysis with costs winsorized at the 2nd and 98th percentile.

Level of Measurement/Analysis

Measurement will take place at the regional level.

Technical Appendix

Episode-of-Care for 60-day Period Preceding Breast Biopsy

Appendix Overview

The following document provides step-by-step methods for implementing the Episode-of-Care for 60-day Period Preceding Breast Biopsy measure using an administrative, claims, or healthcare encounter database.

There are 9 sections for calculating person-level episode costs:

1. Eligible population identification
2. Identification of related resources
3. Assignment of standardized prices
4. Create episode specific strata
5. Calculation of individual episode costs
6. Calculation of risk-adjusted costs
7. Determination of attributable provider
8. Creation of provider summaries
9. Reporting

Measure Description

Resource use and costs associated with breast biopsy. Women with a breast biopsy are identified and the resource use and costs associated with the biopsy in the 60 days preceding the biopsy and the seven days following the biopsy are measured. Episode-related resource use for patients within the episode is identified and standardized costs are applied. Total biopsy-related costs are calculated for each patient and summarized at the regional level. Observed costs are compared to risk-adjusted expected costs at the provider level. Patients included in the breast biopsy episode measure will be stratified by age (<30 yrs and \geq 30 yrs) and the presence of a breast cancer diagnosis in the year preceding the measurement year.

Required Data Elements

Eligibility and/or enrollment information (both medical and pharmacy)

Administrative claims:

- Inpatient
- Outpatient
- Pharmacy

Required Data Duration and Timeframe

A minimum of 24 months of continuous data is necessary to calculate the measure. The 24-month period is divided into a 12-month measurement period where eligible events are identified and a 12-month period preceding the measurement period (identification year) so that each individual has 12 months of data prior to identification of their eligible event.

Definitions

Measurement year	12-month period used to identify patients with eligible events for inclusion in the measure
Identification year	12-month period immediately preceding the eligible event over which patient comorbidities are measured
Measure population	The collection of patients who meet all measure inclusion criteria and do not meet any measure exclusion criteria. Their resource use will be calculated and included in provider summary reports.
Age	Patient age at the time of the eligible event
Biopsy-related¹	Healthcare encounters defined as being related to breast biopsy event
Continuous enrollment	As identified in eligibility or enrollment information, full medical and pharmacy benefit enrollment during both the identification year and the measurement year, with at least 320 total days of coverage during each year ²
Medication dispensing event	Medication dispensing with a positive, non-zero cost.
Inpatient Hospital Event	An acute care overnight hospital stay of ≥ 1 day with positive associated charges

¹ May refer to services both appropriately and inappropriately rendered in the treatment or management of a patient with breast biopsy

² This method was derived using HEDIS methods for determining coverage eligibility. HEDIS rules require that each eligible person have no more than 1 gap in coverage of up to 45 days in each year.

Section I – Eligible Population Identification

The process of identifying patients to be included in the measure is divided into three separate steps, each with multiple sub-steps. The following steps are used for identifying the included population:

Step 1: Identify patients that meet the episode definition inclusion criteria

Step 2: Identify patients that meet eligibility and continuous enrollment criteria

Step 3: Identify patients with exclusion criteria

Step 4: Combine prior steps to identify measure population

Step 1: Identify patients that meet episode inclusion criteria

1. Patients will be included in the measure if they have a procedure code for breast biopsy during the measurement period (see **Table BB-A**). The first occurring breast biopsy is used as the triggering event for inclusion in the cohort.

Step 2: Identify patients that meet eligibility and continuous enrollment criteria

1. Eligibility
 - a. Identify benefits during both the measurement year and the identification year
 - b. To be included persons must have both of the following benefits in both years
 - i. Medical benefit
 - ii. Pharmacy benefit
2. Continuous enrollment
 - a. Determine enrollment during both the identification and measurement years
 - b. Identify (or estimate³) total days of coverage in each year
 - c. To be eligible, persons must have at least 320 total days of coverage during each year

³ If precise information regarding persons' total days of coverage is not available, it is recommended that measure implementers estimate this information to the best of their ability using available data elements (e.g., monthly enrollment indicators).

Step 3: Identify patients with exclusion criteria

1. Identify patients that meet one or more exclusion criteria:
 - a. Males
 - b. A subsequent biopsy that occurs during the measurement period. Only the first biopsy occurrence is included in the measure.

Step 4: Combine prior steps to identify measure population

1. Identify breast biopsy eligible population
2. Exclude those patients not meeting general inclusion criteria (e.g., continuous eligibility)
3. Exclude those patients meeting one or more measure exclusion criteria
4. The resulting collection of patients is the measure population

Section 2 – Eligible Event Identification

For each individual in the measure population, identify the claims for services rendered during the measurement year. Claims / encounters will be identified based on the presence of breast biopsy-related diagnosis codes or procedure codes. These events will be used to determine the breast biopsy-related resource use.

Inpatient hospitalization events

Identify all inpatient hospitalization events with a breast biopsy-related diagnosis codes appearing in the **primary** diagnosis field (see **Table BB-B**) or hospitalizations with an eligible breast biopsy code (see **Table BB-A**).

Outpatient events

Identify all outpatient claims / encounters with a breast biopsy-related diagnostic code appearing in **any** position (see **Table BB-B**).

Procedures and laboratory

Identify all claims / encounters with a breast biopsy-related CPT, HCPCs, or ICD-9 procedure code (see **Tables BB-C, BB-D**).

Prescription drugs

Identify breast biopsy-related medications during the measurement period (see **Table BB-E**)

Section 3 – Assignment of standardized prices

Standardized prices are calculated for all of the components of care used to treat or manage the patient's condition to ensure that comparisons can be made solely on the basis of differential practice patterns and resource use. Three separate methodologies are used to derive these standardized prices: for inpatient facility charges, for ambulatory pharmacy charges (i.e., prescriptions dispensed outside the inpatient hospital setting), and for all other charges. These standardized prices are then applied to the claims identified as breast biopsy-related.

Standard Cost Calculation

- Step 1** Identify all claims paid for services rendered during the measurement year and with positive non-zero paid amounts for all patients, regardless as to whether they have been included in the measure population. Categorize these claims as follows (in accordance with the BETOS classification process followed in Step 3 above):
- *Inpatient Facility* (services provided by a facility during an acute inpatient hospital stay, standard price includes room and board and ancillary services)
 - *Ambulatory Pharmacy* (ambulatory prescriptions included in a member's pharmacy benefit)
 - *All other* (E&M, procedures, imaging, tests, DME, other, and exceptions/unclassified)
- Step 2** For each category identified, compute standardized prices. Refer to each service category's instructions (i.e., *Calculating Standard Units of Service and Total Standard Cost*) below.
- Step 3** Combine standardized prices with eligible events (e.g., through a file merge as specified in each service category's instructions).
- Step 4** For each individual claim, multiply standardized price by the number of service units identified on the claim to determine the full cost of the service, hospitalization, or prescription.

Calculating Standard Units of Service and Total Standard Cost: *Inpatient Facility*

For inpatient facility costs, standardized prices are developed at the diagnosis-related group (DRG) level and – for those hospitalizations where DRG-level information is

unavailable – at the ADSC level. Each is adjusted for length-of-stay (LOS) so as to more closely mirror the payment systems typically applied among commercial health plans. Both approaches use RRU HEDIS standardized daily price tables developed by NCQA.

- Step 1** Identify all inpatient stays that occurred during the measurement year. Include stays that may have started before the measurement year or ended after the close of the measurement year. Define a single, unique record describing the member’s inpatient stay.
- Step 2.** Identify the primary discharge DRG. Also identify the DRG version (e.g., CMS-DRG vs. MS-DRG). Care must be taken in using the standardized price tables (specified below) to insure the data and the tables use the same DRG version.
- Step 3** Compute the stay’s total LOS in days, using paid or expected-to-be-paid days only. Include all paid days in the LOS calculation, whether or not they fall outside the measurement year. Also identify the stay’s LOS group based on the stay’s LOS and the information contained in Table BB-F below.

Table BB-F: Length of Stay Group

LOS (Days)	LOS GRP
1	A
2	B
3-4	C
5-6	D
7-8	E
9-15	F
16 or more	G

- Step 4** Compute the LOS per diem multiplier. If the inpatient stay falls completely within the measurement year, use the total number of paid days as the per diem multiplier. If the inpatient stay does not fall completely inside the measurement year, count only the days within the measurement year (including the last day of the year) to compute the per diem multiplier.
- Step 5** Download the HEDIS RRU standardized daily price tables from the NCQA website (www.ncqa.org) for the corresponding measurement years. Note that there is a one year lag in the file and data years (i.e. files designated 2007 are based on 2006 data). Some years may have two sets of tables if there is a significant change in DRG versions.⁴
- Step 6** Calculate the DRG-specific per-diem payment rate by adjusting the standard daily prices for inflation to a reference year using the medical care component of the Consumer Price Index (CPI).

⁴ The project staff worked in collaboration with NCQA in development of this methodology for purposes of testing the initial set of measures. Users of the measures may need to implement their own methodology that does not rely on a price list from NCQA.

Step 7 Combine DRG-specific per-diem payment rates with the dataset containing eligible inpatient hospital events for the measure. For each event, multiply the per-diem payment rate by the event's LOS per diem multiplier to determine the event's total standard cost.

Total standard costs will not be computed using this approach for stays that have not been assigned a DRG, and for DRGs that are not assigned a standard price by HEDIS. These stays will be assigned a standard price using the ADSC method described below.

Example⁵ Assume the calculated DRG-specific per-diem payment rate for DRG XXX for FY 2007 is \$900.17. An eligible member had an inpatient stay with the following characteristics:

- A principal diagnosis with an eligible ICD-9 code
- A DRG of XXX (DRG associated with an eligible inpatient stay for the episode)
- Date of admission of February 2, 2007 and date of discharge of February 9, 2007 (fiscal year 2007)
- A LOS of 8 days, and therefore a LOS per diem multiplier of 8 days

This event has a calculated total standard cost of $\$900.17 \times 8 = \$7,201.36$.

Example Again assume the calculated DRG-specific per-diem payment rate for DRG XXX for FY 2007 is \$900.17. An eligible member had an inpatient stay with the following characteristics:

- A principal diagnosis with an eligible ICD-9 code
- A DRG of XXX (DRG associated with an eligible inpatient stay for the episode)
- Date of admission of December 28, 2006 and date of discharge of January 2, 2007 (fiscal year 2007)
- A LOS of 6 days, and a LOS per diem multiplier of 2 days (January 1-2).

This event has a calculated total standard cost of $\$900.17 \times 2 = \$1,800.34$.

Step 8 If DRG information is not available for a given inpatient hospitalization a method must be used that assigns prices to those hospitalizations. The methodology used in testing the initial development of the measures was to assign an Aggregate Diagnostic Service Category (ADSC) for the stay using the principal discharge diagnosis. To assign ADSC, download the ADSC Table (Table SPT-INP-ADSC) from the NCQA Web site (www.ncqa.org) and match the principal ICD-9-CM Diagnosis code from

⁵ Figures presented in this example are arbitrary and do not reflect any particular dataset or patient. Additionally, the DRG XXX is intended to be used as an illustrative example for calculating inpatient costs. Only DRGs for eligible events for the episode should be included in this calculation.

the discharge claim to an ADSC. If the claim does not contain a DRG and the primary ICD-9-CM Diagnosis code is invalid or missing, map the inpatient stay to the ADSC Table's MISA category.⁶ An alternative would be to create average prices from the dataset the measures are being implemented for each of the ADSC categories and discharge ICD-9-CM codes and assign those prices to missing hospitalizations.

- Step 9** Determine if the member underwent major surgery during the inpatient stay. If this information is not available within the dataset, this may be determined using the list of codes included in a table from the NCQA Web site (Maj-Surg Table). Flag eligible members if one procedure code in the Maj-Surg-Table is present from any provider during the time period defined by the admission and discharge dates.
- Step 10** Match each ADSC, LOS per diem multiplier, and major surgery flag assignment for the stay to a value in the Table SPT-INP-ADSC to obtain the assigned standard price. For each event, multiply the per-diem payment rate by the event's LOS per diem multiplier to determine the event's total standard cost. As with the DRG method, the ADSC standard prices must be adjusted for inflation to a reference year using the CPI. Between this ADSC methodology and the previously described DRG-based methodology, each inpatient hospital stay should now have an associated standardized price.

Example An eligible member had an inpatient stay with the following characteristics:

- A principal diagnosis for an eligible event assigned to ADSC category Respiratory-C (RESC)
- No available valid DRG information
- Date of admission of February 2, 2007 and date of discharge of February 9, 2007
- A LOS of 8 days, and therefore LOS group E
- A major surgery event during the stay

Using Sample Table SPT-INP-ADSC, we determine this event has a standard per-diem payment rate of \$1,474.00. Therefore, this event has a calculated total standard cost of $\$1,474 \times 8 = \$11,792$.

⁶ The project staff worked in collaboration with NCQA in development of this methodology for purposes of testing the initial set of measures. Users of the measures may need to implement their own methodology that does not rely on a price list from NCQA.

Calculating Standard Units of Service and Total Standard Cost: Ambulatory Pharmacy

For ambulatory pharmacy-related costs, standardized prices are developed at the NDC level, adjusted for days supply.

- Step 1** Identify all pharmacy services that occurred during the measurement year. The following pharmacy services should also be included:
- Prescriptions that may have been dispensed before the measurement year and had days supply that extended into the measurement year (e.g., a prescription with a dispensed date of December 15, 2007 and 30 days supply would extend 13 days into the measurement year beginning January 1, 2008)
 - Prescriptions that may have been dispensed during the measurement year and had days supply that extended into the following year (e.g., a prescription with a dispensed date of December 20, 2008)

Define a single, unique record describing the pharmacy service.

- Step 2** Identify the NDC code and the days supply for each prescription, whether or not some days fall outside the measurement year.
- If the days supply is not available for a given pharmacy claim, set the claim's standard cost to be equal to its listed payment amount.
- Step 3** Compute the days supply per diem multiplier. If the prescription's days supply fall completely within the measurement year, use the claim's listed days supply as the per diem multiplier. If the prescription's days supply do not fall completely inside the measurement year, count only the days within the measurement year (including the last day of the year) to compute the per diem multiplier.
- Step 4** For each NDC, calculate the total NDC-specific payments and the total days supply across all pharmacy claims within that NDC during the measurement year. Using these totals, calculate NDC-specific per-day-supply payment rates by dividing total NDC-specific payments by total days supply for each NDC.
- Step 5** Combine NDC-specific per-day-supply payment rates with the dataset containing eligible pharmacy events for the measure. For each event, multiply the per-day-supply payment rate by the event's days supply per diem multiplier to determine the event's total standard cost.

Calculating Standard Units of Service and Total Standard Cost: All Other

For all non-inpatient hospital, non-pharmacy costs, standardized prices are developed at the procedure code and modifier level.

- Step 1** Identify all non-inpatient hospital, non-pharmacy services that occurred during the measurement year.
- Step 2** Identify the primary procedure code (CPT, HCPCs, ICD-9, etc.) and the first modifier code for each service.
- Step 3** For each procedure-modifier combination, calculate the total procedure/modifier-specific payments across all non-inpatient-hospital, non-pharmacy claims with that procedure-modifier combination as well as the frequency of the procedure-modifier combination during the measurement year. Calculate procedure/modifier-specific payment rates by dividing total procedure/modifier-specific payments by the frequency for each procedure-modifier combination.
- Step 4** Combine procedure/modifier-specific payment rates with the dataset containing eligible non-inpatient-hospital, non-pharmacy events for the measure so that each procedure-modifier combination is paired with its corresponding payment rate. This payment rate is the event's total standard cost.

Section 4 – Create episode specific strata

Group patients according to the following two strata: 1) age < 30 yrs and ≥ 30 yrs; and 2) presence of breast cancer diagnosis in year preceding measurement year.

Section 5 – Calculation of total individual episode costs

The resource use identified as breast biopsy-related– and to which standardized prices have been applied (i.e., the collection of eligible events) – is used to calculate individual level episode costs. The following steps are used in the calculation of total individual level costs.

Step 1: For each individual included in the episode, sum all of the total standard costs linked to breast biopsy-related events occurring during the measurement period at the BETOS level. This will provide an estimate of the costs of each category of service over the measurement period.

Step 2: For each individual in the episode, sum ALL total standard costs linked to breast biopsy-related events to calculate TOTAL episode costs.

Section 6 – Calculation of risk adjusted costs

No risk adjustment is done for the breast biopsy measure. Results are reported for groups falling into the following two strata: 1) age < 30 yrs and ≥ 30 yrs; and 2) presence of breast cancer diagnosis in year preceding measurement year

Section 7 – Determination of attributable provider

Resource use and costs for breast biopsy episodes are calculated at the regional level. Because of concerns about differences in healthcare system processes at the regional level that can impact breast cancer screening procedures, the measure is intended to be used at the regional level.

Section 8 – Creation of result summaries

Results are summarized and reported at the regional level. The regional results can be compared with overall national results.

Section 9 – Reporting

The following section describes reports of unadjusted episode costs that were used to understand patterns of resource use associated with the episodes. Most of these reports are based on the classifications of related resource use by type-of-service category using the Berenson-Eggers Type of Services (BETOS) classification system. This system can be applied following the steps described below.

Reports by Categories of Service

For each of the claims / encounters identified for the episode's breast biopsy-related resource use calculations, BETOS codes will be applied to categorize services. BETOS codes and crosswalks to procedure codes are available through the Centers for Medicare & Medicaid Services website.⁷

Step 1: Obtain BETOS files for the relevant year from the CMS website.

Step 2: Combine BETOS codes with eligible events (e.g., through a file merge).

⁷ https://www.cms.gov/HCPCSReleaseCodeSets/20_BETOS.asp

Step 3: Categorize data from outpatient pharmacy files as pharmacy-related costs – these claims will not have a BETOS code to combine with the eligible events data. Similarly, categorize data from inpatient hospital files as inpatient facility-related costs.

Step 4: Categorize BETOS codes into the 7 specified “major categories”:

1. Evaluation and Management (E&M)
2. Procedures
3. Imaging
4. Tests
5. Durable Medical Equipment (DME)
6. Other
7. Exceptions/Unclassified

These categories (along with categories for inpatient facility costs and pharmacy costs) will be used for reporting overall episode costs.

Step 5: Categorize any/all remaining services without corresponding BETOS codes as belonging to the Exceptions/Unclassified category.

Step 6: Create summary reports of the distribution of costs for each type of service category for all episodes.

The reports we completed to analyze this episode, relying on BETOS categories, included:

- Summaries of per-episode resource use by type of service, including mean, median, standard deviation and variance, other statistical variables: overall and for each episode stratum
- For each type-of-service category for non-inpatient, non-pharmacy claims, summaries of the 20 CPT and HCPCs codes among breast biopsy-related services most commonly appearing in episodes and the 20 CPT and HCPCs codes that account for the largest proportions of the category’s costs
- For each type-of-service category for non-inpatient, non-pharmacy claims, summaries of the 20 CPT and HCPCs codes among non-breast biopsy-related services most commonly appearing during the measurement window and the 20 CPT and HCPCs codes that account for the largest proportions of the category’s costs
- For inpatient hospitalization events, the 20 DRG codes and primary ICD-9 diagnosis codes most commonly appearing and accounting for the largest proportions of inpatient facility costs: both breast biopsy-related and non-breast biopsy-related
- For pharmacy claims, the 20 generic drug names and therapeutic classes most commonly appearing and accounting for the largest proportions of pharmacy costs: both breast biopsy-related and non-breast biopsy-related