

Supplementary Table 1. Inclusion and exclusion International Classification of Diseases-9 Codes (ICD-9) codes used in the algorithm of NAFLD cases identification.

INCLUSION
571.8 other chronic nonalcoholic liver disease 571.9 unspecified chronic liver disease without alcohol 571.5 cirrhosis without alcohol
EXCLUSION
HEPATITIS (VIRAL AND AUTOIMMUNE)
070.0 viral hepatitis A with hepatic coma 070.1 viral hepatitis A without hepatic coma 070.20 viral hepatitis B with hepatic coma acute or unspecified without hepatitis delta 070.21 viral hepatitis B with hepatic coma acute or unspecified with hepatitis delta 070.22 chronic viral hepatitis B with hepatic coma without hepatitis delta 070.23 chronic viral hepatitis B with hepatic coma with hepatitis delta 070.30 viral hepatitis B without hepatic coma acute or unspecified without hepatitis delta 070.31 viral hepatitis B with hepatic coma acute or unspecified with hepatitis delta 070.32 chronic viral hepatitis B without hepatic coma without hepatitis delta 070.33 chronic viral hepatitis B without hepatic coma with hepatitis delta 070.41 acute hepatitis C with hepatic coma 070.42 hepatitis delta without active hepatitis B with hepatic coma 070.43 hepatitis E with hepatic coma 070.44 chronic hepatitis C with hepatic coma 070.49 other specified viral hepatitis with hepatic coma 070.51 acute hepatitis C without mention of hepatic coma 070.52 hepatitis delta without active hepatitis B disease or hepatic coma 070.53 hepatitis E without hepatic coma 070.54 chronic hepatitis C without hepatic coma 070.59 other specified viral hepatitis without hepatic coma 070.6 unspecified viral hepatitis with hepatic coma 070.70 unspecified viral hepatitis C without hepatic coma 070.71 unspecified viral hepatitis C with hepatic coma 070.9 unspecified viral hepatitis without hepatic coma V02.60 carrier or suspected carrier of viral hepatitis unspecified V02.61 carrier or suspected carrier of hepatitis B V02.62 carrier or suspected carrier of hepatitis C V02.69 carrier or suspected carrier of other viral hepatitis 571.40 chronic hepatitis unspecified 571.41 chronic persistent hepatitis 571.42 autoimmune hepatitis 571.49 chronic hepatitis 573.1 hepatitis in viral diseases classified elsewhere 573.2 hepatitis in other infectious diseases classified elsewhere
ALCOHOLIC LIVER DISEASE
571.0 alcoholic fatty liver disease 571.1 acute alcoholic hepatitis 571.2 alcoholic cirrhosis of liver 571.3 alcoholic liver damage
OTHER
571.6 biliary cirrhosis

Supplementary Table 2. International Classification of Diseases-9 (ICD-9) used in the definition of metabolic comorbidities.

DIABETES MELLITUS
ICD-9: 250.xx
HYPERTENSION
401.0-9 Essential hypertension
402.0-91 Hypertensive heart disease
403.00-91 Hypertensive chronic kidney disease
404.00-93 Hypertensive heart and kidney disease
DYSLIPIDEMIA
272.0-9 Disorders of lipid metabolism

Supplementary Table 3. Current Procedural Terminology, Version 4 (CPT-4) procedure codes and Healthcare Common Procedure Coding System (HCPCS) procedure codes used for utilization definition.

Imaging	CPT/HCPCS Code
Abdominal ultrasound	76700, 76705
Computed tomography	74150, 74160, 74170, 74174, 74175, 74176, 74177, 74178
Magnetic resonance imaging	74181, 74182, 74183, 74185
Fibroscan	91200
Elastography	0346T
Liver biopsy	47000, 47001
Laboratory tests	
Basic metabolic panel	80047, 80048, G0096
General health panel	80050
Electrolyte panel	80051
Comprehensive metabolic panel	80053, G0098
Hepatic function panel	80058, 80076
Hepatitis panel	80059
Lipid panel	80061
Renal function panel	80069
Acute hepatitis panel	80074
Albumin	82040
Apolipoprotein	82172
Bilirubin total	82247
Bilirubin direct	82248
Assay bilirubin	82250
Cholesterol total	82465
Creatinine	82565
Creatinine clearance test	82575
Glucose blood test	82947, 82950, 82962
Glucose tolerance test	82977
Glycosylated hemoglobin test	83036, 83037
HDL/LDL	83718
Assay alkaline phosphate	84075, 84078, 84080
Aspartate aminotransferase (AST)	84450
Alanine aminotransferase (ALT)	84460
Assay triglycerides	84478
Bleeding time test	85002
Hemocrit	85013, 85014

Hemoglobin	85018
Automated hemogram	85021, 85023, 85024, 85025, 85027
Manual platelet count	85032
Automated leukocyte count	85048
Automated platelet count	85049
Coagulation time	85345, 85347, 85348
Prothrombin test	85610, 85611
Partial thromboplastin time	85730, 85732

Supplementary Table 4. Current Procedural Terminology, Version 4 (CPT-4) codes and American Medical Association (AMA) codes used for the definition of healthcare utilization.

Office Visits*	AMA code=11 (office) and CPT codes: 99201-99205, 99211-99215, 99241-99245
Hospitalizations	AMA code=21 and revenue codes: 010x - 016x, 020x-021x
ER Visits¶	CPT codes: 99281-99285, 99288 or revenue codes: 0450-0452, 0456, 0459, 0981

*Counted one per specialty per day if more than one on a service date

¶ If ER visit resulted in hospital admission then it was counted as hospitalization and not ER visit

Supplementary Table 5. Changes in annual utilization rates (per 1000 subjects) after NAFLD diagnosis.

	Controls			NAFLD		
	1 year prior to matching	1 year after matching	Rate Ratio (95% CI)	1 year prior to diagnosis	1 year after diagnosis	Rate Ratio (95% CI)
A. Commercial insurance	N=76,632			N=76,632		
Liver biopsy	0.1	0.2	2.00 (0.90, 4.45)	5.5	28.8	5.24 (4.73, 5.82)
Imaging	110.9	123.6	1.11 (1.07, 1.16)	482.3	1215.5	2.52 (2.49, 2.56)
Ultrasound	26.8	29.2	1.09 (1.03, 1.16)	177.2	490.1	2.77 (2.71, 2.82)
Computer tomography	58.3	66.8	1.15 (1.09, 1.20)	215.0	552.1	2.57 (2.52, 2.62)
Magnetic resonance imaging	3.2	3.8	1.18 (0.97, 1.44)	18.0	61.6	3.42 (3.20, 3.66)
Laboratory tests	1488.4	1758.9	1.18 (1.17, 1.20)	2551.7	3324.5	1.30 (1.29, 1.32)
Hospitalizations	63.3	68.5	1.08 (1.03, 1.13)	125.5	212.2	1.69 (1.64, 1.75)
Office visits	4301.9	4571.8	1.06 (1.05, 1.07)	6546.7	7480.5	1.14 (1.13, 1.15)
Emergency room visits	111.2	96.2	0.87 (0.84, 0.89)	174.7	175.5	1.00 (0.98, 1.03)
B. Medicare Advantage	N=31,721			N=31,721		
Liver biopsy	0.4	0.6	1.67 (0.81, 3.41)	4.6	19.6	4.22 (3.53, 5.06)
Imaging	240.6	270.6	1.12 (1.07, 1.18)	636.3	1470.4	2.31 (2.27, 2.36)
Ultrasound	45.7	48.7	1.06 (0.99, 1.15)	188.4	499.9	2.65 (2.58, 2.73)
Computer tomography	130.4	148.1	1.14 (1.08, 1.20)	309.3	720.0	2.33 (2.27, 2.39)
Magnetic resonance imaging	7.1	8.4	1.19 (0.98, 1.44)	24.3	71.3	2.93 (2.68, 3.20)
Laboratory tests	2952.0	3070.6	1.04 (1.02, 1.06)	3608.1	4063.0	1.13 (1.11, 1.15)
Hospitalizations	233.8	266.4	1.14 (1.09, 1.19)	343.9	492.6	1.43 (1.39, 1.48)
Office visits	7611.1	7658.6	1.01 (0.99, 1.02)	9792.9	10619.9	1.08 (1.07, 1.10)
Emergency room visits	361.1	396.2	1.10 (1.06, 1.14)	555.0	668.2	1.20 (1.17, 1.24)