



BlueCross BlueShield of Oklahoma

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. BCBSOK may use reasonable discretion interpreting and applying this policy to services being delivered in a particular case. BCBSOK 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.

Pancreatic Enzyme Testing for Acute Pancreatitis

Policy Number: CPCPLAB047

Version 1.0

Enterprise Clinical Payment and Coding Policy Committee Approval Date: July 17, 2023

Plan Effective Date: November 1, 2023

Description

BCBSOK 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. For individuals presenting with signs and symptoms of acute pancreatitis (see **NOTE 1**), measurement of either serum lipase (preferred) or amylase concentration s **may be reimbursable**.

2. Measurement of serum lipase and/or amylase concentration **is not reimbursable** in **any** of the following situations:
 - a. As part of an ongoing assessment of therapy for acute pancreatitis;
 - b. To determine the prognosis of pancreatitis;
 - c. To determine the severity or progression of pancreatitis;
 - d. More than once per visit;
 - e. For the diagnosis, prognosis, or severity of chronic pancreatitis;
 - f. As part of ongoing assessment or therapy of chronic pancreatitis
 - g. In asymptomatic nonpregnant individuals during general exam without abnormal findings
3. For the diagnosis, assessment, prognosis, and/or determination of severity of acute pancreatitis, measurement of serum and urine trypsin/trypsinogen/TAP (trypsinogen activation peptide) **is not reimbursable**.
4. For the diagnosis, assessment, prognosis, and/or determination of severity of acute pancreatitis, measurement of the following biomarkers **is not reimbursable**:
 - a. C-Reactive Protein (CRP)
 - b. Interleukin-6 (IL-6)
 - c. Interleukin-8 (IL-8)
 - d. Procalcitonin
5. For individuals presenting with signs and symptoms of acute pancreatitis (see **NOTE 1**), measurement of urinary amylase concentration for the initial diagnosis of acute pancreatitis **is not reimbursable**.

Note 1: Acute Pancreatitis Signs and Symptoms (Vege, 2022b):

- Persistent, severe epigastric pain (that may be in the right upper quadrant for some patients)
- Nausea
- Vomiting
- “Approximately 5 to 10 percent of patients with acute severe pancreatitis may have painless disease and have unexplained hypotension.”
- Tender to palpitation of epigastrium
- Abdominal distention
- Hypoactive bowel sounds
- Fever
- Rapid pulse
- Tachypnea
- Hypoxemia
- Hypotension

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
82150, 83519, 83520, 83529, 83690, 84145, 86140

References:

AACC. (2020). AACC's Guide to Lab Test Utilization Retrieved from <https://www.aacc.org/advocacy-and-outreach/optimal-testing-guide-to-lab-test-utilization/a-f/amylase>

AED. (2016). Eating Disorders A Guide To Medical Care. Retrieved from <http://www.nyeatingdisorders.org/pdf/AED%20Medical%20Management%20Guide%203rd%20Edition.pdf>

AED. (2021). Eating Disorders A Guide To Medical Care. *Academy for Eating Disorders*, 1-26. Retrieved from https://higherlogicdownload.s3.amazonaws.com/AEDWEB/27a3b69a-8aae-45b2-a04c-2a078d02145d/UploadedImages/Publications_Slider/2120_AED_Medical_Care_4th_Ed_FINAL.pdf

APA. (2023). The American Psychiatric Association Practice Guideline for the Treatment of Patients With Eating Disorders. *The American Psychiatric Association*
doi:<https://doi.org/10.1176/appi.books.9780890424865>

ASCP. (2020). Thirty Things Physicians and Patients Should Question. Retrieved from https://www.ascp.org/content/docs/default-source/get-involved-pdfs/istp_choosingwisely/2019_ascp-30-things-list.pdf

Baillie, J. (2007). AGA Institute Medical Position Statement on Acute Pancreatitis. *Gastroenterology*, 132(5), 2019-2021. doi:<https://doi.org/10.1053/j.gastro.2007.03.066>

Banks, P., & Freeman, M. (2006). Practice Guidelines in Acute Pancreatitis. *The American Journal Of Gastroenterology*, 101, 2379. doi:<https://doi.org/10.1111/j.1572-0241.2006.00856.x>

Banks, P. A., Bollen, T. L., Dervenis, C., Gooszen, H. G., Johnson, C. D., Sarr, M. G., . . . Vege, S. S. (2013). Classification of acute pancreatitis—2012: revision of the Atlanta classification and definitions by international consensus. *Gut*, 62, 102-111. doi:<https://doi.org/10.1136/gutjnl-2012-302779>

Barry, K. (2018). Chronic Pancreatitis: Diagnosis and Treatment. *American Academy of Family Physician*, Volume 97. Retrieved from <https://www.aafp.org/pubs/afp/issues/2018/0315/p385.html#:~:text=If%20chronic%20pancreatitis%20is%20suspected,best%20imaging%20modality%20for%20diagnosis.>

Basnayake, C., & Ratnam, D. (2015). Blood tests for acute pancreatitis. *Australian Prescriber*, 38(4), 128-130. doi:<https://doi.org/10.18773/austprescr.2015.043>

Bollen, T. L., Hazewinkel, M., & Smithuis, R. (2015, 05/01/2015). Acute Pancreatitis 2012 Revised Atlanta Classification of Acute Pancreatitis. *Radiology Assistant*. Retrieved from <https://radiologyassistant.nl/abdomen/pancreas/acute-pancreatitis>

Borowitz, D., Grant, R., & Durie, P. (1995, 2016). Pancreatic Enzymes Clinical Care Guidelines. Retrieved from <https://www.cff.org/Care/Clinical-Care-Guidelines/Nutrition-and-GI-Clinical-Care-Guidelines/Pancreatic-Enzymes-Clinical-Care-Guidelines/>

- Bradley, E. (1993). A clinically based classification system for acute pancreatitis: Summary of the international symposium on acute pancreatitis, atlanta, ga, september 11 through 13, 1992. *Archives of Surgery*, 128(5), 586-590. doi:<https://doi.org/10.1001/archsurg.1993.01420170122019>
- Burkart, J., Haigler, S., Caruana, R., & Hylander, B. (1991). Usefulness of peritoneal fluid amylase levels in the differential diagnosis of peritonitis in peritoneal dialysis patients. *J Am Soc Nephrol*, 1(10), 1186-1190. doi:<https://doi.org/10.1681/asn.v1101186>
- Ceylan, M. E., Evrensel, A., & Önen Ünsalver, B. (2016). Hyperamylasemia Related to Sertraline. *Korean Journal of Family Medicine*, 37(4), 259-259. doi:<https://doi.org/10.4082/kjfm.2016.37.4.259>
- Clavien, P. A., Robert, J., Meyer, P., Borst, F., Hauser, H., Herrmann, F., . . . Rohner, A. (1989). Acute pancreatitis and normoamylasemia. Not an uncommon combination. *Ann Surg*, 210(5), 614-620. doi:<https://doi.org/10.1097/00000658-198911000-00008>
- Coffey, M. J., Nightingale, S., & Ooi, C. Y. (2013). Serum Lipase as an Early Predictor of Severity in Pediatric Acute Pancreatitis. *Journal of Pediatric Gastroenterology and Nutrition*, 56(6), 602-608. doi:<https://doi.org/10.1097/mpg.0b013e31828b36d8>
- Crockett, S. D., Wani, S., Gardner, T. B., Falck-Ytter, Y., & Barkun, A. N. (2018). American Gastroenterological Association Institute Guideline on Initial Management of Acute Pancreatitis. *Gastroenterology*, 154(4), 1096-1101. doi:<https://doi.org/10.1053/j.gastro.2018.01.032>
- Eastler, J. (2023, 08/14/2017). Urine Trypsinogen 2 Dipstick for the Early Detection of Post-ERCP Pancreatitis. Retrieved from <https://clinicaltrials.gov/ct2/show/record/NCT03098082?view=record>
- El Halabi, M., Bou Daher, H., Rustom, L. B. O., Marrache, M., Ichkhanian, Y., Kahil, K., . . . Sharara, A. I. (2019). Clinical utility and economic burden of routine serum lipase determination in the Emergency Department. *International Journal of Clinical Practice*, 73(12), e13409. doi:<https://doi.org/10.1111/ijcp.13409>
- Freedman, S. D., & Forsmark, C. E. (2023). Clinical manifestations and diagnosis of chronic pancreatitis in adults. *UpToDate*. Retrieved from <https://www.uptodate.com/contents/clinical-manifestations-and-diagnosis-of-chronic-pancreatitis-in-adults>
- Furey, C., Buxbaum, J., & Chambliss, A. B. (2020). A review of biomarker utilization in the diagnosis and management of acute pancreatitis reveals amylase ordering is favored in patients requiring laparoscopic cholecystectomy. *Clin Biochem*, 77, 54-56. doi:<https://doi.org/10.1016/j.clinbiochem.2019.12.014>
- Guidelines, W. G. I. A. A. P. (2013). IAP/APA evidence-based guidelines for the management of acute pancreatitis. *Pancreatology*, 13(4), e1-e15. doi:<https://doi.org/10.1016/j.pan.2013.07.063>
- Gumaste, V. V., Dave, P. B., Weissman, D., & Messer, J. (1991). Lipase/amylase ratio. A new index that distinguishes acute episodes of alcoholic from nonalcoholic acute pancreatitis. *Gastroenterology*, 101(5), 1361-1366. doi:[https://doi.org/10.1016/0016-5085\(91\)90089-4](https://doi.org/10.1016/0016-5085(91)90089-4)
- Hagjer, S., & Kumar, N. (2018). Evaluation of the BISAP scoring system in prognostication of acute pancreatitis - A prospective observational study. *Int J Surg*, 54(Pt A), 76-81. doi:<https://doi.org/10.1016/j.ijsu.2018.04.026>

Herrmann-Storck, C., Saint Louis, M., Foucand, T., Lamaury, I., Deloumeaux, J., Baranton, G., . . . Cornet, M. (2010). Severe Leptospirosis in Hospitalized Patients, Guadeloupe. *Emerging Infectious Diseases*, 16(2), 331-334. doi:<https://doi.org/10.3201/eid1602.090139>

Ismail, O. Z., & Bhayana, V. (2017). Lipase or amylase for the diagnosis of acute pancreatitis? *Clin Biochem*, 50(18), 1275-1280. doi:<https://doi.org/10.1016/j.clinbiochem.2017.07.003>

Jakkampudi, A., Jangala, R., Reddy, R., Mitnala, S., Rao, G. V., Pradeep, R., . . . Talukdar, R. (2017). Acinar injury and early cytokine response in human acute biliary pancreatitis. *Sci Rep*, 7(1), 15276. doi:<https://doi.org/10.1038/s41598-017-15479-2>

Judal, H., Ganatra, V., & Choudhary, P. R. (2022). Urinary amylase levels in the diagnosis of acute pancreatitis: a prospective case control study. *International Surgery Journal*, 9(2), 432-437. doi:<https://dx.doi.org/10.18203/2349-2902.isj20220337>

Kempainen, E. A., Hedstrom, J. I., Puolakkainen, P. A., Sainio, V. S., Haapiainen, R. K., Perhoniemi, V., . . . Stenman, U. H. (1997). Rapid measurement of urinary trypsinogen-2 as a screening test for acute pancreatitis. *N Engl J Med*, 336(25), 1788-1793. doi:<https://doi.org/10.1056/nejm199706193362504>

Khanna, A. K., Meher, S., Prakash, S., Tiwary, S. K., Singh, U., Srivastava, A., & Dixit, V. K. (2013). Comparison of Ranson, Glasgow, MOSS, SIRS, BISAP, APACHE-II, CTSI Scores, IL-6, CRP, and Procalcitonin in Predicting Severity, Organ Failure, Pancreatic Necrosis, and Mortality in Acute Pancreatitis. *HPB Surgery*, 2013, 367581. doi:<https://doi.org/10.1155%2F2013%2F367581>

Klochkov, A. K., Pujitha, Lim, Y., & Sun, Y. (2023). Alcoholic Pancreatitis. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK537191/#:~:text=Chronic%20alcohol%20consumption%20is%20the,developing%20pancreatic%20cancer%20%5B%5D>.

Kumar, P., Ghosh, A., Tandon, V., & Sahoo, R. (2016). Gulló's Syndrome: A Case Report. *Journal of Clinical and Diagnostic Research : JCDR*, 10(2), OD21-OD22. doi:<https://doi.org/10.7860/jcdr/2016/17038.7285>

Lempinen, M., Kylänpää-Bäck, M.-L., Stenman, U.-H., Puolakkainen, P., Haapiainen, R., Finne, P., . . . Kempainen, E. (2001). Predicting the Severity of Acute Pancreatitis by Rapid Measurement of Trypsinogen-2 in Urine. *Clinical Chemistry*, 47(12), 2103. doi:<https://doi.org/10.1093/clinchem/47.12.2103>

Levy, P., Boruchowicz, A., Hastier, P., Pariente, A., Thevenot, T., Frossard, J. L., . . . Ruszniewski, P. (2005). Diagnostic criteria in predicting a biliary origin of acute pancreatitis in the era of endoscopic ultrasound: multicentre prospective evaluation of 213 patients. *Pancreatology*, 5(4-5), 450-456. doi:<https://doi.org/10.1159/000086547>

Li, N., Wang, B. M., Cai, S., & Liu, P. L. (2018). The Role of Serum High Mobility Group Box 1 and Interleukin-6 Levels in Acute Pancreatitis: A Meta-Analysis. *J Cell Biochem*, 119(1), 616-624. doi:<https://doi.org/10.1002/jcb.26222>

Lippi, G., Valentino, M., & Cervellin, G. (2012). Laboratory diagnosis of acute pancreatitis: in search of the Holy Grail. *Critical Reviews in Clinical Laboratory Sciences*, 49(1), 18-31. doi:<https://doi.org/10.3109/10408363.2012.658354>

Liu, P., Xiao, Z., Yan, H., Lu, X., Zhang, X., Luo, L., . . . Zhu, Y. (2021). Serum Amylase and Lipase for the Prediction of Pancreatic Injury in Critically Ill Children Admitted to the PICU. *Pediatric Critical Care Medicine*, 22(1), e10-e18. doi:<https://doi.org/10.1097/pcc.0000000000002525>

Liu, S., Wang, Q., Zhou, R., Li, C., Hu, D., Xue, W., . . . Peng, A. (2016). Hyperamylasemia as an Early Predictor of Mortality in Patients with Acute Paraquat Poisoning. *Medical Science Monitor : International Medical Journal of Experimental and Clinical Research*, 22, 1342-1348. doi:<https://doi.org/10.12659/msm.897930>

NASPGHAN. (2018). Management of Acute Pancreatitis in the Pediatric Population: A Clinical Report From the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition Pancreas Committee. Retrieved from https://www.naspghan.org/files/Management_of_Acute_Pancreatitis_in_the_Pediatric.33.pdf

Neoptolemos, J. P., Kemppainen, E. A., Mayer, J. M., Fitzpatrick, J. M., Raraty, M. G., Slavin, J., . . . Puolakkainen, P. A. (2000). Early prediction of severity in acute pancreatitis by urinary trypsinogen activation peptide: a multicentre study. *Lancet*, 355(9219), 1955-1960. doi:[https://doi.org/10.1016/S0140-6736\(00\)02327-8](https://doi.org/10.1016/S0140-6736(00)02327-8)

Pacheco, R. C., & Oliveira, L. C. (2007). [Lipase/amylase ratio in biliary acute pancreatitis and alcoholic acute/acute chronic pancreatitis]. *Arq Gastroenterol*, 44(1), 35-38. doi:<https://doi.org/10.1590/s0004-28032007000100008>

Patel, J., Madan, A., Gammon, A., Sossenheimer, M., Samadder, N. J. (2017). Rare hereditary cause of chronic pancreatitis in a young male: SPINK1 mutation. *The Pan African medical journal*, 28, 110. doi:<https://doi.org/10.11604/pamj.2017.28.110.13854>

Pezzilli, R., Venturi, M., Morselli-Labate, A. M., Ceciliato, R., Lamparelli, M. G., Rossi, A., . . . Corinaldesi, R. (2004). Serum Trypsinogen Activation Peptide in the Assessment of the Diagnosis and Severity of Acute Pancreatic Damage: A Pilot Study Using a New Determination Technique. *Pancreas*, 29(4), 298-305. doi:<https://doi.org/10.1097/00006676-200411000-00009>

Quinlan, J. D. (2014). Acute pancreatitis. *Am Fam Physician*, 90(9), 632-639. Retrieved from <https://www.aafp.org/pubs/afp/issues/2014/1101/p632.html>

Rau, B. M., Kemppainen, E. A., Gumbs, A. A., Buchler, M. W., Wegscheider, K., Bassi, C., . . . Beger, H. G. (2007). Early assessment of pancreatic infections and overall prognosis in severe acute pancreatitis by procalcitonin (PCT): a prospective international multicenter study. *Ann Surg*, 245(5), 745-754. doi:<https://doi.org/10.1097/01.sla.0000252443.22360.46>

Rompianesi, G., Hann, A., Komolafe, O., Pereira, S. P., Davidson, B. R., & Gurusamy, K. S. (2017). Serum amylase and lipase and urinary trypsinogen and amylase for diagnosis of acute pancreatitis. *Cochrane Database of Systematic Reviews* (4). doi:<https://doi.org/10.1002/14651858.cd012010.pub2>

Sendler, M., & Lerch, M. M. (2020). The Complex Role of Trypsin in Pancreatitis. *Gastroenterology*, 158(4), 822-826. doi:<https://doi.org/10.1053/j.gastro.2019.12.025>

- Simha, A., Saroch, A., Pannu, A. K., Dhibar, D. P., Sharma, N., Singh, H., & Sharma, V. (2021). Utility of point-of-care urine trypsinogen dipstick test for diagnosing acute pancreatitis in an emergency unit. *Biomarkers in Medicine*, *15*(14), 1271-1276. doi:<https://doi.org/10.2217/bmm-2021-0067>
- Simsek, O., Kocael, A., Kocael, P., Orhan, A., Cengiz, M., Balci, H., . . . Uzun, H. (2018). Inflammatory mediators in the diagnosis and treatment of acute pancreatitis: pentraxin-3, procalcitonin and myeloperoxidase. *Arch Med Sci*, *14*(2), 288-296. doi:<https://doi.org/10.5114/aoms.2016.57886>
- Stevens, T., & Conwell, D. L. (2022, 10/05/2016). Exocrine pancreatic insufficiency. *UpToDate*. Retrieved from <https://www.uptodate.com/contents/exocrine-pancreatic-insufficiency>
- Tenner, S., Baillie, J., DeWitt, J., & Vege, S. S. (2013). American College of Gastroenterology guideline: management of acute pancreatitis. *Am J Gastroenterol*, *108*(9), 1400-1415; 1416. doi:<https://doi.org/10.1038/ajg.2013.218>
- Tenner, S. M., & Steinberg, W. (1992). The admission serum lipase:amylase ratio differentiates alcoholic from nonalcoholic acute pancreatitis. *Am J Gastroenterol*, *87*(12), 1755-1758. Retrieved from <https://europepmc.org/article/MED/1280405>
- Terui, K., Hishiki, T., Saito, T., Mitsunaga, T., Nakata, M., & Yoshida, H. (2013). Urinary amylase / urinary creatinine ratio (uAm/uCr) - a less-invasive parameter for management of hyperamylasemia. *BMC Pediatrics*, *13*, 205-205. doi:<https://doi.org/10.1186/1471-2431-13-205>
- Tian, F., Li, H., Wang, L., Li, B., Aibibula, M., Zhao, H., . . . Ma, X. (2020). The diagnostic value of serum C-reactive protein, procalcitonin, interleukin-6 and lactate dehydrogenase in patients with severe acute pancreatitis. *Clinica Chimica Acta*, *510*, 665-670. doi:<https://doi.org/10.1016/j.cca.2020.08.029>
- Toouli, J., Brooke-Smith, M., Bassi, C., Carr-Locke, D., Telford, J., Freeny, P., . . . Tandon, R. (2002). Guidelines for the management of acute pancreatitis. *J Gastroenterol Hepatol*, *17 Suppl*, S15-39. doi:<https://doi.org/10.1046/j.1440-1746.17.s1.2.x>
- Vege, S. S. (2022a, 05/21/2018). Approach to the patient with elevated serum amylase or lipase. *UpToDate*. Retrieved from <https://www.uptodate.com/contents/approach-to-the-patient-with-elevated-serum-amylase-or-lipase>
- Vege, S. S. (2022b). Clinical manifestations and diagnosis of acute pancreatitis. *UpToDate*. Retrieved from <https://www.uptodate.com/contents/clinical-manifestations-and-diagnosis-of-acute-pancreatitis>
- Vege, S. S. (2023, 02/24/2017). Pathogenesis of acute pancreatitis. *UpToDate*. Retrieved from <https://www.uptodate.com/contents/pathogenesis-of-acute-pancreatitis>
- Ventrucci, M., Pezilli, R., Naldoni, P., Plate, L., Baldoni, F., Gullo, L., & Barbara, L. (1987). Serum pancreatic enzyme behavior during the course of acute pancreatitis. *Pancreas*, *2*(5), 506-509. doi:<https://doi.org/10.1097/00006676-198709000-00003>
- Wei, M., Xie, X., Yu, X., Lu, Y., Ke, L., Ye, B., . . . Li, J. (2022). Predictive value of serum cholinesterase in the mortality of acute pancreatitis: A retrospective cohort study. *European Journal of Clinical Investigation*, *n/a*(*n/a*), e13741. doi:<https://doi.org/10.1111/eci.13741>

Witt, H., Apte, M. V., Keim, V., & Wilson, J. S. (2007). Chronic pancreatitis: challenges and advances in pathogenesis, genetics, diagnosis, and therapy. *Gastroenterology*, *132*(4), 1557-1573. doi:<https://doi.org/10.1053/j.gastro.2007.03.001>

Wolfe, B. E., Jimerson, D. C., Smith, A., & Keel, P. K. (2011). Serum Amylase in Bulimia Nervosa and Purging Disorder: Differentiating the Association with Binge Eating versus Purging Behavior. *Physiology & behavior*, *104*(5), 684-686. doi:<https://doi.org/10.1016/j.physbeh.2011.06.025>

Yadav, D., Agarwal, N., & Pitchumoni, C. S. (2002). A critical evaluation of laboratory tests in acute pancreatitis. *Am J Gastroenterol*, *97*(6), 1309-1318. doi:10.1111/j.1572-0241.2002.05766.x

Yang, H., Wang, H., Chavan, S. S., & Andersson, U. (2015). High Mobility Group Box Protein 1 (HMGB1): The Prototypical Endogenous Danger Molecule. *Mol Med*, *21 Suppl 1*, S6-s12. doi:<https://doi.org/10.2119%2Fmolmed.2015.00087>

Yasuda, H., Kataoka, K., Takeyama, Y., Takeda, K., Ito, T., Mayumi, T., . . . Shimosegawa, T. (2019). Usefulness of urinary trypsinogen-2 and trypsinogen activation peptide in acute pancreatitis: A multicenter study in Japan. *World J Gastroenterol*, *25*(1), 107-117. doi:<http://dx.doi.org/10.3748/wjg.v25.i1.107>

Zhan, X., Wan, J., Zhang, G., Song, L., Gui, F., Zhang, Y., . . . Ji, B. (2019). Elevated intracellular trypsin exacerbates acute pancreatitis and chronic pancreatitis in mice. *Am J Physiol Gastrointest Liver Physiol*, *316*(6), G816-g825. doi:<https://doi.org/10.1152/ajpgi.00004.2019>

Policy Update History:

7/17/2023	Document updated with literature review. The following changes were made to Reimbursement Information: Added: 5.For individuals presenting with signs and symptoms of acute pancreatitis (see NOTE 1), measurement of urinary amylase concentration for the initial diagnosis of acute pancreatitis is not reimbursable. Other changes made for clarity. References revised.
11/1/2022	New policy