MEDICAL POLICY

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<th>PROPHYLACTIC MASTECTOMY AND PROPHYLACTIC BILATERAL OOPHORECTOMY</th>
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Original Issue Date (Created): 10/11/2002
Most Recent Review Date (Revised): 3/28/2017
Effective Date: 8/1/2017

I. POLICY

Prophylactic Mastectomy

Prophylactic mastectomy may also be considered medically necessary in patients at high risk of breast cancer. (For definitions of risk levels, see policy guidelines, below.)

Prophylactic mastectomy may be considered medically necessary in patients with such extensive mammographic abnormalities (i.e., calcifications) that adequate biopsy or excision is impossible.

Contralateral prophylactic mastectomy may be considered medically necessary in patients who have a personal history of breast cancer.

Prophylactic mastectomy is considered investigational for all other indications. There is insufficient evidence to support a conclusion concerning the health outcomes or benefits associated with this procedure.

Prophylactic Oophorectomy

Prophylactic bilateral oophorectomy may be considered medically necessary for women with the following conditions:

- Two or more first-degree relatives (e.g., parent, sibling, offspring) with a diagnosis of ovarian cancer; or
- Women with known BRCA1 or BRCA2 mutations associated with breast-ovarian cancer syndrome.

Policy Guidelines
It is strongly recommended that all candidates for prophylactic mastectomy undergo counseling regarding cancer risks from a health professional skilled in assessing cancer risk other than the operating surgeon and discussion of the various treatment options, including increased surveillance or chemoprevention with tamoxifen or raloxifene.

There is no standardized method for determining a woman’s risk of breast cancer that incorporates all possible risk factors. There are validated risk prediction models, but they are based primarily on family history.

Some known individual risk factors confer a high risk by themselves. The following list includes factors known to indicate a high risk of breast cancer:

- lobular carcinoma in situ or
- a known BRCA1 or BRCA2 mutation or
- another gene mutation associated with high risk, e.g., TP53 (Li-Fraumeni syndrome), PTEN (Cowden syndrome, Bannayan-Riley-Ruvalcaba syndrome), CDH1, and STK11 or
- high risk (lifetime risk about 20% or greater) of developing breast cancer as identified by models that are largely defined by family history or
- received radiotherapy to the chest between 10 and 30 years of age.

A number of other factors may increase the risk of breast cancer but do not by themselves indicate high risk. It is possible that combinations of these factors may be indicative of high risk, but it is not possible to give quantitative estimates of risk. As a result, it may be necessary to individualize the estimate of risk taking into account numerous risk factors. A number of risk factors, not individually indicating high risk, are included in the National Cancer Institute Breast Cancer Risk Assessment Tool, also called the Gail Model. Risk factors in the model can be accessed online (http://www.cancer.gov/bcrisktool/Default.aspx).

**Cross-references**
- MP-2.211 Genetic Testing for Hereditary Breast and/or Ovarian Cancer Syndrome (BRCA1/BRCA2)
- MP-2.235 Assays of Genetic Expression in Tumor Tissue as a Technique to Determine Prognosis in Patients with Breast Cancer

**II. PRODUCT VARIATIONS**

This policy is applicable to all programs and products administered by Capital BlueCross unless otherwise indicated below.

FEP PPO*
III. DESCRIPTION/BACKGROUND

Prophylactic Mastectomy

Prophylactic mastectomy (PM) is defined as the surgical removal of the breast in the absence of malignant disease to reduce the risk of breast cancer occurrence.

Prophylactic mastectomies may be considered in women thought to be at high risk of developing breast cancer, either due to a family history, presence of genetic mutations such as BRCA1 or BRCA2, having received radiation therapy to the chest, or the presence of lesions associated with an increased cancer risk such as lobular carcinoma in situ (LCIS). LCIS is both a risk factor for all types of cancer, including bilateral cancer, and in some cases, a precursor for invasive lobular cancer. For those who develop invasive cancer, up to 35% may have bilateral cancer. Therefore, bilateral PM may be performed to eliminate the risk of cancer arising elsewhere; chemoprevention and close surveillance are alternative risk reduction strategies. Prophylactic mastectomies are typically bilateral but can also describe a unilateral mastectomy in a patient who has previously undergone or is currently undergoing a mastectomy in the opposite breast for an invasive cancer. (i.e., contralateral prophylactic mastectomy [CPM]). The use of CPM has risen in recent years in the United States. An analysis of data from the National Cancer Data Base found that the rate of CPM in women diagnosed with unilateral stage I-III breast cancer increased from approximately 4% in 1998 to 9.4% in 2002.¹

The appropriateness of a PM is a complicated risk-benefit analysis that requires estimates of a patient’s risk of breast cancer, typically based on the patient’s family history of breast cancer and other factors. Several models are available to assess risk, such as the Claus model and the Gail model. Breast cancer history in first- and second-degree relatives is used to estimate breast cancer risk in the Claus model. The Gail model uses the following 5 risk factors: age at evaluation, age at menarche, age at first live birth, number of breast biopsies, and number of first-degree relatives with breast cancer.

Prophylactic Oophorectomy

Prophylactic oophorectomy is the preventive, surgical removal of the ovaries. The goal of prophylactic oophorectomy is to prevent the development of ovarian cancer and/or reduce the risk of breast cancer in women who are at high risk for these diseases.
Ovarian epithelial carcinoma is one of the most common gynecologic malignancies and the leading cause of death due to gynecologic malignancy. Most women are diagnosed after the age of 50, with the greatest risk of ovarian cancer occurring in women over the age of 70. The lifetime risk of developing ovarian cancer is 1.7% for the general population. Due to the inadequacies of existing screening techniques, which include pelvic examination, transvaginal ultrasound, and serum CA-125 testing, most cases of ovarian cancer go undiagnosed until the disease is well advanced and survival rates for ovarian cancer are very poor. The etiology of ovarian cancer is uncertain but increased age, nulliparity, and a family history of the disease confer an increased risk, with family history being the strongest risk factor.

There are three major ovarian cancer syndromes: hereditary breast and ovarian cancer (HBOC), which is caused by mutations in the breast cancer susceptibility genes BRCA1 and BRCA2, site-specific ovarian cancer syndrome, and Lynch II Syndrome (a combination of breast, ovarian, endometrial, gastrointestinal, and genitourinary cancers), which is associated with hereditary nonpolyposis colorectal cancer (HNPCC). Autosomal dominant inheritance has been shown in some of these mutations, and the lifetime risk for ovarian cancer associated with these syndromes ranges from 5% to over 60%, depending on the population studied. Women who have these gene mutations are at risk for other cancers, and the lifetime risk of breast cancer among women with a mutation in BRCA1 or BRCA2 approaches 90%. While screening measures for breast cancer generally detect tumors at earlier stages than do ovarian cancer screening measures, no screening test for either breast or ovarian cancer has been shown to decrease cancer risk.

### IV. RATIONALE

#### Prophylactic Mastectomy

Most recently, the literature was searched through January 7, 2016. Following is a summary of the key literature.

**Prophylactic Mastectomy**

The evidence review was initially based on a 1999 TEC Assessment that concluded prophylactic mastectomy (PM) met the TEC criteria for patients with a family history of breast cancer.\(^2\) The Assessment largely focused on a 1999 retrospective cohort analysis that found approximately 13 moderate-risk women would have to have PM to prevent 1 cancer. For those at high risk of breast cancer, reduction in breast cancer incidence ranged from 90% to 94%. Four to 8 high-risk women would need to undergo PM to prevent 1 occurrence of breast cancer.

As of 2014, the National Comprehensive Cancer Network guideline recommends that PM should only be considered in high-risk women, defined as having a BRCA1 or BRCA2 mutation or another gene mutation associated with increased risk (e.g., PTEN [Cowden and Bannayan-Riley-
Ruvalcaba syndromes], TP53 [Li-Fraumeni syndrome], CDH1, STK11), a compelling family history, and possibly in women with lobular carcinoma in situ (LCIS) or prior thoracic radiotherapy before 30 years of age. In patients who received radiotherapy to the chest between the ages of 10 and 30 years of age, the increased risk of breast cancer can reach almost 30% by age 55 years. Patients with LCIS, which is usually identified incidental to breast biopsy, are also at increased risk of cancer. In 2011, Oppong and King reported that, compared with the general population, women with LCIS face an 8- to 10-fold increased risk of cancer, equaling 26% after 20 years in 1 study.

A 2010 Cochrane review examined the impact of PM on mortality and other health outcomes. The authors did not identify any randomized controlled trials (RCTs). Thirty-nine observational studies with some methodologic limitations were identified in the literature search. The studies presented data on 7384 women with a wide range of risk factors for breast cancer who underwent PM. Studies on the incidence of breast cancer and/or disease-specific mortality reported reductions after bilateral PM, particularly for those with BRCA1 or BRCA2 mutations. The authors concluded that, while the available observational data suggested bilateral PM reduces the rate of breast cancer mortality, more rigorous studies (ideally RCTs) were needed, and that bilateral PM should only be considered among patients at very high risk of disease.

Section Summary: Prophylactic Mastectomy
Evidence from systematic reviews found that reduction in breast cancer incidence is reduced and breast cancer survival is increased in women at high risk of breast cancer, especially those with BRCA1 or BRCA2 and selected other mutations and those with a compelling family history.

Contralateral Prophylactic Mastectomy

Incidence of Second Primary Breast Cancer
The potential for CPM to impact survival is related to its association with a reduced risk of subsequent primary breast cancer in the other breast (i.e., contralateral breast cancer [CBC]). In general, according to data from the U.S. Surveillance, Epidemiology and End Results (SEER) database, annual rates of CBC were stable between 1975 and 1985, after which rates declined about 3% per year (95% confidence interval [CI], 2.7% to 3.5%). Beginning in 1990, the annual decline in CBC rates was only in women with estrogen receptor–positive cancer, with no decrease in women with estrogen receptor–negative cancer. The investigators suggested that the decrease in CBC rates after estrogen receptor–positive cancer may be attributed at least in part to the increased availability of adjuvant hormone therapies.

Studies were sought on the risk of CBC in women who meet high-risk criteria versus average-risk criteria. In 2014, Molina-Montes et al published a systematic review of studies on the risk of a second primary breast cancer in women with and without BRCA1 or BRCA2 mutations. Twenty studies were included; 12 retrospective cohort studies, 2 prospective cohort studies, and 6 case-control studies. Most studies included only women who had undergone genetic testing;
is likely that even those who tested negative had other risk factors that motivated testing. A meta-analysis found that the cumulative risk of a second primary breast cancer at 5 years after initial diagnosis was 14% (95% CI, 9% to 19%) in BRCA1 or BRCA2 mutation carriers and 3% (95% CI, 2% to 5%) in noncarriers. Cumulative risks of a second primary cancer at 10 years after initial diagnosis was 22% (95% CI, 18% to 27%) in BRCA1 or BRCA2 mutation carriers and 5% (95% CI, 3% to 7%) in noncarriers.

Survival
As is the case for bilateral PM, no RCTs evaluating the effect of CPM on health outcomes have been published. There are a number of observational studies, including some with large sample sizes, and a systematic review of observational studies. Observational studies have attempted to control for potential confounders, but not all relevant factors were measured, and the possibility of selection bias remains.

A systematic review and meta-analysis of studies on CPM was published in 2014 by Fayanju et al. The authors searched for published studies that compared the incidence of CBC in women with unilateral disease who did and did not undergo CPM. Fourteen observational studies met eligibility criteria and were included in the meta-analysis. In a meta-analysis of 4 studies, mortality from breast cancer was lower in the group that had CPM (relative risk [RR], 0.69; 95% CI, 0.56 to 0.85). Moreover, in a meta-analysis of data from 6 studies, overall survival (OS) was significantly higher in patients who underwent CPM (n=10,666) than those who had no CPM (n=145,490) (RR=1.09; 95% CI, 1.06 to 1.11). The authors also conducted a subgroup analysis by risk level. Studies in which all patients were BRCA mutation carriers and studies in which all patients had a family history of breast cancer (4 studies) were categorized as indicating higher familial/genetic risk. Together, the studies included 618 patients who had CPM and 1318 patients who did not. In a meta-analysis limited to these 4 studies, neither OS nor mortality from breast cancer differed significantly among women who had or did not have CPM. The relative risk of breast cancer mortality with and without CPM was 0.66 (95% CI, 0.27 to 1.64). For OS with and without CPM, the relative risk was 1.09 (95% CI, 0.97 to 1.24). The absolute reduction in the risk of metachronous breast cancer did not differ in women with and without CPM when data from all 8 studies were analyzed (risk difference [RD], -18.0%; 95% CI, -42.0% to 5.9%, but was significantly lower in women with CPM in the 4 studies exclusively enrolling women at increased familial/genetic risk (RD = -24.0%; 95% CI, -35.6% to -12.4%). Commenting on the totality of findings, the authors stated that the improvement in survival after CPM in the general breast cancer population was likely not due to a decreased incidence of contralateral breast cancer, but rather was secondary to selection bias (e.g., CPM recipients may be otherwise healthier and have better access to health care).

Studies in the Fayanju meta-analysis were published between 1997 and 2005. More recent large observational analyses are described below.
Other analyses have also suggested that the association between CPM and reduced mortality identified in some data analyses can be attributed at least in part to selection of a healthier cohort of women for CPM. In particular, a 2014 analysis by Kruper et al of a large dataset from the SEER database looked at CBC and survival outcomes. The investigators conducted a case-control analysis including 28,015 CPM patients and 28,015 unilateral mastectomy patients, matched on age group, race/ethnicity, extent of surgery, tumor grade, tumor classification, node classification, estrogen receptor status, and propensity score. The investigators were not able to match for BRCA or other mutation status. When all matched patients were included, disease-specific survival (DSS) and OS were significantly lower in women who underwent unilateral mastectomy compared with CPM. For DSS, the hazard ratio (HR) was 0.83 (95% CI, 0.77 to 0.90); for OS, it was 0.77 (95% CI, 0.73 to 0.82). Presumably, CPM would increase survival by lowering the risk of CBC. The authors conducted another analysis excluding women diagnosed with CBC; the remaining sample was still large (25,924 women with unilateral mastectomy and 26,299 women with CPM). In the analysis excluding women with CBC, DSS and OS remained significantly lower in women who had unilateral mastectomy versus CPM. For DSS, the HR was 0.87 (95% CI, 0.80 to 0.94); for OS, it was 0.76 (95% CI, 0.71 to 0.81). The investigators suggested that the survival benefits found in CBC patients was not due to prevention of CBC, but instead to selection bias (e.g., healthier women choosing CBC). A limitation of the analysis was the inability to control for risk factors including gene mutation status, family history, and a history of radiotherapy to the chest between ages 10 and 30 years.

In 2013, Yao et al evaluated OS after CPM by analyzing data from the National Cancer Data Base. The database collects data from 1450 Commission of Cancer–accredited cancer programs. The analysis included 219,983 women who had mastectomy for unilateral breast cancer; 14,994 (7%) of these women underwent CPM at the time of their mastectomy surgery. The investigators did not report risk factors such as known genetic mutations. The 5-year OS rate was 80%. In an analysis adjusting for confounding factors, the risk of death was significantly lower in women who had CPM than in women who did not. The adjusted HR for OS was 0.88 (95% CI, 0.83 to 0.93). The absolute risk of death over 5 years with CPM was 2.0% lower than without CPM. In subgroup analyses, there was a survival benefit after CPM for individuals ages 18 to 49 years and aged 50 to 69 years, but not for those 70 years or older. There was also a survival benefit for women with stage I and II tumors, but not stage III tumors.

A subsequent study by Pesce et al, published in 2014, focused on the subgroup of patients who were young (<45 years old) with stage I or II breast cancer. A total of 4338 (29.7%) of 14,627 women in this subgroup had CPM at the time of mastectomy surgery. Median follow-up was 6.1 years. In a multivariate analysis controlling for potentially confounding factors, OS did not differ significantly among patients who underwent unilateral mastectomy and those who also had CPM (HR=0.93; 95% CI, 0.79 to 1.09). Moreover, among women younger than 45 years with estrogen receptor–negative cancer, there was no significant improvement in OS in those who had CPM versus unilateral mastectomy (HR=1.13; 95% CI, 0.90 to 1.42).
There are risks and benefits associated with CPM. In particular, several analyses have found higher rates of surgical complications in women undergoing CPM (bilateral mastectomy) versus unilateral mastectomy. Besides morbidity associated with these complications, surgical complications may delay receiving adjuvant therapy.

In 2015, Silva et al published a large multicenter study including 20,501 women with unilateral breast cancer from the American College of Surgeons National Surgery Quality Improvement Program (NSQIP) database. A total of 13,268 (64.7%) women underwent unilateral mastectomy and 7233 (35.3%) had bilateral mastectomy. The analysis did not report on high-risk factors such as BRCA mutation status or family history. All women had breast reconstruction; a higher proportion of women who had unilateral mastectomy (19.5%) than bilateral mastectomy (8.9%) had autologous reconstruction; the remainder had implant-based reconstruction. The authors conducted analyses controlling for confounding variables (i.e. age, race smoking, diabetes, chronic pulmonary disease, hypertension) and stratifying by type of implant. The rate of overall complications was significantly higher for women who had a bilateral versus unilateral mastectomy, regardless of reconstruction type. Among women with implant reconstructions, overall complication rates were 10.1% after bilateral mastectomy and 8.8% after unilateral mastectomy (adjusted odd ratio [OR], 1.20; 95% CI, 1.08 to 1.33). In women with autologous reconstructions, overall complication rates were 21.2% after bilateral mastectomy and 14.7% after unilateral mastectomy (adjusted OR=1.60; 95% CI, 1.28 to 1.99). The most common complication was reoperation within 30 days, followed by surgical site complications. Transfusion rates were also significantly higher (p<0.001) in women with bilateral versus unilateral mastectomies who had either type of reconstruction. The rates of medical complications were relatively low—approximately 1% of women who had implant reconstructions and 3% of women who had autologous reconstructions experienced a medical complication (i.e., pneumonia, renal insufficiency or failure, sepsis, urinary tract infection, venous thromboembolism)—and did not differ significantly for unilateral versus bilateral mastectomies.

Several single-center studies have also found significantly higher surgical complication rates after bilateral than unilateral mastectomy. For example, in a 2013 study by Miller et al, which included 600 women with unilateral breast cancer, CPM remained associated with a significantly higher risk of any complication (OR=1.53; 95% CI, 1.04 to 2.25) and a significantly higher risk of major complications (OR=2.66; 95% CI, 1.37 to 5.19) than unilateral mastectomy. Moreover, in a 2014 study by Eck et al, which assessed 352 women with unilateral breast cancer, 94 (27%) women had complications, 48 (14%) in the unilateral mastectomy group and 46 (13%) in the bilateral mastectomy group. The difference between groups was not statistically significant (p=0.11), but this study may have been underpowered. Moreover, the Eck study found a significant delay in adjuvant therapy after surgical complications. Women with complications waited longer before receiving adjuvant therapy than those without complications (49 days vs 40 days, p<0.001).
Section Summary: Contralateral Prophylactic Mastectomy
Large observational studies have had mixed findings on the survival benefit of CPM in women with unilateral breast cancer who do not otherwise meet high-risk criteria. Researchers have suggested that improvement in survival after CPM in the general breast cancer population found in some studies is due at least in part to selection bias. Moreover, there are risks (e.g., surgical risks) of CPM.

Ongoing and Unpublished Clinical Trials
A search of ClinicalTrials.gov in January 2016 did not identify any ongoing or unpublished trials that would likely influence this review.

Summary of Evidence
The evidence for prophylactic mastectomy (PM) in women who have high risk of breast cancer or extensive mammographic abnormalities precluding incision or biopsy includes a TEC Assessment and systematic review of observational studies. Relevant outcomes are overall survival, disease-specific survival, functional outcomes, and treatment-related morbidity. The studies found that PM reduces breast cancer incidence and increases survival in select patients. The evidence is sufficient to determine qualitatively that the technology results in a meaningful improvement in the net health outcome.

The evidence for contralateral prophylactic mastectomy (CPM) in women who have unilateral breast cancer but are not otherwise at high risk includes observational studies. Relevant outcomes are overall survival, disease-specific survival, functional outcomes, and treatment-related morbidity. Available studies do not clearly demonstrate a survival benefit in women without high-risk criteria. Moreover, there are potential risks (e.g., surgical risks) associated with CPM. National guidelines, including those from the National Comprehensive Care Network, do not recommend that CPM be considered other than for certain high-risk women. The evidence is insufficient to determine the effects of the technology on health outcomes.

Clinical Input Received From Physician Specialty Societies and Academic Medical Centers
While the various physician specialty societies and academic medical centers may collaborate with and make recommendations during this process, through the provision of appropriate reviewers, input received does not represent an endorsement or position statement by the physician specialty societies or academic medical centers, unless otherwise noted.

In response to requests, focused clinical input was received from 6 academic medical centers and 1 specialty society while this policy was under review in 2016. The focused clinical input addressed the issue of CPM in women with unilateral breast cancer who are not otherwise at high risk for developing breast cancer in the contralateral breast. Clinical input was mixed. Clinicians offered suggestions for modifying high-risk criteria but there was no consensus on potential additional risk factors.
**MEDICAL POLICY**

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**Practice Guidelines and Position Statements**

**National Comprehensive Cancer Network**

- Breast Cancer Risk Reduction (v.2.2015): “Risk-reduction mastectomy should generally be considered only in women with a genetic mutation conferring a high risk history for breast cancer (See NCCN guidelines for Genetic/Familial High-Risk Assessment: Breast and Ovarian, Table on GENE-2*), compelling family history, or possibly with LCIS [lobular carcinoma in situ] or prior thoracic radiation therapy at < 30 years of age. The value of risk-reduction mastectomy in women with deleterious mutations in other genes associated with a 2-fold or greater risk for breast cancer (based on large epidemiologic studies) in the absence of a compelling family history of breast cancer is unknown.”

- Breast cancer (v.2.2015): Except for certain high-risk situations (noted in the risk reduction guideline previously discussed), CPM is discouraged. The guideline states: “the small benefits from contralateral prophylactic mastectomy for women with unilateral breast cancer must be balanced with the risk of recurrent disease from the known ipsilateral breast cancer, psychological and social issues of bilateral mastectomy, and the risks of contralateral mastectomy. The use of a prophylactic mastectomy contralateral to a breast treated with breast-conserving therapy is very strongly discouraged.”

* Genes that confer more than 20% risk of breast cancer include BRAC1, BRCA2, ATM, CDH1, CHEK2, PALB2, PTEN, STK11, and TP53.

**Society of Surgical Oncology**

The Society of Surgical Oncology developed a position statement on PM in 1993 and updated it in 2007. The position statement states that bilateral PM is potentially indicated in patients with:

- known BRCA 1 or 2 mutations or other genes that convey strong increased susceptibility to breast cancer,
- a history of multiple first-degree relatives with a history of breast cancer history or family history of multiple successive generations with breast and/or ovarian cancer,
- biopsy-confirmed, high-risk histology such as LCIS or atypical ductal or lobular hyperplasia.

The position statement also stated that CPM may be potentially indicated in patients:

- with high risk (as previously defined) of contralateral breast cancer,
- in whom surveillance would be difficult such as with dense breast tissue or diffuse indeterminate microcalcifications, or to improve symmetry.
National Cancer Institute
The National Cancer Institute issued a fact sheet in 2012 on surgery to reduce the risk of breast cancer. The fact sheet provided the following information: “Prophylactic surgery to remove both breasts (called bilateral prophylactic mastectomy) can reduce the risk of breast cancer in women who have a strong family history of breast and/or ovarian cancer, who have a deleterious (disease-causing) mutation in the BRCA1 gene or the BRCA2 gene, or who have certain breast cancer-associated mutations in other genes, such as TP53 and PTEN.”

U.S. Preventive Services Task Force Recommendations
No U.S. Preventive Services Task Force recommendations for PM have been identified.

Medicare National Coverage
There is no national coverage determination (NCD).

Prophylactic Oopherectomy
American College of Obstetricians and Gynecologists (ACOG)
According to the ACOG guidelines for prophylactic hysterectomy, prophylactic oopherectomy should be considered for select women at high risk of inherited ovarian cancer. Hormone replacement therapy should be considered for women undergoing prophylactic oopherectomy, and patients should be counseled about the risks and benefits of hormone replacement therapy prior to undergoing surgery. Compliance with hormone replacement therapy is important in women undergoing prophylactic oopherectomy to reduce the risk of future morbidity (ACOG, 1999).

Summary
Despite the lack of randomized controlled trials (RCT), the published peer-reviewed medical literature indicates that prophylactic oopherectomy should be considered for premenopausal (age 35 or older), high-risk women (i.e., women known to carry the BRCA1 and/or BRCA2 mutation or to have a lineage familial cancer), and only after completion of childbearing. The literature also suggests that a hysterectomy should be performed in conjunction with prophylactic oopherectomy in women from families with Lynch syndrome. For premenopausal women with early breast cancer, ovarian ablation by oopherectomy is a therapeutic option. It is imperative that women undergoing prophylactic oopherectomy with or without hysterectomy understand that this surgery does not completely eliminate the risk of developing cancer. Counseling regarding the risks and benefits of the procedure is equally important for women considering this preventive measure. Specifically, such women should be educated about the increased risk of cardiovascular disease and osteoporosis as a result of surgically-induced menopause after undergoing oopherectomy with or without hysterectomy (American College of Medical Genetics [ACMG], 1999).
V. DEFINITIONS

**BRCA1** refers to a breast cancer gene that is found in a small percentage of patients with this malignancy and carried by some individuals who will develop breast cancer later in life.

**BRCA2** refers to a breast cancer gene found in a small number of patients with breast and ovarian cancers, and carried by some individuals who will develop breast cancer later in life.

**First-Degree Relative** refers to a parent, sibling, or child.

**Gene** is the basic unit of heredity, the code for a specific protein.

**Hyperplasia** refers to excessive proliferation of normal cells in the normal tissue arrangement of an organ.

**In Situ** means in position, localized.

**Mutation** is an unusual change in genetic material occurring spontaneously or by induction.

**Ovarian Cancer** is an abnormal, malignant growth located in the ovaries.

**P53 Gene** is a tumor suppressor gene that normally inhibits the growth of tumors. This gene is altered in many types of cancer.

**PTEN Gene** is a tumor suppressor gene that normally inhibits the growth of tumors. This gene is altered in many types of cancer.

**Prophylactic Oophorectomy** refers to the elective surgical removal of ovaries, before cancer develops, in women at high risk for ovarian cancer due to a family history of the disease.

**Second-Degree Relative** refers to aunt, uncle, niece, nephew, or grandparent.

**Third-Degree Relative** refers to a great aunt/uncle, first cousin or great grandmother/grandfather.

VI. BENEFIT VARIATIONS

The existence of this medical policy does not mean that this service is a covered benefit under the member’s contract. Benefit determinations should be based in all cases on the applicable contract language. Medical policies do not constitute a description of benefits. A member’s individual or group customer benefits govern which services are covered, which are excluded, and which are subject to benefit limits and which require preauthorization. Members and providers should consult the member’s benefit information or contact Capital for benefit information.
VII. DISCLAIMER

Capital’s medical policies are developed to assist in administering a member’s benefits, do not constitute medical advice and are subject to change. Treating providers are solely responsible for medical advice and treatment of members. Members should discuss any medical policy related to their coverage or condition with their provider and consult their benefit information to determine if the service is covered. If there is a discrepancy between this medical policy and a member’s benefit information, the benefit information will govern. Capital considers the information contained in this medical policy to be proprietary and it may only be disseminated as permitted by law.

VIII. CODING INFORMATION

Note: This list of codes may not be all-inclusive, and codes are subject to change at any time. The identification of a code in this section does not denote coverage as coverage is determined by the terms of member benefit information. In addition, not all covered services are eligible for separate reimbursement.

Covered when medically necessary:

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<th>CPT Codes®</th>
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<td>19303</td>
<td>Lobular carcinoma in situ of right breast</td>
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<td>19304</td>
<td>Lobular carcinoma in situ of left breast</td>
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<td>58661</td>
<td>Mammographic calcification found on diagnostic imaging of breast</td>
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<td>58940</td>
<td>Genetic susceptibility to malignant neoplasm breast</td>
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<td>Z15.01</td>
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<td>Genetic susceptibility to other disease</td>
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*If applicable, please see Medicare LCD or NCD for additional covered diagnoses.

IX. REFERENCES

Prophylactic Mastectomy


Other Sources:


Prophylactic Oophorectomy


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X. POLICY HISTORY

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<tr>
<td>12/12/08</td>
<td>Definition Change</td>
</tr>
<tr>
<td>CAC 9/29/09</td>
<td>Policy criteria for prophylactic mastectomy revised with additional indications (PTEN and p53 mutations)</td>
</tr>
<tr>
<td>CAC 11/30/10</td>
<td>Consensus Review</td>
</tr>
<tr>
<td>CAC 11/22/11</td>
<td>Consensus Review</td>
</tr>
<tr>
<td>04/05/2013</td>
<td>Deleted codes removed from policy</td>
</tr>
<tr>
<td>7/24/13</td>
<td>Admin coding review complete</td>
</tr>
<tr>
<td>CAC 9/24/13</td>
<td>Minor review. For prophylactic mastectomy. Definition of high risk clarified and medically necessary indication for those at moderately increased risk of breast cancer removed, except for women with extensive mammographic abnormalities. New investigational statement added for contralateral prophylactic mastectomy among women with cancer in the other breast who do not meet one of the medically indicated conditions. No change to prophylactic oophorectomy policy statements.</td>
</tr>
<tr>
<td>CAC 9/30/14</td>
<td>Consensus review. References updated; rationale added. No changes to the policy statements.</td>
</tr>
<tr>
<td>CAC 6/2/15</td>
<td>Minor review. Added other gene mutations associated with increased risk to policy guidelines. (e.g., PTEN, TP53, CDH1, and STK11). Updated rationale and references. Coding reviewed.</td>
</tr>
<tr>
<td>CAC 5/31/16</td>
<td>Minor revision. Medically necessary statement on lobular carcinoma in situ removed and added to high-risk criteria in the policy guidelines. Also in the policy guidelines, “20% to 25%” changed to “20%”, revised bullet points on high risk mutations in relatives with genetic syndromes and added wording on characteristics that may increase risk in combination with other factors. Guidelines, rationale, and references updated. Coding reviewed.</td>
</tr>
<tr>
<td>Administrative Update 11/22/16</td>
<td>Variation reformatting</td>
</tr>
<tr>
<td>CAC 3/28/17</td>
<td>Minor revision. Contralateral prophylactic mastectomy may now be considered medically necessary in patients who have a personal history of breast cancer. Coding reviewed.</td>
</tr>
</tbody>
</table>
**MEDICAL POLICY**

<table>
<thead>
<tr>
<th>POLICY TITLE</th>
<th>PROPHYLACTIC MASTECTOMY AND PROPHYLACTIC BILATERAL OOPHORECTOMY</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLICY NUMBER</td>
<td>MP- 1.036</td>
</tr>
</tbody>
</table>

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