



## 190.32 - Gamma Glutamyl Transferase

### Other Names/Abbreviations

GGT

### Description

Gamma glutamyl transferase (GGT) is an intracellular enzyme that appears in blood following leakage from cells. Renal tubules, liver, and pancreas contain high amounts, although the measurement of GGT in serum is almost always used for assessment of Hepatobiliary function. Unlike other enzymes which are found in heart, skeletal muscle, and intestinal mucosa as well as liver, the appearance of an elevated level of GGT in serum is almost always the result of liver disease or injury. It is specifically useful to differentiate elevated alkaline phosphatase levels when the source of the alkaline phosphatase increase (bone, liver, or placenta) is unclear. The combination of high alkaline phosphatase and a normal GGT does not, however, rule out liver disease completely.

As well as being a very specific marker of Hepatobiliary function, GGT is also a very sensitive marker for hepatocellular damage. Abnormal concentrations typically appear before elevations of other liver enzymes or biliuria are evident. Obstruction of the biliary tract, viral infection (e.g., hepatitis, mononucleosis), metastatic cancer, exposure to hepatotoxins (e.g., organic solvents, drugs, alcohol), and use of drugs that induce microsomal enzymes in the liver (e.g., cimetidine, barbiturates, phenytoin, and carbamazepine) all can cause a moderate to marked increase in GGT serum concentration. In addition, some drugs can cause or exacerbate liver dysfunction (e.g., atorvastatin, troglitazone, and others as noted in FDA Contraindications and Warnings.)

GGT is useful for diagnosis of liver disease or injury, exclusion of hepatobiliary involvement related to other diseases, and patient management during the resolution of existing disease or following injury.

### HCPCS Codes (Alphanumeric, CPT<sup>®</sup> AMA)

Code	Description
82977	Glutamyl transferase, gamma (GGT)

### ICD-9-CM Codes Covered by Medicare Program

The individual ICD-9-CM codes included in code ranges in the table below can be viewed on CMS' website under Downloads: Lab Code List. The link is: <http://www.cms.gov/Medicare/Coverage/CoverageGenInfo/LabNCDsICD9.html>

Code	Description
003.1	Salmonella septicemia
006.0-006.9	Amebiasis
014.00-014.86	Tuberculosis of intestines, peritoneum, and mesenteric glands
017.90-017.96	Tuberculosis of other specified organs
018.90-018.96	Miliary tuberculosis, unspecified
020.0-020.9	Plague
022.3	Anthrax septicemia

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**Medicare National Coverage Determinations (NCD)  
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Code	Description
027.0	Listeriosis
027.1	Erysipelothrix infection
030.1	Tuberculoid leprosy [Type T]
032.83	Diphtheritic peritonitis
036.1	Meningococcal encephalitis
036.2	Meningococemia
038.0, 038.10-038.19, 038.2, 038.3, 038.40-038.49, 038.8, 038.9	Septicemia
038.12	Methicillin resistant Staphylococcus aureus septicemia
039.2	Actinomycotic infections, abdominal
040.0	Gas gangrene
042	Human immunodeficiency virus (HIV) disease
054.0	Eczema herpeticum
054.5	Herpetic septicemia
060.0-060.1	Yellow fever
070.0-070.9	Viral hepatitis
072.71	Mumps hepatitis
073.0	Ornithosis, with pneumonia
074.8	Other specified diseases due to Coxsackie virus
075	Infectious mononucleosis
078.5	Cytomegaloviral disease
079.99	Unspecified viral infection
082.0-082.9	Tick-borne rickettsioses, stet
084.9	Other pernicious complications of malaria
086.1	Chagas disease with organ involvement other than heart
088.81	Lyme disease
091.62	Secondary syphilitic hepatitis
095.3	Syphilis of liver
100.0	Leptospirosis icterohemorrhagica
112.5	Candidiasis, disseminated
115.00	Infection by Histoplasma capsulatum without mention of manifestation
120.9	Schistosomiasis, unspecified
121.1	Clonorchiasis
121.3	Fascioliasis
122.0	Echinococcus granulosus infection of liver
122.5	Echinococcus multilocularis infection of liver
122.8	Echinococcosis, unspecified, of liver
122.9	Echinococcus, other and unspecified
130.5	Hepatitis due to toxoplasmosis
135	Sarcoidosis

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**Medicare National Coverage Determinations (NCD)  
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Code	Description
150.0-159.9	Malignant neoplasm of digestive organs and peritoneum
160.0-165.9	Malignant neoplasm of respiratory and intrathoracic organs
170.0-176.9	Malignant neoplasm of bone, connective tissue, skin, and breast
179-189.9	Malignant neoplasm of genitourinary organs
200.00-200.28	Lymphosarcoma and reticulosarcoma; Burkitt's tumor or lymphoma
200.30-200.38	Marginal zone lymphoma
200.40-200.48	Mantle cell lymphoma
200.50-200.58	Primary central nervous system lymphoma
200.60-200.68	Anaplastic large cell lymphoma
200.70-200.78	Large cell lymphoma
200.80-200.88	Malignant tumors of lymphatic tissue; other named variants
201.00-201.98	Hodgkin's disease
202.00-202.68	Other malignant neoplasms of lymphoid and histiocytic tissue
202.70-202.78	Peripheral T-cell lymphoma
202.80-202.98	Other lymphomas; other and unspecified malignant neoplasms of lymphoid and histiocytic tissue
203.00-203.01	Multiple myeloma, without mention of having achieved remission and in remission
203.02	Multiple myeloma, in relapse
203.10-203.11	Plasma cell leukemia, without mention of having achieved remission and in remission
203.12	Plasma cell leukemia, in relapse
203.80-203.81	Other immunoproliferative neoplasms, without mention of having achieved remission and in remission
203.82	Other immunoproliferative neoplasms, in relapse
204.00-204.01	Acute lymphoid leukemia, without mention of having achieved remission and in remission
204.02	Acute lymphoid leukemia, in relapse
204.10-204.11	Chronic lymphoid leukemia, without mention of having achieved remission and in remission
204.12	Chronic lymphoid leukemia, in relapse
204.20-204.21	Subacute lymphoid leukemia, without mention of having achieved remission and in remission
204.22	Subacute lymphoid leukemia, in relapse
204.80-204.81	Other lymphoid leukemia, without mention of having achieved remission and in remission
204.82	Other lymphoid leukemia, in relapse
204.90-204.91	Unspecified lymphoid leukemia, without mention of having achieved remission and in remission
204.92	Unspecified lymphoid leukemia, in relapse
205.00-205.01	Acute myeloid leukemia, without mention of having achieved remission and in remission
205.02	Acute myeloid leukemia, In relapse

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**Medicare National Coverage Determinations (NCD)  
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Code	Description
205.10-205.11	Chronic myeloid leukemia, without mention of having achieved remission and in remission
205.12	Chronic myeloid leukemia, in relapse
205.20-205.21	Subacute myeloid leukemia, without mention of having achieved remission and in remission
205.22	Subacute myeloid leukemia, in relapse
205.30-205.31	Myeloid sarcoma, without mention of having achieved remission and in remission
205.32	Myeloid sarcoma, in relapse
205.80-205.81	Other myeloid leukemia, without mention of having achieved remission and in remission
205.82	Other myeloid leukemia, in relapse
205.90-205.91	Unspecified myeloid leukemia, without mention of having achieved remission and in remission
205.92	Unspecified myeloid leukemia, in relapse
206.00-206.01	Acute monocytic leukemia, without mention of having achieved remission and in remission
206.02	Acute monocytic leukemia, in relapse
206.10-206.11	Chronic monocytic leukemia, without mention of having achieved remission and in remission
206.12	Chronic monocytic leukemia, in relapse
206.20-206.21	Subacute monocytic leukemia, without mention of having achieved remission and in remission
206.22	Subacute monocytic leukemia, in relapse
206.80-206.81	Other monocytic leukemia, without mention of having achieved remission and in remission
206.82	Other monocytic leukemia, in relapse
206.90-206.91	Unspecified monocytic leukemia, without mention of having achieved remission and in remission
206.92	Unspecified monocytic leukemia, in relapse
207.00-207.01	Acute erythremia and erythroleukemia, without mention of having achieved remission and in remission
207.02	Acute erythremia and erythroleukemia, in relapse
207.10-207.11	Chronic erythremia, without mention of having achieved remission and in remission
207.12	Chronic erythremia, in relapse
207.20-207.21	Megakaryocytic leukemia, without mention of having achieved remission and in remission
207.22	Megakaryocytic leukemia, in relapse
207.80-207.81	Other specified leukemia, without mention of having achieved remission and in remission
207.82	Other specified leukemia, in relapse

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**Medicare National Coverage Determinations (NCD)  
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Code	Description
208.00-208.01	Acute leukemia of unspecified cell type, without mention of having achieved remission and in remission
208.02	Acute leukemia of unspecified cell type, in relapse
208.10-208.11	Chronic leukemia of unspecified cell type, without mention of having achieved remission and in remission
208.12	Chronic leukemia of unspecified cell type, in relapse
208.20-208.21	Subacute leukemia of unspecified cell type, without mention of having achieved remission and in remission
208.22	Subacute leukemia of unspecified cell type, in relapse
208.80-208.81	Other leukemia of unspecified cell type, without mention of having achieved remission and in remission
208.82	Other leukemia of unspecified cell type, in relapse
208.90-208.91	Unspecified leukemia of unspecified cell type, without mention of having achieved remission and in remission
208.92	Unspecified leukemia of unspecified cell type, in relapse
209.20-209.27, 209.29	Malignant carcinoid tumors of other and unspecified sites
209.70	Secondary neuroendocrine tumor, unspecified site
209.71	Secondary neuroendocrine tumor of distant lymph nodes
209.72	Secondary neuroendocrine tumor of liver
209.73	Secondary neuroendocrine tumor of bone
209.74	Secondary neuroendocrine tumor of peritoneum
209.75	Secondary Merkel cell carcinoma
209.79	Secondary neuroendocrine tumor of other sites
211.5	Benign neoplasm of liver and biliary passages
211.6	Benign neoplasm of pancreas, except islets of Langerhans
211.7	Benign neoplasm of islets of Langerhans
228.04	Hemangioma of intra-abdominal structures
230.7	Carcinoma in situ of other and unspecified parts of intestine
230.8	Carcinoma in situ of liver and biliary system
230.9	Carcinoma in situ other and unspecified digestive organs
235.0-235.9	Neoplasms of uncertain behavior of digestive and respiratory systems
236.0-236.99	Neoplasms of uncertain behavior of genitourinary organs
237.0-237.72	Neoplasms of uncertain behavior of endocrine glands and nervous system
237.73	Schwannomatosis
237.79	Other neurofibromatosis
237.9	Other and uncertain parts of the nervous system
238.0-238.6	Neoplasms of uncertain behavior of other and unspecified sites and tissues
238.71-238.76	Neoplasms of other lymphatic and hematopoietic tissues
238.77	Post-transplant lymphoproliferative disorder (PTLD)
238.79	Other lymphatic and hematopoietic tissues

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**Medicare National Coverage Determinations (NCD)  
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Code	Description
238.8	Other specified sites
238.9	Site unspecified
239.0	Neoplasm of unspecified nature of digestive system
250.00-250.93	Diabetes mellitus
252.00-252.02, 252.08	Hyperparathyroidism
263.1	Malnutrition of mild degree
263.9	Unspecified protein-calorie malnutrition
268.0	Rickets, active
268.2	Osteomalacia, unspecified
269.0	Deficiency of vitamin K
270.2	Other disturbances of aromatic amino acid metabolism
270.9	Unspecified disorder of amino acid metabolism
271.0	Glycogenosis
272.0	Pure hypercholesterolemia
272.1	Pure hypertriglyceridemia
272.2	Mixed hyperlipidemia
272.4	Other and unspecified hyperlipidemia
272.7	Lipidoses
272.9	Unspecified disorder of lipid metabolism
273.4	Alpha-1-antitrypsin deficiency
275.01	Hereditary hemochromatosis
275.02	Hemochromatosis due to repeated red blood cell transfusions
275.03	Other hemochromatosis
275.09	Other disorders of iron metabolism
275.1	Disorders of copper metabolism
275.2	Disorders of magnesium metabolism
275.3	Disorders of phosphorus metabolism
275.40-275.49	Disorders of calcium metabolism
275.5	Hungry bone syndrome
277.1	Disorders of porphyrin metabolism
277.30	Amyloidosis, unspecified
277.31	Familial Mediterranean fever
277.39	Other amyloidosis
277.4	Disorders of biliuria excretion
277.6	Other deficiencies of circulating enzymes
282.60-282.69	Sickle cell disease
286.6	Defibrination syndrome
286.7	Acquired coagulation factor deficiency
289.4	Hypersplenism
289.52	Splenic sequestration
291.0-291.9	Alcoholic psychoses

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**Medicare National Coverage Determinations (NCD)  
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Code	Description
303.00-303.03	Acute alcoholic intoxication
303.90-303.93	Other and unspecified alcohol dependence
304.00-304.93	Drug dependence
305.00-305.93	Non-dependent abuse of drugs
357.5	Alcoholic polyneuropathy
359.21	Myotonic muscular dystrophy
359.22	Myotonia congenita
359.23	Myotonic chondrodystrophy
359.24	Drug induced myotonia
359.29	Other specified myotonic disorder
452	Portal vein thrombosis
456.0-456.21	Esophageal varices
453.0	Budd-Chiari syndrome
453.1	Thrombophlebitis migrans
453.2	Embolism and thrombosis of inferior vena cava
453.3	Embolism and thrombosis of renal vein
453.40	Acute venous embolism and thrombosis of unspecified deep vessels of lower extremity
453.41	Acute venous embolism and thrombosis of deep vessels of proximal lower extremity
453.42	Acute venous embolism and thrombosis of deep vessels of distal lower extremity
453.50	Chronic venous embolism and thrombosis of unspecified deep vessels of lower extremity
453.51	Chronic venous embolism and thrombosis of deep vessels of proximal lower extremity
453.52	Chronic venous embolism and thrombosis of deep vessels of distal lower extremity
453.6	Venous embolism and thrombosis of superficial vessels of lower extremity
453.71	Chronic venous embolism and thrombosis of superficial veins of upper extremity
453.72	Chronic venous embolism and thrombosis of deep veins of upper extremity
453.73	Chronic venous embolism and thrombosis of upper extremity, unspecified
453.74	Chronic venous embolism and thrombosis of axillary veins
453.75	Chronic venous embolism and thrombosis of subclavian veins
453.76	Chronic venous embolism and thrombosis of internal jugular veins
453.77	Chronic venous embolism and thrombosis of other thoracic veins
453.79	Chronic venous embolism and thrombosis of other specified veins
453.81	Acute venous embolism and thrombosis of superficial veins of upper extremity

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**Medicare National Coverage Determinations (NCD)  
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Code	Description
453.82	Acute venous embolism and thrombosis of deep veins of upper extremity
453.83	Acute venous embolism and thrombosis of upper extremity, unspecified
453.84	Acute venous embolism and thrombosis of axillary veins
453.85	Acute venous embolism and thrombosis of subclavian veins
453.86	Acute venous embolism and thrombosis of internal jugular veins
453.87	Acute venous embolism and thrombosis of other thoracic veins
453.89	Acute venous embolism and thrombosis of other specified veins
453.9	Other venous embolism and thrombosis of unspecified site
456.0-456.21	Esophageal varices
555.0-555.9	Regional enteritis
556.0-556.9	Ulcerative colitis
557.0	Acute vascular insufficiency of intestine
558.1-558.3, 558.41-558.42, 558.9	Other and unspecified noninfectious gastroenteritis and colitis
560.0-560.2	Intestinal obstruction: intussusceptions, paralytic ileus, volvulus
560.30	Impaction of intestine, unspecified
560.31	Gallstone ileus
560.32	Fecal impaction
560.39	Other impaction of intestine
560.81-560.89, 560.9	Other and unspecified intestinal obstruction
562.01	Diverticulitis of small intestine (without mention of hemorrhage)
562.03	Diverticulitis of small intestine with hemorrhage
562.11	Diverticulitis of colon (without mention of hemorrhage)
562.13	Diverticulitis of colon with hemorrhage
567.0-567.29, 567.38-567.9	Peritonitis
569.83	Perforation of intestine
569.87	Vomiting of fecal matter
570	Acute and subacute necrosis of liver
571.0-571.9	Chronic liver disease and cirrhosis
572.0	Abscess of liver
572.1	Portal pyemia
572.2	Hepatic encephalopathy
572.3	Portal hypertension
572.4	Hepatorenal syndrome
572.8	Other sequelae of chronic liver disease
573.0-573.9	Other disorders of liver
574.00-574.91	Cholelithiasis
575.0-575.9	Other disorders of gallbladder
576.0-576.9	Other disorders of biliary tract
581.0-581.9	Nephrotic syndrome

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**Medicare National Coverage Determinations (NCD)  
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Code	Description
582.0-582.9	Chronic glomerulonephritis
583.0-583.9	Nephritis and nephropathy not specified as acute or chronic
584.5	Acute kidney failure with lesion of tubular necrosis
584.6	Acute kidney failure with lesion of renal cortical necrosis
584.7	Acute kidney failure with lesion of renal medullary (papillary) necrosis
584.8	Acute kidney failure with other specified pathological lesion in kidney
584.9	Acute kidney failure, unspecified
585.6	End stage renal disease
586	Renal failure, unspecified
587	Renal sclerosis, unspecified
588.0-588.9	Disorders resulting from impaired renal function
590.00-590.9	Infections of kidney
642.50-642.54	Severe pre-eclampsia
646.70, 646.71, 646.73	Liver disorders in pregnancy
782.4	Jaundice, unspecified, not of newborn
789.1	Hepatomegaly
790.4	Nonspecific elevation of levels of transaminase or lactic acid dehydrogenase
790.5	Other nonspecific abnormal serum enzyme levels
960.0-960.9	Poisoning by antibiotics
961.0-961.9	Poisoning by other anti-infectives
962.0-962.9	Poisoning by hormones and synthetic substitutes
963.0-963.5, 963.8, 963.9	Poisoning by primarily systemic agents
964.0-964.9	Poisoning by agents primarily affecting blood constituents
965.00-965.02, 965.09, 965.1, 965.4-965.5, 965.61, 965.69, 965.7-965.9	Poisoning by analgesics, antipyretics, and antirheumatics
966.0-966.4	Poisoning by anticonvulsants and anti-parkinsonism drugs
967.0-967.6, 967.8, 967.9	Poisoning by sedatives and hypnotics
968.0-968.7, 968.9	Poisoning by other CNS depressants and anesthetics
969.00	Poisoning by antidepressant, unspecified
969.01	Poisoning by monoamine oxidase inhibitors
969.02	Poisoning by selective serotonin & norepinephrine reuptake inhibitors
969.03	Poisoning by selective serotonin reuptake inhibitors
969.04	Poisoning by tetracyclic antidepressants
969.05	Poisoning by tricyclic antidepressants
969.09	Poisoning by other antidepressants
969.1-969.5, 969.6	Poisoning by tranquilizers and psychodysleptics (hallucinogens)
969.70	Poisoning by psychostimulant, unspecified
969.71	Poisoning by caffeine
969.72	Poisoning by amphetamines

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Code	Description
969.73	Poisoning by methylphenidate
969.79	Poisoning by other psychostimulants
969.8, 969.9	Poisoning by other specified and unspecified psychotropic agents
970.0-970.1	Poisoning by analeptics and opiate antagonists
970.81	Poisoning by cocaine
970.89	Poisoning by other central nervous system stimulants
970.9	Poisoning by unspecified central nervous system stimulants
971.0-971.3, 971.9	Poisoning by drugs primarily affecting the autonomic nervous system
972.0-972.9	Poisoning by agents primarily affecting the cardiovascular system
973.0-973.6, 973.8, 973.9	Poisoning by agents primarily affecting the GI system
974.0-974.7	Poisoning by water, mineral, and uric acid metabolism drugs
975.0-975.8	Poisoning by agents primarily acting on the smooth and skeletal muscles and respiratory system
976.0-976.9	Poisoning by agents primarily affecting skin and mucous membrane, ophthalmological, otorhinolaryngological, and dental drugs
977.0-977.4, 977.8, 977.9	Poisoning by other and unspecified drugs, and medicinal substances
978.0-978.6, 978.8, 978.9	Poisoning by bacterial vaccines
979.0-979.7	Poisoning by other vaccines and biological substances
979.9	Poisoning by drugs, medicinal, and biological substances
980.0-989.89	Toxic effects of substances chiefly nonmedicinal as to source
V42.7	Organ replaced by transplant, liver
V58.61-V58.64, V58.69	Long-term (current) drug use
V67.1	Follow-up examination, radiotherapy
V67.2	Follow-up examination, chemotherapy
V67.51	Follow-up examination after completed treatment with high-risk medications, not elsewhere classified

**Indications**

1. To provide information about known or suspected hepatobiliary disease, for example:
  - a. Following chronic alcohol or drug ingestion
  - b. Following exposure to hepatotoxins
  - c. When using medication known to have a potential for causing liver toxicity (e.g., following the drug manufacturer’s recommendations)
  - d. Following infection (e.g., viral hepatitis and other specific infections such as amebiasis, tuberculosis, psittacosis, and similar infections)
2. To assess liver injury/function following diagnosis of primary or secondary malignant neoplasms
3. To assess liver injury/function in a wide variety of disorders and diseases known to cause liver involvement (e.g., diabetes mellitus, malnutrition, disorders of iron and mineral metabolism, sarcoidosis, amyloidosis, lupus, and hypertension)
4. To assess liver function related to gastrointestinal disease

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5. To assess liver function related to pancreatic disease
6. To assess liver function in patients subsequent to liver transplantation
7. To differentiate between the different sources of elevated alkaline phosphatase activity

### **Limitations**

When used to assess liver dysfunction secondary to existing non-hepatobiliary disease with no change in signs, symptoms, or treatment, it is generally not necessary to repeat a GGT determination after a normal result has been obtained unless new indications are present.

If the GGT is the only “liver” enzyme abnormally high, it is generally not necessary to pursue further evaluation for liver disease for this specific indication.

When used to determine if other abnormal enzyme tests reflect liver abnormality rather than other tissue, it generally is not necessary to repeat a GGT more than one time per week.

Because of the extreme sensitivity of GGT as a marker for cytochrome oxidase induction or cell membrane permeability, it is generally not useful in monitoring patients with known liver disease.

### **ICD-9-CM Codes That Do Not Support Medical Necessity**

Any ICD-9-CM code not listed in either of the ICD-9-CM covered or non-covered sections.

### **Sources of Information**

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