



2007 U.S. Organ and Tissue Transplant Cost Estimates

NOVEMBER 2007

BY RICHARD H. HAUBOLDT, FSA

This research report interim update to Milliman's 2005 U.S. Organ and Tissue Transplant Cost Estimates and Discussion represents estimates of 2007 U.S. average billed costs per member per month (PMPM), billed charges, and utilization related to the first year of treatment for organ and tissue transplants. "Costs" equal the product of utilization and billed charges. Tissue transplants include bone marrow and cornea transplants, with the bone marrow estimates split between the autologous and allogeneic donor methods. Actual transplant experience for any health plan or provider entity will vary from the estimates in this summary.

TABLE 1: ESTIMATED COSTS PMPM, CHARGES, AND UTILIZATION

Milliman summarizes the estimated U.S. average 2007 first-year transplant costs PMPM and reflects removal of transplants provided to non-resident aliens in Table 1. Milliman estimated annual utilization rates per 1,000 members (i.e., people) using 2007 U.S. population estimates based on the Statistical Abstract of the United States.

TABLE 1									
ESTIMATED U.S. AVERAGE 2007 FIRST-YEAR TRANSPLANT UTILIZATION, BILLED CHARGES, AND COSTS PER MEMBER PER MONTH (PMPM)									
TRANSPLANT	ALL AGES		UNDER AGE 65 (POPULATION ESTIMATE: 263,249,000)			AGES 65 AND OVER (POPULATION ESTIMATE: 38,171,000)			
	ESTIMATED NUMBER OF TRANSPLANTS	ESTIMATED NUMBER OF TRANSPLANTS	ESTIMATED ANNUAL UTILIZATION PER 1,000	ESTIMATED FIRST-YEAR BILLED CHARGES	ESTIMATED COST PMPM	ESTIMATED NUMBER OF TRANSPLANTS	ESTIMATED ANNUAL UTILIZATION PER 1,000	ESTIMATED FIRST-YEAR BILLED CHARGES	ESTIMATED COST PMPM
HEART ONLY	2,118	1,917	0.00728	\$658,800	\$0.40	201	0.0053	\$658,800	\$0.29
SINGLE LUNG ONLY	783	706	0.00268	\$399,500	\$0.09	77	0.0020	\$399,500	\$0.07
DOUBLE LUNG ONLY	844	832	0.00316	\$557,400	\$0.15	12	0.0003	\$557,400	\$0.01
HEART-LUNG	38	38	0.00014	\$874,800	\$0.01	0	0.00000	\$874,800	\$0.00
LIVER ONLY	6,504	5,980	0.02272	\$519,600	\$0.98	524	0.0137	\$519,600	\$0.59
KIDNEY ONLY	17,015	15,142	0.05752	\$246,400	\$1.18	1,873	0.0491	\$246,400	\$1.01
PANCREAS ONLY	490	489	0.00186	\$297,300	\$0.05	1	0.0000	\$297,300	\$0.00
KIDNEY-PANCREAS	924	922	0.00350	\$368,600	\$0.11	2	0.00005	\$368,600	\$0.00
BONE MARROW - AUTOLOGOUS	8,259	7,649	0.02906	\$273,100	\$0.66	610	0.01598	\$273,100	\$0.36
BONE MARROW - ALLOGENEIC RELATED	4,442	4,372	0.01661	\$478,600	\$0.66	70	0.00183	\$478,600	\$0.07
BONE MARROW - ALLOGENEIC UNRELATED	2,848	2,798	0.01063	\$602,200	\$0.53	50	0.00131	\$602,200	\$0.07
INTESTINE ONLY	81	81	0.00031	\$908,600	\$0.02	0	0.0000	\$908,600	\$0.00
INTESTINE WITH OTHER ORGANS	155	155	0.00059	\$1,096,665	\$0.05	0	0.00000	\$1,096,665	\$0.00
KIDNEY-HEART	81	76	0.00029	\$758,700	\$0.02	5	0.00013	\$758,700	\$0.01
LIVER-KIDNEY	489	460	0.00175	\$657,000	\$0.10	29	0.00076	\$657,000	\$0.04
OTHER MULTI-ORGAN	22	21	0.00008	\$899,800	\$0.01	1	0.00003	\$899,800	\$0.00
CORNEA	31,166	14,226	0.05404	\$23,300	\$0.10	16,940	0.44379	\$23,300	\$0.86
TOTAL	76,259	55,864	0.21222	289,511	\$5.12	20,395	0.53431	75,911	\$3.38

TABLE 2: DETAILED CHARGE ESTIMATES

We summarize the estimated U.S. average 2007 first-year billed charges per transplant in Table 2. The detailed billed charge categories are defined according to the definitions previously included in our 2005 U.S. Organ and Tissue Transplant Cost Estimates and Discussion research report. Negotiated payment arrangements can be significantly below the billed charges shown.

BASIS OF UTILIZATION AND CHARGE ESTIMATES

Milliman bases the utilization estimates on data from the Organ Procurement and Transplantation Network (OPTN), the Scientific Registry of Transplant Recipients (SRTR), the United Network

for Organ Sharing (UNOS), the National Marrow Donor Program (NMDP), the International Bone Marrow Transplant Registry (IBMTR) / Autologous Blood and Marrow Transplant Registry (ABMTR), and the Eye Bank Association of America (EBAA). None of the entities on which we relied for data reviewed or approved our estimates. Any analyses, interpretations, or conclusions based on the data used are solely that of Milliman. We estimated billed charges from several sources including various state hospital databases, Solucient, Inc., the Milliman Health Cost Guidelines and our judgment.

Dick Hauboldt is a principal and consulting actuary with the Milwaukee office of Milliman. Dick's area of expertise is healthcare programs, including managed healthcare, individual major medical plans, group dental plans, Medicare supplement plans, Medicare risk contracts, long-term care, critical illness, and cancer plans.

TABLE 2								
ESTIMATED U.S. AVERAGE 2007 FIRST-YEAR BILLED CHARGES PER TRANSPLANT								
TRANSPLANT	PROCUREMENT	HOSPITAL	HOSPITAL & PROCUREMENT	PHYSICIAN	EVALUATION	FOLLOW-UP	MAINTENANCE OUTPATIENT IMMUNO - SUPPRESSANTS	TOTAL
SINGLE ORGAN TRANSPLANTS								
HEART ONLY	\$89,900	\$383,300	\$473,200	\$40,300	\$22,900	\$93,000	\$29,400	\$658,800
SINGLE LUNG ONLY	\$40,871	\$209,329	\$250,200	\$33,200	\$20,000	\$65,600	\$30,500	\$399,500
DOUBLE LUNG ONLY	\$81,742	\$257,558	\$339,300	\$52,600	\$31,600	\$104,100	\$29,800	\$557,400
HEART-LUNG	\$152,900	\$502,900	\$655,800	\$56,800	\$26,400	\$105,100	\$30,700	\$874,800
LIVER ONLY	\$59,100	\$248,100	\$307,200	\$66,900	\$25,900	\$88,500	\$31,100	\$519,600
KIDNEY ONLY	\$58,300	\$74,500	\$132,800	\$21,500	\$14,600	\$48,000	\$29,500	\$246,400
PANCREAS ONLY	\$66,200	\$107,100	\$173,300	\$24,600	\$14,700	\$48,300	\$36,400	\$297,300
KIDNEY-PANCREAS	\$124,500	\$120,300	\$244,800	\$24,600	\$14,700	\$48,300	\$36,200	\$368,600
BONE MARROW - AUTOLOGOUS	\$21,249	\$134,951	\$156,200	\$21,700	\$19,800	\$75,400	\$0	\$273,100
BONE MARROW - ALLOGENEIC RELATED	\$24,223	\$253,177	\$277,400	\$13,700	\$20,500	\$145,200	\$21,800	\$478,600
BONE MARROW - ALLOGENEIC UNRELATED	\$24,223	\$354,777	\$379,000	\$13,700	\$20,500	\$167,200	\$21,800	\$602,200
INTESTINE ONLY	\$75,449	\$602,451	\$677,900	\$87,100	\$41,700	\$78,500	\$23,400	\$908,600
LIVER-INTESTINE	\$134,549	\$674,551	\$809,100	\$87,100	\$41,700	\$88,500	\$31,700	\$1,058,100
LIVER-PANCREAS- INTESTINE	\$200,749	\$587,751	\$788,500	\$87,100	\$41,700	\$88,500	\$35,100	\$1,040,900
PANCREAS- INTESTINE	\$141,649	\$586,751	\$728,400	\$87,100	\$41,700	\$78,500	\$35,400	\$971,100
KIDNEY-HEART	\$148,200	\$419,200	\$567,400	\$40,300	\$22,900	\$93,000	\$35,100	\$758,700
LIVER-KIDNEY	\$117,400	\$321,100	\$438,500	\$66,900	\$25,900	\$88,500	\$37,200	\$657,000
OTHER MULTI- ORGAN TRANSPLANTS	\$143,493	\$516,307	\$659,800	\$66,900	\$31,600	\$105,100	\$36,400	\$899,800
CORNEA	\$0	\$13,200	\$13,200	\$10,100	\$0	\$0	\$0	\$23,300