

## Supplemental Online Content

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**eFigure.** Flow Diagram of Vietnam Veteran Cohort

**eTable 1.** List of *ICD-9* and *ICD-10* Codes Used for Etiologies of HCC and Medical Comorbidities

**eTable 2.** List of Laboratory LOINCs Including HIV, HCV, HBV, ALT, AST and Platelet Counts

**eTable 3.** *ICD-9* Codes of Gastrointestinal Malignant Neoplasms Other Than HCC

**eTable 4.** Association Between AO and Other Risk Factors for HCC Using APRI Score to Identify HCC Cases

**eMethods.** Additional Methods With eTables 5-8

**eTable 5.** Association Between AO and Other Risk Factors for HCC Using Inverse Probability Weighing

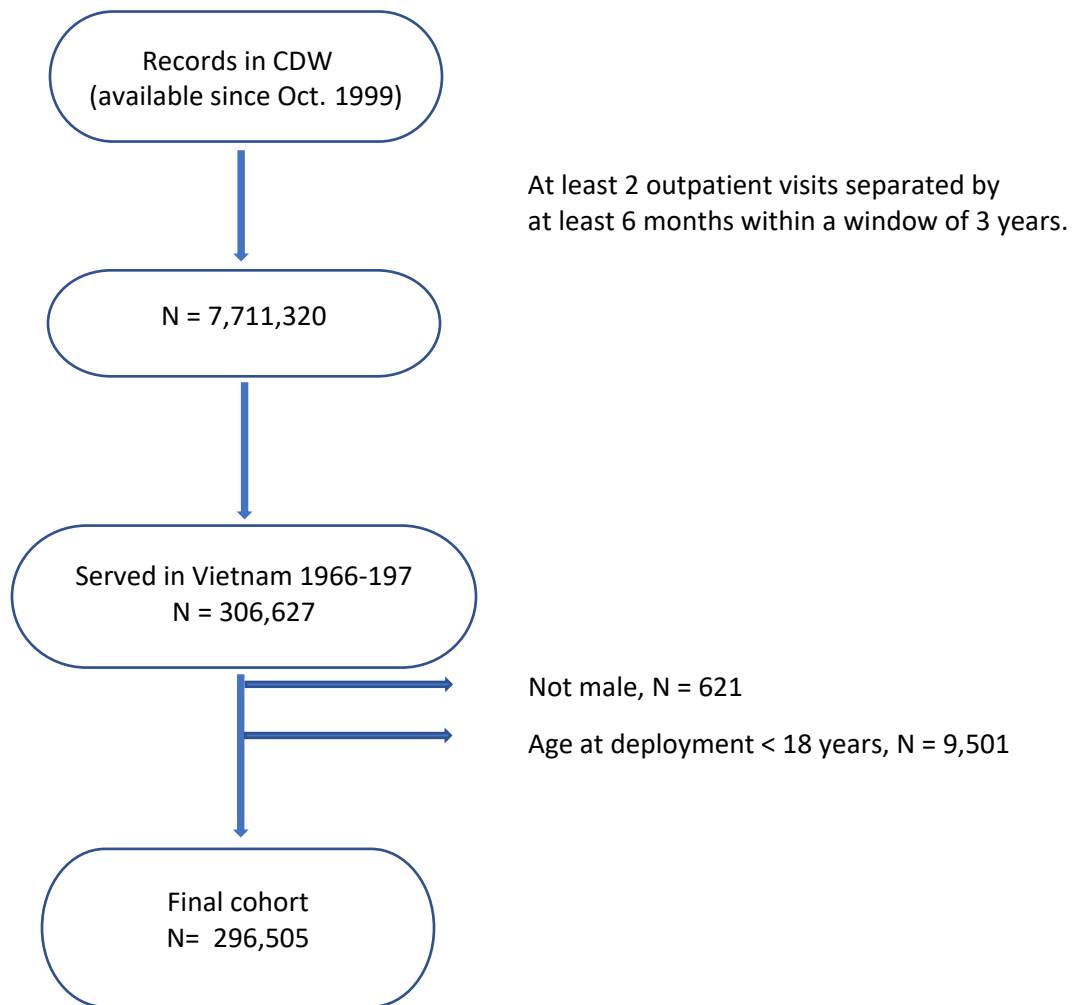
**eTable 6.** Age (In Years) Stratification for AO Exposure

**eTable 7.** Age (In Years) Stratification for Tobacco Use

**eTable 8.** Age (In Years) Stratification for Alcohol Use

This supplemental material has been provided by the authors to give readers additional information about their work.

**eFigure 1-** Flow diagram of final cohort



**eTable 1.** List of *ICD-9* and *ICD-10* Codes Used for Etiologies of HCC and Medical Comorbidities

**eTable 1a-** viral hepatitis ICD 9/10 codes

<b>ICD 9/10</b>	<b>CONCEPT_NAME</b>
70	Viral hepatitis
70.1	Viral hepatitis A without mention of hepatic coma
70.2	Viral hepatitis B with hepatic coma
70.2	Viral hepatitis B with hepatic coma, acute or unspecified, without mention of hepatitis delta
70.21	Viral hepatitis B with hepatic coma, acute or unspecified, with hepatitis delta
70.22	Chronic viral hepatitis B with hepatic coma without hepatitis delta
70.23	Chronic viral hepatitis B with hepatic coma with hepatitis delta
70.3	Viral hepatitis B without mention of hepatic coma
70.3	Viral hepatitis B without mention of hepatic coma, acute or unspecified, without mention of hepatitis delta
70.31	Viral hepatitis B without mention of hepatic coma, acute or unspecified, with hepatitis delta
70.32	Chronic viral hepatitis B without mention of hepatic coma without mention of hepatitis delta
70.32	Chronic viral hepatitis B without mention of hepatic coma without mention of hepatitis delta
70.33	Chronic viral hepatitis B without mention of hepatic coma with hepatitis delta
70.33	Chronic viral hepatitis B without mention of hepatic coma with hepatitis delta
70.4	Other specified viral hepatitis with hepatic coma
70.41	Acute hepatitis C with hepatic coma
70.42	Hepatitis delta without mention of active hepatitis B disease with hepatic coma
70.42	Hepatitis delta without mention of active hepatitis B disease with hepatic coma
70.44	Chronic hepatitis C with hepatic coma
70.49	Other specified viral hepatitis with hepatic coma
70.5	Other specified viral hepatitis without mention of hepatic coma
70.51	Acute hepatitis C without mention of hepatic coma
70.52	Hepatitis delta without mention of active hepatitis B disease or hepatic coma
70.54	Chronic hepatitis C without mention of hepatic coma
70.59	Other specified viral hepatitis without mention of hepatic coma
70.6	Unspecified viral hepatitis with hepatic coma
70.7	Unspecified viral hepatitis C
70.7	Unspecified viral hepatitis C without hepatic coma
70.71	Unspecified viral hepatitis C with hepatic coma
70.9	Unspecified viral hepatitis without mention of hepatic coma
B16	Acute hepatitis B
B16.0	Acute hepatitis B with delta-agent with hepatic coma
B16.1	Acute hepatitis B with delta-agent without hepatic coma
B16.2	Acute hepatitis B without delta-agent with hepatic coma
B16.9	Acute hepatitis B without delta-agent and without hepatic coma
B17	Other acute viral hepatitis
B17.0	Acute delta-(super) infection of hepatitis B carrier
B17.1	Acute hepatitis C
B17.10	Acute hepatitis C without hepatic coma
B17.11	Acute hepatitis C with hepatic coma
B17.8	Other specified acute viral hepatitis
B17.9	Acute viral hepatitis, unspecified
B18	Chronic viral hepatitis

B18.0	Chronic viral hepatitis B with delta-agent
B18.1	Chronic viral hepatitis B without delta-agent
B18.2	Chronic viral hepatitis C
B18.8	Other chronic viral hepatitis
B18.9	Chronic viral hepatitis, unspecified
B19	Unspecified viral hepatitis
B19.0	Unspecified viral hepatitis with hepatic coma
B19.1	Unspecified viral hepatitis B
B19.10	Unspecified viral hepatitis B without hepatic coma
B19.11	Unspecified viral hepatitis B with hepatic coma
B19.2	Unspecified viral hepatitis C
B19.20	Unspecified viral hepatitis C without hepatic coma
B19.21	Unspecified viral hepatitis C with hepatic coma
B19.9	Unspecified viral hepatitis without hepatic coma

**eTable 1b- ICD 9/10 codes for alcohol associated liver disease (ALD)**

<b>ICD 9/10</b>	<b>CONCEPT_NAME</b>
291	Alcohol-induced mental disorders
291.0	Alcohol withdrawal delirium
291.1	Alcohol-induced persisting amnestic disorder
291.2	Alcohol-induced persisting dementia
291.3	Alcohol-induced psychotic disorder with hallucinations
291.4	Idiosyncratic alcohol intoxication
291.5	Alcohol-induced psychotic disorder with delusions
291.8	Other specified alcohol-induced mental disorders
291.81	Alcohol withdrawal
291.82	Alcohol induced sleep disorders
291.89	Other alcohol-induced mental disorders
291.9	Unspecified alcohol-induced mental disorders
303	Alcohol dependence syndrome
303.0	Acute alcoholic intoxication
303.00	Acute alcoholic intoxication in alcoholism, unspecified
303.01	Acute alcoholic intoxication in alcoholism, continuous
303.02	Acute alcoholic intoxication in alcoholism, episodic
303.03	Acute alcoholic intoxication in alcoholism, in remission
303.9	Other and unspecified alcohol dependence
303.90	Other and unspecified alcohol dependence, unspecified
303.91	Other and unspecified alcohol dependence, continuous
303.92	Other and unspecified alcohol dependence, episodic
303.93	Other and unspecified alcohol dependence, in remission
305.0	Alcohol abuse
305.00	Alcohol abuse, unspecified
305.01	Alcohol abuse, continuous
305.02	Alcohol abuse, episodic
305.03	Alcohol abuse, in remission
357.5	Alcoholic polyneuropathy

425.5	Alcoholic cardiomyopathy
535.3	Alcoholic gastritis
535.3	Alcoholic gastritis, without mention of hemorrhage
535.31	Alcoholic gastritis, with hemorrhage
571.0	Alcoholic fatty liver
571.1	Acute alcoholic hepatitis
571.2	Alcoholic cirrhosis of liver
571.3	Alcoholic liver damage, unspecified
790.3	Excessive blood level of alcohol
F10	Alcohol related disorders
F10.1	Alcohol abuse
F10.10	Alcohol abuse, uncomplicated
F10.11	Alcohol abuse, in remission
F10.12	Alcohol abuse with intoxication
F10.120	Alcohol abuse with intoxication, uncomplicated
F10.121	Alcohol abuse with intoxication delirium
F10.129	Alcohol abuse with intoxication, unspecified
F10.13	Alcohol abuse, with withdrawal
F10.130	Alcohol abuse with withdrawal, uncomplicated
F10.131	Alcohol abuse with withdrawal delirium
F10.132	Alcohol abuse with withdrawal with perceptual disturbance
F10.139	Alcohol abuse with withdrawal, unspecified
F10.14	Alcohol abuse with alcohol-induced mood disorder
F10.15	Alcohol abuse with alcohol-induced psychotic disorder
F10.150	Alcohol abuse with alcohol-induced psychotic disorder with delusions
F10.151	Alcohol abuse with alcohol-induced psychotic disorder with hallucinations
F10.159	Alcohol abuse with alcohol-induced psychotic disorder, unspecified
F10.18	Alcohol abuse with other alcohol-induced disorders
F10.180	Alcohol abuse with alcohol-induced anxiety disorder
F10.181	Alcohol abuse with alcohol-induced sexual dysfunction
F10.182	Alcohol abuse with alcohol-induced sleep disorder
F10.188	Alcohol abuse with other alcohol-induced disorder
F10.19	Alcohol abuse with unspecified alcohol-induced disorder
F10.2	Alcohol dependence
F10.20	Alcohol dependence, uncomplicated
F10.21	Alcohol dependence, in remission
F10.22	Alcohol dependence with intoxication
F10.220	Alcohol dependence with intoxication, uncomplicated
F10.221	Alcohol dependence with intoxication delirium
F10.229	Alcohol dependence with intoxication, unspecified
F10.23	Alcohol dependence with withdrawal
F10.230	Alcohol dependence with withdrawal, uncomplicated
F10.231	Alcohol dependence with withdrawal delirium

F10.232	Alcohol dependence with withdrawal with perceptual disturbance
F10.239	Alcohol dependence with withdrawal, unspecified
F10.24	Alcohol dependence with alcohol-induced mood disorder
F10.25	Alcohol dependence with alcohol-induced psychotic disorder
F10.250	Alcohol dependence with alcohol-induced psychotic disorder with delusions
F10.251	Alcohol dependence with alcohol-induced psychotic disorder with hallucinations
F10.259	Alcohol dependence with alcohol-induced psychotic disorder, unspecified
F10.26	Alcohol dependence with alcohol-induced persisting amnestic disorder
F10.27	Alcohol dependence with alcohol-induced persisting dementia
F10.28	Alcohol dependence with other alcohol-induced disorders
F10.280	Alcohol dependence with alcohol-induced anxiety disorder
F10.281	Alcohol dependence with alcohol-induced sexual dysfunction
F10.282	Alcohol dependence with alcohol-induced sleep disorder
F10.288	Alcohol dependence with other alcohol-induced disorder
F10.29	Alcohol dependence with unspecified alcohol-induced disorder
F10.9	Alcohol use, unspecified
F10.92	Alcohol use, unspecified with intoxication
F10.920	Alcohol use, unspecified with intoxication, uncomplicated
F10.921	Alcohol use, unspecified with intoxication delirium
F10.929	Alcohol use, unspecified with intoxication, unspecified
F10.93	Alcohol use, unspecified with withdrawal
F10.930	Alcohol use, unspecified with withdrawal, uncomplicated
F10.931	Alcohol use, unspecified with withdrawal delirium
F10.932	Alcohol use, unspecified with withdrawal with perceptual disturbance
F10.939	Alcohol use, unspecified with withdrawal, unspecified
F10.94	Alcohol use, unspecified with alcohol-induced mood disorder
F10.95	Alcohol use, unspecified with alcohol-induced psychotic disorder
F10.950	Alcohol use, unspecified with alcohol-induced psychotic disorder with delusions
F10.951	Alcohol use, unspecified with alcohol-induced psychotic disorder with hallucinations
F10.959	Alcohol use, unspecified with alcohol-induced psychotic disorder, unspecified
F10.96	Alcohol use, unspecified with alcohol-induced persisting amnestic disorder
F10.97	Alcohol use, unspecified with alcohol-induced persisting dementia
F10.98	Alcohol use, unspecified with other alcohol-induced disorders
F10.980	Alcohol use, unspecified with alcohol-induced anxiety disorder
F10.981	Alcohol use, unspecified with alcohol-induced sexual dysfunction
F10.982	Alcohol use, unspecified with alcohol-induced sleep disorder

F10.988	Alcohol use, unspecified with other alcohol-induced disorder
F10.99	Alcohol use, unspecified with unspecified alcohol-induced disorder
G31.2	Degeneration of nervous system due to alcohol
G62.1	Alcoholic polyneuropathy
G72.1	Alcoholic myopathy
I42.6	Alcoholic cardiomyopathy
K29.2	Alcoholic gastritis
K29.20	Alcoholic gastritis without bleeding
K29.21	Alcoholic gastritis with bleeding
K70	Alcoholic liver disease
K70.0	Alcoholic fatty liver
K70.1	Alcoholic hepatitis
K70.10	Alcoholic hepatitis without ascites
K70.11	Alcoholic hepatitis with ascites
K70.2	Alcoholic fibrosis and sclerosis of liver
K70.3	Alcoholic cirrhosis of liver
K70.30	Alcoholic cirrhosis of liver without ascites
K70.31	Alcoholic cirrhosis of liver with ascites
K70.4	Alcoholic hepatic failure
K70.40	Alcoholic hepatic failure without coma
K70.41	Alcoholic hepatic failure with coma
K70.9	Alcoholic liver disease, unspecified
Z71.4	Alcohol abuse counseling and surveillance
Z71.41	Alcohol abuse counseling and surveillance of alcoholic

**eTable 1c- Nonalcoholic fatty liver disease (NAFLD) and nonalcoholic steatohepatitis (NASH) ICD 9/10 codes.**

ICD 9/10	CONCEPT_NAME
571.8	chronic nonalcoholic steatohepatitis
571.9	unspecified chronic liver disease
573.8	liver disorders
573.9	unspecified disorder of liver
K75.8	other specified inflammatory liver diseases
571.8	chronic nonalcoholic liver disease
K76.0	fatty (change of) liver

**eTable 1d- Hemochromatosis ICD 9/10 codes**

ICD 9/10	CONCEPT_NAME
275	Disorders of mineral metabolism
E83.1	Disorders of iron metabolism

**eTable 1e- autoimmune liver disease ICD 9/10 codes**

ICD 9/10	CONCEPT_NAME
571.6	Biliary cirrhosis

576.1	Cholangitis
K74.3	Primary biliary cirrhosis
K75.4	Autoimmune hepatitis
K83.0	Cholangitis
K83.01	Primary sclerosing cholangitis
K83.09	Other cholangitis

**eTable 1f- ICD 9/10 codes for other liver diseases**

ICD9/10	CONCEPT_NAME
572.8	Liver disease sequelae
576.8	Biliary cyst
277.09	Cystic fibrosis and othe manifestations
K76.89	Other specified diseases of the liver
K83.8	Other specified diseases of biliary tract
E84.8	Cystic fibrosis and othe manifestations
K74.0	Hepatic fibrosis

**eTable 1g- Alpha-1-anti trypsin ICD 9/10 codes**

ICD 9/10	CONCEPT_NAME
277.6	Other deficiencies of circulating enzymes
E88.0	Disorders of plasma-protein metabolism, not elsewhere classified
E88.02	Plasminogen deficiency
E88.01	Alpha-1-antitrypsin deficiency
E88.09	Other disorders of plasma-protein metabolism, not elsewhere classified

**eTable 1h- Diabetes ICD 9/10 codes**

ICD 9/10	CONCEPT_NAME
E08.0	Diabetes mellitus due to underlying condition with hyperosmolarity
E08.00	Diabetes mellitus due to underlying condition with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)
E08.01	Diabetes mellitus due to underlying condition with hyperosmolarity with coma
E08.1	Diabetes mellitus due to underlying condition with ketoacidosis
E08.10	Diabetes mellitus due to underlying condition with ketoacidosis without coma
E08.11	Diabetes mellitus due to underlying condition with ketoacidosis with coma
E08.2	Diabetes mellitus due to underlying condition with kidney complications
E08.21	Diabetes mellitus due to underlying condition with diabetic nephropathy
E08.22	Diabetes mellitus due to underlying condition with diabetic chronic kidney disease
E08.29	Diabetes mellitus due to underlying condition with other diabetic kidney complication
E08.3	Diabetes mellitus due to underlying condition with ophthalmic complications
E08.31	Diabetes mellitus due to underlying condition with unspecified diabetic retinopathy
E08.311	Diabetes mellitus due to underlying condition with unspecified diabetic retinopathy with macular edema
E08.319	Diabetes mellitus due to underlying condition with unspecified diabetic retinopathy without macular edema
E08.32	Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy



- E08.321 Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema
- E08.321 1 Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, right eye
- E08.321 2 Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, left eye
- E08.321 3 Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, bilateral
- E08.321 9 Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye
- E08.329 Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema
- E08.329 1 Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, right eye
- E08.329 2 Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, left eye
- E08.329 3 Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, bilateral
- E08.329 9 Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye
- E08.33 Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy
- E08.331 Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema
- E08.331 1 Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, right eye
- E08.331 2 Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, left eye
- E08.331 3 Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, bilateral
- E08.331 9 Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye
- E08.339 Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema
- E08.339 1 Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, right eye
- E08.339 2 Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, left eye
- E08.339 3 Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, bilateral
- E08.339 9 Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye
- E08.34 Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy
- E08.341 Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema
- E08.341 1 Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, right eye
- E08.341 2 Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, left eye
- E08.341 3 Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, bilateral
- E08.341 9 Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye

- E08.349 Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema
- E08.349 1 Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, right eye
- E08.349 2 Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, left eye
- E08.349 3 Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, bilateral
- E08.349 9 Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye
- E08.35 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy
- E08.351 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema
- E08.351 1 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, right eye
- E08.351 2 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, left eye
- E08.351 3 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, bilateral
- E08.351 9 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with macular edema, unspecified eye
- E08.352 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula
- E08.352 1 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye
- E08.352 2 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye
- E08.352 3 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral
- E08.352 9 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye
- E08.353 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment not involving the macula
- E08.353 1 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye
- E08.353 2 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye
- E08.353 3 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral
- E08.353 9 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye
- E08.354 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment
- E08.354 1 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye
- E08.354 2 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye
- E08.354 3 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral
- E08.354 9 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye
- E08.355 Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy

E08.355  
1 Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, right eye

E08.355  
2 Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, left eye

E08.355  
3 Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, bilateral

E08.355  
9 Diabetes mellitus due to underlying condition with stable proliferative diabetic retinopathy, unspecified eye

E08.359  
1 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, right eye

E08.359  
2 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, left eye

E08.359  
3 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, bilateral

E08.359  
9 Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy without macular edema, unspecified eye

E08.36 Diabetes mellitus due to underlying condition with diabetic cataract

E08.37 Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment

E08.37X  
1 Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, right eye

E08.37X  
2 Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, left eye

E08.37X  
3 Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, bilateral

E08.37X  
9 Diabetes mellitus due to underlying condition with diabetic macular edema, resolved following treatment, unspecified eye

E08.39 Diabetes mellitus due to underlying condition with other diabetic ophthalmic complication

E08.4 Diabetes mellitus due to underlying condition with neurological complications

E08.40 Diabetes mellitus due to underlying condition with diabetic neuropathy, unspecified

E08.41 Diabetes mellitus due to underlying condition with diabetic mononeuropathy

E08.42 Diabetes mellitus due to underlying condition with diabetic polyneuropathy

E08.43 Diabetes mellitus due to underlying condition with diabetic autonomic (poly)neuropathy

E08.44 Diabetes mellitus due to underlying condition with diabetic amyotrophy

E08.49 Diabetes mellitus due to underlying condition with other diabetic neurological complication

E08.5 Diabetes mellitus due to underlying condition with circulatory complications

E08.51 Diabetes mellitus due to underlying condition with diabetic peripheral angiopathy without gangrene

E08.52 Diabetes mellitus due to underlying condition with diabetic peripheral angiopathy with gangrene

E08.59 Diabetes mellitus due to underlying condition with other circulatory complications

E08.6 Diabetes mellitus due to underlying condition with other specified complications

E08.61 Diabetes mellitus due to underlying condition with diabetic arthropathy

E08.610 Diabetes mellitus due to underlying condition with diabetic neuropathic arthropathy

E08.618 Diabetes mellitus due to underlying condition with other diabetic arthropathy

E08.62 Diabetes mellitus due to underlying condition with skin complications

E08.620 Diabetes mellitus due to underlying condition with diabetic dermatitis

E08.621 Diabetes mellitus due to underlying condition with foot ulcer

E08.622 Diabetes mellitus due to underlying condition with other skin ulcer

E08.628 Diabetes mellitus due to underlying condition with other skin complications

- E08.63 Diabetes mellitus due to underlying condition with oral complications
- E08.630 Diabetes mellitus due to underlying condition with periodontal disease
- E08.638 Diabetes mellitus due to underlying condition with other oral complications
- E08.64 Diabetes mellitus due to underlying condition with hypoglycemia
- E08.640 Diabetes mellitus due to underlying condition with hypoglycemia without coma
- E08.641 Diabetes mellitus due to underlying condition with hypoglycemia with coma
- E08.649 Diabetes mellitus due to underlying condition with hypoglycemia without coma
- E08.65 Diabetes mellitus due to underlying condition with hyperglycemia
- E08.69 Diabetes mellitus due to underlying condition with other specified complication
- E08.8 Diabetes mellitus due to underlying condition with unspecified complications
- E08.9 Diabetes mellitus due to underlying condition without complications
- E09.0 Drug or chemical induced diabetes mellitus with hyperosmolarity
- E09.00 Drug or chemical induced diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)
- E09.01 Drug or chemical induced diabetes mellitus with hyperosmolarity with coma
- E09.1 Drug or chemical induced diabetes mellitus with ketoacidosis
- E09.10 Drug or chemical induced diabetes mellitus with ketoacidosis without coma
- E09.11 Drug or chemical induced diabetes mellitus with ketoacidosis with coma
- E09.2 Drug or chemical induced diabetes mellitus with kidney complications
- E09.21 Drug or chemical induced diabetes mellitus with diabetic nephropathy
- E09.22 Drug or chemical induced diabetes mellitus with diabetic chronic kidney disease
- E09.29 Drug or chemical induced diabetes mellitus with other diabetic kidney complication
- E09.3 Drug or chemical induced diabetes mellitus with ophthalmic complications
- E09.31 Drug or chemical induced diabetes mellitus with unspecified diabetic retinopathy
- E09.311 Drug or chemical induced diabetes mellitus with unspecified diabetic retinopathy with macular edema
- E09.319 Drug or chemical induced diabetes mellitus with unspecified diabetic retinopathy without macular edema
- E09.32 Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy
- E09.321 Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema
- E09.321 1 Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye
- E09.321 2 Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye
- E09.321 3 Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral
- E09.321 9 Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye
- E09.329 Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema
- E09.329 1 Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye
- E09.329 2 Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye
- E09.329 3 Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral
- E09.329 9 Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye
- E09.33 Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy

E09.331 Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema

E09.331 1 Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye

E09.331 2 Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye

E09.331 3 Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral

E09.331 9 Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye

E09.339 Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema

E09.339 1 Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye

E09.339 2 Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye

E09.339 3 Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral

E09.339 9 Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye

E09.34 Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy

E09.341 Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema

E09.341 1 Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye

E09.341 2 Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye

E09.341 3 Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral

E09.341 9 Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye

E09.349 Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema

E09.349 1 Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye

E09.349 2 Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye

E09.349 3 Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral

E09.349 9 Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye

E09.35 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy

E09.351 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema

E09.351 1 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye

E09.351 2 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye

E09.351 3 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral

E09.351 9 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye

E09.352 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula

E09.352 1 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye

E09.352 2 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye

E09.352 3 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral

E09.352 9 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye

E09.353 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula

E09.353 1 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye

E09.353 2 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye

E09.353 3 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral

E09.353 9 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye

E09.354 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment

E09.354 1 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye

E09.354 2 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye

E09.354 3 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral

E09.354 9 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye

E09.355 Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy

E09.355 1 Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, right eye

E09.355 2 Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, left eye

E09.355 3 Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, bilateral

E09.355 9 Drug or chemical induced diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye

E09.359 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema

E09.359 1 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye

E09.359 2 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye

E09.359 3 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral

E09.359 9 Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye

E09.36 Drug or chemical induced diabetes mellitus with diabetic cataract

E09.37 Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment

E09.37X 1 Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, right eye

- E09.37X 2 Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, left eye
- E09.37X 3 Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral
- E09.37X 9 Drug or chemical induced diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye
- E09.39 Drug or chemical induced diabetes mellitus with other diabetic ophthalmic complication
- E09.4 Drug or chemical induced diabetes mellitus with neurological complications
- E09.40 Drug or chemical induced diabetes mellitus with neurological complications with diabetic neuropathy, unspecified
- E09.41 Drug or chemical induced diabetes mellitus with neurological complications with diabetic mononeuropathy
- E09.42 Drug or chemical induced diabetes mellitus with neurological complications with diabetic polyneuropathy
- E09.43 Drug or chemical induced diabetes mellitus with neurological complications with diabetic autonomic (poly)neuropathy
- E09.44 Drug or chemical induced diabetes mellitus with neurological complications with diabetic amyotrophy
- E09.49 Drug or chemical induced diabetes mellitus with neurological complications with other diabetic neurological complication
- E09.5 Drug or chemical induced diabetes mellitus with circulatory complications
- E09.51 Drug or chemical induced diabetes mellitus with diabetic peripheral angiopathy without gangrene
- E09.52 Drug or chemical induced diabetes mellitus with diabetic peripheral angiopathy with gangrene
- E09.59 Drug or chemical induced diabetes mellitus with other circulatory complications
- E09.6 Drug or chemical induced diabetes mellitus with other specified complications
- E09.61 Drug or chemical induced diabetes mellitus with diabetic arthropathy
- E09.610 Drug or chemical induced diabetes mellitus with diabetic neuropathic arthropathy
- E09.618 Drug or chemical induced diabetes mellitus with other diabetic arthropathy
- E09.62 Drug or chemical induced diabetes mellitus with skin complications
- E09.620 Drug or chemical induced diabetes mellitus with diabetic dermatitis
- E09.621 Drug or chemical induced diabetes mellitus with foot ulcer
- E09.622 Drug or chemical induced diabetes mellitus with other skin ulcer
- E09.628 Drug or chemical induced diabetes mellitus with other skin complications
- E09.63 Drug or chemical induced diabetes mellitus with oral complications
- E09.630 Drug or chemical induced diabetes mellitus with periodontal disease
- E09.638 Drug or chemical induced diabetes mellitus with other oral complications
- E09.65 Drug or chemical induced diabetes mellitus with hyperglycemia
- E09.69 Drug or chemical induced diabetes mellitus with other specified complication
- E09.8 Drug or chemical induced diabetes mellitus with unspecified complications
- E09.9 Drug or chemical induced diabetes mellitus without complications
- E11 Type 2 diabetes mellitus
- E11.0 Type 2 diabetes mellitus with hyperosmolarity
- E11.00 Type 2 diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)
- E11.01 Type 2 diabetes mellitus with hyperosmolarity with coma
- E11.1 Type 2 diabetes mellitus with ketoacidosis
- E11.10 Type 2 diabetes mellitus with ketoacidosis without coma
- E11.11 Type 2 diabetes mellitus with ketoacidosis with coma
- E11.2 Type 2 diabetes mellitus with kidney complications
- E11.21 Type 2 diabetes mellitus with diabetic nephropathy

E11.22 Type 2 diabetes mellitus with diabetic chronic kidney disease

E11.29 Type 2 diabetes mellitus with other diabetic kidney complication

E11.3 Type 2 diabetes mellitus with ophthalmic complications

E11.31 Type 2 diabetes mellitus with unspecified diabetic retinopathy

E11.311 Type 2 diabetes mellitus with unspecified diabetic retinopathy with macular edema

E11.319 Type 2 diabetes mellitus with unspecified diabetic retinopathy without macular edema

E11.32 Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy

E11.321 Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema

E11.321  
1 Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye

E11.321  
2 Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye

E11.321  
3 Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral

E11.321  
9 Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye

E11.329 Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema

E11.329  
1 Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye

E11.329  
2 Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye

E11.329  
3 Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral

E11.329  
9 Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye

E11.33 Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy

E11.331 Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema

E11.331  
1 Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye

E11.331  
2 Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye

E11.331  
3 Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral

E11.331  
9 Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye

E11.339 Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema

E11.339  
1 Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye

E11.339  
2 Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye

E11.339  
3 Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral

E11.339  
9 Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye

E11.34 Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy

E11.341 Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema

E11.341  
1 Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye

E11.341  
2 Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye



E11.341  
3 Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral

E11.341  
9 Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye

E11.349  
1 Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye

E11.349  
2 Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye

E11.349  
3 Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral

E11.349  
9 Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye

E11.35  
1 Type 2 diabetes mellitus with proliferative diabetic retinopathy

E11.351  
1 Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye

E11.351  
2 Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye

E11.351  
3 Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral

E11.351  
9 Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye

E11.352  
1 Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye

E11.352  
2 Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye

E11.352  
3 Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral

E11.352  
9 Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye

E11.353  
1 Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye

E11.353  
2 Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye

E11.353  
3 Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral

E11.353  
9 Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye

E11.354  
1 Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye

E11.354  
2 Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye

E11.354  
3 Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral

E11.354 9 Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye

E11.355 Type 2 diabetes mellitus with stable proliferative diabetic retinopathy

E11.355 1 Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, right eye

E11.355 2 Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, left eye

E11.355 3 Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, bilateral

E11.355 9 Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye

E11.359 Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema

E11.359 1 Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye

E11.359 2 Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye

E11.359 3 Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral

E11.359 9 Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye

E11.36 Type 2 diabetes mellitus with diabetic cataract

E11.37 Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment

E11.37X 1 Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, right eye

E11.37X 2 Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, left eye

E11.37X 3 Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral

E11.37X 9 Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye

E11.39 Type 2 diabetes mellitus with other diabetic ophthalmic complication

E11.4 Type 2 diabetes mellitus with neurological complications

E11.40 Type 2 diabetes mellitus with diabetic neuropathy, unspecified

E11.41 Type 2 diabetes mellitus with diabetic mononeuropathy

E11.42 Type 2 diabetes mellitus with diabetic polyneuropathy

E11.43 Type 2 diabetes mellitus with diabetic autonomic (poly)neuropathy

E11.44 Type 2 diabetes mellitus with diabetic amyotrophy

E11.49 Type 2 diabetes mellitus with other diabetic neurological complication

E11.5 Type 2 diabetes mellitus with circulatory complications

E11.51 Type 2 diabetes mellitus with diabetic peripheral angiopathy without gangrene

E11.52 Type 2 diabetes mellitus with diabetic peripheral angiopathy with gangrene

E11.59 Type 2 diabetes mellitus with other circulatory complications

E11.6 Type 2 diabetes mellitus with other specified complications

E11.61 Type 2 diabetes mellitus with diabetic arthropathy

E11.610 Type 2 diabetes mellitus with diabetic neuropathic arthropathy

E11.618 Type 2 diabetes mellitus with other diabetic arthropathy

E11.62 Type 2 diabetes mellitus with skin complications

E11.620 Type 2 diabetes mellitus with diabetic dermatitis

E11.621 Type 2 diabetes mellitus with foot ulcer

- E11.622 Type 2 diabetes mellitus with other skin ulcer
- E11.628 Type 2 diabetes mellitus with other skin complications
- E11.63 Type 2 diabetes mellitus with oral complications
- E11.630 Type 2 diabetes mellitus with periodontal disease
- E11.638 Type 2 diabetes mellitus with other oral complications
- E11.64 Type 2 diabetes mellitus with hypoglycemia
- E11.640 Type 2 diabetes mellitus with hypoglycemia without coma
- E11.641 Type 2 diabetes mellitus with hypoglycemia with coma
- E11.649 Type 2 diabetes mellitus with hypoglycemia without coma
- E11.65 Type 2 diabetes mellitus with hyperglycemia
- E11.69 Type 2 diabetes mellitus with other specified complication
- E11.8 Type 2 diabetes mellitus with unspecified complications
- E11.9 Type 2 diabetes mellitus without complications
- E13 Other specified diabetes mellitus
- E13.0 Other specified diabetes mellitus with hyperosmolarity  
Other specified diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)
- E13.00
- E13.01 Other specified diabetes mellitus with hyperosmolarity with coma
- E13.1 Other specified diabetes mellitus with ketoacidosis
- E13.10 Other specified diabetes mellitus with ketoacidosis without coma
- E13.11 Other specified diabetes mellitus with ketoacidosis with coma
- E13.2 Other specified diabetes mellitus with kidney complications
- E13.21 Other specified diabetes mellitus with diabetic nephropathy
- E13.22 Other specified diabetes mellitus with diabetic chronic kidney disease
- E13.29 Other specified diabetes mellitus with other diabetic kidney complication
- E13.3 Other specified diabetes mellitus with ophthalmic complications
- E13.31 Other specified diabetes mellitus with unspecified diabetic retinopathy
- E13.311 Other specified diabetes mellitus with unspecified diabetic retinopathy with macular edema
- E13.319 Other specified diabetes mellitus with unspecified diabetic retinopathy without macular edema
- E13.32 Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy
- E13.321 Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema
- E13.321 1 Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye
- E13.321 2 Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye
- E13.321 3 Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral
- E13.321 9 Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye
- E13.329 Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema
- E13.329 1 Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye
- E13.329 2 Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye
- E13.329 3 Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral
- E13.329 9 Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye

- E13.33 Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy
- E13.331 Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema
- E13.331 1 Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye
- E13.331 2 Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye
- E13.331 3 Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral
- E13.331 9 Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye
- E13.339 Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema
- E13.339 1 Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye
- E13.339 2 Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye
- E13.339 3 Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral
- E13.339 9 Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye
- E13.34 Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy
- E13.341 Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema
- E13.341 1 Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye
- E13.341 2 Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye
- E13.341 3 Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral
- E13.341 9 Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye
- E13.349 Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema
- E13.349 1 Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye
- E13.349 2 Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye
- E13.349 3 Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral
- E13.349 9 Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye
- E13.35 Other specified diabetes mellitus with proliferative diabetic retinopathy
- E13.351 Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema
- E13.351 1 Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye
- E13.351 2 Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye
- E13.351 3 Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral
- E13.351 9 Other specified diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye

- E13.352 Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula
- E13.352 1 Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye
- E13.352 2 Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye
- E13.352 3 Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral
- E13.352 9 Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye
- E13.353 Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula
- E13.353 1 Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye
- E13.353 2 Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye
- E13.353 3 Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral
- E13.353 9 Other specified diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye
- E13.354 Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment
- E13.354 1 Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye
- E13.354 2 Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye
- E13.354 3 Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral
- E13.354 9 Other specified diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye
- E13.355 Other specified diabetes mellitus with stable proliferative diabetic retinopathy
- E13.355 1 Other specified diabetes mellitus with stable proliferative diabetic retinopathy, right eye
- E13.355 2 Other specified diabetes mellitus with stable proliferative diabetic retinopathy, left eye
- E13.355 3 Other specified diabetes mellitus with stable proliferative diabetic retinopathy, bilateral
- E13.355 9 Other specified diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye
- E13.359 Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema
- E13.359 1 Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye
- E13.359 2 Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye
- E13.359 3 Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral
- E13.359 9 Other specified diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye
- E13.36 Other specified diabetes mellitus with diabetic cataract
- E13.37 Other specified diabetes mellitus with diabetic macular edema, resolved following treatment
- E13.37X 1 Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, right eye

E13.37X  
2 Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, left eye

E13.37X  
3 Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral

E13.37X  
9 Other specified diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye

E13.39 Other specified diabetes mellitus with other diabetic ophthalmic complication

E13.4 Other specified diabetes mellitus with neurological complications

E13.40 Other specified diabetes mellitus with diabetic neuropathy, unspecified

E13.41 Other specified diabetes mellitus with diabetic mononeuropathy

E13.42 Other specified diabetes mellitus with diabetic polyneuropathy

E13.43 Other specified diabetes mellitus with diabetic autonomic (poly)neuropathy

E13.44 Other specified diabetes mellitus with diabetic amyotrophy

E13.49 Other specified diabetes mellitus with other diabetic neurological complication

E13.5 Other specified diabetes mellitus with circulatory complications

E13.51 Other specified diabetes mellitus with diabetic peripheral angiopathy without gangrene

E13.52 Other specified diabetes mellitus with diabetic peripheral angiopathy with gangrene

E13.59 Other specified diabetes mellitus with other circulatory complications

E13.6 Other specified diabetes mellitus with other specified complications

E13.61 Other specified diabetes mellitus with diabetic arthropathy

E13.610 Other specified diabetes mellitus with diabetic neuropathic arthropathy

E13.618 Other specified diabetes mellitus with other diabetic arthropathy

E13.62 Other specified diabetes mellitus with skin complications

E13.620 Other specified diabetes mellitus with diabetic dermatitis

E13.621 Other specified diabetes mellitus with foot ulcer

E13.622 Other specified diabetes mellitus with other skin ulcer

E13.628 Other specified diabetes mellitus with other skin complications

E13.63 Other specified diabetes mellitus with oral complications

E13.630 Other specified diabetes mellitus with periodontal disease

E13.638 Other specified diabetes mellitus with other oral complications

E13.64 Other specified diabetes mellitus with hypoglycemia

E13.640 Other specified diabetes mellitus with hypoglycemia without coma

E13.641 Other specified diabetes mellitus with hypoglycemia with coma

E13.649 Other specified diabetes mellitus with hypoglycemia without coma

E13.65 Other specified diabetes mellitus with hyperglycemia

E13.69 Other specified diabetes mellitus with other specified complication

E13.8 Other specified diabetes mellitus with unspecified complications

E13.9 Other specified diabetes mellitus without complications

N25.1 Nephrogenic diabetes insipidus

O24 Diabetes mellitus in pregnancy, childbirth, and the puerperium

O24.1 Pre-existing type 2 diabetes mellitus, in pregnancy, childbirth and the puerperium

O24.11 Pre-existing type 2 diabetes mellitus, in pregnancy

O24.111 Pre-existing type 2 diabetes mellitus, in pregnancy, first trimester

O24.112 Pre-existing type 2 diabetes mellitus, in pregnancy, second trimester

O24.113 Pre-existing type 2 diabetes mellitus, in pregnancy, third trimester

O24.119 Pre-existing type 2 diabetes mellitus, in pregnancy, unspecified trimester

O24.12 Pre-existing type 2 diabetes mellitus, in childbirth

O24.13	Pre-existing type 2 diabetes mellitus, in the puerperium
O24.3	Unspecified pre-existing diabetes mellitus in pregnancy, childbirth and the puerperium
O24.31	Unspecified pre-existing diabetes mellitus in pregnancy
O24.311	Unspecified pre-existing diabetes mellitus in pregnancy, first trimester
O24.312	Unspecified pre-existing diabetes mellitus in pregnancy, second trimester
O24.313	Unspecified pre-existing diabetes mellitus in pregnancy, third trimester
O24.319	Unspecified pre-existing diabetes mellitus in pregnancy, unspecified trimester
O24.32	Unspecified pre-existing diabetes mellitus in childbirth
O24.33	Unspecified pre-existing diabetes mellitus in the puerperium
R73.03	Prediabetes
Z13.1	Encounter for screening for diabetes mellitus
Z83.3	Family history of diabetes mellitus
Z86.32	Personal history of gestational diabetes

**eTable 1i- Hypertension ICD 9/10 codes**

ICD 9/10	CONCEPT_NAME
401	essential hypertension
401.1	benign hypertension
401.9	unspecified essential hypertension

**eTable 1j- Hepatic encephalopathy ICD 9/10 codes**

ICD 9/10	CONCEPT_NAME
572.2	Hepatic encephalopathy
B16.2	Acute hepatitis B without delta-agent with hepatic coma
B17.11	Acute hepatitis C with hepatic coma
B19.0	Unspecified viral hepatitis with hepatic coma
B19.11	Unspecified viral hepatitis B with hepatic coma
B19.21	Unspecified viral hepatitis C with hepatic coma
K70.41	Alcoholic hepatic failure with coma
K72.11	Chronic hepatic failure with coma
K72.91	Hepatic failure, unspecified with coma

**eTable 1k- Hepatorenal syndrome ICD 9/10 codes**

ICD 9/10	CONCEPT_NAME
572.4	Hepatorenal syndrome

**eTable 1l- Ascites ICD 9/10 codes**

ICD 9/10	CONCEPT_NAME
789.5	Ascites
789.59	Other ascites
K65.2	Spontaneous bacterial peritonitis
K70.11	Alcoholic hepatitis with ascites
K70.31	Alcoholic cirrhosis of liver with ascites

R18.8 Other ascites

**eTable 1m- Spontaneous bacterial peritonitis ICD 9/10 codes**

**ICD 9/10 CONCEPT\_NAME**

567.23 spontaneous bacterial peritonitis  
K65.2 spontaneous bacterial peritonitis

**eTable 1n- Bleeding esophageal and gastric varices ICD 9/10 codes**

**ICD 9/10 CONCEPT\_NAME**

456, 456.2 Esophageal varices with bleeding  
I85.01 Esophageal varices with bleeding  
I86.41 Gastric varices with bleeding  
I85.11 Secondary esophageal varices with bleeding

**eTable 1o- Liver transplantation ICD 9/10 codes**

**ICD 9/10 CONCEPT\_NAME**

V42.7 Liver transplant status  
Z94.4 Liver transplant status



**eTable 2- Human immunodeficiency virus (HIV), hepatitis C, hepatitis B, AST, ALT and platelet LOINCs**

<b>Test</b>	<b>LOINC</b>
HIV 1 Ab + HIV 2 Ab	56888-1
HIV 1 RNA	62469-2
HIV RNA	20447-9
HIV RNA	29541-0
HIV RNA	62469-2
HIV RNA	25835-0
HIV 1 + 2 Ab	31201-7
HIV 1 + HIV 2 Ab & HIV 1 p24Ag	75666-8
HIV 1 Ab + HIV 2 Ab	80387-4
HIV 1 Ab	29893-5
HIV 1 Ab & HIV 2 Ab	80203-3
HIV 1 Ab & HIV 2 Ab	68961-2
	86233-4
HIV 1 Ab & HIV 2 Ab	69668-2
HIV 1 Ab	5221-7
HIV 1 (presence)	32571-2
Anti-HIV 1 + Anti-HIV 2	49580-4
HIV 1 Ab + HIV 2 Ab	31201-7
HIV 1 Ab + HIV 2 Ab	80387-4
Hepatitis C virus RNA	3014759
Hepatitis C virus RNA	3016770
Hepatitis C virus RNA	3018447
Hepatitis C virus RNA	3021125
Hepatitis C virus RNA	3024429
Hepatitis C virus RNA	3033192
Hepatitis C virus RNA	3052023
Hepatitis B virus surface Ag in serum or plasma by immunoassay	3019510
Hepatitis B virus surface Ag in serum or plasma by neutralization test	3025267
AST	545004-4
AST	1916-6
AST	16325-3
AST	27344-1
AST	1920-8
AST	2325-9
AST	44786-2
AST	30239-8
AST	88112-8
AST	100739-2
AST	48136-6
ALT	77144-4
ALT	16325-3
ALT	1916-6
ALT	1742-6
ALT	100738-4

ALT	48134-1
ALT	1743-4
ALT	1744-2
ALT	44785-4
Platelets.reticulated/100 platelets	51633-6
Platelets.reticulated/100 platelets	71693-6
Platelets.large/Platelets	97994-8
Platelets.large/Platelets	48386-7
Platelets.reticulated/platelets.total	70032-8
Platelets.agranular	33216-3
Platelets.reticulated	51632-8
Platelets.large fragments	15201-7
Platelets.giant	5908-9
Platelets.large	32146-3
Platelets.small	32208-1
Bizarre platelets	60455-3
Platelets.large	34167-7
Platelets.reticulated	71692-8
Platelets	12243-2
Platelets.large	96354-6
Platelets	26515-7
Platelets	26516-5
Platelets	79427-1
Platelets	49497-1
Platelets	778-1
Platelets	5907-1
Platelets	777-3
Platelets	13056-7
Platelets	74775-8
Platelets	97995-5
Platelets	74464-9
Platelets.giant/100 leukocytes	32712-2
Platelets	9317-9
Platelet genotype	34977-9
Platelet distribution width	51631-0
Platelet morphology finding	11125-2
Platelet mass	55206-7
Platelet mean volume	28542-9
Platelet anisocytosis	51640-1
Platelet clump	7796-6
Platelet mean diameter	30459-2
Platelet clump	40741-1
Platelet component distribution width	76137-9
Platelet mean diameter	775-7
Platelet mean volume	776-5
Platelet satellitism	18312-9
Mean platelet component	76683-2

Platelet distribution width	32207-3
Platelet dry mass distribution width	76685-7
Mean platelet dry mass	76684-0
Platelet dense bodies	79768-8
Platelet mean volume	32623-1
Platelet mean volume	32711-4

**eTable 3- ICD 9 codes for other gastrointestinal malignancies**

Site	ICD9	Description
<b>Colon</b>	153	Malignant neoplasm of colon
Hepatic flexure	153.0	
Transverse colon	153.1	
Descending colon	153.2	Left colon
Sigmoid colon	153.3	Sigmoid (flexure)
Cecum	153.4	Ileocecal valve
Appendix	153.5	
Ascending colon	153.6	Right colon
Splenic flexure	153.7	
Other specified sites of large intestine	153.8	Malignant neoplasm of contiguous or overlapping sites of colon whose point of origin cannot be determined
Colon, unspecified	153.9	Large intestine NOS
<b>Rectum</b>	154	Malignant neoplasm of rectum, rectosigmoid junction, and anus
Rectosigmoid junction	154.0	Colon with rectum/Rectosigmoid (colon)
Rectum	154.1	Rectal ampulla
Anal canal	154.2	Anal sphincter
Anus, unspecified	154.3	
Other	154.8	Anorectum/Cloacogenic zone/Malignant neoplasm of contiguous or overlapping sites of rectum, rectosigmoid junction, and anus whose point of origin cannot be determined
<b>Stomach</b>	151	Malignant neoplasm of stomach
Cardia	151.0	Cardiac orifice/Cardio-esophageal junction
Pylorus	151.0	Prepylorus/Pyloric canal
Pyloric antrum	151.2	Antrum of stomach NOS
Fundus of stomach	151.3	
Body of stomach	151.4	
Lesser curvature, unspecified	151.5	Lesser curvature, not classifiable to 151.1-151.4
Greater curvature, unspecified	151.6	Greater curvature, not classifiable to 151.0-151.4
Other specified sites of stomach	151.8	Anterior wall, not classifiable to 151.0-151.4/Posterior wall, not classifiable to 151.0-151.4/Malignant neoplasm of contiguous or overlapping sites of stomach whose point of origin cannot be determined
Stomach, unspecified	151.9	Carcinoma ventriculi/Gastric cancer
<b>Pancreas</b>	157	Malignant neoplasm of pancreas
Head of pancreas	157.0	
Body of pancreas	157.1	
Tail of pancreas	157.2	
Pancreatic duct	157.3	Duct of: Santorini/Wirsung
Islets of Langerhans	157.4	Islets of Langerhans, any part of pancreas/Use additional code to identify any functional activity

Other specified sites of pancreas	157.8	Ectopic pancreatic tissue/Malignant neoplasm of contiguous or overlapping sites of pancreas whose point of origin cannot be determined
Pancreas, part unspecified	157.9	

**eTable 4- Association between AO and other risk factors for HCC using APRI score to identify HCC cases.**

Characteristic	Non-cirrhosis (n = 263,148)		Cirrhosis (n = 33,355)	
	Multivariable aHR (95% CI)	P-value	Multivariable aHR (95% CI)	P-value
Agent Orange	1.001 (0.853-1.175)	0.9893	0.8142 (0.923-1.107)	0.8142
Age (at deployment)	1.017 (0.997-1.037)	0.0937	<b>0.971 (0.953-0.990)</b>	<b>0.0030</b>
Hispanic or Latino**	0.967 (0.697-1.343)	0.8423	<b>1.503 (1.297-1.742)</b>	<b>&lt;0.0001</b>
Non-Hispanic Black	1.132 (0.924-1.387)	0.2317	<b>1.165 (1.040-1.304)</b>	<b>0.0081</b>
Smoking	1.286 (0.975-1.698)	0.0753	1.086 (0.887-1.328)	0.4247
Obesity	1.004 (0.786-1.282)	0.9764	0.941 (0.812-1.090)	0.4150
Viral hepatitis	<b>2.459 (1.080-2.906)</b>	<b>&lt;0.0001</b>	<b>3.715 (3.255-4.241)</b>	<b>&lt;0.0001</b>
Alcohol liver disease	1.063 (0.906-1.249)	0.4530	<b>1.319 (1.187-1.466)</b>	<b>&lt;0.0001</b>
NASH/NAFLD <sup>#</sup>	<b>2.418 (1.954-2.993)</b>	<b>&lt;0.0001</b>	<b>1.898 (1.699-2.121)</b>	<b>&lt;0.0001</b>
HIV	1.103 (0.933-1.304)	0.2530	0.974 (0.888-1.067)	0.5707
Autoimmune hepatitis <sup>###</sup>	1.811 (0.978-3.352)	0.0588	1.121 (0.866-1.452)	0.3842
Hemochromatosis	<b>1.911 (1.174-3.110)</b>	<b>0.0092</b>	<b>1.306 (1.060-1.609)</b>	<b>0.0122</b>
Alpha-1-antri trypsin	<b>1.658 (0.969-1.838)</b>	<b>0.0652</b>	1.134 (0.944-1.363)	0.1792
Secondary or unspecific biliary cirrhosis <sup>&amp;</sup>	-	-	1.288 (0.906-1.831)	0.1587
Dyslipidemia	<b>0.477 (0.379-0.600)</b>	<b>&lt;0.0001</b>	<b>0.455 (0.405-0.510)</b>	<b>&lt;0.0001</b>
Hypertension	<b>1.668 (1.270-2.190)</b>	<b>0.0002</b>	1.163 (0.995-1.360)	0.0572
Diabetes <sup>&amp;&amp;</sup>	<b>1.448 (1.085-1.933)</b>	<b>0.0120</b>	1.076 (0.915-1.267)	0.3749
Diabetes and Obesity interactions	1.009 (0.715-1.424)	0.9591	0.956 (0.785-1.164)	0.6519

\*adjusting for age at deployment, race and ethnicity; \*\*White individuals used as reference group; <sup>#</sup>combined NAFLD and NASH in multivariable model; <sup>###</sup>combined HCV and HBV; <sup>&</sup>no cases in the non-cirrhosis group; <sup>&&</sup>obesity and diabetes interactions assessed which was not significant in multivariable model.

Abbreviations: aHR=adjusted hazard ratio; NAFLD=nonalcoholic fatty liver disease; NASH=nonalcoholic steatohepatitis; HIV=human immunodeficiency virus.

## **eMethods:**

### *AO exposure is not associated with incident HCC with age stratification*

To further explore the finding of age at deployment being inversely associated with incident HCC, we assessed the interactions between AO exposure and age. Independently of cirrhosis status, there was no significant association between AO exposure and age after adjusting for race and ethnicity. Similarly, early age (decade 20 in years) was not significantly associated with HCC in the cirrhosis (aHR = 1.00, 95% CI 0.92-1.09, p=0.99) and non-cirrhosis (aHR = 0.96, 95% CI 0.81-1.14, p=0.65) groups (**eTable 5**).

### *Association between smoking and alcohol with incident HCC*

In the non-cirrhosis group, age significantly interacted with smoking (aHR = 1.78, 95% CI 1.30-1.08, p=0.0473), after adjusting for AO exposure, race and ethnicity. After stratifying age into decades (20-60), we assessed the association of each decade with incident HCC. We found that young patients (decade = 20) had a significantly higher risk for incident HCC in both cirrhosis (aHR= 1.32, 95% CI 1.01-1.63, p=0.0078) and cirrhosis groups (aHR = 1.91, 95% CI 1.38-2.66, p=0.0001), compared to other decades (older decades of 30-60) (**eTable 6**)

No significant interactions were identified between age and alcohol, however after stratifying age by decade we found that young age was significantly associated with incident HCC. Veterans in their 20s (aHR = 2.05, 95% CI 1.84-2.28, p<0.0001) and 30s (aHR = 1.89, 95% CI 1.27-2.82, p=0.0016), compared to older Veterans (decades 40-60) (**eTable 7**).

eTable 5- Association between AO and other risk factors for HCC using inverse probability weighing

	<b>Multivariable aHR (95% CI)</b>	<b>P-value</b>
Agent Orange	0.899 (0.804-1.006)	0.0637
<b>Cirrhosis</b>	<b>6.106 (5.494-6.785)</b>	<b>&lt;0.0001</b>
Age (at deployment)	0.989 (0.972-1.007)	0.2238
Hispanic or Latino	1.194 (0.974-1.463)	0.0877
Non-Hispanic Black	1.106 (0.961-1.273)	0.1592
Smoking	1.146 (0.901-1.457)	0.2663
Obesity	0.987 (0.829-1.176)	0.8873
<b>Viral hepatitis</b>	<b>3.203 (2.842-3.611)</b>	<b>&lt;0.0001</b>
<b>Alcohol liver disease</b>	<b>1.286 (1.151-1.436)</b>	<b>&lt;0.0001</b>
<b>NASH/NAFLD<sup>#</sup></b>	<b>2.291 (2.008-2.615)</b>	<b>&lt;0.0001</b>
HIV	0.977 (0.868-1.100)	0.7049
Autoimmune hepatitis <sup>##</sup>	1.024 (0.700-1.497)	0.9031
<b>Hemochromatosis</b>	<b>2.512 (1.924-3.280)</b>	<b>&lt;0.0001</b>
Alpha-1-antitrypsin	1.298 (0.965-1.746)	0.0847
Secondary or unspecific biliary cirrhosis <sup>&amp;</sup>	0.780 (0.078-7.821)	0.8330
<b>Dyslipidemia</b>	<b>0.439 (0.370-0.521)</b>	<b>&lt;0.0001</b>
<b>Hypertension</b>	<b>1.337 (1.119-1.598)</b>	<b>0.0014</b>
<b>Diabetes<sup>&amp;&amp;</sup></b>	<b>1.250 (1.017-1.537)</b>	<b>0.0343</b>
Diabetes and Obesity interactions	1.134 (0.888-1.449)	0.3139



eTable 6- Age (in years) stratification for AO exposure.

Cirrhosis (n = 35,877)				Non-cirrhosis (n = 260,628)			
Age by decade	HR	95% CI	P-value	Age by decade	HR	95% CI	P-value
age=20	1.009	0.922-1.103	0.8532	age=20	0.979	0.825-1.162	0.8072
age=30	0.874	0.585-1.304	0.5086	age=30	0.818	0.554-1.210	0.3151
age=40	0.757	0.337-1.698	0.4989	age=40	0.684	0.306-1.531	0.3555
age=50	0.656	0.194-2.217	0.4969	age=50	0.572	0.167-1.959	0.3736
age=60	0.568	0.111-2.898	0.4961	age=60	0.478	0.091-2.514	0.3835

eTable 7- Age (in years) stratification for tobacco use.

Cirrhosis (n = 35,877)				Non-cirrhosis (n = 260,628)			
Age by decade	HR	95% CI	P-value	Age by decade	HR	95% CI	P-value
age=20	<b>1.324</b>	<b>1.077-1.627</b>	<b>0.0078</b>	age=20	<b>1.915</b>	<b>1.380-2.659</b>	<b>0.0001</b>
age=30	0.869	0.460-1.643	0.6665	age=30	1.110	0.698-1.765	0.6589
age=40	0.571	0.154-2.120	0.4024	age=40	0.643	0.249-1.664	0.3629
age=50	0.375	0.051-2.763	0.3358	age=50	0.373	0.085-1.628	0.1895
age=60	0.246	0.017-3.610	0.3064	age=60	0.216	0.029-1.606	0.1343

eTable 8- Age (in years) stratification for alcohol use.

Cirrhosis (n = 35,877)				Non-cirrhosis (n = 260,628)			
Age by decade	HR	95% CI	P-value	Age by decade	HR	95% CI	P-value
age=20	<b>2.048</b>	<b>1.843-2.276</b>	<b>&lt;.0001</b>	age=20	<b>1.2658</b>	<b>1.0701-1.4973</b>	<b>0.0059</b>
age=30	<b>1.894</b>	<b>1.272-2.819</b>	<b>0.0016</b>	age=30	0.9997	0.633-1.5789	0.9990
age=40	1.751	0.782-3.922	0.1730	age=40	0.7895	0.3098-2.0123	0.6206
age=50	1.620	0.479-5.480	0.4383	age=50	0.6235	0.1501-2.5898	0.5156
age=60	1.498	0.293-7.666	0.6279	age=60	0.4924	0.0726-3.3408	0.4683