Smell and Taste Disorders: Diagnosis

Policy

*Please see amendment for Pennsylvania Medicaid at the end of this CPB.

I. Aetna considers certain procedures/services medically necessary for the evaluations of members with unexplained olfactory dysfunction (e.g., anosmia, hyposmia, dysosmia) and gustatory dysfunction (e.g., ageusia, hypogeusia, dysgeusia):

   A. Biopsy of the olfactory mucosa
   B. Drug assays and chemical analyses when certain medications or nutritional deficiencies are the suspected causes of the disorders
   C. Electroencephalography (EEG) for members with a history of seizures
   D. Hematological tests (e.g., hematocrit count, hemoglobin level, white blood cell count, urea nitrogen level, creatinine level, glucose level, erythrocyte sedimentation rate, eosinophil count, and immunoglobulin E level)
   E. Medical evaluation (complete medical history and physical examination)
   F. Nasal endoscopy
   G. Neuroimaging with computed tomography (CT) or magnetic resonance imaging (MRI) to rule out an intra-cranial or peripheral nerve abnormality
H. Neurological consultation
I. Otolaryngological consultation
J. Psychiatric consultation
K. Standard taste tests such as Taste-Threshold Test (also known as Whole-Mouth Taste-Threshold Test), Taste-Suprathreshold Test, Taste-Quadrant Test, and Flavor Discrimination Test (for evaluation of both taste and smell sensation)
L. Standardized olfactory tests such as the University Of Pennsylvania Smell Identification Test (UPSIT) or “Sniffin' Sticks”, the University of Connecticut Test Battery, the Pocket Smell Test, or the Brief Smell Identification Test. Other tests include Smell-Threshold Test, Smell-Suprathreshold Test, and Smell Unilateral Test. For use of olfactory testing in Parkinson disease, see [CPB 0307 - Parkinson's Disease (0307.html)](http://www.aetna.com/cpb/medical/data/300_399/0390.html)
M. Thyroid function studies.

Note: An initial and follow-up visit is considered medically necessary for smell and/or taste dysfunction testing. Additional visits for testing are considered not medically necessary.

Note: Members with taste loss may need smell testing in addition to taste testing.

II. Aetna considers the following services as a means of diagnosing an unexplained olfactory dysfunction and gustatory dysfunction experimental and investigational because the peer-reviewed medical literature does not support the use of these studies for this indication:

A. Electrogustometry
B. Genotyping of the TAS2R38 gene
C. Measurement of nasal nitric oxide levels
D. Olfactometry
E. Olfactory and gustatory event potentials
   (see [CPB 0181 - Evoked Potential Studies (.100_199/0181.html)](http://www.aetna.com/cpb/medical/data/300_399/0390.html))
F. Positron emission tomography (PET)
   (see [CPB 0071 - Positron Emission Tomography (PET) (.1_99/0071.html)](http://www.aetna.com/cpb/medical/data/300_399/0390.html))
G. Rhinomanometry
(see CPB 0700 - Rhinometry and Rhinomanometry (../700_799/0700.html))

H. Rhinometry (also known as acoustic rhinometry)
(see CPB 0700 - Rhinometry and Rhinomanometry (../700_799/0700.html))

I. Single photon emission computed tomography (SPECT)
   CPB 0376 - Single Photon Emission Computed Tomography (SPECT)
(see (0376.html))

J. Tests for Helicobacter pylori infection.

Background

Normal olfactory and gustatory functioning plays a key role in nutrition and food selection, and thus is important for the maintenance of a good quality of life. Smell and taste are closely inter-related. An impairment of the function of one sense often affects the function of the other sense. In fact, complaints of gustatory loss usually reflect smell rather than taste dysfunction. Deficits in these senses not only can reduce the pleasure and comfort from food, but can also lead to food poisoning or over-exposure to environmentally hazardous agents that are otherwise detectable by smell and taste.

More than 2 millions Americans suffer from smell and taste disorders. Olfactory dysfunction is more common than gustatory dysfunction because of the vulnerability and anatomical distinctiveness of the olfactory system, and because a decline in olfactory function is part of the normal aging process. Common olfactory and gustatory disturbances could be the consequence of a variety of medications, upper respiratory infections, nasal and paranasal sinus diseases, depression, hypothyroidism, and damage to peripheral nerves supplying smell and taste. In particular, inflammation (nasal and sinus disease), viral infection, and head trauma are the most frequent causes of smell disorders; while oral and perioral infections (e.g., gingivitis and candidiasis), oral appliances (e.g., dentures and filling materials), dental procedures and Bell's palsy are the most common causes of taste disorders.
Anosmia refers to an absence of the smell sensation; hyposmia is defined as reduced sensitivity to odorants (odor stimuli), and dysosmia refers to an altered perception of smell. Dysosmia can be further classified into phantosmia (a perception of an odor without the stimulus present) and parosmia or troposmia (an altered perception of an odor with a stimulus present).

Ageusia refers to an absence of the taste sensation; hypogeusia is defined as reduced sensitivity to tastants (taste stimuli), and dysgeusia refers to an altered perception to taste with or without the presence of a tastant.

A careful medical history of systemic illnesses and medication use as well as a thorough physical examination are essential for the diagnosis of smell and taste disorders. Work-up should not commence until a standardized test such as the University of Pennsylvania Smell Identification Test (UPSIT) or the University of Connecticut Test Battery has been given to establish impairment of the sense of smell. The University of Pennsylvania Smell Identification Test (UPSIT) is an objective, quantitative test of olfactory function. The test consists of 40 odors, each of which is microencapsulated on a pad that, one at a time, the patient scratches with a pencil and sniffs. The patient is provided with a list of 4 choices for each pad, and from which the correct answer must be chosen or a guess made. It has been demonstrated that there is good correlation between UPSIT and other olfactory function tests such as the T&T olfactometer threshold test, Cain's odor identification test, and Le Nez du Vin-derived smell identification test. Furthermore, it has been reported that the UPSIT and its 10-, 20-, and 30-item fragments have very high internal consistency reliability.

The recent practice parameter on diagnosis and prognosis of new onset Parkinson disease by the American Academy of Neurology (Suchowersky et al, 2006) stated that olfactory testing using either the UPSIT or “Sniffin' Sticks” should be considered to differentiate progressive supranuclear palsy and corticobasal degeneration from Parkinson's disease.

Nasal mucous membranes should be examined for abnormal conditions. Biopsy is necessary if intra-nasal or intra-oral neoplasm is suspected to be the cause of the dysfunction. Furthermore, intra-nasal biopsy is also helpful in diagnosing post-upper respiratory infection-induced olfactory loss. Drug assays, chemical analyses and thyroid function studies may be necessary since distortion of chemosensory sensations are associated with the use of certain medications (e.g., anti-
depressants and anti-convulsants, anti-psychotics, anti-hypertensives and cardiac medications, lipid-lowering agents, and anti-Parkinsonian agents), nutritional deficiency (e.g., zinc deficiency), and thyroid disease.

Neuroimaging such as CT or MRI may be necessary to rule out intra-cranial or peripheral nerve abnormalities. Computed tomography is useful in imaging the nasal and sinus cavities, skull base, olfactory cleft, nasopharynx, parotid, oropharynx, neck, and mandible. Bone abnormalities and widening of cranial nerve foramina are best observed with CT. Magnetic resonance imaging is useful in evaluating the olfactory bulbs, ventricles, other soft tissues in the brain, soft tissues of the tongue, tongue base, blood vessels and nerves in the skull base and neck. Studies such as SPECT and PET do not play a significant role in the diagnosis of olfactory and gustatory dysfunctions. Patients with a history of seizure disorder should be referred for EEG. Otolaryngological, neurological, and psychiatrical consultation may be necessary if the underlying cause of the olfactory/gustatory dysfunction is diagnosed as a condition, which may require further evaluation and treatment, by a specialist in such discipline.

Ellegard and colleagues (2007) examined if electrogustometry is useful for screening abnormalities of taste. These investigators asked 114 subjects, some healthy but most with medical conditions possibly affecting taste, to rate their overall taste ability, on a scale of 0 to 10. Those who had current symptoms related to taste, and who rated their taste as 5 or worse were defined as "aberrant tasters". These researchers recorded automated electrogustometry thresholds, and visual analog scale intensity ratings, for solutions of the four basic tastes (sweet, sour, salty and bitter). A visual analog scale score of 50 was used as a cut-off point to identify "poor tasters". The sensitivity and specificity of electrogustometry in identifying abnormal taste function were low. The authors concluded that automated electrogustometry is not a useful clinical screening method for taste disturbance in this group of subjects.

There is insufficient scientific evidence to support the usefulness of olfactory evoked potentials, olfactometry, rhinometry, rhinomanometry, or electrogustometry in the diagnosis of smell and taste disorders.

Cecchini and colleagues (2013) stated that Helicobacter pylori (H. pylori) has been found in dental plaque, saliva and lingual sites. To-date, taste or olfaction disorders related to H. pylori infections have never been reported. In a review of the literature
these researchers found 2 papers just referring to a sour taste sensation during H. pylori infection. Studies in animal models suggested that changes in taste perception may relate to infections that damage taste buds. These investigators observed an interesting clinical case of a 24-year old Ghanaian woman with documented H. pylori gastric infection, complaining of cacosmia and cacogeusia. Taste evaluation indicated hypogeusia and high-lighted a specific difficulty in discriminating between bitter and acid tastes. Saliva fluid was found positive for the ureA gene (H. pylori ureasi A). On the basis of this report, the authors hypothesized that taste perception might be correlated with a documented H. pylori infection. So, in a dyspeptic clinical picture in both pre- and post-diagnostic phase when H. pylori infection is suspected, taste evaluation might be important. Moreover, they stated that further studies are certainly needed in a large patient population to clarify the possible connection between H. pylori infection and smell-taste distortion.

In a prospective study, Elsherif et al (2007) examined the relationship between nasal nitric oxide (nNO) concentration and its influence on olfactory function. A total of 64 patients suffering from chronic rhinosinusitis and 20 healthy subjects participated in this study. The nNO concentration was measured by chemiluminescence and olfactory thresholds were measured with the phenyl ethanol threshold of the Sniffin' Sticks. In chronic rhinosinusitis patients this measure was done pre-operatively and 3 months after endoscopic sinus surgery. Healthy subjects had significantly higher nNO concentrations and better olfactory thresholds compared to the chronic rhinosinusitis patients, both before and after those had undergone sinus surgery. Olfactory thresholds and nNO concentrations remained unchanged after surgery in the chronic rhinosinusitis group. In the chronic rhinosinusitis group, nNO concentrations correlated positively with the olfactory threshold pre-operatively (p < 0.0001) and 3 months after surgery (p < 0.05). In the control group, nNO production did not correlate with the olfactory thresholds (p > 0.05). The authors concluded that olfactory function and nNO concentration correlated in chronic rhinosinusitis patients but not in healthy subjects. This suggested that both parameters do rather not directly influence each other but it might be the inflammatory processes found in chronic rhinosinusitis that affects olfaction and nNO. They stated that nNO produced by the paranasal sinuses appeared not to directly influence olfactory function.
Gupta and associates (2013) stated that nNO and olfactory function are decreased in patients with chronic inflammatory sinonasal disease, suggesting a link between these 2 parameters. These researchers examined nNO levels in patients with olfactory dysfunction due to different causes. Post-traumatic (n = 11), idiopathic (n = 13), and sinonasal-related olfactory-impaired patients (n = 55) were compared with healthy subjects (n = 11). Nasal NO levels, olfactory testing (Sniffin' Sticks), and rhino-sinusitis questionnaires (Short-Form 36, Sinonasal Outcome Test 22, Rhinosinusitis Disability Index) were obtained. No significant difference in nNO levels were found between the different olfactory dysfunction causes. Nasal NO correlated negatively with age and positively with overall olfactory function, olfactory discrimination, and identification but not with olfactory thresholds. The more nasal symptoms prevailed in the Rhinosinusitis Disability Index, the lower the nNO. The authors concluded that nNO levels did not allow for discrimination between olfactory loss due to various etiologies based on the present data. Nasal NO production appeared to decrease with age and also seemed to be associated to overall olfactory function and in particular to central nervous system tasks such as olfactory discrimination and identification but not to olfactory thresholds. The authors stated that these findings raised questions about the link and interaction between olfactory function and nNO.

Genotyping of the TAS2R38 Gene for Taste Disorders

Melis and colleagues (2019) noted that taste sensitivity varies greatly among individuals influencing eating behavior and health, consequently the disorders of this sense can affect the quality of life (QOL). The ability to perceive the bitter of thiourea compounds, such as phenylthiocarbamide (PTC), has been largely reported as a marker of the general taste sensitivity, food preferences, and health. PTC sensitivity is mediated by the TAS2R38 receptor and its genetic common variants. In a prospective, cohort study, these researchers examined the role of the TAS2R38 receptor in taste disorders with the aim of understanding if these could be genetically determined. Differences in the PTC responsiveness between the patients cohort and healthy controls were examined. All subjects received standardized tests for smell and taste function and were genotyped for the TAS2R38 gene. PAV/PAV homozygous patients gave high PTC ratings, whereas PAV/AVI genotypes reported lower values, which were similar to those determined in AVI/AVI or rare genotypes. In addition, the patients cohort did not meet the Hardy-Weinberg equilibrium at the TAS2R38 locus, showing a very low frequency of subjects carrying the PAV/AVI diplotype. Independently, in healthy controls who
were in equilibrium at the locus, PAV/PAV homozygous and heterozygous rated PTC bitterness higher compared to AVI/AVI or rare genotypes. The authors concluded that these findings, by showing that an only taster haplotype (PAV) was insufficient to evoke high responses of TAS2R38 receptor in patients with taste disorders, suggest that the genetic constitution may represent a risk factor for the development of taste disorders.

Furthermore, an UpToDate review on “Evaluation and treatment of taste and smell disorders” (Mann and Lafreniere, 2019) does not mention genetic testing as a management tool.

CPT Codes / HCPCS Codes / ICD-10 Codes

Information in the [brackets] below has been added for clarification purposes. Codes requiring a 7th character are represented by "+":

<table>
<thead>
<tr>
<th>Code</th>
<th>Code Description</th>
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<tbody>
<tr>
<td>30100</td>
<td>Biopsy, intranasal</td>
</tr>
<tr>
<td>31231</td>
<td>Nasal endoscopy, diagnostic, unilateral or bilateral (separate procedure)</td>
</tr>
<tr>
<td>70450</td>
<td>Computed tomography head or brain; without contrast material</td>
</tr>
<tr>
<td>70460</td>
<td>with contrast material(s)</td>
</tr>
<tr>
<td>70470</td>
<td>without contrast material, followed by contrast material(s) and further sections</td>
</tr>
<tr>
<td>70496</td>
<td>Computed tomographic angiography, head, with contrast material(s), including noncontrast images, if performed, and image postprocessing</td>
</tr>
<tr>
<td>70551</td>
<td>Magnetic resonance (e.g., proton) imaging, brain (including brain stem); without contrast material</td>
</tr>
<tr>
<td>70552</td>
<td>with contrast material(s)</td>
</tr>
<tr>
<td>70553</td>
<td>without contrast material, followed by contrast material(s) and further sequences</td>
</tr>
<tr>
<td>82565</td>
<td>Creatinine; blood</td>
</tr>
<tr>
<td>82947</td>
<td>Glucose; quantitative, blood (except reagent strip)</td>
</tr>
<tr>
<td>84443</td>
<td>Thyroid stimulating hormone (TSH)</td>
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http://www.aetna.com/cpb/medical/data/300_399/0390.html
<table>
<thead>
<tr>
<th>Code</th>
<th>Code Description</th>
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<tbody>
<tr>
<td>84520</td>
<td>Urea nitrogen; quantitative</td>
</tr>
<tr>
<td>85014</td>
<td>Blood count; hematocrit (Hct)</td>
</tr>
<tr>
<td>85018</td>
<td>hemoglobin (Hgb)</td>
</tr>
<tr>
<td>85032</td>
<td>manual cell count (erythrocyte, leukocyte, or platelet) each</td>
</tr>
<tr>
<td>85048</td>
<td>leukocyte (WBC), automated</td>
</tr>
<tr>
<td>85651 - 85652</td>
<td>Sedimentation rate, erythrocyte</td>
</tr>
<tr>
<td>86003</td>
<td>Allergen specific IgE; quantitative or semiquantitative, each allergen</td>
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</table>

CPT codes not covered for indications listed in the CPB:

Genotyping of the TAS2R38 gene - no specific code:

<table>
<thead>
<tr>
<th>Code</th>
<th>Code Description</th>
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</thead>
<tbody>
<tr>
<td>78267</td>
<td>Urea breath test, C-14 (isotopic); acquisition for analysis [Helicobacter pylori]</td>
</tr>
<tr>
<td>78268</td>
<td>analysis [Helicobacter pylori]</td>
</tr>
<tr>
<td>78607</td>
<td>Brain imaging, tomographic (SPECT)</td>
</tr>
<tr>
<td>78608</td>
<td>Brain imaging, positron emission tomography (PET); metabolic evaluation</td>
</tr>
<tr>
<td>83013</td>
<td>Helicobacter pylori; breath test analysis for urease activity, non-radioactive isotope (eg, C-13)</td>
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<tr>
<td>83014</td>
<td>drug administration</td>
</tr>
<tr>
<td>87338</td>
<td>Infectious agent antigen detection by immunoassay technique, (eg, enzyme immunoassay [EIA], enzyme-linked immunosorbent assay [ELISA], immunochemiluminometric assay [IMCA]) qualitative or semiquantitative, multiple-step method; Helicobacter pylori, stool</td>
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<tr>
<td>92512</td>
<td>Nasal function studies (e.g., rhinomanometry)</td>
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<tr>
<td>95012</td>
<td>Nitric oxide expired gas determination</td>
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</tbody>
</table>

Other CPT codes related to the CPB:

<table>
<thead>
<tr>
<th>Code</th>
<th>Code Description</th>
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<tbody>
<tr>
<td>31233</td>
<td>Nasal/sinus endoscopy, diagnostic with maxillary sinusoscopy (via inferior meatus or canine fossa puncture)</td>
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<tr>
<td>31235</td>
<td>Nasal/sinus endoscopy, diagnostic with sphenoid sinusoscopy (via puncture of sphenoid face or cannulation of ostium)</td>
</tr>
<tr>
<td>31237</td>
<td>Nasal/sinus endoscopy, surgical; with biopsy, polypectomy, or debridement (separate procedure)</td>
</tr>
<tr>
<td>80150 - 80202</td>
<td>Therapeutic drug assays</td>
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<tr>
<td>Code</td>
<td>Code Description</td>
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<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>84630</td>
<td>Zinc</td>
</tr>
<tr>
<td>92511</td>
<td>Nasopharyngoscopy with endoscope (separate procedure)</td>
</tr>
<tr>
<td>95816 - 95819</td>
<td>Electroencephalogram (EEG) including recording awake and drowsy or including awake and asleep</td>
</tr>
</tbody>
</table>

ICD-10 codes covered if selection criteria are met:

- **R43.0 - R43.9** Disturbances of smell and taste

The above policy is based on the following references:


AETNA BETTER HEALTH® OF PENNSYLVANIA

Amendment to
Aetna Clinical Policy Bulletin Number: 0390 Smell and Taste Disorders Diagnosis

There are no amendments for Medicaid.

www.aetnabetterhealth.com/pennsylvania

revised 06/20/2019