

Blood and Marrow Stem Cell Transplantation

Costs and Trends

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Agenda

1. Overview of Estimated Transplant Costs in 2013
2. Review Methodology and Data Sources
3. Review BM Transplant Utilization and Trend
4. Look at Estimated Transplant Charges and Trends Over Various Periods of Time
5. Look at CPI Trend and Primary Components of Trend

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Estimated Transplant Costs in 2013

	Under Age 65				Ages 65 and Over			
	Estimated Number of Transplants	Estimated Annual Utilization Per 1,000,000	Estimated First-Year Billed Charges	Estimated Cost PMPM	Estimated Number of Transplants	Estimated Annual Utilization Per 1,000,000	Estimated First-Year Billed Charges	Estimated Cost PMPM
Single Organ / Tissue								
Bone Marrow - Allogeneic	6,930	25.18	\$902,600	\$1.89	578	13.11	\$902,600	\$0.99
Bone Marrow - Autologous	9,672	35.14	368,800	\$1.08	2,358	53.5	368,800	\$1.64
Cornea	16,536	60.07	29,100	\$0.15	31,957	725.1	29,100	\$1.76
Heart	1,915	6.96	1,136,100	\$0.66	369	8.37	1,136,100	\$0.79
Intestine	62	0.23	1,235,300	\$0.02	1	0.02	1,235,300	\$0.00
Kidney	12,912	46.91	305,700	\$1.20	3,159	71.68	305,700	\$1.83
Liver	5,021	18.24	686,600	\$1.04	693	15.72	686,600	\$0.90
Lung - Single	388	1.41	677,200	\$0.08	321	7.28	677,200	\$0.41
Lung - Double	1,004	3.65	950,400	\$0.29	252	5.72	950,400	\$0.45
Pancreas	185	0.67	295,600	\$0.02	0	0	295,600	\$0.00

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Utilization Data Sources

- Utilization from various sources
 - UNOS
 - CIBMTR
 - OPTN
 - Eye Bank
- Review change in pattern over past few years
- Smooth out anomalies and project

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Charge Data Sources

- Charges from various sources
 - State Hospital Databases
 - Proprietary Claim Data
- Review change in pattern over past few years
- Smooth out anomalies and project

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Number of Bone Marrow Transplants U.S.

	Allogeneic	Autologous	Total
2002	5,300	8,200	13,500
2003	5,600	8,300	13,900
2004	6,200	9,350	15,550
2005	6,400	9,875	16,275
2006	6,800	10,000	16,800
2007	7,100	9,900	17,000
2008	7,400	10,300	17,700
2009	7,400	10,775	18,175
2010	7,400	11,425	18,825
Trend	4.3%	4.2%	4.2%

Source: CIMBTR

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Indications for Blood and Marrow Transplantation in US – Information from CIBMTR

Indications	2010	
	Allogeneic	Autologous
Multiple Myeloma	235	4,925
Non-Hodgkin Lymphoma	1,000	2,300
AML	3,000	100
ALL	1,300	0
MDS / MPD	1,200	0
Hodgkin Disease	250	750
CML	350	0
Aplastic Anemia	300	0
Other Leukemia	550	0
Non-Malignant Disease	650	50
Other Cancers	25	900
Totals	8,860	9,025

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Transplant Charges in 2002, 2008, and 2013

	2002	2008	2013
Heart / Lung	\$504,400	\$1,123,800	\$1,953,400
Intestine	814,500	1,121,800	1,235,300
Heart	391,800	787,700	1,136,100
Double Lung	382,300	657,800	950,400
Bone Marrow – Allogeneic	397,900	676,800	902,600
Liver	313,600	523,400	686,600
Single Lung	273,100	450,400	677,200
Kidney-Pancreas	195,500	439,000	533,400
Bone Marrow - Autologous	243,800	300,400	368,800
Kidney	143,300	259,000	305,700
Pancreas	148,900	275,500	295,600
Cornea	14,200	20,700	29,100

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Change in Billed Charge Estimates

	Annualized 1999 to 2002	Annualized 2002 to 2008	Annualized 2008 to 2013
Heart / Lung	19.0%	14.3%	11.7%
Intestine	20.0%	5.5%	1.9%
Heart	9.0%	12.3%	7.6%
Double Lung	10.0%	9.5%	7.6%
Bone Marrow – Allogeneic	16.0%	9.3%	5.9%
Liver	9.0%	8.9%	5.6%
Single Lung	10.0%	8.7%	8.5%
Kidney-Pancreas	12.0%	14.4%	4.0%
Bone Marrow - Autologous	19.0%	3.5%	4.2%
Kidney	9.0%	10.4%	3.4%
Pancreas	9.0%	10.8%	1.4%
Cornea	21.0%	6.5%	7.0%

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2013 Cost Structure of Bone Marrow Transplants:

	BM Allogeneic	BM Autologous
30 Days Pre-Transplant	\$57,700	\$54,000
Procurement	55,400	12,300
Hospital	453,800	203,000
Physician	23,900	10,600
180 Days after Transplant	287,700	82,600
Immunosuppressants	24,100	6,300
Total	\$902,600	\$368,800

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Annualized Component Trends:

	Allogeneic		Autologous	
	2002 - 2008	2008 - 2013	2002 - 2008	2008 - 2013
30 Days Pre-Transplant	12.4%	13.7%	12.9%	11.5%
Procurement	-1.9%	13.5%	-7.1%	-10.3%
Hospital	9.8%	3.6%	5.6%	3.6%
Physician	12.2%	4.0%	-6.6%	0.0%
180 Days after Transplant	9.6%	7.9%	1.4%	5.9%
Immunosuppressants	13.9%	4.2%	NA	3.5%
Total	9.3%	5.9%	3.5%	4.2%

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Length of Stay

	2008	2013
Bone Marrow – Autologous	20.4	19.9
Bone Marrow – Allogeneic	33.1	32.9
Stem Cell, Cord Blood	64.3	55.5

Source: State Hospital Databases

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Negotiated Transplant Charge Structure

- Case Rate: Hospital plus usually physician, maybe includes evaluation & follow-up
- Pass through means that cost increase is real to Transplant Center - Procurement
- Hospital is biggest component of the case rate
- Not everyone pays negotiated transplant rates on case rate basis

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Illustrative Annual Medical CPI Trends

	1980 - 2000	2000 - 2010
Hospital and Related Services	7.9%	6.7%
Professional Services	5.7%	3.3%
Total Medical Care Services	6.5%	4.5%
Medical Care Commodities	5.9%	2.8%
Total Medical Care	6.4%	4.1%

Source: Table 142 of 2012 Statistical Abstract of the United States.

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Components of Trend

- Base Inflation – Trend
- Technology – Trend
- Mix of Services - Trend
- Mandated Pricing (MP) – Cost Shift
- Utilization Per MP – Cost Shift
- Benefits Adjustments (BA) – Trend
- Utilization per BA – Trend
- Managed Care Utilization – Trend
- Adverse Selection – Trend / Cost Shift

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Thank You!

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