

IMPROVING THE VALUE OF HCT: A SYSTEM PERSPECTIVE

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July 16, 2015



**How do we achieve the outcomes
that are important to patients?**

HCT AS HEALTH CARE ROLE MODEL

- Standard of care and only potentially curative therapy for many diseases.
 - Dramatic improvements in effectiveness/survival
- Ahead of the curve for health care reform:
 - Bundled payment model = global case rate
 - Quality/Value based networks = Transplant “Centers of Excellence” Model
 - Mandated reporting to central registry = CIBMTR and the SCTOD
 - Public reporting of outcomes = Center-specific 1-year survival
- True partnership with payers:
 - Active, engaged multidisciplinary Advisory Group
 - Collaboration to co-author publications, develop unifying standards

SO, WHY ARE WE TALKING ABOUT VALUE??

WHAT IS VALUE?

**Value proposition= HCT is potentially curative,
but expensive.**

20 YEARS OF CLINICAL PROGRESS = DRAMATIC IMPROVEMENT IN SURVIVAL

Improved Survival with Unrelated Transplantation	
TRANSPLANT PERIOD	ONE-YEAR SURVIVAL
2009-2011	63.6%
2008-2010	61.8%
2007-2009	60.3%
2004-2008	57.9%
2003-2007	56.3%
2002-2006	54.0%
2001-2005	51.5%
2000-2004	48.5%
1996-2001	42.2%

1st allogeneic HCT, U.S. transplant centers

SOURCE: [CIBMTR](#)®, the research program of NMDP/Be The Match

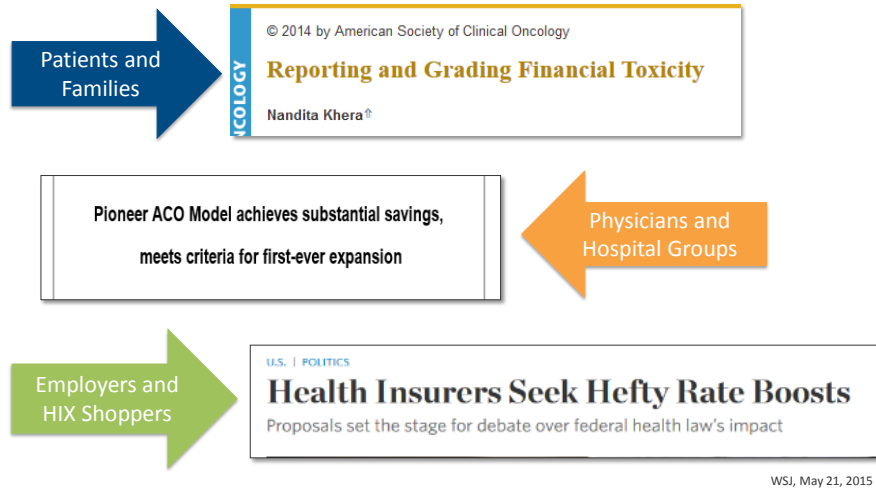
AND...
20 YEARS OF CLINICAL PROGRESS = INCREASING EXPENSE

Year	Auto HCT	Auto PMPM	Allo HCT		Allo PMPM	
2014	\$378,000	\$1.11	\$930,600		\$2.22	
2011	\$363,800	\$1.22	\$805,400		\$1.60	
2008	\$300,400	\$0.93	\$676,800		\$1.61	
2007	\$273,100	\$0.66	RD: \$478,600	URD: \$602,200	RD: \$0.66	URD: \$0.53
2005	\$219,300	\$0.64	RD: \$386,300	URD: \$481,900	RD: \$0.59	URD: \$0.37

Source: Milliman Cost of Transplant Report, 2005-2014
 Estimated billed charges, 30 days prior to 180 days post
 PMPM = Per member, per month; Under 65 years of age.

“BUT IF IT *CURES* PEOPLE, THEY WILL NEED TO PAY FOR IT.”

"THEY" IS NOT WHO YOU THINK IT IS.



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WHAT IS VALUE?

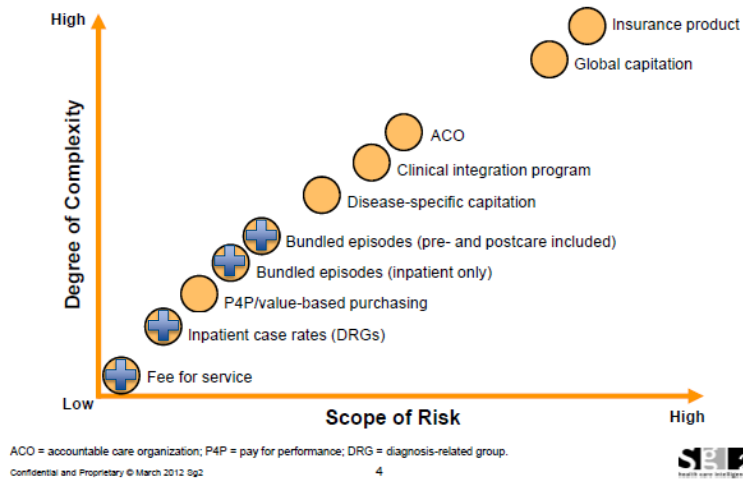
Value proposition= HCT is potentially curative but expensive

Value = Quality/Cost

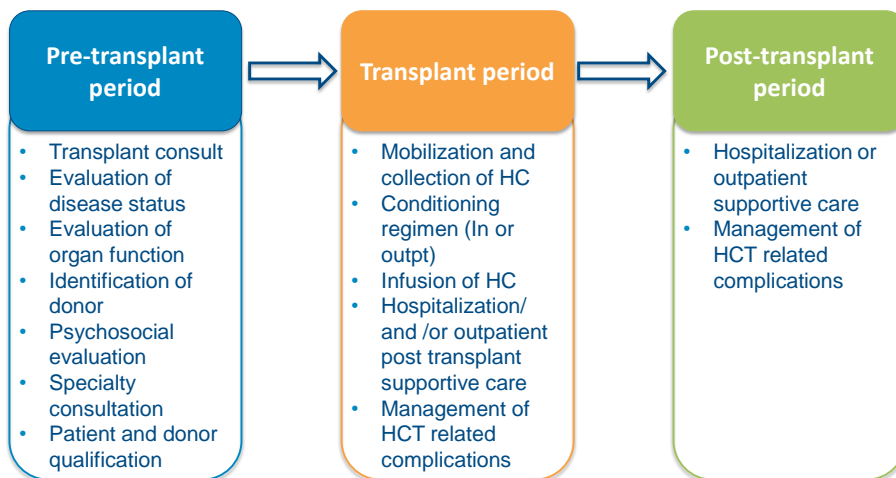
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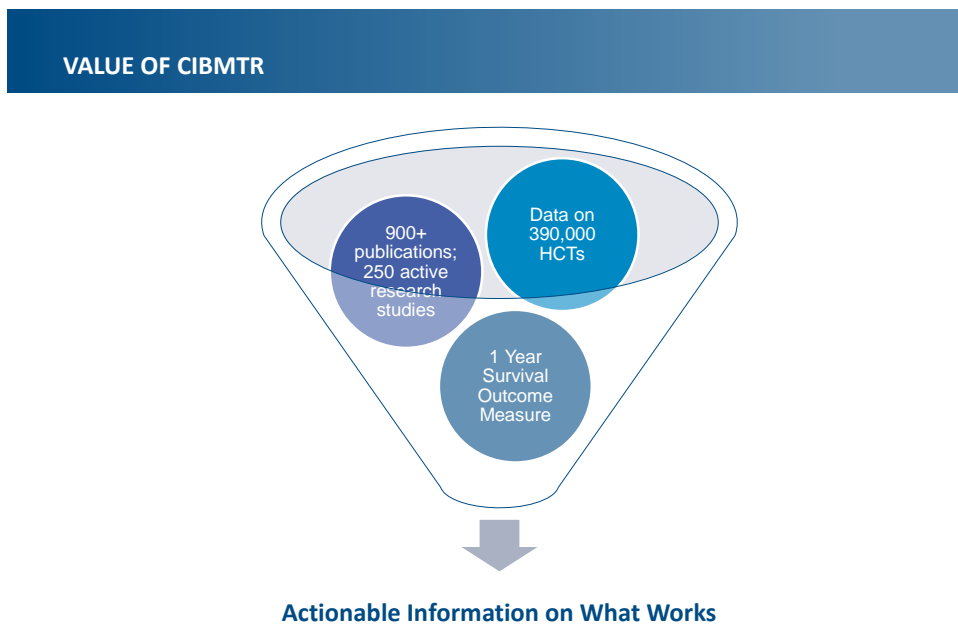
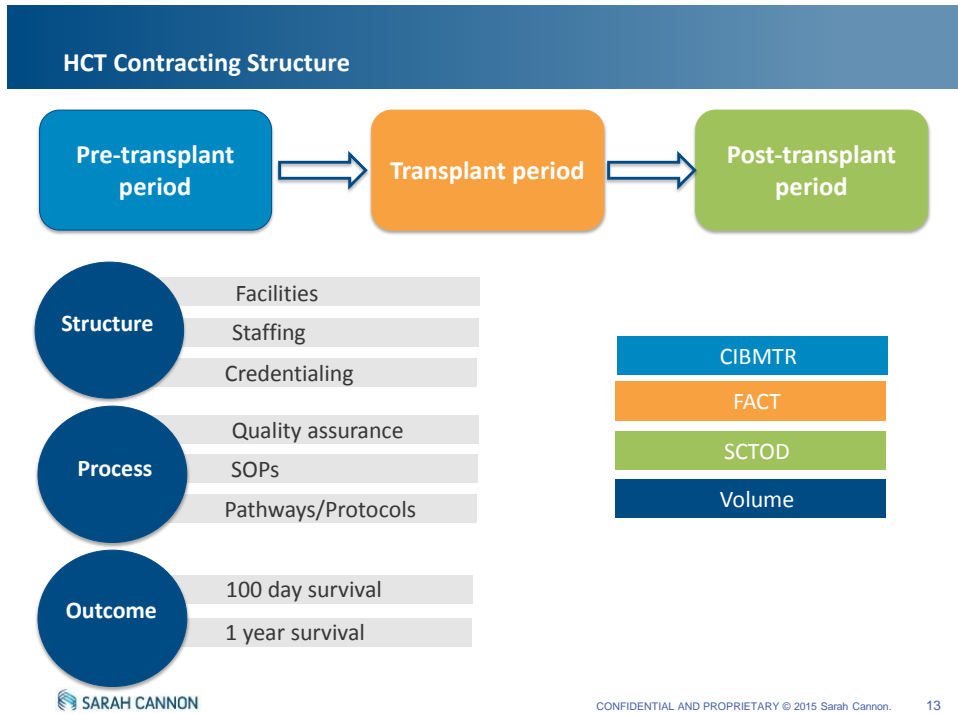
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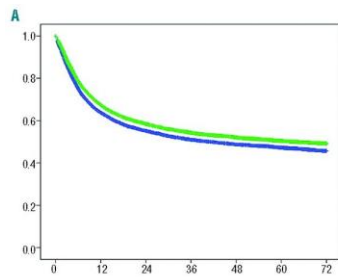
EMERGING PAYMENT MODELS WILL TAKE VARIOUS FORMS



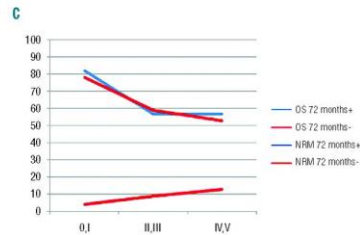
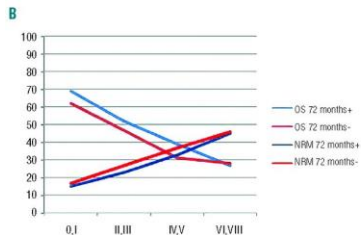
HCT CONTRACTING STRUCTURE







"JACIE" accreditation status of the transplant team by November 2012 and outcome of patients transplanted between 1999 and 2006.



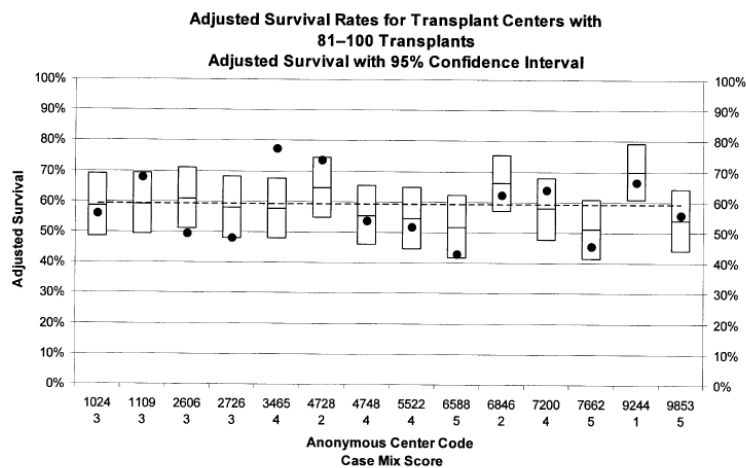
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Gratwohl A et al. *Haematologica* 2014;99:908-915

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OUTCOMES



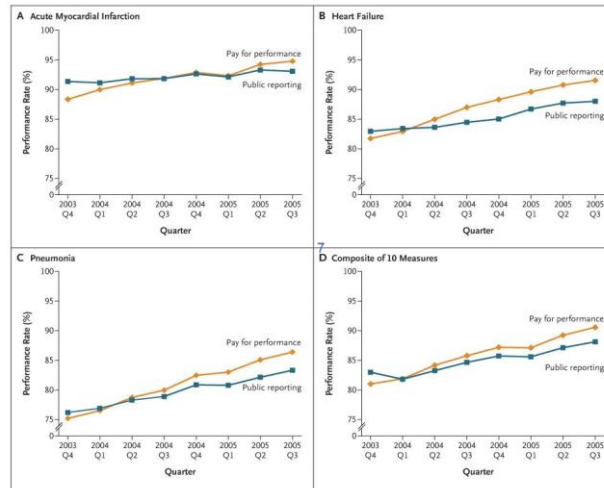
Dashed line indicates overall network survival rate of 59.0%.
 A dot below (above) the box indicates an under (over)-performing center relative to the network.

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IMPROVEMENT IN COMPOSITE PROCESS MEASURES AMONG HOSPITALS ENGAGED IN BOTH PAY FOR PERFORMANCE AND PUBLIC REPORTING AND THOSE ENGAGED ONLY IN PUBLIC REPORTING



THE NEW ENGLAND
JOURNAL of MEDICINE

Lindenauer PK et al. *N Engl J Med* 2007;356:486-496.

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WHAT IS VALUE?

Value proposition= HCT is potentially curative
but expensive

$$\text{Value} = \text{Quality} / \text{Cost}$$

$$\text{Value} = \frac{\text{Health outcomes that matter to patient}}{\text{Cost of Delivery}}$$

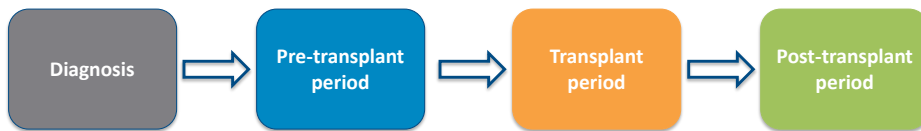
Adapted from Porter 2015

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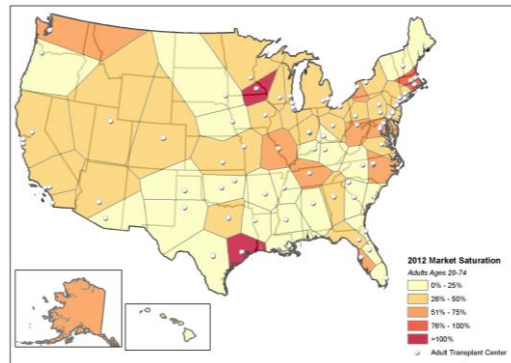
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HCT PROCESS: Achieving outcomes that matter to patients



- Diagnosis
- Induction
- Consolidation
- Referral
- Coordination of care:
 - *Right patient*
 - *Right treatment*
 - *Right time*

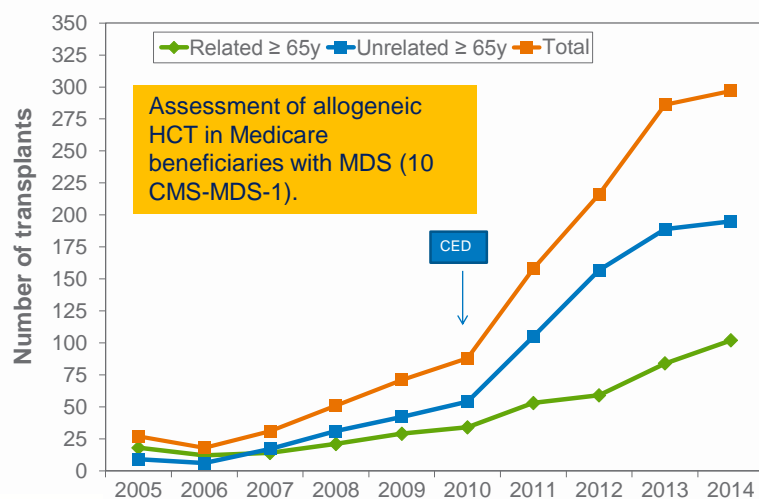


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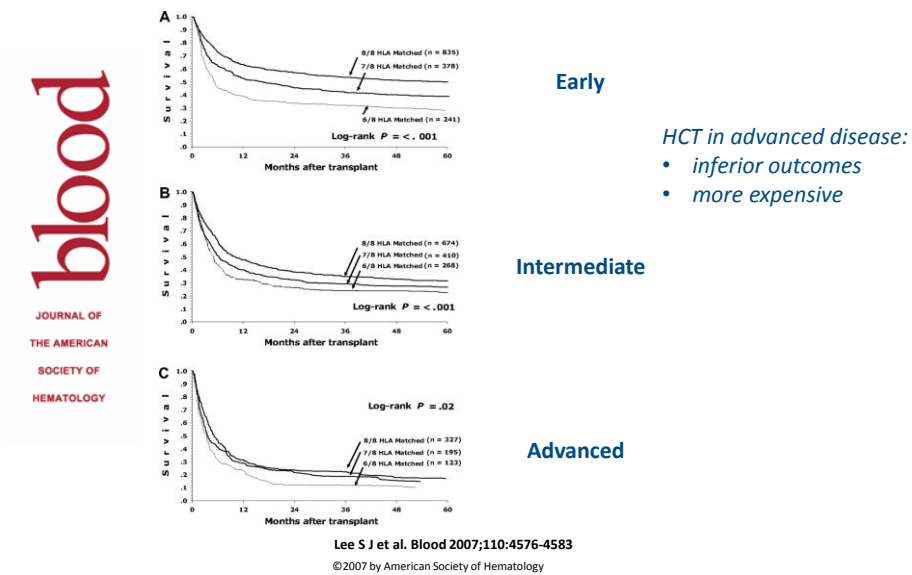
MDS CED Resulted in Greater Access for Beneficiaries



CIBMTR[®]
CENTER FOR INTERNATIONAL BONE MARROW & REBOW TRANSPLANT RESEARCH

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SURVIVAL OF PATIENTS WITH EARLY, INTERMEDIATE, AND ADVANCED DISEASE BY DEGREE OF HLA MATCHING

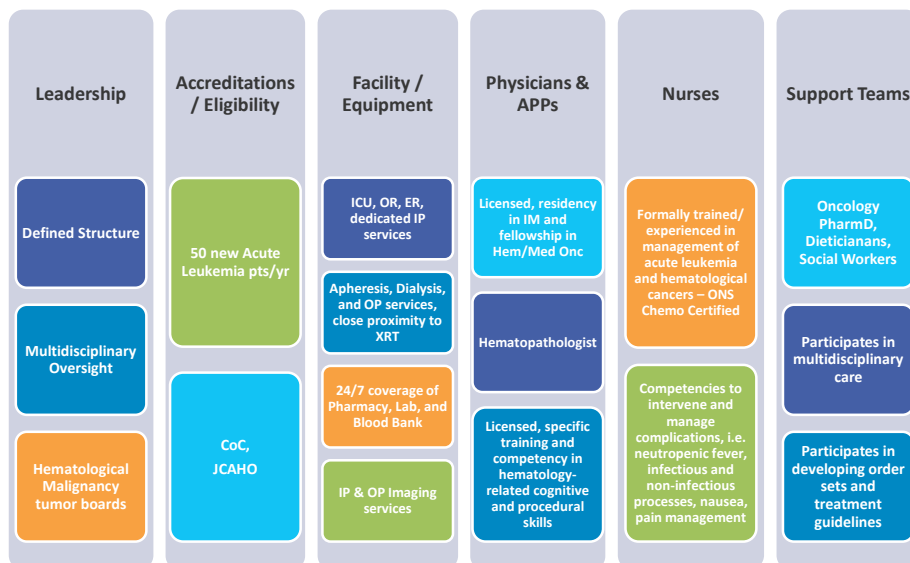


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BLOOD CANCER – CRITERIA FOR CENTERS OF EXCELLENCE*

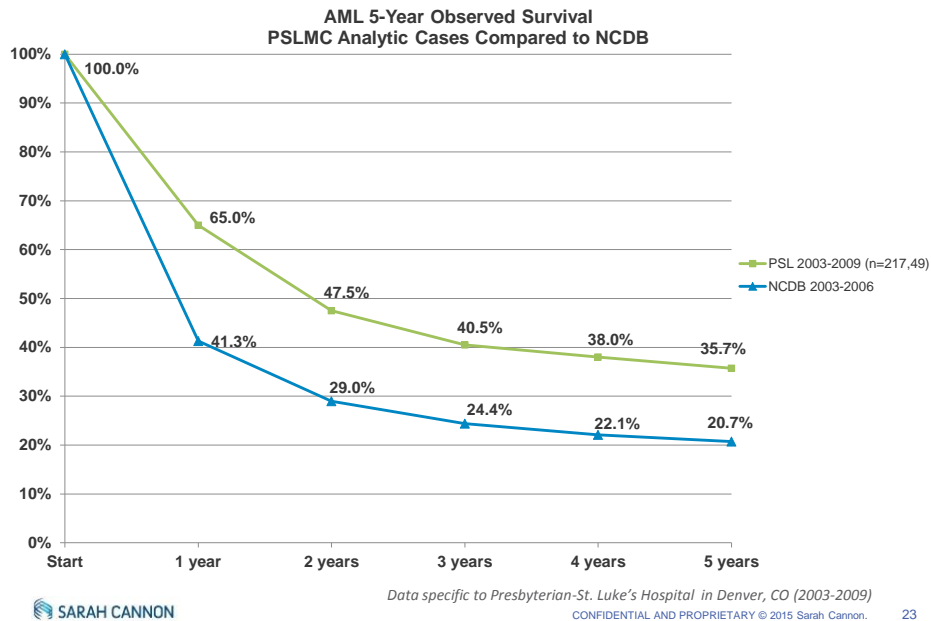


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*Established by Sarah Cannon Blood Cancer Network, 2013

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TREATMENT OF AML IN A SARAH CANNON BLOOD CANCER CENTER OF EXCELLENCE ASSOCIATED WITH FAVORABLE OUTCOMES



HCT PROCESS: ACHIEVING OUTCOMES THAT MATTER TO PATIENTS

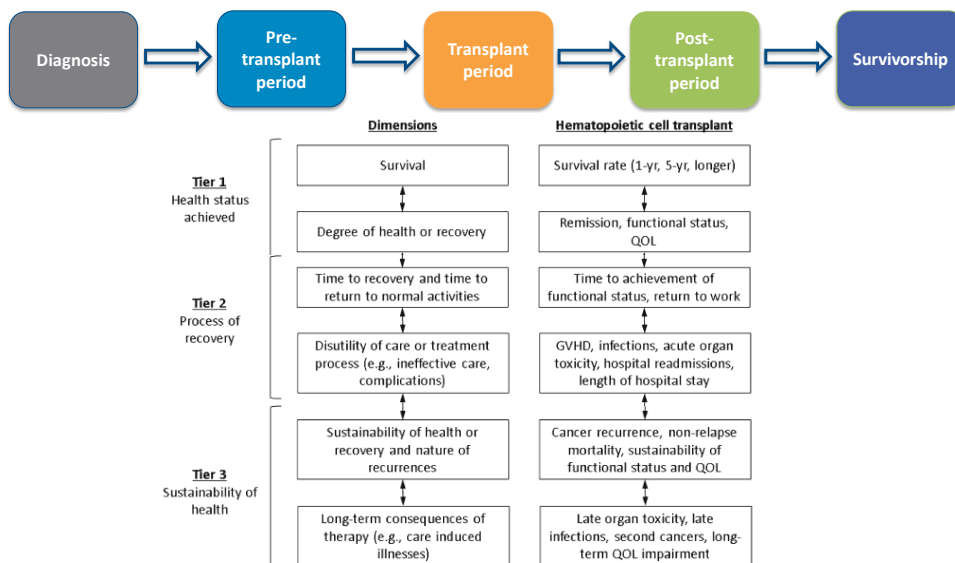
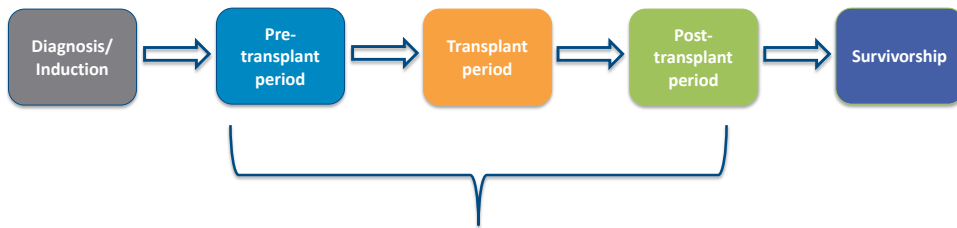


Fig. 1 Outcome hierarchies for hematopoietic cell transplantation (adapted from Porter [9])

HCT PROCESS: ACHIEVING OUTCOMES THAT MATTER TO PATIENTS

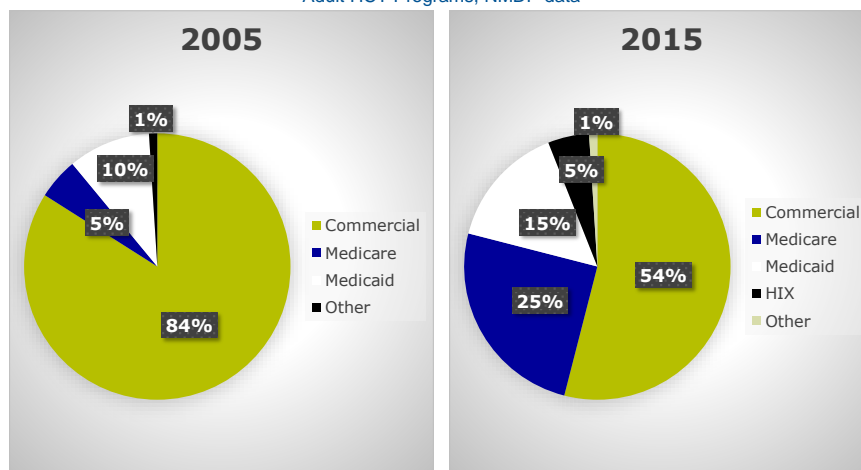


What can we do to improve value for HCT global period?

- Improve care coordination
- Improve efficiency of care
- Reduce unnecessary care

Shift in Payer Mix: Disappearing Margins

Adult HCT Programs, NMDP data



Medicare Reimbursement Does Not Cover Costs

- Inpatient (IPPS) Payment Base, FY15:
 - MS-DRG 014: Allogeneic: **\$64,432**
 - MS-DRG 016: Auto w/ MCC/CC: **\$34,477**
 - MS-DRG 017: Auto w/o MCC/CC: **\$24,402**
- Outpatient (OPPS):
 - Allo and Auto Transplant. APC 112, CY15 : **\$2,844.69**

These rates **INCLUDE** payment for donor search & acquisition.

- NMDP invoices, TC labs, testing of patient and siblings, etc.

Cell source treated as blood product, becomes expense for TC.

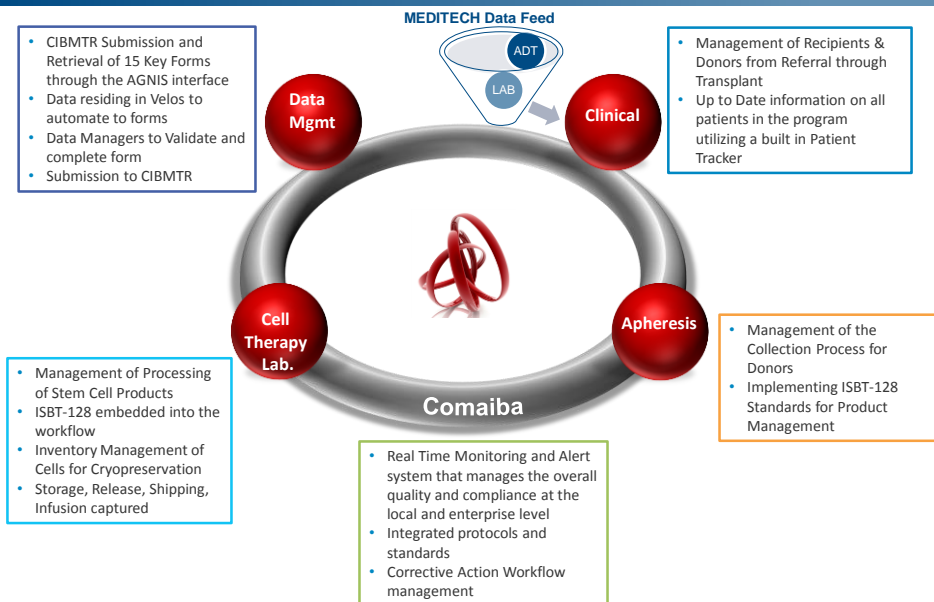
- TCs starting to choose least expensive effective option.



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SARAH CANNON/VELOS PRODUCT OVERVIEW

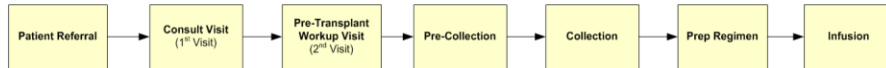


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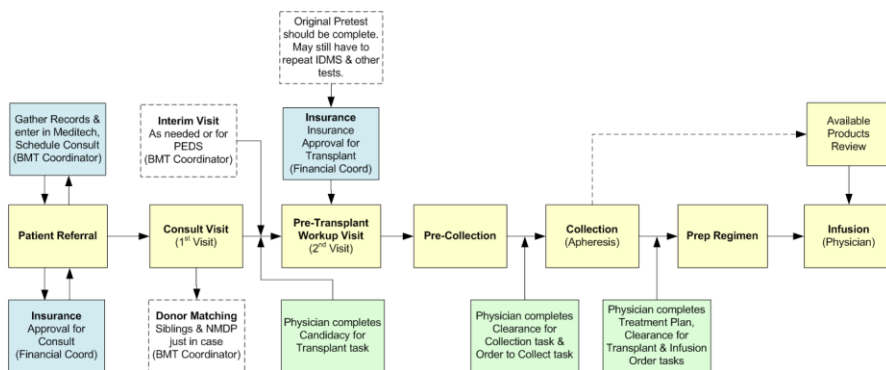
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VELOS BASIC BMT PROCESS



SCBCN PROGRAM 1



POSSIBLE MEASURES FOR PAY FOR PERFORMANCE

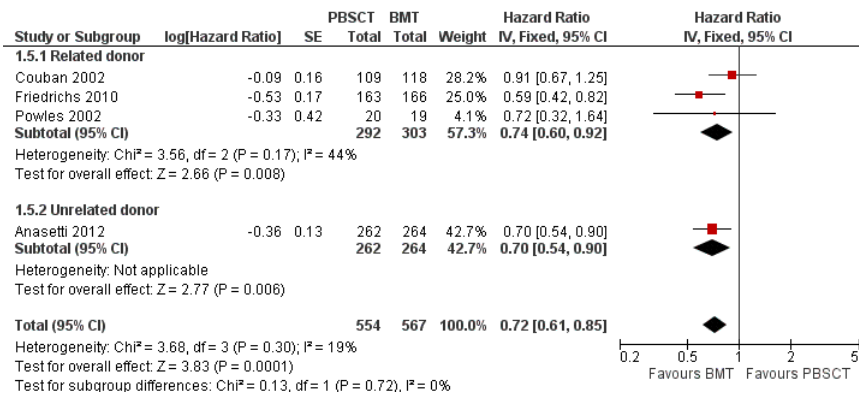
	Meaningful	Measureable	Actionable
1 Yr. OS	+	+	+
FACT	+	+	+
100 day OS	+	-	+
Readmission	+	-	-
HAC	+	-	+
cGVHD	+	-	-
Pt. Reported Outcomes	+	-	+
Marrow vs PBSC	+	+	+
Time to ABX	+	+	+
Survivorship Measures	+	+	+
Eligibility Criteria/ Pathways	+	+	+

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INCIDENCE OF CHRONIC GVHD



Cochrane Database Syst Rev. 2014 Apr 20;4:CD010189. doi: 10.1002/14651858.CD010189.pub2.
 Bone marrow versus peripheral blood allogeneic haematopoietic stem cell transplantation for
 haematological malignancies in adults.
 Holtick U¹, Albrecht M, Chemnitz JM, Theurich S, Skoetz N, Scheid C, von Bergwelt-Baildon M.

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TIME TO INITIAL ANTIBIOTICS

Study and Setting	Definition of Febrile Neutropenia	ED Patient Visits	Mean ANC	Demographic Distribution	Received Antibiotics in the ED	Overall Mortality	Time to Initial Antibiotic Treatment
Perrone et al. ¹⁹ 2004 Hospital of the University of Pennsylvania (USA)	Chemotherapy Temp >100.4°F ANC <1000/mm ³	55	436/mm ³	Mean age, 52.0 y with 53% men	55/55 (100%)	2/55 (3.6%)	170 min (mean)
Nirenberg et al. ¹⁹ 2004 New York - Presbyterian Hospital/Columbia University (USA)	Chemotherapy or radiation therapy Temp >100.9°F ANC <1000/mm ³	23	400/mm ³	Mean age, 56.0 y with 53% men	23/23 (100%)	0/23 (0%)	210 min (median)
Courtney et al. ¹⁹ 2007 Northwestern Memorial Hospital (USA)	Temp >100.4°F ANC <500/mm ³						
Lim et al. ¹⁹ 2012 University of Alberta Hospital (Canada)	Temp >100.4°F WBC <1000/mm ³ or ANC <500/mm ³						
Lim et al. ¹⁹ 2012 Royal Alexandra Hospital, Grey Nuns Community Hospital, and Misericordia Community Hospital (Canada)	Temp >100.4°F WBC <1000/mm ³ or ANC <500/mm ³						
Andre et al. ¹⁹ 2010 47 French hospitals (France)	Temp >100.4°F WBC <1000/mm ³ or ANC <500/mm ³						
Swajcer et al. ¹⁹ 2011 Six hospitals of the Winnipeg Regional Health Authority (Canada)	Chemotherapy Temp >100.4°F ANC <1500/mm ³						
Sammut et al. ¹⁹ 2012 Addenbrooke's hospital (UK)	Chemotherapy Temp >100.4°F ANC <1000/mm ³	10	NA	NA	NA	NA	154 min (median)
Perron et al. ¹⁹ 2014 Royal University Hospital, University of Saskatchewan (Canada)	Chemotherapy Temp >100.4°F ANC <500/mm ³	105	210/mm ³	Median age, 60.0 y with 41% men	NA	4/105 (3.8%)	150 min (median)

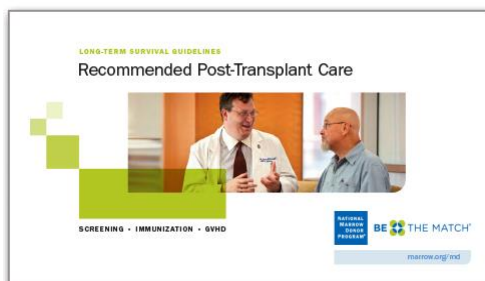
Door to ABX	PRE ONC ALERT	POST ONC ALERT	2 nd Audit Period
MEAN	144	63	51
MEDIAN	159	52	44
RANGE	41-234	35-114	28-118

Time in minutes

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Kyriacou, et al., J Natl Compr Canc Net 2014;12:1569
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Recommended Screening and Preventive Practices
for Long-Term Survivors after HCT
Navneet S. Majhail et al. BBMT 2012. 18 (3):348-371

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SUMMARY

Goals need to be clearly defined

- In the long term, must be outcome based
- In the near term, need to define high value processes leading to best outcomes
 - Improve care coordination and efficiency while reducing unnecessary care
 - Integrate pre and post transplant care into outcome goals

Careful consideration must be given to metrics

- Meaningful, measurable, actionable
- Metrics that leverage CIBMTR data sets preferable
- Partnership with patients and payers in determining comparative effectiveness and value going forward

Incentives need to be aligned with responsible parties