### Measure Specifications

<table>
<thead>
<tr>
<th>Measure Description</th>
<th>Percentage of surgical pathology reports for invasive oropharyngeal squamous cell carcinoma (OPSCC) with quantitative p16 immunohistochemistry (IHC) using a ≥70% nuclear and cytoplasmic staining cutoff performed as a surrogate for HR-HPV status</th>
</tr>
</thead>
</table>
| Denominator Statement | All surgical pathology reports with a diagnosis of invasive OPSCC, biopsy or resection. CPT®: 88305, 88309 AND ICD10:  
  - C01: Malignant neoplasm of base of tongue  
  - C05.1: Malignant neoplasm of soft palate  
  - C09.0: Malignant neoplasm of tonsillar fossa  
  - C09.1: Malignant neoplasm of tonsillar pillar (anterior) (posterior)  
  - C09.8: Malignant neoplasm of overlapping sites of tonsil  
  - C09.9: Malignant neoplasm of tonsil, unspecified  
  - C10.0: Malignant neoplasm of vallecula  
  - C10.1: Malignant neoplasm of anterior surface of epiglottis  
  - C10.2: Malignant neoplasm of lateral wall of oropharynx  
  - C10.3: Malignant neoplasm of posterior wall of oropharynx  
  - C10.4: Malignant neoplasm of branchial cleft  
  - C10.8: Malignant neoplasm of overlapping sites of oropharynx  
  - C10.9: Malignant neoplasm of oropharynx, unspecified  
  - C14.0: Malignant neoplasm of pharynx, unspecified  
  - C14.2: Malignant neoplasm of Waldeyer’s ring  
  - C77.0: Secondary and unspecified malignant neoplasm of lymph nodes of head, face and neck |
| Denominator Exclusions | Non-squamous cell carcinoma of the oropharynx (i.e. adenocarcinoma of the oropharynx)  
Non-oropharyngeal primary tumors of the head and neck (e.g. lip, gum, sinus, anterior tongue) |
| Denominator Exceptions | Insufficient tissue for analysis  
Necrotic tissue  
No residual carcinoma  
p16 cannot be determined  
p16 testing not indicated |
| Numerator Statement | Pathology reports containing documentation of p16 IHC performed (currently or previously) as a surrogate marker for presence of HR-HPV AND where |
p16 status is described using the ≥70% nuclear and cytoplasmic staining cutoff*

*p16 quantitation: p16 IHC is considered positive and a surrogate for the presence of HR-HPV when the tumor shows ≥70% nuclear and cytoplasmic immunoreactivity with moderate to strong intensity.

**Numerator Exclusions**
None

**Guidance**

**Denominator Guidance**
Includes invasive OPSCC reports for specimens from primary tumors (tonsils, soft palate, or base of tongue (posterior to circumvallate papillae) and lateral and posterior pharyngeal walls) OR metastatic squamous cell carcinoma of unknown primary in a cervical upper or mid jugular chain lymph node. Secondary malignant neoplasms elsewhere in the body are not considered.

**Numerator Guidance**
Quantitative p16 IHC results may include:
- p16 IHC positive (≥70% nuclear and cytoplasmic moderate to strong staining)
- p16 IHC negative (< 70% nuclear and cytoplasmic moderate to strong staining)
- p16 previously performed (includes recurrent tumors where testing was performed on the primary tumor)
- p16 cannot be determined

The pathology report must include an interpretation statement (as noted above) by the reporting pathologist; a link to a report from a reference lab or statement about ordering testing is not sufficient. The report must include a statement about the cutoff value used to determine positive or negative status.

**Measure Information**

**NQS Domain**
Communication and Care Coordination

**Meaningful Measures Area(s)**
Transfer of Health Information and Interoperability

**Meaningful Measure Rationale**
Human papillomavirus (HPV) is a major cause of oropharyngeal squamous cell carcinoma (OPSCC) and has contributed to its increased incidence (1). HPV-positive OPSCC differs from HPV-negative OPSCC related to other risk factors including alcohol and tobacco use and has an improved response to treatment and better prognosis (2).

Therefore, it is crucial to determine the HPV status of squamous cell carcinomas of the oropharynx, as treating clinicians utilize this information when developing a treatment plan for patients, which may include less aggressive treatment modalities. In the clinical setting, p16 IHC is an approach used to reliably diagnose HPV-induced OPSCC.
The p16 test is considered to best stratify patient survival outcomes while also being practical and inexpensive (3). Furthermore, data suggest that the correlation between HPV positivity and p16 overexpression is highest when the ≥70% staining for p16 overexpression is applied (4).


<table>
<thead>
<tr>
<th>Measure Type</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source</td>
<td>Laboratory Information Systems; pathology reports</td>
</tr>
</tbody>
</table>
| Summary of Performance Gap Evidence | For January-December 2020, 3 reporting entities submitted data on CAP 36, but one was below the 20-case minimum. The performance rates of the remaining practices were 100%.
For January-1 November 2021, two practices have entered data on CAP 36 but both are significantly below the 20-case minimum.
A study published after the relevant guideline came out assessed compliance and determined that “Pathologists continue to deviate from the testing guideline significantly in everyday practice. Further education and discussion about the appropriate handling of head and neck cancer specimens may be needed” (1).
Specifically, “(h)uman papillomavirus testing deviated from the guideline in 45 of 107 cases (42.1%) before and 93 of 258 cases (36.0%) after their publication” (1). Of the deviant cases that were oropharyngeal squamous cell carcinoma, 100% of the deviations after the guideline were due to not performing p16 IHC (unnecessary testing, i.e. p16 on non-oropharyngeal was also included in the deviant case list). Therefore gaps in performance persist.

<table>
<thead>
<tr>
<th>Measure Owner</th>
<th>College of American Pathologists</th>
</tr>
</thead>
<tbody>
<tr>
<td>NQF ID</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of Performance Rates</td>
<td>1</td>
</tr>
<tr>
<td>Overall Performance Rate</td>
<td>1(^{st}) Performance Rate</td>
</tr>
<tr>
<td>High-priority</td>
<td>Yes</td>
</tr>
<tr>
<td>Improvement Notation</td>
<td>Inverse Measure: No</td>
</tr>
<tr>
<td></td>
<td>Proportional Measure: Yes (Higher score indicates better quality)</td>
</tr>
<tr>
<td></td>
<td>Continuous Variable Measure: No</td>
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<tr>
<td></td>
<td>Ratio Measure: No</td>
</tr>
<tr>
<td></td>
<td>Risk-adjusted: No</td>
</tr>
<tr>
<td>Care Setting and Specialty</td>
<td>Care Setting: Other—Laboratories; Telehealth not applicable</td>
</tr>
<tr>
<td></td>
<td>Specialty: Pathology</td>
</tr>
<tr>
<td>Current Clinical Guideline the Measure is Derived From</td>
<td>Pathologists should perform high-risk human papillomavirus (HR-HPV) testing on all patients with newly diagnosed oropharyngeal squamous cell carcinoma (OPSCC). This testing may be performed on the primary tumor or on a regional lymph node metastasis when the clinical findings are consistent with an oropharyngeal primary (Strong Recommendation) (1). For oropharyngeal tissue specimens (i.e., noncytology), pathologists should perform HR HPV testing by surrogate marker p16 immunohistochemistry (IHC). Additional HPV-specific testing may be done at the discretion of the pathologist and/or treating clinician, or in the context of a clinical trial (Recommendation) (1). Pathologists should report p16 IHC positivity as a surrogate for HR-HPV in tissue specimens (i.e., noncytology) when there is at least 70% nuclear and cytoplasmic expression with at least moderate to strong intensity (Expert Consensus Opinion) (1). Tumor human papillomavirus (HPV) testing by p16 immunohistochemistry (IHC) required as part of the workup for cancer of the oropharynx (Category 2A) (2).</td>
</tr>
</tbody>
</table>
Measure Flow

Denominator

Start: 100 cases

Procedure as listed in denominator (CPT 88305, 88309): 100 cases

Not in Eligible Population/Denominator

Yes

Non-squamous cell carcinoma

Diagnosis as listed in denominator (invasive OPSCC): 100 cases

No

Non-oropharyngeal primary tumors: 10 cases (a)

Eligible Population/Denominator: 90 cases (x)

Numerator

Report contains p16 IHC results where p16 is described with 70% cutoff

Yes

Performance Met: 60 cases (b)

No

Yes

No

Documentations of medical, patient or system reason p16 not performed

Denominator Exception: 10 cases (c)

Yes

Performance Not Met: 10 cases (d)

No

Report does not contain statement about p16 testing or does not use 70% cutoff

Data Completeness: Denominator Exceptions (c)+Met (b)+ Not Met (d) = 10 + 60 + 10

Data Completeness Numerator – Denominator Exceptions (c) = 70

Eligible Population (x) = 90

Performance Rate: Met (b) = 60

Data Completeness Numerator – Denominator Exceptions (c) = 70