## ABSTRACT

Radiographics. 2022 Jul 8:210236. doi: 10.1148/rg.210236. Online ahead of print.

Major Changes in 2021 World Health Organization Classification of Central Nervous System Tumors.

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The World Health Organization (WHO) published the fifth edition of the WHO Classification of Tumors of the Central Nervous System (WHO CNS5) in 2021, as an update of the WHO central nervous system (CNS) classification system published in 2016. WHO CNS5 was drafted on the basis of recommendations from the Consortium to Inform Molecular and Practical Approaches to CNS Tumor Taxonomy (cIMPACT-NOW) and expounds the classification scheme of the previous edition, which emphasized the importance of genetic and molecular changes in the characteristics of CNS tumors. Multiple newly recognized tumor types, including those for which there is limited knowledge regarding neuroimaging features, are detailed in WHO CNS5. The authors describe the major changes introduced in WHO CNS5, including revisions to tumor nomenclature. For example, WHO grade IV tumors in the fourth edition are equivalent to CNS WHO grade 4 tumors in the fifth edition, and diffuse midline glioma, H3 K27M-mutant, is equivalent to midline glioma, H3 K27-altered. With regard to tumor typing, isocitrate dehydrogenase (IDH)-mutant glioblastoma has been modified to IDH-mutant astrocytoma. In tumor grading, IDH-mutant astrocytomas are now graded according to the presence or absence of homozygous CDKN2A/B deletion. Moreover, the molecular mechanisms of tumorigenesis, as well as the clinical characteristics and imaging features of the tumor types newly recognized in WHO CNS5, are summarized. Given that WHO CNS5 has become the foundation for daily practice, radiologists need to be familiar with this new edition of the WHO CNS tumor classification system. Online supplemental material and the slide presentation from the RSNA Annual Meeting are available for this article. ©RSNA, 2022.

DOI: 10.1148/rg.210236 PMID: 35802502