| **Core/**  **Non-core** | **Element name** | **Values** | **Commentary** | **Implementation notes** |
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| Core | OPERATIVE PROCEDURE | Multi selection value list (select all that apply):  • Not specified  OR  • Biopsy (excisional, incisional), specify  • Resection, specify (e.g. maxillectomy, hemiglossectomy, partial laryngectomy, etc.)  • Neck (lymph node) dissection\*, specify  • Other, specify |  | \*If a neck dissection is submitted, then a separate dataset is used to record the information. |
| Core | SPECIMENS SUBMITTED | Multi selection value list (select all that apply):  • Not specified  OR  • Anatomic site, specify (may be multiple separate sites, but excluding lymph node dissection as that is a separate form) | The surgical approach for mucosal melanoma largely depends on the site of the primary tumour. In some locations such as gingiva, a single specimen may be received with/without additional separate margins. This may be a mucosal based resection or a composite resection with underlying tissues including bone. In the sinonasal cavity, while there may be a primary tumour specimen, numerous further specimens are received from contiguous anatomic sites in a 3-dimensional approach. The specimens submitted help to delineate the anatomic extent required for resection and may include bilateral tissues. Lymph node dissections are dealt with in a separate dataset. | . |
| Core | TUMOUR SITE | Multi selection value list (select all that apply) and text:  • Cannot be assessed  OR  • Sinonasal, specify subsite(s)   * Left * Right * Midline * Laterality not specified * Subsite(s)   • Oral cavity, specify subsite(s)   * Left * Right * Midline * Laterality not specified * Subsite(s)   • Larynx, specify subsite(s)   * Left * Right * Midline * Laterality not specified * Subsites(s)   • Nasopharynx, specify subsites(s)   * Left * Right * Midline * Laterality not specified * Subsite(s)   • Other, specify site/subsite(s)   * Left * Right * Midline * Laterality not specified * Subsite(s) | Mucosal melanomas of the head and neck show specific sites of predilection, but in general are rare.  Nasal cavity: The majority of tumours are identified within the nasal cavity or septum, while other anatomic sites are rarely affected.1,2  Oral cavity: Most tumours are found on the palate or gingiva, although any site may be affected.3-5  Primary melanoma within nasopharynx, oropharynx, larynx and hypopharynx are exceedingly uncommon. However, nasopharyngeal primaries have an even worse prognosis than other head and neck sites.1  **References**  1 Thompson LD, Wieneke JA and Miettinen M (2003). Sinonasal tract and nasopharyngeal melanomas: a clinicopathologic study of 115 cases with a proposed staging system. *Am J Surg Pathol* 27(5):594-611.  2 Moreno MA, Roberts DB, Kupferman ME, DeMonte F, El-Naggar AK, Williams M, Rosenthal DS and Hanna EY (2010). Mucosal melanoma of the nose and paranasal sinuses, a contemporary experience from the M. D. Anderson Cancer Center. *Cancer* 116(9):2215-2223.  3 de-Andrade BA, Toral-Rizo VH, Leon JE, Contreras E, Carlos R, Delgado-Azanero W, Mosqueda-Taylor A and de-Almeida OP (2012). Primary oral melanoma: a histopathological and immunohistochemical study of 22 cases of Latin America. *Med Oral Patol Oral Cir Bucal* 17(3):e383-388.  4 Rapini RP, Golitz LE, Greer RO, Jr., Krekorian EA and Poulson T (1985). Primary malignant melanoma of the oral cavity. A review of 177 cases. *Cancer* 55(7):1543-1551.  5 Sortino-Rachou AM, Cancela Mde C, Voti L and Curado MP (2009). Primary oral melanoma: population-based incidence. *Oral Oncol* 45(3):254-258. |  |
| Non-core | TUMOUR FOCALITY | Single selection value list:  • Unifocal  • Multifocal, specify number of tumours in specimen  • Cannot be assessed, specify |  |  |
| Core and  Non-core | TUMOUR DIMENSIONS | Numeric:  • Maximum tumour dimension (largest focus in a single specimen) \_\_\_ mm  Non-core  • Additional dimensions (largest tumour)  \_\_\_ mm x \_\_\_ mm  OR  • Cannot be assessed, specify | Unlike melanoma in cutaneous sites, tumour thickness (Breslow) and tumour level (Clark) are not clinically significant as a prognostic factor, nor are they easily determined due to the specimen type.1 Overall tumour size (using 3 cm as a cut-off) is known to be associated with a worse prognosis,2-5 but does not impact on T stage. The single largest tumour dimension in any one of the samples submitted should be entered, as trying to combine multiple smaller measurements from multiple different sites (especially if fragmented) does not yield clinically meaningful data.  **References**  1 Lydiatt WM, Patel SG, O'Sullivan B, Brandwein MS, Ridge JA, Migliacci JC, Loomis AM and Shah JP (2017). Head and Neck cancers-major changes in the American Joint Committee on cancer eighth edition cancer staging manual. *CA Cancer J Clin* 67(2):122-137.  2 Thompson LD, Wieneke JA and Miettinen M (2003). Sinonasal tract and nasopharyngeal melanomas: a clinicopathologic study of 115 cases with a proposed staging system. *Am J Surg Pathol* 27(5):594-611.  3 Prasad ML, Patel SG, Huvos AG, Shah JP and Busam KJ (2004). Primary mucosal melanoma of the head and neck: a proposal for microstaging localized, Stage I (lymph node-negative) tumors. *Cancer* 100(8):1657-1664.  4 Shuman AG, Light E, Olsen SH, Pynnonen MA, Taylor JM, Johnson TM and Bradford CR (2011). Mucosal melanoma of the head and neck: predictors of prognosis. *Arch Otolaryngol Head Neck Surg* 137(4):331-337.  5 Mucke T, Holzle F, Kesting MR, Loeffelbein DJ, Robitzky LK, Hohlweg-Majert B, Tannapfel A and Wolff KD (2009). Tumor size and depth in primary malignant melanoma in the oral cavity influences survival. *J Oral Maxillofac Surg* 67(7):1409-1415. |  |
| Core and  Non-core | HISTOLOGICAL TUMOUR TYPE | Multi selection value list (select all that apply):  • Mucosal melanoma  • Melanoma (uncertain origin), specify/comment  • Cannot be assessed, specify  Non-Core  **Histologic subtypes**  • Balloon cell melanoma  • Mixed epithelioid and spindle cell melanoma  • Epithelioid cell melanoma  • Spindle cell melanoma  • Amelanotic melanoma  • Undifferentiated melanoma  • Other, specify | The inclusion of the specific histologic type or pattern of melanoma is primarily for differential diagnostic considerations, while the specific type does not impact patient outcome or management.1,2 As mucosal melanomas are molecularly distinct from those of cutaneous origin occasional cases may require further molecular evaluation prior to definitively classifying as being of mucosal origin.  **References**  1 Shuman AG, Light E, Olsen SH, Pynnonen MA, Taylor JM, Johnson TM and Bradford CR (2011). Mucosal melanoma of the head and neck: predictors of prognosis. *Arch Otolaryngol Head Neck Surg* 137(4):331-337.  2 Thompson LD, Wieneke JA and Miettinen M (2003). Sinonasal tract and nasopharyngeal melanomas: a clinicopathologic study of 115 cases with a proposed staging system. *Am J Surg Pathol* 27(5):594-611. | Value list from the WHO Classification of Head and Neck Tumours (2017).  Note that permission to publish the WHO classification of tumours may be needed in your implementation. It is advisable to check with the International Agency for Research on Cancer (IARC). |
| Non-core | MARGIN STATUS | Single selection value list/text/numeric:  • Cannot be assessed, specify  Invasive melanoma  • Involved   * Specify margin(s), if possible   • Not involved   * Distance invasive melanoma from closest margin \_\_\_ mm * Distance not assessable * Specify closest margin, if possible   **Melanoma in situ**  • Involved   * Specify margin(s), if possible   • Not involved   * Distance of melanoma in situ from closest margin \_\_\_ mm * Distance not assessable * Specify closest margin, if possible | In general, tumour margins are reported, but margin status is not an independent prognostic factor for head and neck mucosal melanomas. Further, melanoma in situ (if detected) may not be meaningful and thus reporting is encouraged but is not a core element. |  |
| Non-core | COEXISTENT PATHOLOGY | Multi selection value list (select all that apply):  • None identified  OR  • Melanoma in situ/pagetoid spread  • Melanosis  • Other, specify | Melanosis is considered to be a potential precursor, although with conflicting data based on anatomic site and geographic distribution of the reported patients.1-3 Pagetoid spread within the surface epithelium is often identical to melanoma in situ, without a meaningful separation between these entities at this time.  **References**  1 Meleti M, Vescovi P, Mooi WJ and van der Waal I (2008). Pigmented lesions of the oral mucosa and perioral tissues: a flow-chart for the diagnosis and some recommendations for the management. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 105(5):606-616.  2 Cicek Y and Ertas U (2003). The normal and pathological pigmentation of oral mucous membrane: a review. *J Contemp Dent Pract* 4(3):76-86.  3 Takagi M, Ishikawa G and Mori W (1974). Primary malignant melanoma of the oral cavity in Japan. With special reference to mucosal melanosis. *Cancer* 34(2):358-370. |  |
| Non-core | ANCILLARY STUDIES | Single selection value list:  • Not performed  • Performed, specify | The diagnosis of melanoma is supported by the use of melanoma markers, including S100 protein, SOX10, HMB45, Melan A and tyrosinase, among others. Further, molecular studies can also be performed in selected cases, either for diagnostic purposes (helping to confirm the diagnosis), or for potential use in targeted therapies based on the results. Molecular findings in mucosal melanoma are different from cutaneous primaries, with *KIT* and *NRAS* mutations occurring more frequently than *BRAF* mutations in tumours of mucosal sites.1-5  **References**  1 Carvajal RD, Antonescu CR, Wolchok JD, Chapman PB, Roman RA, Teitcher J, Panageas KS, Busam KJ, Chmielowski B, Lutzky J, Pavlick AC, Fusco A, Cane L, Takebe N, Vemula S, Bouvier N, Bastian BC and Schwartz GK (2011). KIT as a therapeutic target in metastatic melanoma. *Jama* 305(22):2327-2334.  2 Lopez F, Rodrigo JP, Cardesa A, Triantafyllou A, Devaney KO, Mendenhall WM, Haigentz M, Jr., Strojan P, Pellitteri PK, Bradford CR, Shaha AR, Hunt JL, de Bree R, Takes RP, Rinaldo A and Ferlito A (2016). Update on primary head and neck mucosal melanoma. *Head Neck* 38(1):147-155.  3 Rivera RS, Nagatsuka H, Gunduz M, Cengiz B, Gunduz E, Siar CH, Tsujigiwa H, Tamamura R, Han KN and Nagai N (2008). C-kit protein expression correlated with activating mutations in KIT gene in oral mucosal melanoma. *Virchows Arch* 452(1):27-32.  4 Cancer Genome Atlas Network (2015). Genomic Classification of Cutaneous Melanoma. *Cell* 161(7):1681-1696.  5 Zebary A, Jangard M, Omholt K, Ragnarsson-Olding B and Hansson J (2013). KIT, NRAS and BRAF mutations in sinonasal mucosal melanoma: a study of 56 cases. *Br J Cancer* 109(3):559-564. |  |
| Core | PATHOLOGICAL STAGING (UICC TNM 8th edition)  TNM descriptors | Choose if applicable:  • m - multiple primary tumours  • r - recurrent  • y - post-therapy | By American Joint Committee on Cancer (AJCC)/Union for International Cancer Control (UICC) convention, the designation “T” refers to a primary tumour that has not been previously treated. The symbol “p” refers to the pathologic classification of the TNM, as opposed to the clinical classification, and is based on gross and microscopic examination. pT entails a resection of the primary tumour or biopsy adequate to evaluate the highest pT category, pN entails removal of nodes adequate to validate lymph node metastasis, and pM implies microscopic examination of distant lesions. Clinical classification (cTNM) is usually carried out by the referring physician before treatment during initial evaluation of the patient or when pathologic classification is not possible.  Pathologic staging is usually performed after surgical resection of the primary tumour. Pathologic staging depends on pathologic documentation of the anatomic extent of disease, whether or not the primary tumour has been completely removed. If a biopsied tumour is not resected for any reason (e.g. when technically unfeasible) and if the highest T and N categories or the M1 category of the tumour can be confirmed microscopically, the criteria for pathologic classification and staging have been satisfied without total removal of the primary cancer.  **TNM Descriptors**  For identification of special cases of TNM or pTNM classifications, the “m” suffix and “y” and “r” prefixes are used. Although they do not affect the stage grouping, they indicate cases needing separate analysis.  The “m” suffix indicates the presence of multiple primary tumours in a single site and is recorded in  parentheses: pT(m)NM.  The “y” prefix indicates those cases in which classification is performed during or following initial  multimodality therapy (i.e. neoadjuvant chemotherapy, radiation therapy, or both chemotherapy and radiation therapy). The cTNM or pTNM category is identified by a “y” prefix. The ycTNM or ypTNM categorizes the extent of tumour actually present at the time of that examination. The “y” categorization is not an estimate of tumour prior to multimodality therapy (i.e. before initiation of neoadjuvant therapy).  The “r” prefix indicates a recurrent tumour when staged after a documented disease-free interval, and is identified by the “r” prefix: rTNM.  **Additional Descriptors**  Residual Tumour (R)  Tumour remaining in a patient after therapy with curative intent (e.g. surgical resection for cure) is  categorized by a system known as R classification, shown below.  RX Presence of residual tumour cannot be assessed  R0 No residual tumour  R1 Microscopic residual tumour  R2 Macroscopic residual tumour  For the surgeon, the R classification may be useful to indicate the known or assumed status of the  completeness of a surgical excision. For the pathologist, the R classification is relevant to the status of the margins of a surgical resection specimen. That is, tumour involving the resection margin on  pathologic examination may suggest residual tumour in the patient and may be classified as macroscopic or microscopic according to the findings at the specimen margin(s).  The 8th edition of the AJCC/UICC staging of head and neck cancers includes a separate chapter for mucosal melanomas.1,2 Approximately two-thirds of mucosal melanomas arise in the sinonasal tract, one-quarter are found in the oral cavity and the remainder occur only sporadically in other mucosal sites of the head and neck.3 Even small tumours behave aggressively with high rates of recurrence and death.3 To reflect this aggressive behaviour, primary cancers limited to the mucosa are considered T3 lesions.  Advanced mucosal melanomas are classified as T4a and T4b. The anatomic extent criteria to define moderately advanced (T4a) and very advanced (T4b) disease are given above. The AJCC staging for mucosal melanomas does not provide for the histologic definition of a T3 lesion; as the majority of mucosal melanomas are invasive at presentation, mucosal based melanomas (T3 lesions) include those lesions that involve either the epithelium and/or lamina propria of the involved site. Rare examples of in situ mucosal melanomas occur but in situ mucosal melanomas are excluded from staging, as they are extremely rare.3  **References**  1 Amin MB, Edge S, Greene FL, Byrd DR, Brookland RK, Washington MK, Gershenwald JE, Compton CC, Hess KR, Sullivan DC, Jessup JM, Brierley JD, Gaspar LE, Schilsky RL, Balch CM, Winchester DP, Asare EA, Madera M, Gress DM, Meyer LR (eds) (2017). *AJCC Cancer Staging Manual 8th ed.* Springer, New York.  2 International Union against Cancer (UICC) (2016). *TNM Classification of Malignant Tumours (8th Edition)*. Brierley JD, [Gospodarowicz](http://as.wiley.com/WileyCDA/Section/id-302477.html?query=Mary+K.+Gospodarowicz) MK, [Wittekind](http://as.wiley.com/WileyCDA/Section/id-302477.html?query=Christian+Wittekind) C (eds). New York: Wiley-Blackwell.  3 Patel S and Shah JP (2010). *Lip and oral cavity*. In *AJCC Cancer Staging Manual* *7th ed*. Edge SB, Byrd DR, Compton CC, Fritz AG, Greene FL, Trotti A (eds). Springer, New York | Note that permission to publish the TNM cancer staging tables may be needed in your implementation. It is advisable to check.  Reproduced with permission. Source: UICC TNM Classification of Malignant Tumours, 8th Edition, eds James D. Brierley, Mary K. Gospodarowicz, Christian Wittekind. 2017, Publisher Wiley-Blackwell. |
| Core | Primary tumour (pT) | Single selection value list:  • TX Primary tumour cannot be assessed  • T3 Tumour limited to the epithelium and/or submucosa (mucosal disease)  • T4a Moderately advanced disease  Tumour invades deep soft tissue, cartilage, bone, or overlying skin  • T4b Very advanced disease  Tumour invades any of the following: brain, dura, skull base, lower cranial nerves (IX, X, XI, XII), masticator space, carotid artery, prevertebral space, or mediastinal structures |  | Note that the results of lymph node/neck dissection are derived from a separate dataset. |