



Vectibix® (panitumumab) (Intravenous)

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I. Length of Authorization

Coverage will be provided for 6 months and may be renewed.

II. Dosing Limits

- A. Quantity Limit (max daily dose) [NDC Unit]:
 - Vectibix 100 mg/5 mL solution for injection: 7 vials every 14 days
 - Vectibix 400 mg/20 mL solution for injection: 2 vials every 14 days
- B. Max Units (per dose and over time) [HCPCS Unit]:
 - 70 units every 14 days

III. Initial Approval Criteria ¹

Coverage is provided in the following conditions:

Patient is at least 18 years of age; AND

Universal Criteria 1,2

- Patient is both KRAS and NRAS mutation negative (wild-type) as determined by an FDA or CLIA-compliant test*; AND
- Patient has not been previously treated with cetuximab or panitumumab; AND
- Will not be used as part of an adjuvant treatment regimen; AND

Colorectal Cancer \dagger 1,2,6-8,10,11,3e,5e,8e,11e,13e-15e

- Will not be used in combination with an anti-VEGF agent (e.g., bevacizumab, ramucirumab); AND
- Patient has metastatic, unresectable (or medically inoperable), or advanced disease that is BRAF mutation negative (wild-type); **AND**



- Used as first-line or primary therapy (Note: Colon cancer patients must have left sided tumors); AND
 - Used in one of the following:
 - Used in combination with FOLFOX; OR
 - Used in combination with FOLFIRI; OR
 - Used in combination with an irinotecan-based regimen after previous adjuvant FOLFOX or CapeOX within the past 12 months; OR
- o Used as subsequent therapy; AND
 - Used in one of the following:
 - Used as single agent therapy after failure with fluoropyrimidine, oxaliplatin, and irinotecan-containing chemotherapy †; OR
 - Used in combination with irinotecan for oxaliplatin- and/or irinotecanrefractory disease; OR
 - Used in combination with FOLFIRI for oxaliplatin-refractory disease;
 OR
- Used in combination with FOLFOX or FOLFIRI for one of the following (*Note: Colon cancer patients must have left-sided tumors)*:
 - Disease that remains unresectable after primary systemic therapy; OR
 - Disease progression on non-intensive therapy with improvement in functional status (excluding patients previously treated with fluoropyrimidine)

Preferred therapies and recommendations are determined by review of clinical evidence. NCCN category of recommendation is taken into account as a component of this review. Regimens deemed equally efficacious (i.e., those having the same NCCN categorization) are considered to be therapeutically equivalent.

*If confirmed using an FDA approved assay - http://www.fda.gov/companiondiagnostics

† FDA-labeled indication(s); ‡ Compendia Recommended Indication(s); **Φ** Orphan Drug

IV. Renewal Criteria 1,2,6-10

Coverage can be renewed based upon the following criteria:

- Patient continues to meet universal and other indication-specific relevant criteria such as concomitant therapy requirements (not including prerequisite therapy), performance status, etc. identified in section III; **AND**
- Disease response with treatment as defined by a stabilization of disease or decrease in size of tumor or tumor spread; **AND**



• Absence of unacceptable toxicity from the drug. Examples of unacceptable toxicity include: dermatologic/soft-tissue toxicity, electrolyte depletion, severe infusion-related reactions, acute renal failure, pulmonary fibrosis/interstitial lung disease (ILD), photosensitivity, keratitis, etc.

V. Dosage/Administration ^{1,3-5}

Indication	Dose
	Administer 6 mg/kg intravenously every 14 days until disease progression or unacceptable toxicity.

VI. Billing Code/Availability Information

HCPCS Code:

• J9303 – Injection, panitumumab, 10 mg; 1 billable unit = 10 mg

NDC(s):

- Vectibix 100 mg/5 mL solution for injection: 55513-0954-xx
- Vectibix 400 mg/20 mL solution for injection: 55513-0956-xx

VII. References (STANDARD)

- 1. Vectibix [package insert]. Thousand Oaks, CA; Amgen, Inc; June 2017. Accessed March 2021.
- 2. Referenced with permission from the NCCN Drugs & Biologics Compendium (NCCN Compendium®) panitumumab. National Comprehensive Cancer Network, 2021. The NCCN Compendium® is a derivative work of the NCCN Guidelines®. NATIONAL COMPREHENSIVE CANCER NETWORK®, NCCN®, and NCCN GUIDELINES® are trademarks owned by the National Comprehensive Cancer Network, Inc. To view the most recent and complete version of the Compendium, go online to NCCN.org. Accessed March 2021.
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- 5. Bach PB, Conti RM, Muller RJ, et al. Overspending driven by oversized single dose vials of cancer drugs. BMJ. 2016 Feb 29;352:i788.
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- 8. Price TJ, Peeters M, Kim TW, et al. Panitumumab versus cetuximab in patients with chemotherapy-refractory wild-type KRAS exon 2 metastatic colorectal cancer (ASPECCT): a randomised, multicentre, open-label, non-inferiority phase 3 study. Lancet Oncol. 2014 May;15(6):569-79. doi: 10.1016/S1470-2045(14)70118-4. Epub 2014 Apr 14.
- 9. Kim TW, Elme A, Kusic Z, et al. A phase 3 trial evaluating panitumumab plus best supportive care vs best supportive care in chemorefractory wild-type KRAS or RAS metastatic colorectal cancer. Br J Cancer. 2016 Nov 8;115(10):1206-1214. doi: 10.1038/bjc.2016.309. Epub 2016 Oct 13.
- 10. Douillard JY, Siena S, Cassidy J, et al. Final results from PRIME: randomized phase III study of panitumumab with FOLFOX4 for first-line treatment of metastatic colorectal cancer. Ann Oncol. 2014 Jul;25(7):1346-55. doi: 10.1093/annonc/mdu141. Epub 2014 Apr 8.
- 11. Referenced with permission from the NCCN Drugs & Biologics Compendium (NCCN Compendium®) Rectal Cancer. Version 1.2021. National Comprehensive Cancer Network, 2021. The NCCN Compendium® is a derivative work of the NCCN Guidelines®. NATIONAL COMPREHENSIVE CANCER NETWORK®, NCCN®, and NCCN GUIDELINES® are trademarks owned by the National Comprehensive Cancer Network, Inc. To view the most recent and complete version of the Compendium, go online to NCCN.org. Accessed March 2021.

VIII. References (ENHANCED)

- 1e. Douillard JY, Oliner KS, Siena S, et al. Panitumumab–FOLFOX4 Treatment and RAS Mutations in Colorectal Cancer. N Engl J Med 2013; 369:1023-1034.
- 2e. Hurwitz H, Fehrenbacher L, Novotny W, et al. Bevacizumab plus Irinotecan, Fluorouracil, and Leucovorin for Metastatic Colorectal Cancer. N Engl J Med 2004; 350:2335-2342.
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- 13e. Heinemann V, von Weikersthal LF, Decker T, et al. FOLFIRI plus cetuximab versus FOLFIRI plus bevacizumab as first-line treatment for patients with metastatic colorectal cancer (FIRE-3): a randomised, open-label, phase 3 trial. Lancet Oncol. 2014 Sep;15(10):1065-75. doi: 10.1016/S1470-2045(14)70330-4.
- 14e. Venook AP, Niedzwiecki D, Innocenti F, et al. Impact of primary (1°) tumor location on overall survival (OS) and progression-free survival (PFS) in patients (pts) with metastatic colorectal cancer (mCRC): Analysis of CALGB/SWOG 80405 (Alliance). J Clin Oncol 34, 2016 (suppl; abstr 3504).
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- 18e. Magellan Health, Magellan Rx Management. Vectibix Clinical Literature Review Analysis. Last updated March 2021. Accessed March 2021.

Appendix 1 – Covered Diagnosis Codes

ICD-10	ICD-10 Description							
C17.0	Malignant neoplasm duodenum							
C17.1	Malignant neoplasm jejunum							
C17.2	Malignant neoplasm ileum							
C17.8	Malignant neoplasm of overlapping sites of small intestines							
C17.9	Malignant neoplasm of small intestine, unspecified							
C18.0	Malignant neoplasm of cecum							
C18.1	Malignant neoplasm of appendix							
C18.2	Malignant neoplasm of ascending colon							
C18.3	Malignant neoplasm of hepatic flexure							
C18.4	Malignant neoplasm of transverse colon							
C18.5	Malignant neoplasm of splenic flexure							
C18.6	Malignant neoplasm of descending colon							
C18.7	Malignant neoplasm of sigmoid colon							
C18.8	Malignant neoplasm of overlapping sites of large intestines							
C18.9	Malignant neoplasm of colon, unspecified							
C19	Malignant neoplasm of rectosigmoid junction							
C20	Malignant neoplasm of rectum							
C21.8	Malignant neoplasm of overlapping sites of rectum, anus and anal canal							
C78.00	Secondary malignant neoplasm of unspecified lung							
C78.01	Secondary malignant neoplasm of right lung							
C78.02	Secondary malignant neoplasm of left lung							
C78.6	Secondary malignant neoplasm of retroperitoneum and peritoneum							
C78.7	Secondary malignant neoplasm of liver and intrahepatic bile duct							
Z85.038	Personal history of other malignant neoplasm of large intestine							

Z85.068	Personal history of other malignant neoplasm of small intestine
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Appendix 2 – Centers for Medicare and Medicaid Services (CMS)

Medicare coverage for outpatient (Part B) drugs is outlined in the Medicare Benefit Policy Manual (Pub. 100-2), Chapter 15, §50 Drugs and Biologicals. In addition, National Coverage Determination (NCD), Local Coverage Determinations (LCDs), and Local Coverage Articles (LCAs)may exist and compliance with these policies is required where applicable. They can be found at: http://www.cms.gov/medicare-coverage-database/search/advanced-search.aspx. Additional indications may be covered at the discretion of the health plan.

Medicare Part B Covered Diagnosis Codes (applicable to existing NCD/LCD/LCA): N/A

	Medicare Part B Administrative Contractor (MAC) Jurisdictions								
Jurisdiction	Applicable State/US Territory	Contractor							
E (1)	CA, HI, NV, AS, GU, CNMI	Noridian Healthcare Solutions, LLC							
F (2 & 3)	AK, WA, OR, ID, ND, SD, MT, WY, UT, AZ	Noridian Healthcare Solutions, LLC							
5	KS, NE, IA, MO	Wisconsin Physicians Service Insurance Corp (WPS)							
6	MN, WI, IL	National Government Services, Inc. (NGS)							
H (4 & 7)	LA, AR, MS, TX, OK, CO, NM	Novitas Solutions, Inc.							
8	MI, IN	Wisconsin Physicians Service Insurance Corp (WPS)							
N (9)	FL, PR, VI	First Coast Service Options, Inc.							
J (10)	TN, GA, AL	Palmetto GBA, LLC							
M (11)	NC, SC, WV, VA (excluding below)	Palmetto GBA, LLC							
L (12)	DE, MD, PA, NJ, DC (includes Arlington & Fairfax counties and the city of Alexandria in VA)	Novitas Solutions, Inc.							
K (13 & 14)	NY, CT, MA, RI, VT, ME, NH	National Government Services, Inc. (NGS)							
15	KY, OH	CGS Administrators, LLC							









Appendix 3 – CLINICAL LITERATURE REVIEW

OS = overall survival; PFS = progression-free survival; ORR = objective response rate; CR = complete response; PR = partial response; DoR = duration of response; TTP = time to progression; FFS = failure-free survival; EFS = event-free survival; PFR = progression free rate; QOL = quality of life

Colon Cancer

First-line the	First-line therapy of metastatic colon cancer (mCRC)								
Regimen	NCCN Category	FDA Approved	Trial Design	Comparator	Primary End-Point	Line of Therapy	Conclusion		
Panitumumab + FOLFOX	2A (for KRAS/ NRAS WT and left-sided tumors only)	Yes	Phase 3 (PRIME). randomized, open-label Final results	FOLFOX	PFS	First-line	Additional RAS mutations predicted a lack of response in patients who received panitumumab-FOLFOX4. In patients who had metastatic colorectal cancer without RAS mutations, improvements in overall survival were observed with panitumumab-FOLFOX4 therapy		
Panitumumab + FOLFOX	2A	Yes	Phase 2 (PLANET- TTD), multi- center, open- label	Panitumumab + FOLFIRI	ORR	First-line	• In patients with WT-KRAS mCRC and liver metastases, both first-line P-FOLFOX and P-FOLFIRI resulted in high ORR and early tumor shrinkage, allowing potentially curative resection. No significant differences in efficacy were observed between the two regimens.		
Bevacizumab (bev) +	2A	Yes	Phase 3 (Study	IFL + placebo	OS	First-line	The addition of bevacizumab to fluorouracil-based combination		

irinotecan + bolus 5FU+ leucovorin (IFL)			AVF2107). randomized, double-blind, active- controlled				chemotherapy results in statistically significant improvement in survival (4.7 month increase in median OS) among patients with metastatic colorectal cancer
Cetuximab + FOLFIRI	2A (for KRAS/ NRAS WT and left-sided tumors only)	Yes	Phase 3 (CRYSTAL), randomized, open-label, multi-center Updated analysis	FOLFIRI	PFS	First-line	First-line treatment with cetuximab plus FOLFIRI, as compared with FOLFIRI alone, reduced the risk of progression of metastatic colorectal cancer. The benefit of cetuximab was limited to patients with KRAS wild-type tumors.
Cetuximab + FOLFOX	2A (for KRAS/ NRAS WT and left-sided tumors only)	No	Phase 3 (TAILOR). open-label, randomized	FOLFOX	PFS	First-line	Combination of FOLFOX with cetuximab is effective in first-line treatment of patients with RAS wild-type mCRC with a benefit in both PFS and OS.
Panitumumab + FOLFOX	2A (for KRAS/ NRAS WT and left-sided tumors only)	Yes	Phase 2 (PEAK). randomized, multi-center	Bevacizumab + FOLFOX	PFS	First-line	PFS was similar and OS was improved with panitumumab relative to bevacizumab when combined with FOLFOX in patients with wild-type KRAS tumors.
Bevacizumab + FOLFIRI	2A	Yes	Phase 3 (FIRE-3), randomized, open-label Primary tumor	Cetuximab + FOLFIRI	ORR	First-line	The proportion of patients who achieved an objective response did not significantly differ between the FOLFIRI plus cetuximab and FOLFIRI plus bevacizumab. A longer association in OS with FOLFIRI plus cetuximab was demonstrated for patients with KRAS exon 2 wild-type metastatic colorectal cancer.



			location analysis				More benefit was shown for cetuximab in left-sided tumors than bevacizumab.
Cetuximab + FOLFOX or FOLFIRI	2A (for KRAS/ NRAS WT and left-sided tumors only)	Yes (with FOLFIRI)	Phase 3 (CALGB/ SWOG 80405). randomized, open-label, multi-center	Bevacizumab (BV) + FOLFOX or FOLFIRI vs. Cetuximab + bevacizumab + FOLFOX or FOLFIRI	OS	First-line for advanced or metastatic disease	OS and PFS were prolonged with cetuximab in left-sided tumors and with bevacizumab in right-sided tumors. OS and PFS were poorer with cetuximab in right-sided tumors.
Bevacizumab- containing regimen	2A	Yes	Retrospective meta-analysis of FIRE-3, CALGB/ SWOG 80405, & PEAK	Erbitux or Vectibix- containing regimens		First-line	RAS wild-type left-sided CRC had a significantly greater survival benefit from anti-EGFR treatment compared with anti-VEGF treatment when added to standard chemo Bevacizumab was associated with a longer survival in patients with right-sided CRC
Panitumumab + bevacizumab + chemotherapy (oxaliplatin- or irinotecan- based)	None	No	Phase 3b (PACCE), randomized	Bevacizumab + chemotherapy (oxaliplatin- or irinotecan- based)	PFS	First-line	The addition of panitumumab to bevacizumab and oxaliplatin- or irinotecan-based chemotherapy results in increased toxicity and decreased PFS.
Cetuximab + bevacizumab + XELOX	None	No	Phase 3 (CAIRO2), randomized	Bevacizumab+ XELOX	PFS	First-line	PFS was significantly worse with dual antibody therapy. Even patients with wild-type KRAS tumors did not benefit from the addition of cetuximab.

Subsequent therapy of metastatic colon cancer



Regimen	NCCN Category	FDA Approved	Trial Design	Comparator	Primary End-Point	Line of Therapy	Conclusion
Panitumumab	2A (for KRAS/ NRAS WT)	Yes	Phase 3, open-label, randomized Retrospective analysis	Best supportive care (BSC)	PFS	After 2-3 prior line of therapy including oxaliplatin/ irinotecan-based chemotherapy	Panitumumab monotherapy efficacy in mCRC is confined to patients with WT KRAS tumors
Panitumumab + FOLFIRI	2A	No	Phase 3 (Study 181), randomized	FOLFIRI	PFS OS	Second-line	Panitumumab plus FOLFIRI significantly improved PFS, however the improvement in OS was nonsignificant
Panitumumab	2A (for KRAS/ NRAS WT)	No	Phase 3 (ASPECCT), randomized, multi-center, open-label, non- inferiority	Cetuximab	Non- inferiority OS	Chemo-refractory	Panitumumab is non-inferior to cetuximab. These agents provide similar overall survival benefit in patients with KRAS wild type mCRC.
Cetuximab + ramucirumab + irinotecan (ICR)	None	No	Phase 2 (E7208), randomized	Cetuximab + irinotecan (IC)	PFS (P<0.15)	Second-line	In KRAS wild-type CRC second-line therapy, an anti-VEGF antibody combined with anti-EGFR and irinotecan prolongs PFS.
Bevacizumab + FOLFIRI	2A (preferred after previous oxaliplatinor fluoropyrimidinebased therapy without irinotecan or oxaliplatin)	Yes	Phase 2 (SPIRITT), randomized, multi-center	Panitumumab + FOLFIRI	PFS	Second-line after oxaliplatin-based therapy plus bevacizumab	Panitumumab or bevacizumab with FOLFIRI as second-line treatment had efficacy similar in patients whose disease progressed during oxaliplatin- based chemotherapy with bevacizumab



Subsequent therapy of metastatic colon cancer									
Regimen	NCCN Category	FDA Approved	Trial Design	Comparator	Primary End-Point	Line of Therapy	Conclusion		
Panitumumab + trametinib + dabrafenib	2A	No	Phase 1	N/A		Subsequent therapy	Combined BRAF, EGFR. and MEK inhibition demonstrated an ORR of 21% in patients with BRAF V600E mutation positive colorectal cancer that progressed on a prior line of therapy.		