

HEART TRANSPLANTS - Data CYE 2005- CYE 2008

HEART	AHCCCS Data for Cases Members >21 years			
	2005	2006	2007	2008
Listed During year	20	34	40	18
# listed Dual or TPL	Unknown	5	0	7
Total Members on Wait list (includes previous years rollover members)	17	26	8	15
Transplanted	12	15	10	4
Mortality	3	2	0	3 members expired while on wait list
Approved Costs for Components during contract year	\$ 1,378,246.10	\$ 2,128,956.00	\$ 1,774,130.00	\$1,242,000.00

Note- 2005 a transplant log of all members was not maintained
 * 2 members removed from list - one recovered and one failed to maintain criteria

SUMMARY OF FINDINGS:

Criteria for listing:

The International Society for Heart and Lung Transplantation (ISHLT) published an update of listing and management policies for potential cardiac transplantation candidates. The ISHLT recognized that the criteria for management and listing of patients were out of date. The new criteria provides succinct and clear guidance on testing, the results of the testing as well as absolute and relative contraindications to considering a patient for transplant.

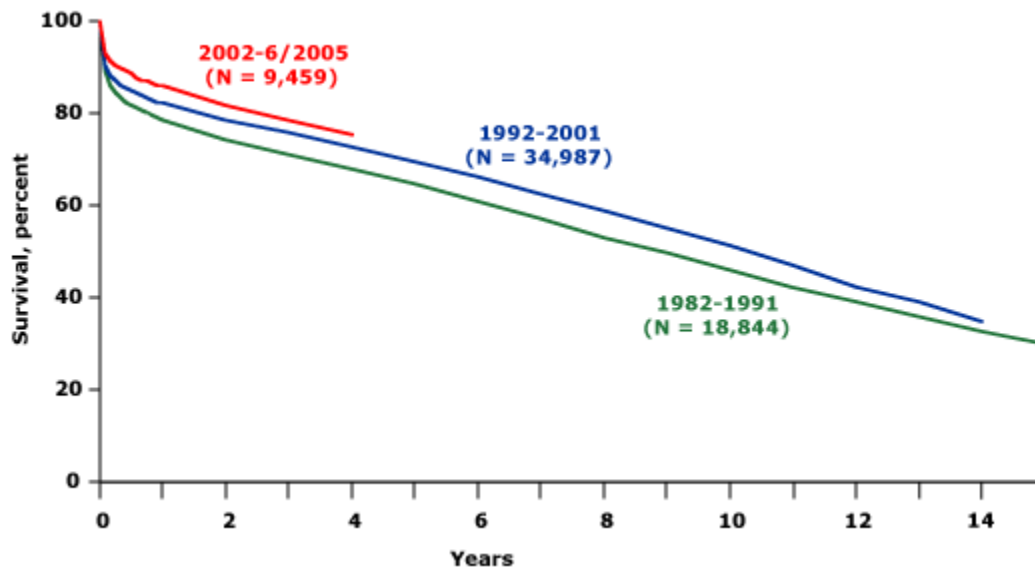
Nonischemic cardiomyopathy accounts for about 45 percent of cases and coronary artery disease accounts for about 38 percent, a distribution that has changed only slightly over many years

Mortality and Morbidity: The following findings were noted in the 2007 report from the Registry of the International Society of Heart and Lungs Transplants:

- There is appreciable mortality in the first six months of approximately 14-16%, followed by a mortality rate of about 3.4 percent per year thereafter (see graph below). The mortality during the first year is 1.4 times the mortality in the next four years combined.
- The half-life of patient survival has progressively improved from 8.9 years in 1982 to 1991, advancing to 10.3 years in 1992 to 2000, and finally to a projected half-life of the organ of approximately 11 years in 2002 to 2005. The major gains in survival are limited to the first 6 to 12 months, **with the long-term attrition rate being unchanged.** The improvement is probably larger than it appears, since the risk profile of recipients and the age of donors continues to increase.

The improvement in survival largely reflects improvements in immunosuppression and in the prevention and treatment of infection.

Figure 1: Gradual improvement in heart transplant recipient survival over time



Data from the Registry of the International Society for Heart and Lung Transplantation show Kaplan-Meier survival curves for adult heart transplants performed between January 1982 and June 2005 by era. All comparisons between the different eras were statistically significant at $p < 0.0001$. The half-life of survival increased from 8.9 years in 1982-1991 to 10.3 years in 1992-2001. The projected half-life for 2002-June 2005 is approximately 11 years. *Data from Taylor, DO, Edwards, LB, Boucek, MM, et al. Registry of the International Society for Heart and Lung Transplantation: twenty-fourth official adult heart transplant report--2007. J Heart Lung Transplant 2007; 26:769.*

The 2007 report from the ISHLT registry evaluated risk factors for mortality at five years in patients transplanted between January 1999 and June 2001 who were alive at one year. The following findings were noted:

- The most important risk factor was **repeat transplantation**
- 80% are alive at 2 years

Adverse predictors of survival in patients with heart failure are lengthy and include some of the following:

- Reduced ejection fraction in with the left or right ventricle
- Signs of reduced tissue perfusion
- Diabetes mellitus
- Ischemic heart disease, including extent of coronary artery disease
- Depression
- Nocturnal Cheyne-Stokes respirations

Causes of death after 5 years:

- Allograft vasculopathy and late graft failure (likely due to allograft vasculopathy) — 30 percent
- Malignancies — 22 percent
- Non-CMV infection — 10 percent

Quality Of Life after Transplantation:

Data from the ISHLT indicate that:

- 90 percent of patients have no limitation of activity at one and five years. Despite generally excellent functional capacity following cardiac transplantation, less than 30 percent of patients return to full-time work;
- less than 10 percent resume only part-time work and
- Approximately 40 percent remain unemployed.
- In the United States, this discrepancy may be in part related to the link between employability and insurability.

Cardiac Patient Care Cost Analysis of Medical Management or other interventions to Heart Transplant:

In the treatment of cardiomyopathy which is the leading diagnosis for heart transplants, a study by the University of Virginia (2001) published by the Society of Thoracic Surgeons concluded that “compared with heart transplantation, alternative operations yield a comparable early outcome and long-term survival, and are markedly less expensive”

According to Transplant Living, the average total cost of a single heart transplant in 2007 was \$658,800. This figure includes the cost of obtaining a donor heart, at an average of nearly \$90,000, about \$23,000 in evaluation fees, \$40,000 for doctor's fees, \$383,000 in hospital costs, \$93,000 in post-operative care, and over \$29,000 for immunosuppressive prescription medications. Transplants that involved both a heart and a lung cost an average of \$874,800, while heart and kidney combination transplants cost an average of \$758,700.

Milliman reports in 2007 that the average cost of a Heart transplant is: \$658,800. Milliman costs for 2008 are as follows:

total cost of \$787,700; \$34,200 for the timeframe of 30 days pre-transplant, \$94,300 for organ procurement, \$486,400 for hospital transplant admission, \$50,800 for physician costs during transplant, \$99,700 for the period of 180 post-transplant admission and \$22,300 for immunosuppressants and other prescriptions.

Although many patients may only consider the initial cost of a heart transplant, patients must receive follow-up care and continue to take immunosuppressive drugs in the years following the transplant in order to keep the new heart working properly. This follow-up care costs about **\$22,000 each year**, but may be higher or lower depending on the cost of the particular medication, the cardiologist's fees, the number of tests required, the cost of treating any complications that arise, and the patient's overall health.

AHCCCS Experience with Heart Transplants (based on Data Warehouse numbers eff. 5/09)

	Average Encounter Based Allowed Costs for the time frame of 2 years prior to transplant	Average Encounter Based Allowed Costs for the time frame for 1 year prior to transplant	Average Cost of member during transplant year (based on 31 members spanning the transplant years of 2004-2008)	Average Cost per member for 1 st year post transplant	Average Cost per member for 2 nd year post transplant
Billed Amount	\$37,192.39	\$220,284.28	\$1,070,601.23	\$255,732.93	\$230,575.38
Allowed Amount	\$ 9,384.13	\$ 35,963.16	\$ 181,872.51	\$ 53,423.47	\$ 49,955.22

Paid Amount	\$ 5,359.93	\$ 28,859.69	\$ 134,993.51	\$ 52,645.43	\$ 44,370.04
Health Plan Paid Amount	\$ 6,127.93	\$ 36,620.54	\$ 131,334.06	\$ 60,646.57	\$ 42,841.95

Insurance Coverage Summary: Medicare coverage since April 6, 1987 in a Medicare approved facility (http://www.cms.hhs.gov/CertificationandCompliance/20_Transplant.asp#TopofPage); Aetna covers including retransplantation for rejection; 97% of the Blues cover heart transplant
 Medicaid: Kansas discontinued coverage for adults in October 6, 2000; Oregon covers up to one transplant and bases criteria on survival rate of at least 20% supported by literature; Florida covers heart transplants.

Recommendations: Consideration should be given to eliminating heart transplants for all adults. At a minimum, transplants for adult cardiomyopathy should be eliminated based on the University of Virginia study that conventional treatment is as efficacious and more cost effective.
 Should adult transplants be a continued benefit, transplant should be limited for heart failure members only. AHCCCS must adopt the criteria published by the ISHLT with modification of the AHCCCS Medical Policy Manual accordingly.

Notes: Kansas is currently reviewing their decision to deny adult transplant and the legislature is hearing statements. The decision to deny heart transplants when a member is ambulatory or has frequent hospitalizations due to heart failure without any other co-morbidities would be hard to defend in a hearing regardless of coverage.

(1) Up to Date: Prognosis after cardiac transplantation, Last literature review version 17.1: January 2009, This topic last updated:September 26, 2007

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17. **Up to Date: Indications and contraindications for cardiac transplantation, Last literature review version 17.1: January 2009, This topic updated: February 29, 2008.**

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