



**BlueCross BlueShield  
of Illinois**

If a conflict arises between a Clinical Payment and Coding Policy ("CPCP") and any plan document under which a member is entitled to Covered Services, the plan document will govern. If a conflict arises between a CPCP and any provider contract pursuant to which a provider participates in and/or provides Covered Services to eligible member(s) and/or plans, the provider contract will govern. "Plan documents" include, but are not limited to, Certificates of Health Care Benefits, benefit booklets, Summary Plan Descriptions, and other coverage documents. BCBSIL may use reasonable discretion interpreting and applying this policy to services being delivered in a particular case. BCBSIL has full and final discretionary authority for their interpretation and application to the extent provided under any applicable plan documents.

Providers are responsible for submission of accurate documentation of services performed. Providers are expected to submit claims for services rendered using valid code combinations from Health Insurance Portability and Accountability Act ("HIPAA") approved code sets. Claims should be coded appropriately according to industry standard coding guidelines including, but not limited to: Uniform Billing ("UB") Editor, American Medical Association ("AMA"), Current Procedural Terminology ("CPT®"), CPT® Assistant, Healthcare Common Procedure Coding System ("HCPCS"), ICD-10 CM and PCS, National Drug Codes ("NDC"), Diagnosis Related Group ("DRG") guidelines, Centers for Medicare and Medicaid Services ("CMS") National Correct Coding Initiative ("NCCI") Policy Manual, CCI table edits and other CMS guidelines.

Claims are subject to the code edit protocols for services/procedures billed. Claim submissions are subject to claim review including but not limited to, any terms of benefit coverage, provider contract language, medical policies, clinical payment and coding policies as well as coding software logic. Upon request, the provider is urged to submit any additional documentation.

## DNA Ploidy Cell Cycle Analysis

**Policy Number:** CPCPLAB066

**Version 1.0**

**Enterprise Medical Policy Committee Approval Date:** January 25, 2022

**Plan Effective Date:** May 1, 2022

### Description

BCBSIL has implemented certain lab management reimbursement criteria. Not all requirements apply to each product. Providers are urged to review Plan documents for eligible coverage for services rendered.

### Reimbursement Information:

Measurement of flow cytometry-derived DNA content (DNA Index) or cell proliferative activity (S-phase fraction or % S-phase) for prognostic or therapeutic purposes in the routine clinical management of cancers **is not reimbursable**.

## Procedure Codes

Codes
88182

## References:

- Bagwell, C. B., Clark, G. M., Spyrats, F., Chassevent, A., Bendahl, P. O., Stal, O., . . . Baldetorp, B. (2001). Optimizing flow cytometric DNA ploidy and S-phase fraction as independent prognostic markers for node-negative breast cancer specimens. *Cytometry*, 46(3), 121-135. Retrieved from <http://dx.doi.org/>
- Carloni, S., Gallerani, G., Tesei, A., Scarpi, E., Verdecchia, G. M., Virzi, S., . . . Arienti, C. (2017). DNA ploidy and S-phase fraction analysis in peritoneal carcinomatosis from ovarian cancer: correlation with clinical pathological factors and response to chemotherapy. *Onco Targets Ther*, 10, 4657-4664. doi:10.2147/ott.s141117
- Cho, K. R., Cooper, K., Croce, S., Djordevic, B., Herrington, S., Howitt, B., . . . Matias-Guiu, X. (2019). International Society of Gynecological Pathologists (ISGyP) Endometrial Cancer Project: Guidelines From the Special Techniques and Ancillary Studies Group. *Int J Gynecol Pathol*, 38 Suppl 1(Iss 1 Suppl 1), S114-s122. doi:10.1097/pgp.0000000000000496
- Christensen, K., Hulick, Peter. (2021). Basic genetics concepts: Chromosomes and cell division. Retrieved from [https://www.uptodate.com/contents/basic-genetics-concepts-chromosomes-and-cell-division?search=cell%20cycle%20s%20phase&source=search\\_result&selectedTitle=1~150&usage\\_type=default&display\\_rank=1#H3312662727](https://www.uptodate.com/contents/basic-genetics-concepts-chromosomes-and-cell-division?search=cell%20cycle%20s%20phase&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1#H3312662727)
- Dabic, M. M., Nola, M., Tomicic, I., Dotlic, S., Petrovecki, M., & Jukic, S. (2008). Adenocarcinoma of the uterine cervix: prognostic significance of clinicopathologic parameters, flow cytometry analysis and HPV infection. *Acta Obstet Gynecol Scand*, 87(3), 366-372. doi:10.1080/00016340801936560
- Ermiah, E., Buhmeida, A., Abdalla, F., Khaled, B. R., Salem, N., Pyrhönen, S., & Collan, Y. (2012). Prognostic value of proliferation markers: immunohistochemical ki-67 expression and cytometric s-phase fraction of women with breast cancer in libya. *J Cancer*, 3, 421-431. doi:10.7150/jca.4944
- Gawrychowski, J., Lackowska, B., & Gabriel, A. (2003). Prognosis of the surgical treatment of patients with non-small cell lung cancer (NSCLC)--relation to DNA ploidy. *Eur J Cardiothorac Surg*, 23(6), 870-877; discussion 877. Retrieved from <http://dx.doi.org/>
- Harris, L., Fritzsche, H., Mennel, R., Norton, L., Ravdin, P., Taube, S., . . . Bast, R. C., Jr. (2007). American Society of Clinical Oncology 2007 update of recommendations for the use of tumor markers in breast cancer. *J Clin Oncol*, 25(33), 5287-5312. doi:10.1200/jco.2007.14.2364
- Johnson, D. B., Dahlman, K. H., Knol, J., Gilbert, J., Puzanov, I., Means-Powell, J., . . . Pao, W. (2014). Enabling a Genetically Informed Approach to Cancer Medicine: A Retrospective Evaluation of the Impact of Comprehensive Tumor Profiling Using a Targeted Next-Generation Sequencing Panel. *Oncologist*, 19(6), 616-622. doi:10.1634/theoncologist.2014-0011
- Kenney, B., Zieske, A., Rinder, H., & Smith, B. (2008). DNA ploidy analysis as an adjunct for the detection of

relapse in B-lineage acute lymphoblastic leukemia. *Leuk Lymphoma*, 49(1), 42-48.  
doi:10.1080/10428190701760052

Locker, G. Y., Hamilton, S., Harris, J., Jessup, J. M., Kemeny, N., Macdonald, J. S., . . . Bast, R. C., Jr. (2006). ASCO 2006 update of recommendations for the use of tumor markers in gastrointestinal cancer. *J Clin Oncol*, 24(33), 5313-5327. doi:10.1200/jco.2006.08.2644

Mangili, G., Montoli, S., De Marzi, P., Sassi, I., Aletti, G., & Taccagni, G. (2008). The role of DNA ploidy in postoperative management of stage I endometrial cancer. *Ann Oncol*, 19(7), 1278-1283.  
doi:10.1093/annonc/mdn041

NCCN. (2021). NCCN Clinical Practice Guidelines in Oncology. Retrieved from  
[https://www.nccn.org/professionals/physician\\_gls/default.aspx](https://www.nccn.org/professionals/physician_gls/default.aspx). Retrieved 3/23/21  
[https://www.nccn.org/professionals/physician\\_gls/default.aspx](https://www.nccn.org/professionals/physician_gls/default.aspx)

Pinto, A. E., André, S., & Soares, J. (1999). Short-term significance of DNA ploidy and cell proliferation in breast carcinoma: a multivariate analysis of prognostic markers in a series of 308 patients. *Journal of Clinical Pathology*, 52(8), 604. doi:10.1136/jcp.52.8.604

Pinto, A. E., Pires, A., Silva, G., Bicho, C., Andre, S., & Soares, J. (2011). Ploidy and S-phase fraction as predictive markers of response to radiotherapy in cervical cancer. *Pathol Res Pract*, 207(10), 623-627.  
doi:10.1016/j.prp.2011.07.007

Ross, J. S. (1996). DNA ploidy and cell cycle analysis in cancer diagnosis and prognosis. *Oncology (Williston Park)*, 10(6), 867-882, 887; discussion 887-890. Retrieved from <http://dx.doi.org/>

Siegel, R. L., Miller, K. D., & Jemal, A. (2020). Cancer statistics, 2020. *CA Cancer J Clin*, 70(1), 7-30.  
doi:10.3322/caac.21590

Svanvik, T., Stromberg, U., Holmberg, E., Marcickiewicz, J., & Sundfeldt, K. (2019). DNA ploidy status, S-phase fraction, and p53 are not independent prognostic factors for survival in endometrioid endometrial carcinoma FIGO stage I-III. *Int J Gynecol Cancer*. doi:10.1136/ijgc-2018-000082

Taniguchi, K., Suzuki, A., Serizawa, A., Kotake, S., Ito, S., Suzuki, K., . . . Yamamoto, M. (2021). Rapid Flow Cytometry of Gastrointestinal Stromal Tumours Closely Matches the Modified Fletcher Classification. *Anticancer Res*, 41(1), 131-136. doi:10.21873/anticanres.14758

Thomas, G., Tr, S., George, S. P., Somanathan, T., Sarojam, S., Krishnankutti, N., . . . Ankathil, R. (2020). Prognostic Implications of DNA Repair, Ploidy and Telomerase in the Malignant Transformation Risk Assessment of Leukoplakia. *Asian Pac J Cancer Prev*, 21(2), 309-316. doi:10.31557/apjcp.2020.21.2.309

UIHC. (2016). Cancer diagnostic tests and blood tests word list. Retrieved from <https://uihc.org/health-topics/cancer-diagnostic-tests-and-blood-tests-word-list>

Van der Aa, N., Cheng, J., Mateiu, L., Zamani Esteki, M., Kumar, P., Dimitriadou, E., . . . Voet, T. (2013). Genome-wide copy number profiling of single cells in S-phase reveals DNA-replication domains. *Nucleic Acids Res*, 41(6), e66. doi:10.1093/nar/gks1352

Wolfson, A. H., Winter, K., Crook, W., Krishan, A., Grigsby, P. W., Markoe, A. M., . . . Lucci, J. A., 3rd. (2008). Are increased tumor aneuploidy and heightened cell proliferation along with heterogeneity associated with patient outcome for carcinomas of the uterine cervix? A combined analysis of subjects treated in RTOG 9001 and a single-institution trial. *Int J Radiat Oncol Biol Phys*, 70(1), 111-117. doi:10.1016/j.ijrobp.2007.05.069

### Policy Update History:

5/1/2022	New policy
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