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Supplementary Table 1: International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) Codes Using for Study

Diagnostic Category	ICD-9-CM codes used
Decompensated Cirrhosis	571.2, 571.5, 571.6 (cirrhosis codes) + 456.0, 456.20 (esophageal varices with bleeding); 456.1, 456.21 (esophageal varices without bleeding); 789.5, 789.59 (ascites); 572.2 (hepatic coma), 567.0, 567.2, 567.21, 567.21, 567.29, 567.8, 567.89, 567.9 (peritonitis); 572.4 (hepatorenal syndrome) ¹⁴
Palliative Care Consultation	V66.7 ^{15,16}
Reason for admission	CCS Primary diagnosis ¹² and APR-DRG codes ³⁸
Presence of Hepatocellular Carcinoma (HCC)	155.0 ³⁹
Listed or Received Liver Transplant	V49.83 ⁴⁰ (awaiting organ transplant), 505.0, 505.1, 505.9 (received liver transplant) ³⁹
Mechanical Ventilation	96.04, 96.05, 96.70, 96.71, 96.72 ⁴¹
Hemodialysis	584.5, 584.6, 584.7, 584.8, 584.9 (acute renal failure codes) + 39.95, V45.1, V56.0, V56.1 (procedure codes for dialysis), excluding 39.27, 39.42, 39.43, and 39.93 (procedure codes for AV fistula creation or revision) ⁴²
Blood Transfusion	99.03, 99.04 ⁴³
Total Parenteral Nutrition	99.15x, 96.6x ⁴⁴
Cardiopulmonary Resuscitation (CPR)	99.6, 99.63 ⁴⁵
Endoscopy	CCS codes: 70, 76 ¹²
Paracentesis	CCS codes: 88 ¹²
Transjugular Intrahepatic Portosystemic Shunt	39.1 ⁴⁶
Blakemore Tube	96.06 ⁴⁶
Radiofrequency Ablation	50.23-50.26 ⁴⁷
Trans-arterial Chemoembolization	99.25 ⁴⁷

Supplementary Table 3: Sensitivity Analyses Exploring Non-Transplant Candidates and Adjustment Using Doubly Robust Inverse Probability Treatment Weighted (IPTW) Analysis

Sensitivity Analysis	Dataset	Effect of Palliative Care on Cost	95% Confidence Interval
Non-Transplant Candidates	All data	-7,111	(-10,242, -5,179)
IPTW Analysis	Non-imputed Data	-10,000	(-12,319, -7,683)
	Imputation # 1	-9,712	(-11,967, -7,456)
	Imputation # 2	-9,561	(-11,885, -7,267)
	Imputation # 3	-9,736	(-11,984, -7,487)
	Imputation # 4	-9,692	(-11,945, -7,439)
	Imputation # 5	-9,694	(-11,941, -7,445)
	Mean	-9,773	

	Small Urban, Non-teaching	Small Urban, teaching	Medium, Urban Non-Teaching	Medium, Urban Teaching	Large Rural	Large Urban Non-Teaching	Large Urban Teaching
Patients, N (% receiving palliative care)*	1,767 (18.3%)	3,068 (24.9%)	4,832 (22.2%)	7,693 (29.4%)	2,751 (23.6%)	13,006 (28.5%)	25,700 (32.5%)
Female	0.95 (0.52-1.72)	1.19 (0.82-1.74)	1.08 (0.79-1.48)	0.77 (0.61-0.99)	0.82 (0.54-1.24)	1.17 (0.98-1.39)	1.02 (0.91-1.15)
Race							
Caucasian	Reference	Reference	Reference	Reference	Reference	Reference	Reference
African American	0	0.44 (0.21-0.92)	0.51 (0.23-1.12)	0.65 (0.44-0.95)	0.80 (0.33-1.97)	0.99 (0.70-1.39)	0.72 (0.58-0.90)
Hispanic	0.36 (0.11-1.16)	1.01 (0.59-1.71)	0.92 (0.55-1.56)	0.78 (0.44-1.09)	0.42 (0.15-1.24)	0.85 (0.64-1.13)	0.86 (0.66-1.11)
Asian	0.26 (0.04-1.82)	1.20 (0.47-3.20)	0.79 (0.21-3.00)	0.71 (0.31-1.63)	**	1.09 (0.60-1.95)	0.82 (0.53-1.26)
Native American	3.97 (0.85-18.7)	**	**	3.41 (1.23-9.50)	0.56 (0.13-2.50)	2.18 (0.89-5.27)	1.90 (1.02-3.55)
Other	0.63 (0.12-3.32)	0.49 (0.12-1.89)	1.26 (0.51-3.12)	0.81 (0.41-1.64)	2.72 (0.67-11.0)	1.00 (0.61-1.64)	0.80 (0.56-1.14)
Insurance Status							
Medicare (%)	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Medicaid (%)	1.25 (0.43-3.70)	1.82 (0.98-3.35)	0.73 (0.46-1.14)	1.06 (0.74-1.50)	1.01 (0.50-2.02)	1.22 (0.94-1.60)	1.00 (0.83-1.21)
Private (%)	0.87 (0.40-1.91)	1.29 (0.74-2.13)	0.94 (0.62-1.42)	1.08 (0.76-1.53)	1.97 (1.09-3.59)	1.24 (0.98-1.58)	1.02 (0.86-1.22)
Self-pay (%)	1.08 (0.275-4.26)	1.14 (0.49-2.64)	0.68 (0.35-1.32)	1.09 (0.68-1.73)	0.83 (0.28-2.47)	1.19 (0.84-1.69)	1.06 (0.80-1.39)
No charge (%)	**	**	**	3.41 (1.23-9.50)	**	1.30 (0.48-3.55)	1.34 (0.57-3.13)
Other (%)	0.49 (0.09-2.61)	1.49 (0.67-3.29)	0.68 (0.30-1.55)	1.86 (1.10-3.13)	1.05 (0.33-3.35)	1.67 (1.02-2.72)	0.97 (0.69-1.37)
Age	1.02 (0.99-1.05)	1.00 (0.98-1.02)	0.99 (0.98-1.01)	1.01 (0.99-1.02)	1.00 (0.99-1.03)	1.00 (0.99-1.00)	1.00 (1.00-1.01)
Annual Household Income							

0-25 th Percentile	Reference	Reference	Reference	Reference	Reference	Reference	Reference
25 th -50 th Percentile	1.23 (0.44-3.48)	0.82 (0.44-1.52)	0.87 (0.48-1.58)	1.22 (0.90-1.66)	1.27 (0.73-2.23)	1.21 (0.92-1.58)	1.03 (0.87-1.23)
50-75 th Percentile	1.35 (0.504-3.63)	1.29 (0.71-2.32)	1.59 (0.92-2.77)	0.90 (0.65-1.26)	2.14 (1.07-4.26)	1.22 (0.88-1.68)	1.07 (0.87-1.30)
75 th -100 th Percentile	2.25 (0.84-6.03)	1.15 (0.63-2.10)	1.34 (0.74-2.43)	0.80 (0.56-1.15)	1.47 (0.38-5.64)	1.56 (1.13-2.16)	1.05 (0.84-1.32)
Charlson comorbidity index	0.98 (0.84-1.15)	1.06 (0.98-1.15)	1.02 (0.96-1.08)	1.03 (0.98-1.08)	0.95 (0.85-1.05)	1.02 (0.98-1.06)	1.04 (1.01-1.07)
Hepatocellular Carcinoma (%)	1.50 (0.46-4.93)	0.71 (0.30-1.69)	1.42 (0.71-2.87)	1.24 (0.83-1.86)	3.25 (1.24-8.53)	1.91 (1.32-2.77)	1.34 (1.06-1.69)
Awaiting or Received Liver Transplant (%)	**	2.11 (0.43-10.2)	**	0.52 (0.17-1.63)	6.42 (0.79-52.3)	0.53 (0.11-2.66)	0.73 (0.52-1.04)
Year							
2009	Reference	Reference	Reference	Reference	Reference	Reference	Reference
2010	1.99 (0.59-6.73)	3.02 (1.11-8.17)	0.95 (0.42-2.17)	2.16 (1.14-4.09)	1.84 (0.76-4.47)	1.27 (0.79-2.03)	1.81 (1.23-2.67)
2011	0.58 (0.18-1.87)	4.85 (1.78-13.33)	2.03 (1.11-3.71)	2.25 (1.21-4.22)	1.02 (0.40-2.66)	1.93 (1.28-2.92)	2.26 (1.35-3.74)
2012	1.97 (0.74-5.22)	4.31 (1.70-10.91)	2.05 (1.07-3.97)	2.14 (1.90-3.87)	2.31 (1.01-5.28)	1.71 (1.11-2.62)	2.94 (1.97-4.37)
2013	1.47 (0.49-4.39)	6.82 (2.82-16.78)	2.45 (1.25-4.81)	1.90 (1.05-3.44)	2.66 (1.13-6.23)	2.00 (1.32-3.03)	3.00 (2.04-4.39)

* Small rural hospitals (N=170, 18.1%) and medium rural hospitals (N=483, 30.1%) not included due to small numbers of all data elements.

** Few (<10) or no patients found in hospital sub-sample

Supplementary Table 2: Receipt of Palliative Care Consultation, Stratified by Hospital Factors