

Supplementary Table 3. ICD-9 and 10 codes for definition of diabetes and cirrhosis-related complications (ascites and hepatic encephalopathy)

Diabetes	ICD-9 codes	ICD-10 codes	ICD-9 Description	ICD-10 Description
-	2501	NA	Diabetes with ketoacidosis	NA
-	2502	NA	Diabetes with hyperosmolarity	NA
-	2503	NA	Diabetes with other coma	NA
-	2504	NA	Diabetes with renal manifestations	NA
-	2505	NA	Diabetes with ophthalmic manifestations	NA
-	2506	NA	Diabetes with neurological manifestations	NA
-	2507	NA	Diabetes with peripheral circulatory disorders	NA
-	2508	NA	Diabetes with other specified manifestations	NA
-	2509	NA	Diabetes with unspecified complication	NA
-	25000	E119	Diabetes mellitus without mention of complication, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus without complications
-	25001	E109	Diabetes mellitus without mention of complication, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus without complications
-	25002	E1165	Diabetes mellitus without mention of complication, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperglycemia
-	25003	E1065	Diabetes mellitus without mention of complication, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with hyperglycemia
-	25010	E1110	Diabetes with ketoacidosis, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with ketoacidosis without coma
-	25010	E1169	Diabetes with ketoacidosis, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with other specified complication
-	25010	E1310	Diabetes with ketoacidosis, type II or unspecified type, not stated as uncontrolled	Other specified diabetes mellitus with ketoacidosis without coma
-	25011	E1010	Diabetes with ketoacidosis, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with ketoacidosis without coma
-	25012	E1110	Diabetes with ketoacidosis, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with ketoacidosis without coma
-	25012	E1165	Diabetes with ketoacidosis, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperglycemia
-	25012	E1169	Diabetes with ketoacidosis, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with other specified complication
-	25012	E1310	Diabetes with ketoacidosis, type II or unspecified type, uncontrolled	Other specified diabetes mellitus with ketoacidosis without coma

Supplementary Table 3. Continued

Diabetes	ICD-9 codes	ICD-10 codes	ICD-9 Description	ICD-10 Description
-	25013	E1010 With, E1065	Diabetes with ketoacidosis, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with ketoacidosis without coma, With, Type 1 diabetes mellitus with hyperglycemia
-	25020	E1100	Diabetes with hyperosmolarity, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)
-	25020	E1101	Diabetes with hyperosmolarity, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with hyperosmolarity with coma
-	25021	E1069	Diabetes with hyperosmolarity, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with other specified complication
-	25022	E1100	Diabetes with hyperosmolarity, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)
-	25022	E1165	Diabetes with hyperosmolarity, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperglycemia
-	25023	E1065 With, E1069	Diabetes with hyperosmolarity, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with hyperglycemia, With, Type 1 diabetes mellitus with other specified complication
-	25030	E1111	Diabetes with other coma, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with ketoacidosis with coma
-	25030	E11641	Diabetes with other coma, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with hypoglycemia with coma
-	25031	E1011	Diabetes with other coma, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with ketoacidosis with coma
-	25031	E10641	Diabetes with other coma, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with hypoglycemia with coma
-	25032	E1101	Diabetes with other coma, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperosmolarity with coma
-	25032	E1165	Diabetes with other coma, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperglycemia
-	25033	E1011 With, E1065	Diabetes with other coma, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with ketoacidosis with coma, With, Type 1 diabetes mellitus with hyperglycemia
-	25040	E1129	Diabetes with renal manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with other diabetic kidney complication
-	25041	E1029	Diabetes with renal manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with other diabetic kidney complication

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Diabetes	ICD-9 codes	ICD-10 codes	ICD-9 Description	ICD-10 Description
-	25042	E1121	Diabetes with renal manifestations, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with diabetic nephropathy
-	25042	E1165	Diabetes with renal manifestations, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperglycemia
-	25043	E1021 With, E1065	Diabetes with renal manifestations, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with diabetic nephropathy, With, Type 1 diabetes mellitus with hyperglycemia
-	25050	E11311	Diabetes with ophthalmic manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with unspecified diabetic retinopathy with macular edema
-	25050	E11319	Diabetes with ophthalmic manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with unspecified diabetic retinopathy without macular edema
-	25050	E1136	Diabetes with ophthalmic manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with diabetic cataract
-	25050	E1139	Diabetes with ophthalmic manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with other diabetic ophthalmic complication
-	25051	E10311	Diabetes with ophthalmic manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with unspecified diabetic retinopathy with macular edema
-	25051	E10319	Diabetes with ophthalmic manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with unspecified diabetic retinopathy without macular edema
-	25051	E1036	Diabetes with ophthalmic manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with diabetic cataract
-	25051	E1037X1	Diabetes with ophthalmic manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, right eye
-	25051	E1037X2	Diabetes with ophthalmic manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, left eye
-	25051	E1037X3	Diabetes with ophthalmic manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral
-	25051	E1037X9	Diabetes with ophthalmic manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye
-	25051	E1039	Diabetes with ophthalmic manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with other diabetic ophthalmic complication
-	25052	E11311	Diabetes with ophthalmic manifestations, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with unspecified diabetic retinopathy with macular edema

Supplementary Table 3. Continued

Diabetes	ICD-9 codes	ICD-10 codes	ICD-9 Description	ICD-10 Description
-	25052	E11319	Diabetes with ophthalmic manifestations, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with unspecified diabetic retinopathy without macular edema
-	25052	E1136	Diabetes with ophthalmic manifestations, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with diabetic cataract
-	25052	E1139	Diabetes with ophthalmic manifestations, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with other diabetic ophthalmic complication
-	25052	E1165	Diabetes with ophthalmic manifestations, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperglycemia
-	25053	E10311	Diabetes with ophthalmic manifestations, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with unspecified diabetic retinopathy with macular edema
-	25053	E10319	Diabetes with ophthalmic manifestations, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with unspecified diabetic retinopathy without macular edema
-	25053	E1036	Diabetes with ophthalmic manifestations, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with diabetic cataract
-	25053	E1039 With, E1065	Diabetes with ophthalmic manifestations, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with other diabetic ophthalmic complication, With, Type 1 diabetes mellitus with hyperglycemia
-	25060	E1140	Diabetes with neurological manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with diabetic neuropathy, unspecified
-	25061	E1040	Diabetes with neurological manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with diabetic neuropathy, unspecified
-	25062	E1140	Diabetes with neurological manifestations, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with diabetic neuropathy, unspecified
-	25062	E1165	Diabetes with neurological manifestations, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperglycemia
-	25063	E1040, With, E1065	Diabetes with neurological manifestations, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with diabetic neuropathy, unspecified, With, Type 1 diabetes mellitus with hyperglycemia
-	25070	E1151	Diabetes with peripheral circulatory disorders, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with diabetic peripheral angiopathy without gangrene
-	25071	E1051	Diabetes with peripheral circulatory disorders, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with diabetic peripheral angiopathy without gangrene
-	25072	E1151	Diabetes with peripheral circulatory disorders, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with diabetic peripheral angiopathy without gangrene

Supplementary Table 3. Continued

Diabetes	ICD-9 codes	ICD-10 codes	ICD-9 Description	ICD-10 Description
-	25072	E1165	Diabetes with peripheral circulatory disorders, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperglycemia
-	25073	E1051 With, E1065	Diabetes with peripheral circulatory disorders, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with diabetic peripheral angiopathy without gangrene, With, Type 1 diabetes mellitus with hyperglycemia
-	25080	E11618	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with other diabetic arthropathy
-	25080	E11620	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with diabetic dermatitis
-	25080	E11621	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with foot ulcer
-	25080	E11622	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with other skin ulcer
-	25080	E11628	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with other skin complications
-	25080	E11630	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with periodontal disease
-	25080	E11638	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with other oral complications
-	25080	E11649	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with hypoglycemia without coma
-	25080	E1165	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with hyperglycemia
-	25080	E1169	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with other specified complication
-	25081	E10618	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with other diabetic arthropathy
-	25081	E10620	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with diabetic dermatitis
-	25081	E10621	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with foot ulcer
-	25081	E10622	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with other skin ulcer

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Diabetes	ICD-9 codes	ICD-10 codes	ICD-9 Description	ICD-10 Description
-	25081	E10628	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with other skin complications
-	25081	E10630	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with periodontal disease
-	25081	E10638	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with other oral complications
-	25081	E10649	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with hypoglycemia without coma
-	25081	E1065	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with hyperglycemia
-	25081	E1069	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with other specified complication
-	25082	E1165	Diabetes with other specified manifestations, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperglycemia
-	25082	E1169	Diabetes with other specified manifestations, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with other specified complication
-	25083	E1065 With, E1069	Diabetes with other specified manifestations, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with hyperglycemia, With, Type 1 diabetes mellitus with other specified complication
-	25090	E118	Diabetes with unspecified complication, type II or unspecified type, not stated as uncontrolled	Type 2 diabetes mellitus with unspecified complications
-	25091	E108	Diabetes with unspecified complication, type I [juvenile type], not stated as uncontrolled	Type 1 diabetes mellitus with unspecified complications
-	25092	E1165	Diabetes with unspecified complication, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with hyperglycemia
-	25092	E118	Diabetes with unspecified complication, type II or unspecified type, uncontrolled	Type 2 diabetes mellitus with unspecified complications
-	25093	E1065 With, E108	Diabetes with unspecified complication, type I [juvenile type], uncontrolled	Type 1 diabetes mellitus with hyperglycemia, With, Type 1 diabetes mellitus with unspecified complications
Cirrhosis-related complications				
Ascites	78951	R180	Malignant ascites	Malignant ascites
-	78959	R188	Other ascites	Other ascites

Supplementary Table 3. Continued

Diabetes	ICD-9 codes	ICD-10 codes	ICD-9 Description	ICD-10 Description
Hepatic encephalopathy	5722	K7290 K7291	Hepatic encephalopathy	Hepatic failure, unspecified without coma Hepatic failure, unspecified with coma

ICD, International Classification of Diseases; NA, not applicable.