



**BlueCross BlueShield**  
of Texas

If a conflict arises between a Clinical Payment and Coding Policy 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. Blue Cross and Blue Shield of Texas may use reasonable discretion interpreting and applying this policy to services being delivered in a particular case. BCBSTX 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 approved code sets. Claims should be coded appropriately according to industry standard coding guidelines including, but not limited to: Uniform Billing Editor, American Medical Association, Current Procedural Terminology, CPT® Assistant, Healthcare Common Procedure Coding System, ICD-10 CM and PCS, National Drug Codes, Diagnosis Related Group guidelines, Centers for Medicare and Medicaid Services National Correct Coding Initiative 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.

## Flow Cytometry

**Policy Number: CPCPLAB001**

**Version 1.0**

**Approval Date: April 28, 2025**

**Plan Effective Date: August 8, 2025**

## Description

The plan 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:

1. Flow cytometry immunophenotyping of cell surface markers **may be reimbursable** for any of the following conditions:
  - a. For individuals with cytopenias, lymphomas, leukemia, myeloproliferative and lymphoproliferative disorders, or myelodysplastic syndrome;
  - b. For B-cell monitoring for immunosuppressive disorders;
  - c. For T-cell monitoring for HIV infection and AIDS;
  - d. For individuals with mast cell neoplasms;
  - e. For individuals with paroxysmal nocturnal hemoglobinuria;
  - f. For post-operative monitoring of members who have undergone organ transplantation;
  - g. For individuals with plasma cell disorders;
  - h. For individuals with primary Immunodeficiencies (PIDs);
  - i. For individuals with primary platelet disorders, (non-neoplastic);
  - j. For individuals with red cell and white cell disorders, (non-neoplastic).

The following reimbursement limitations will apply for flow cytometry:

- a. For flow cytometric immunophenotyping for the assessment of potential hematolymphoid neoplasia, use codes 88184-88189.
  - b. Code 88184 should be used for the first marker, per specimen, and is reimbursable up to a maximum of two units per date of service.
  - c. Code 88185 should be used for each additional marker and is reimbursable up to a maximum of 35 units, per date of service.
  - d. In patients with a neoplasm with an established immunophenotype, subsequent tests for that neoplasm should be limited to diagnostically relevant markers.
  - e. Codes 88187, 88188, and 88189 should not be used together in any combination.
  - f. Codes 88187, 88188, and 88189 are reimbursed at one unit per specimen, up to two specimens, per date of service.
  - g. Codes 88187, 88188, 88189 should not be used in conjunction with codes 86355, 86356, 86357, 86359, 86360, 86361, 86367.
  - h. Use codes 86355, 86357, 86359, 86360, 86361, or 86367 for cell enumeration. These codes are reimbursable as single units only.
2. Measurement of flow-cytometry-deprived DNA (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

The following is not an all-encompassing code list. The inclusion of a code does not guarantee it is a covered service or eligible for reimbursement.

Codes
86355, 86356, 86357, 86359, 86360, 86361, 86367, 88182, 88184, 88185, 88187, 88188, 88189

## References:

1. Adan A, Alizada G, Kiraz Y, Baran Y, Nalbant A. Flow cytometry: basic principles and applications. *Crit Rev Biotechnol*. Mar 2017;37(2):163-176. doi:10.3109/07388551.2015.1128876
2. Verbsky J, Routes J. Flow cytometry for the diagnosis of primary immunodeficiencies. Updated October 26, 2023. <https://www.uptodate.com/contents/flow-cytometry-for-the-diagnosis-of-primary-immunodeficiencies>
3. UIHC. Cancer diagnostic tests and blood tests word list. Updated July 2016. <https://uihc.org/health-topics/cancer-diagnostic-tests-and-blood-tests-word-list>
4. Pinto AE, André S, Soares J. 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*. 1999;52(8):604. doi:10.1136/jcp.52.8.604
5. ACS. Breast Cancer Ploidy and Cell Proliferation. Updated November 8, 2021. <https://www.cancer.org/cancer/breast-cancer/understanding-a-breast-cancer-diagnosis/ploidy-and-cell-proliferation.html>
6. Brown M, Wittwer C. Flow cytometry: principles and clinical applications in hematology. *Clin Chem*. Aug 2000;46(8 Pt 2):1221-9.
7. Robinson JP, Roederer M. HISTORY OF SCIENCE. Flow cytometry strikes gold. *Science*. Nov 13 2015;350(6262):739-40. doi:10.1126/science.aad6770
8. McKinnon KM. Flow Cytometry: An Overview. *Curr Protoc Immunol*. Feb 21 2018;120:5.1.1-5.1.11. doi:10.1002/cpim.40
9. Finak G, Langweiler M, Jaimes M, et al. Standardizing Flow Cytometry Immunophenotyping Analysis from the Human ImmunoPhenotyping Consortium. *Sci Rep*. Feb 10 2016;6:20686. doi:10.1038/srep20686
10. Maguire O, Tario JD, Jr., Shanahan TC, Wallace PK, Minderman H. Flow cytometry and solid organ transplantation: a perfect match. *Immunol Invest*. 2014;43(8):756-74. doi:10.3109/08820139.2014.910022
11. Johnson DB, Dahlman KH, Knol J, et al. 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*. 2014;19(6):616-22. doi:10.1634/theoncologist.2014-0011
12. Seckl MJ, Sebire NJ, Fisher RA, Golfier F, Massuger L, Sessa C. Gestational trophoblastic disease: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up<sup>&#x2020;</sup>. *Annals of Oncology*. 2013;24:vi39-vi50. doi:10.1093/annonc/mdt345

13. Horowitz NS, Eskander RN, Adelman MR, Burke W. Epidemiology, diagnosis, and treatment of gestational trophoblastic disease: A Society of Gynecologic Oncology evidenced-based review and recommendation. *Gynecologic Oncology*. 2021;163(3):605-613. doi:10.1016/j.ygyno.2021.10.003
14. Christensen K, Hulick, Peter. Basic genetics concepts: Chromosomes and cell division. 2024;
15. Van der Aa N, Cheng J, Mateiu L, et al. Genome-wide copy number profiling of single cells in S-phase reveals DNA-replication domains. *Nucleic acids research*. Apr 2013;41(6):e66. doi:10.1093/nar/gks1352
16. Ermiah E, Buhmeida A, Abdalla F, et al. Prognostic value of proliferation markers: immunohistochemical ki-67 expression and cytometric s-phase fraction of women with breast cancer in libya. *Journal of Cancer*. 2012;3:421-31. doi:10.7150/jca.4944
17. Ross JS. DNA ploidy and cell cycle analysis in cancer diagnosis and prognosis. *Oncology (Williston Park, NY)*. Jun 1996;10(6):867-82, 887; discussion 887-90.
18. Mangili G, Montoli S, De Marzi P, Sassi I, Aletti G, Taccagni G. The role of DNA ploidy in postoperative management of stage I endometrial cancer. *Annals of oncology : official journal of the European Society for Medical Oncology*. Jul 2008;19(7):1278-83. doi:10.1093/annonc/mdn041
19. Pinto AE, Pires A, Silva G, Bicho C, Andre S, Soares J. Ploidy and S-phase fraction as predictive markers of response to radiotherapy in cervical cancer. *Pathology, research and practice*. Oct 15 2011;207(10):623-7. doi:10.1016/j.prp.2011.07.007
20. Kenney B, Zieske A, Rinder H, Smith B. DNA ploidy analysis as an adjunct for the detection of relapse in B-lineage acute lymphoblastic leukemia. *Leukemia & lymphoma*. Jan 2008;49(1):42-8. doi:10.1080/10428190701760052
21. Bagwell CB, Clark GM, Spyrtatos F, et al. Optimizing flow cytometric DNA ploidy and S-phase fraction as independent prognostic markers for node-negative breast cancer specimens. *Cytometry*. Jun 15 2001;46(3):121-35.
22. Gawrychowski J, Lackowska B, Gabriel A. Prognosis of the surgical treatment of patients with non-small cell lung cancer (NSCLC)--relation to DNA ploidy. *European journal of cardio-thoracic surgery : official journal of the European Association for Cardio-thoracic Surgery*. Jun 2003;23(6):870-7; discussion 877.
23. Locker GY, Hamilton S, Harris J, et al. ASCO 2006 update of recommendations for the use of tumor markers in gastrointestinal cancer. *Journal of clinical oncology : official journal of the American Society of Clinical Oncology*. Nov 20 2006;24(33):5313-27. doi:10.1200/jco.2006.08.2644
24. Abraham RS, Aubert G. Flow Cytometry, a Versatile Tool for Diagnosis and Monitoring of Primary Immunodeficiencies. *Clin Vaccine Immunol*. Apr 2016;23(4):254-71. doi:10.1128/cvi.00001-16
25. Halder M, Nath S, Jha S. Flow Cytometry and Its Utility. *Chromosome Structure and Aberrations*. 2017:109-126.
26. Cosma A, Nolan G, Gaudilliere B. Mass cytometry: The time to settle down. *Cytometry A*. Jan 2017;91(1):12-13. doi:10.1002/cyto.a.23032
27. Fromm JR, Thomas A, Wood BL. Flow cytometry can diagnose classical hodgkin lymphoma in lymph nodes with high sensitivity and specificity. *Am J Clin Pathol*. Mar 2009;131(3):322-32. doi:10.1309/ajcpw3un9dyldspb

28. Paiva B, Merino J, San Miguel JF. Utility of flow cytometry studies in the management of patients with multiple myeloma. *Curr Opin Oncol*. Nov 2016;28(6):511-517. doi:10.1097/cco.0000000000000331
29. Novikov ND, Griffin GK, Dudley G, et al. Utility of a Simple and Robust Flow Cytometry Assay for Rapid Clonality Testing in Mature Peripheral T-Cell Lymphomas. *Am J Clin Pathol*. Apr 2 2019;151(5):494-503. doi:10.1093/ajcp/aqy173
30. Wang Z, Guo M, Zhang Y, et al. The applicability of multiparameter flow cytometry for the detection of minimal residual disease using different-from-normal panels to predict relapse in patients with acute myeloid leukemia after allogeneic transplantation. *Int J Lab Hematol*. Oct 2019;41(5):607-614. doi:10.1111/ijlh.13070
31. Jin J, Mao X, Zhang D. A differential diagnosis method for systemic CAEBV and the prospect of EBV-related immune cell markers via flow cytometry. *Ann Med*. Dec 2024;56(1):2329136. doi:10.1080/07853890.2024.2329136
32. Carloni S, Gallerani G, Tesei A, et al. DNA ploidy and S-phase fraction analysis in peritoneal carcinomatosis from ovarian cancer: correlation with clinical pathological factors and response to chemotherapy. *OncoTargets and therapy*. 2017;10:4657-4664. doi:10.2147/ott.s141117
33. Svanvik T, Stromberg U, Holmberg E, Marcickiewicz J, Sundfeldt K. DNA ploidy status, S-phase fraction, and p53 are not independent prognostic factors for survival in endometrioid endometrial carcinoma FIGO stage I-III. *International journal of gynecological cancer : official journal of the International Gynecological Cancer Society*. Jan 13 2019;doi:10.1136/ijgc-2018-000082
34. Thomas G, Tr S, George SP, et al. Prognostic Implications of DNA Repair, Ploidy and Telomerase in the Malignant Transformation Risk Assessment of Leukoplakia. *Asian Pac J Cancer Prev*. Feb 1 2020;21(2):309-316. doi:10.31557/apjcp.2020.21.2.309
35. Taniguchi K, Suzuki A, Serizawa A, et al. Rapid Flow Cytometry of Gastrointestinal Stromal Tumours Closely Matches the Modified Fletcher Classification. *Anticancer Res*. Jan 2021;41(1):131-136. doi:10.21873/anticancerres.14758
36. Panwar S, Handa U, Kaur M, Mohan H, Attri AK. Evaluation of DNA ploidy and S-phase fraction in fine needle aspirates from breast carcinoma. *Diagn Cytopathol*. Jun 2021;49(6):761-767. doi:10.1002/dc.24738
37. Rawstron AC, Kreuzer KA, Soosapilla A, et al. Reproducible diagnosis of chronic lymphocytic leukemia by flow cytometry: An European Research Initiative on CLL (ERIC) & European Society for Clinical Cell Analysis (ESCCA) Harmonisation project. *Cytometry B Clin Cytom*. Jan 2018;94(1):121-128. doi:10.1002/cyto.b.21595
38. Porwit A, van de Loosdrecht AA, Bettelheim P, et al. Revisiting guidelines for integration of flow cytometry results in the WHO classification of myelodysplastic syndromes-proposal from the International/European LeukemiaNet Working Group for Flow Cytometry in MDS. *Leukemia*. Sep 2014;28(9):1793-8. doi:10.1038/leu.2014.191
39. Davis BH, Holden JT, Bene MC, et al. 2006 Bethesda International Consensus recommendations on the flow cytometric immunophenotypic analysis of hematolymphoid neoplasia: medical indications. *Cytometry B Clin Cytom*. 2007;72 Suppl 1:S5-13. doi:10.1002/cyto.b.20365

40. Harris L, Fritsche H, Mennel R, et al. American Society of Clinical Oncology 2007 update of recommendations for the use of tumor markers in breast cancer. *Journal of clinical oncology : official journal of the American Society of Clinical Oncology*. Nov 20 2007;25(33):5287-312. doi:10.1200/jco.2007.14.2364
41. D. Arber MB, Melissa Cessna, Joan Etzell, Kathryn Foucar, Robert Hasserjian, J. Douglas Rizzo, Karl Theil, Sa Wang, Anthony Smith, R. Bryan Rumble, Nicole Thomas, James Vardiman. Initial Diagnostic Workup of Acute Leukemia; Guideline From the College of American Pathologists and the American Society of Hematology. *Arch Pathol Lab Med*. 2017;141:1342-1393. doi:10.5858/arpa.2016-0504-CP
42. Frelinger AL, 3rd, Rivera J, Connor DE, et al. Consensus recommendations on flow cytometry for the assessment of inherited and acquired disorders of platelet number and function: Communication from the ISTH SSC Subcommittee on Platelet Physiology. *J Thromb Haemost*. Dec 2021;19(12):3193-3202. doi:10.1111/jth.15526
43. NCCN. NCCN Clinical Practice Guidelines in Oncology. [https://www.nccn.org/guidelines/category\\_1](https://www.nccn.org/guidelines/category_1)
44. Cho KR, Cooper K, Croce S, et al. International Society of Gynecological Pathologists (ISGyP) Endometrial Cancer Project: Guidelines From the Special Techniques and Ancillary Studies Group. *Int J Gynecol Pathol*. Jan 2019;38 Suppl 1(Iss 1 Suppl 1):S114-s122. doi:10.1097/pgp.0000000000000496

## Policy Update History:

Approval Date	Effective Date; Summary of Changes
04/28/2025	08/08/2025; Document updated with literature review. The following changes were made to Reimbursement Information: removed "and PIDs involving T, NK" from #1h; now reads "For individuals with primary immunodeficiencies (PIDs);" removed #2: "Flow cytometry immunophenotyping of cell surface markers is not reimbursable for any clinical indication not listed above." Removed the Bill Type Codes. References revised.
09/13/2024	01/01/2025: New policy.