

COUNCIL MEETING

Sharing Our Passion for Life

Novel Clinical Care Practices

Council Meeting 2016



COUNCIL MEETING: *Sharing Our Passion for Life*

Disclosures

The following faculty and planning committee staff have no financial disclosures:

Name	Institution
Courtney Byam, CHTC	Memorial Sloan Kettering Cancer Center
Martha Lassiter, RN, MSN, AOCNS, BMTCTN	Duke University Medical Center
Elisa Malek, RN, OCN, CHTC	University of Pittsburgh Medical Center
Andrea Selleck, CHTC	NMDP / Be The Match
Trish Demko, CHTC	NMDP / Be The Match



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Session Speakers

- **Courtney Byam, CHTC**
Memorial Sloan Kettering Cancer Center
- **Elisa Malek, RN, OCN, CHTC**
University of Pittsburg Medical Center
- **Martha Lassiter, RN, MSN, AOCNS, BMTCTN**
Duke University Medical Center
- **YOU!**

Learning objectives

At the conclusion of this session, attendees will be able to:

- Compare unique care models that can impact patient satisfaction.
- Describe the care delivery value of methods presented.
- Evaluate the feasibility of incorporating novel processes or unique care methods at your program.
- Assess mechanisms to evaluate the impact of care model changes.

Learning objectives

- Learn from each other
 - Share BMT clinical care models, unique processes & innovative ideas to improve patient care and patient satisfaction.
- Add to your personal network
 - Audience members: share your experiences and make connections with others.

Improving Efficiency in the URD Search Process

Courtney Byam, MPH, CHTC, Program Manager

Bone Marrow Transplant Service | URD Program

Memorial Sloan Kettering Cancer Center

New York, NY

byamc@mskcc.org



Memorial Sloan Kettering
Cancer Center

MSKCC Adult BMT Program



Search & Transplant Volume*

- 400 Preliminary Search Submissions
- 262 URD Formal Searches (+/- cords)
- 166 Transplants
 - 114 URD transplants
 - 52 Cord transplants

Team

- 23 Transplant Physicians
- 6 Search Coordinators

*Projected volume based on year to date numbers



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URD Searches at MSKCC

- Only ~ 50% of patients without a matched related donor will have an available 8/8 URD.
- Searches are on spectrum from easy to difficult
 - ~35% of searches: can predict with certainty the best donor.
 - ~65% of searches: cannot be predicted with certainty.
 - Incorporate HapLogicSM predictions to guide CT.



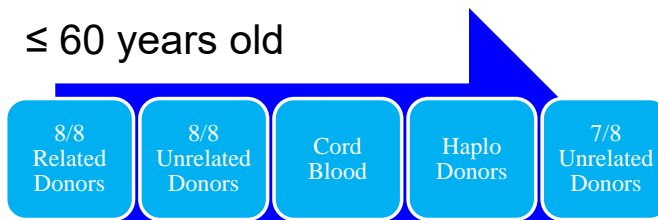
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Goals for Revamping the MSKCC Search Process

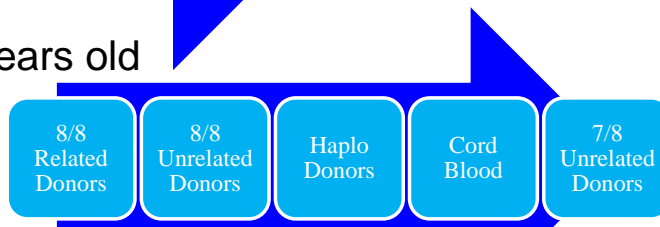
- Improve Speed & Efficiency
- Reduce Costs
- Reduce Coordinator Anxiety

Standard Stem Cell Source Algorithm: Adult Patients

≤ 60 years old



> 60 years old



The Good, The Bad & The Ugly

- **Very Good**
 - ≥ 20 8/8 potential donors with a ≥ 85% chance likelihood of matching at 8 alleles
- **Good**
 - 5 – 19 8/8 potential donors with a ≥ 85% chance likelihood of matching at 8 alleles
 - ≥ 20 8/8 potential donors with a ≥ 70% chance likelihood of matching at 8 alleles
- **Fair**
 - 1-4 8/8 potential donors with ≥ 85% chance likelihood of matching at 8 alleles
 - 1-19 8/8 potential donors with ≥ 70% chance likelihood of matching at 8 alleles
 - ≥ 5 8/8 potential donors with a 40 – 69% chance likelihood of matching at 8 alleles
- **Poor**
 - 1-4 8/8 potential donors with 40 – 69% chance likelihood of matching at 8 alleles
 - ≥ 1 8/8 potential donor with 25 - 39% chance likelihood of matching at 8 alleles
 - ≥ 1 7/8 potential donors with a ≥ 70% chance likelihood of matching at 7 alleles
 - ≥ 10 7/8 potential donors with a 25 – 69% chance likelihood of matching at 7 alleles
- **Very Poor**
 - ≥ 1 8/8 potential donor with ≤ 24% chance likelihood of matching at 8 alleles
 - ≥ 1 7/8 potential donor with ≤ 24% chance likelihood of matching at 7 alleles
- **Futile**
 - 0 8/8 & 7/8 donor options

revising based on new data



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Validation of Search Prognosis Categorization by Patient Ancestry

SPC Category by Pt Ancestry	N Pts	N (%) with Identified 8/8 URD	SPC Category p-value	Pt Ancestry p-value	Median # 8/8 URDs Identified	N who Underwent Allograft	N (%) BMT with 8/8 URD	SPC Category p-value	Pt Ancestry p-value
Total:	830	499 (60%)	--	--	2	443	286 (65%)	--	--
Very Good	217	217 (100%)	< 0.001	--	4	137	135 (99%)	< 0.001	--
European	188	188 (100%)	--	N/A	4	119	118 (99%)	--	0.235
Non-European	28	28 (100%)	--		3	17	16 (94%)	--	
Good	104	104 (100%)	< 0.001	--	4	67	64 (96%)	< 0.001	--
European	86	86 (100%)	--	N/A	4	55	53 (96%)	--	0.452
Non-European	18	18 (100%)	--		3	12	11 (92%)	--	
Fair	178	136 (76%)	< 0.001	--	2	87	69 (79%)	< 0.001	--
European	119	97 (82%)	--	0.024	2	60	53 (88%)	--	0.018
Non-European	58	38 (66%)	--		1	26	11 (42%)	--	
Poor	33	16 (48%)	< 0.001	--	0	17	10 (59%)	< 0.001	--
European	19	14 (74%)	--	0.001	1	12	10 (83%)	--	0.003
Non-European	14	2 (14%)	--		0	5	0 (0%)	--	
Very Poor	153	18 (12%)	< 0.001	--	0	71	7 (10%)	< 0.001	--
European	89	15 (17%)	--	0.024	0	50	7 (14%)	--	0.180
Non-European	63	3 (5%)	--		0	20	0 (0%)	--	
Futile	145	8 (6%)	< 0.001	--	0	64	1 (2%)	< 0.001	--
European	57	6 (11%)	--	0.058	0	30	1 (3%)	--	0.476
Non-European	87	2 (2%)	--		0	33	0 (0%)	--	

Overall, 60% of pts had ≥ 1 8/8 URD identified. All pts in Very Good & Good SPC categories had an 8/8 URD identified, & of those who went to transplant almost all received an 8/8 URD

Davis et al, ASBMT submitted

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Non-European	87	2 (2%)	--		0	33	0 (0%)	--	

- 76% of Fair & 48% of Poor category pts had an 8/8 URD identified but % significantly worse in non-European than European pts.
- Very Poor & Futile categories were highly predictive of no 8/8 URD.
- For the 58 non-European pts in the Poor, Very Poor, & Futile categories who proceeded to transplant, none received a BMT with an 8/8 URD.

Davis et al, ASBMT submitted

Tailoring Donor Priority with Transplant Urgency

Transplant Urgency	URD SEARCH PROGNOSIS				
	Very Good / Good	Fair	Poor	Very Poor	Futile
Very Urgent: <i>Admission < 4 weeks</i>	1st: 8/8 URDs & CBs 2nd: 7/8 URDs	1st: 8/8 URDs & CBs 2nd: 7/8 URDs	1st: CBs 2nd: 8/8 & 7/8 URDs	1st: CBs 2nd: 8/8 & 7/8 URDs	1st: CBs
Urgent: <i>Admission 4 – 6 weeks</i>	1st: 8/8 URDs 2nd: CBs		1st: 8/8 URDs & CBs 2nd: 7/8 URDs		
Standard: <i>Admission > 6 weeks</i>	1 st : 8/8 URDs				

NOTE: Insurance coverage available for typing is also considered with evaluating the likelihood of securing 8/8 MUD. Urgency influences triage of MUD vs CBU typing.

Preliminary Search Electronic Order

BMT_Prelim_Donor - HARVESTLAB, GONDOLA

HARVESTLAB, GONDOLA
Bklyn Infusion

66124799 / 9209975327-44581664 55y (12/09/1958) Male

Order: Unrelated Donor Search- Preliminary Order ID: a30VBQXBX

Requested By: Attending, Cem Template Name:

Messages:

Diagnosis: Date of Diagnosis: Disease Status:

Height/Weight: Weight (kg): BSA: Weight Note: The patient was not physically weighed at MSKCC. This weight was provided to MSKCC at the time of the patient's referral.

Patient High Resolution HLA Typing: Transplant Urgency:

Consented to BMT/Leukemia Protocol: Ancestry (Broad Race Category):

Time/Priority: Requested For: Routine 09/03/2014

Repeat View Document OK Cancel



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Prelim Search Results Email - Example Patient Jane Doe

Patient Name / MRN	Doe, Jane / 01234567	
Age	50	
Diagnosis	AML	
Prelim Requested By	Dr. Heme	
Ancestry*	Caribbean Hispanic	
URD Search Results Category	Fair	
Prediction of Search Result – URD	8/8	1 likely 8/8 donor (99%) and 1 potential 8/8 with ~45% likelihood of matching
	7/8	Multiple 7/8 donors.
	≤ 6/8	n/a
	International	1 potential 8/8 donor at low resolution.
Prediction of Search Result – Cords	Multiple units of suitable match & size.	
Additional Comments	Need HLA antibodies drawn	

*Ancestry details may impact match predictions



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Formal Search Electronic Order

Order: Unrelated Donor Search - Formal Order ID: 0322DVQVQ

Requested By: Sogani, Pramod Template Name:

Messages:

Diagnosis: Disease Status:

Height (cm): 150 Weight (kg): 100 BSA: 1.92

Weight Note: The patient was not physically weighed at MSKCC. This weight was provided to MSKCC at the time of the patient's referral.

Relevant Results:

Patient High Resolution HLA Typing: Transplant Urgency: CMV Status: ABO/RH:

Consented to BMT/Leukemia Protocol: Ancestry (Broad Race Category):

Sibling HLA Typing Complete: History of Previous Transplant: Aware of Formal Search Request:

Candidate for Cord Transplant: Candidate for 7/8 URD: Candidate for Haplo: Candidate for Auto:

Priority HSC Search if No 8/8 URD:

Significant Comorbidities: Likely transplant protocol(s):

Time/Priority: Requested For: 02/12/2016

Buttons: Repeat View Document OK



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Formal Search Request Confirmation Email

Patient Name / MRN	Doe, Jane / 01234567	
Age	50	
Diagnosis	AML	
BMT Admission Timeframe (in weeks)	<4 weeks	
Candidate for 7/8 URD transplant (yes/no)	Yes	
Candidate for Cord transplant (yes/no)	Yes	
Candidate for Haplo (yes/no)	No	
Candidate for Auto (yes/no)	No	
Priority HSC if no 8/8 URD in required timeframe	1. Cords 2. 3.	
Preliminary Search Result – URD	8/8	1 likely 8/8 donor and 1 potential 8/8 with ~45% likelihood of matching
	7/8	Multiple 7/8 donors.
	≤ 6/8	n/a
	International	1 potential 8/8 donor at low resolution.
Preliminary Search Results – Cords	Multiple units of suitable match & size.	
Search Strategy	Type potential 8/8 donors. Type cords.	
Coordinator Concern	Given patient non-European ancestry, fair search & transplant urgency, pursuing cords as primary option.	
Clinical Team Follow-up	Need HLA antibody drawn	



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Search Committee Meeting

Patient Name (Last, First)	MRN	Referring Physician BMT Physician	Age Diagnosis	MSK Search Prognosis	Search Stage	Additional Info
Doe, Jane	01234567	Dr. Heme Dr. Leuko	50 AML	Fair	Prelim	Creatinine: 0.9 Known haplos: Unknown
	<u>Donor:</u> 1 likely 8/8. 1 potential 8/8 (45%) & 1 8/8 internationally. Several 7/8s. <u>Cord:</u> Multiple units of suitable match & size. <u>Search Strategy:</u> Type 8/8 donors. Type cords. Do not type 7/8s. <u>Coordinator Concern:</u> Non-Europe ancestry together with search results & urgency indicate pursue cords as primary option.					
Cytogenetic, Sam	12345678	Dr. Hodgkins Dr. Marrow	62 NHL	Poor	Prelim	Creatinine: 0.8 Known haplos: 2 sibling haplos, has kids
	<u>Donor:</u> 3 donors ~42% likelihood of matching at 8/8, several 7/8 donors. <u>Cord:</u> Several units of suitable match & size. <u>Search Strategy:</u> Type 8/8s, type 7/8s, do not type cords. <u>Coordinator Concern:</u> Dr. Marrow indicated 7/8 is priority after 8/8. Given patient age, haplo should be priority after 8/8. Does not follow algorithm.					



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Conclusions

- **Improve Speed & Efficiency**
 - Moves patients to allo graft in timely fashion.
 - Avoids URD searches that will not deliver donor in required time period.
- **Reduce Costs**
 - Not wasting funds typing unnecessary donors/cords.
 - Less damage control with patients on search result expectations – what MD heard vs. what we said.
- **Reduce Coordinator Anxiety**
 - Formal Confirmation Email clearly outlines the search plan – eliminates fear that MD will want a stem cell source that was not typed.
 - More transparency in search.
 - More efficient use of time.



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Acknowledgements

MSKCC

- Dr. Juliet Barker
- Search Coordinators
 - Eric Davis
 - Jennifer Paulson
 - Melissa Sideroff
 - Debbie Wells
 - Candice Cooper

NMDP

- Jason Dehn



Memorial Sloan Kettering
Cancer Center



Patient-Centered Care: Why it matters and what you can do

Elisa Malek, RN, BSN, OCN
Quality Manager, Stem Cell Transplant Service at UPMC



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THE LEMIEUX MISSION

- Gift from the Mario Lemieux Foundation (2011)
 - Goal: Build an innovative space focused on patient comfort and convenience in the outpatient setting
 - Goal: Create a calm and healing environment



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THE LEMIEUX MISSION

“Because of my own experience with Hodgkin’s disease, I know first-hand what many of these patients are going through and how important it is to feel comfortable and relaxed when there is so much uncertainty and worry. It means a great deal to me and my family that my foundation is able to be a part of something that affects patient care in such a positive way.”

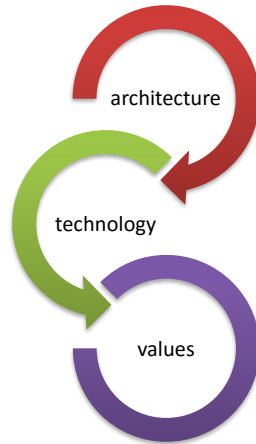
- Mario Lemieux

The Lemieux Center for Blood Cancers

- Opened in January 2013
- 24,000 square foot outpatient treatment center
 - Clinic and treatment suites
 - Patient and Family Lounge
 - Laboratory
 - Pharmacy



DESIGNING PATIENT-CENTERED CARE



ARCHITECTURE

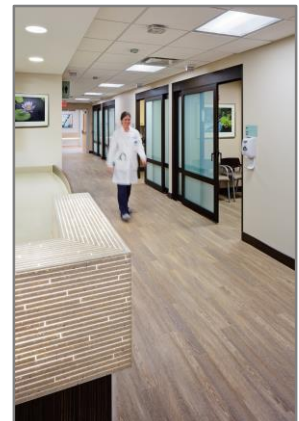


- Therapeutic power of art and nature
 - Earth tones for a calming effect
 - Large glass windows for natural light
 - Visual installations of nature scenes with sound
 - Illuminated stone-like tiles
 - Plants
- Patient-centered design

LEMIEUX CENTER



LEMIEUX CENTER



LEMIEUX CENTER



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LEMIEUX CENTER



THIRD FLOOR



THIRD FLOOR



THIRD FLOOR



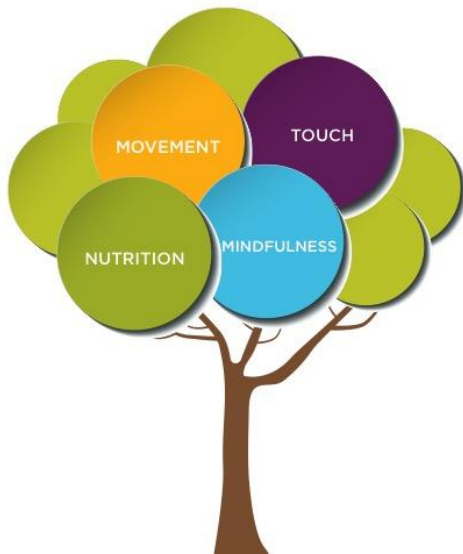
TECHNOLOGY

- RTLS (Real Time Locating Services)
- Touchless, timed soap-scrubbing faucets
- Privacy glass
- Touch Screens
- GetWellNetwork
- Electronic Medical Record
- Workstations on Wheels

VALUES

- Everything in one place
 - Addition of new role: Patient Service Coordinator
 - Vitals, phlebotomy, physical exam, appt scheduling
- Treating the whole person
 - Integrative Oncology





Integrative Oncology

Helping patients fight cancer
From the Inside Out.

Works in concert with traditional cancer care to help patients address symptoms of their disease and treatment and improve their quality-of-life.

Integrative Oncology

- Yoga
- Pilates
- Exercise
- Diet evaluation
- Herbal and supplemental assessment
- Food shopping
- Weight Management Counseling
- Massage therapy
- Acupuncture
- Reiki
- Meditation
- Music therapy
- Art therapy
- Aromatherapy

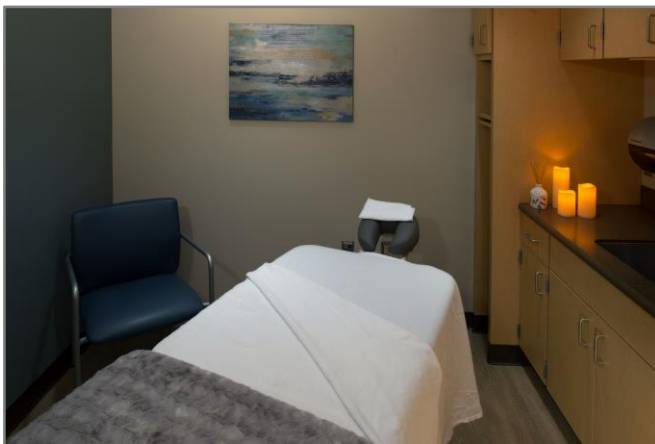


The Wellness Suite

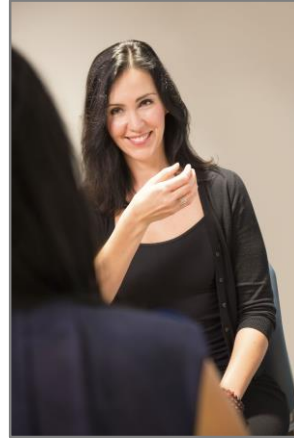
- Opened September 2016
- Program opened 3 years ago
- 250 patients treated



The Wellness Suite



The Wellness Suite



Metrics of Success – Press Ganey

- 2012 (prior to Lemieux Center opening)
 - Overall ranking near **30th** percentile
- 2013
 - Overall ranking near **90th** percentile
- 2014, 2015, 2016
 - Scores consistently **>90th** percentile

One Step At A Time...



- Ideas to consider for your center:
 - Add simple nature elements for “spa-like” feel
 - Incorporate calming color schemes
 - Create open spaces
 - Consider infrastructure changes to improve patient flow



Medical Home HSCT Care

Martha Lassiter, RN,MSN, AOCNS, BMTCN
Duke ABMT Clinical Nurse Specialist



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Current Care Model since 1992

- Traditional Inpatient Unit-16 beds
 - Allogeneic Myeloablative HSCT
 - Until engraftment
 - Autologous HSCT
 - BEAM regimen
 - CBV regimen
 - Until prep regimen completed
 - Daily follow up in day hospital and reside locally
- Outpatient Day Hospital- 7 day access
 - Autologous HSCT
 - Melphalan
 - Allogeneic Nonmyeloablative HSCT
 - Allogeneic Reduced Intensity HSCT
 - Autologous following preparative regimen given inpatient
 - Apheresis
 - Photopheresis
 - Hematologic malignancy patients



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Current Care Model since 1992

- Inpatient unit main hospital
- Outpatient day hospital is 3 blocks from main hospital
- Pharmacy on site- not dispensing
- Shuttle service between buildings
 - Routine chest x-rays
 - Procedures
- Courier service
- Local corporate apartment housing options



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Off hours coverage

- Inpatient HSCT unit is the back up at night
- Throughfare via Duke ED
 - Safest route into the hospital
 - Easy parking
 - Communication with inpatient unit
- Directly admitted to HSCT unit



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2011

- Dr. Ringden visited Duke ABMT Program to lecture at grand rounds
- February over dinner at 2011 Tandem.....
- May 2011- 48 hours spent with the staff at Karolinska to observe home care
- Champion Krista Rowe, RN, MSN, AOCNS
- July 2011- first draft of protocol out to team for review



BE THE MATCH

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Implementation

- IRB approval
- Risk management approval
 - Use of technology
 - Blood transfusions in the home
 - EHR security
- Insurance approval
 - Upfront communication with key payers
- Research funding
 - Gateway
 - NIH
- Transfusion service collaboration
- Pharmacy collaboration
- EPIC implementation summer 2013
- Buy in from the ABMT Team



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CLINICAL OBSERVATIONS, INTERVENTIONS, AND THERAPEUTIC TRIALS

Home care during the pancytopenic phase after allogeneic hematopoietic stem cell transplantation is advantageous compared with hospital care

Britt-Marie Svahn, Mats Remberger, Karl-Erik Myrbäck, Katarina Holmberg, Britta Eriksson, Patrik Hentschke, Johan Aschan, Lisbeth Barkholt, and Olle Ringdén

After myeloablative treatment and allogeneic stem cell transplantation (SCT), patients are kept in isolation rooms in the hospital to prevent neutropenic infections. During a 3-year period, patients were given the option of treatment at home after SCT. Daily visits by an experienced nurse and daily phone calls from a physician from the unit were included in the protocol. We compared 36 patients who wished to be treated at home with 18 patients who chose hospital care (control group 1). A matched control group of 36 patients treated in the hospital served as control group 2. All home care patients had hematologic malignancies and 19 were in first remission or first chronic phase. Of the donors, 25 were unrelated. The patients spent a median of 16 days at home (range, 0–26 days). Before discharge to the outpatient clinic after SCT, patients spent a median of 4 days (range, 0–38 days) in the hospital. In the multivariate analysis, the home care patients were discharged earlier (relative risk [RR] 0.33, $P = .03$), had fewer days on total parenteral nutrition (RR 0.24, $P < .01$), less acute graft-versus-host disease (GVHD) grades

II–IV (RR 0.25, $P = .01$), lower transplantation-related mortality rates (RR 0.22, $P = .04$), and lower costs (RR 0.37, $P < .05$), compared with the controls treated in the hospital. The 2-year survival rates were 70% in the home care group versus 51% and 57% (not significant) in the 2 control groups, respectively ($P < .03$). To conclude, home care after SCT is a novel and safe approach. This study found it to be advantageous, compared with hospital care. (Blood. 2002;100:4317–4324)

© 2002 by The American Society of Hematology

Blood, 15 December 2002 volume 100 number 3



European Journal of Oncology Nursing

Volume 17, Issue 4, August 2013, Pages 389–395



Hospital care or home care after allogeneic hematopoietic stem cell transplantation – Patients' experiences of care and support

Karin Bergqvist^{a,*}, Joacim Larsen^{a,*}, Ulla-Britt Johansson^a, Jonas Mattsson^{a,*}, Britt-Marie Svahn^{a,*}

^a Show more

<http://dx.doi.org/10.1016/j.ejon.2012.12.004>

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Abstract

Purpose

Treatment at home during the pancytopenic phase after allogeneic hematopoietic stem cell transplantation (HSCT) has been an option for patients at our center since 1998. Earlier studies have shown that home care is safe and has medical advantages. In this study, we present patients' experiences of care and support while being treated in hospital or at home during the acute post-transplantation phase.

Method

Patients ($n = 41$, 22 in hospital care and 19 in home care) answered the SAUC questionnaire at discharge (when home, or from hospital). Both statistical analysis and deductive content analysis were used.

Results

The patients were highly satisfied with the care and support during the acute post-transplantation phase. Patients in home care were found to be more satisfied with care in general than patients in hospital care. The importance of safety, empathy, and

[resources from health care staff were assessed as important for home care use.](http://www.elsevier.com/locate/ejon)



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Biology of Blood and Marrow Transplantation

Volume 17, Issue 11, November 2011, Pages 1688–1697

Clinical Research

Improved Survival after Allogeneic Hematopoietic Stem Cell Transplantation in Recent Years. A Single-Center Study

Mats Remberger^{a,*}, Malin Askafors^a, Sofia Berglund^{a,*}, Ola Blennow^a, Göran Dahlöf^a, Aldona Dlugosz^a, Karin Garming-Legert^a, Jens Gertow^{a,*}, Britt Gustafsson^a, Moustapha Hassan^a, Zuzana Hassan^{a,*}, Dan Hausenberger^a, Hans Hågglund^a, Helen Karlsson^{a,*}, Lena Klingepp^a, Gunilla Kurlén^a, Katarina Le Blanc^{a,*}, Per Ljungman^a, Mads Madsen^a, Karl-Johan Malmberg^a, Hanna-Ulrich Marschall^a, Jonas Mattsson^{a,*}, Richard Olsson^{a,*}, Brigitta Omazic^{a,*}, Dariusz Sairafi^{a,*}, Marie Schaffer^a, Britt-Marie Svahn^a.

^a Show more

<http://dx.doi.org/10.1016/j.bbmt.2011.05.001>

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We analyzed the outcome of allogeneic hematopoietic stem cell transplantation (HSCT) over the past 2 decades. Between 1992 and 2009, 953 patients were treated with HSCT, mainly for a hematologic malignancy. They were divided according to 4 different time periods of treatment: 1992 to 1995, 1996 to 2000, 2001 to 2005, and 2006 to 2009. Over the years, many factors have changed considerably regarding patient age, diagnosis, disease stage, type of donor, stem cell source, genomic HLA typing, cell dose, type of conditioning, treatment of infections, use of granulocyte-colony stimulating factor (G-CSF), use of mesenchymal stem cells, use of cytotoxic T cells, and home care. When we compared the last period (2006–2009) with earlier periods, we found slower neutrophil engraftment, a higher incidence of acute graft-versus-host disease (aGVHD) of grades II–IV, and less chronic GVHD (cGVHD). The incidence of relapse was unchanged over the 4 periods (22%–25%). Overall survival (OS) and transplant-related mortality (TRM) improved significantly in the more recent periods, with the best results during the last period (2006–2009) and a 100-day TRM of 5.5%. This improvement was also apparent in a multivariate analysis. When correcting for differences between the 4 groups, the hazard ratio for mortality in the last period was 0.59 (95% confidence interval [CI]: 0.44–0.79; $P < .001$) and for TRM it was 0.63 (CI: 0.43–0.92; $P = .02$). This study shows that the combined efforts to improve outcome after HSCT have been very effective. Even though we now treat older patients with more advanced disease and use more alternative HLA nonidentical donors, OS and TRM have



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Long-term follow-up of patients treated at home during the pancytopenic phase after allogeneic haematopoietic stem cell transplantation

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Abstract

To prevent neutropenic infections, patients are kept in isolation rooms after allogeneic haematopoietic stem cell transplantation (ASCT). Patients living within one hours' driving distance from our unit were given the opportunity of treatment at home after ASCT during the pancytopenic phase. We compared 36 patients treated at home during March 1998 until December 2000, with 54 controls treated in the hospital during September 1995 and September 2001. The incidence of grades II–IV acute graft-versus-host disease (GVHD) was lower in the home care group compared to the controls, that is, 17 vs 44% ($P<0.01$). The cumulative incidence of chronic GVHD was 52% in the home care group, compared to 57% in the controls. Transplant-related mortality (TRM) was 13% in the home care patients vs 44% in the controls ($P=0.002$). The probability of relapse was similar in the two groups. The 4-year survival was 63% in the home care patients compared to 44% in the controls ($P=0.04$). Home care after ASCT is a novel approach that resulted in less TRM, similar incidence of chronic GVHD and relapse, and improved long-term survival compared to controls treated in the hospital.



BE THE MATCH

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Objectives

- Primary
 - Compare bowel microbiota before and during the first 100 days between home treatment and clinic treatment (living at home)
- Secondary
 - Assess infection rates
 - Assess nutritional status (PG-SGA)
 - GvHD incidence
 - Morbidity/mortality
 - QOL (FACT-BMT)
 - Cost comparison

Candidates



- Within 90 minute driving distance to Duke
 - 3 counties
 - All subjects have been within 40 minutes to Duke
- HSCT from any source
- Options
 - Live at home/Treat at home
 - Live at home/Treat at clinic daily
- No active infections

Organization

- Staff caring for HSCT patients should be experts
 - Declined to use home care nurses
 - Team from inpatient unit and outpatient day hospital
 - Did use home care expertise for training of HSCT nurses
 - Same standard of care as provided in traditional setting

Duke's Adult Blood and Marrow Transplant Program (ABMT)

2400 Pratt Street
Suite 1100
Durham, NC 27710

Clinic
919-668-6547
M-Fri 8:00 a.m. - 6:00 p.m.
Sa-Su 8:00 a.m. - 4:00 p.m.

Inpatient Unit 9200
919-681-9241


DukeMedicine

The Home Transplant Experience Study

Participation is voluntary
Pro00032263

Duke University Adult Blood and Marrow Transplant Program


The Home Transplant Experience Study



General Guidelines to Consider

- Not every participant who may be interested or who consent will be able to receive treatment in their home.
- A caregiver will be required to remain with the participant at all times. Please inform ABMT team if caregiver status is a concern at any time.
- Participants must have appropriate transportation to the hospital at all times.
- Participants will be required to contact the ABMT clinic / Duke Hospital Inpatient Unit 9200 for any tests or questionnaires.
- Participants will continue to receive regularly scheduled care.
- Participants will utilize the medication administration sheets provided by staff.
- The participant and caregiver will avoid contact with people who display cold/flu symptoms and observe a strict hand washing policy.
- Participants will remain local and not travel unless cleared by medical team.

Providing your transplant care in your home comes from the idea that we all have a unique set of microbes or bacteria that our bodies are accustomed to by allowing you to stay in your home, we are happily protecting you from exposure to bacteria that aren't in your normal environment. We also want to ensure if you sleep, eat, and tolerate your treatment better from the comfort of your own home."



Nelson Chen, MD
Chief, Division of Cellular Therapy

Innovation Education Dedication

Our team of physicians, nurse practitioners, physician assistants, and nurses are ready to guide you and your family through the transplant process.

We are with you every step of the way in this groundbreaking innovation in health care.

Frequently Asked Questions

Why may I not be selected to receive my transplant treatment at home?

There are a variety of possible reasons home transplant may not be a good option for you or staff:

- You live too far away from Duke.
- Your transplant physician doesn't feel it is the best option for your care.
- Your transplant care cannot be provided safely in the home environment.
- The required study requirements for the number of people providing home transplant has been met and/or it is closed to enrollment.

How long will the study stay with me during the day?

The study will be with you as long as care is being provided. Once your treatment is complete the study will end.

Who will I call if I get a fever or have questions or concerns?

You will still use either the ABMT clinic or Duke Hospital Inpatient Unit 9200 as directed in your transplant order.

Will I need to purchase any additional medical supplies for this type of treatment?

No, the medical team will provide all the necessary equipment needed. You will only need to supply the required patient information in your transplant order.

Will I be seen by a doctor?

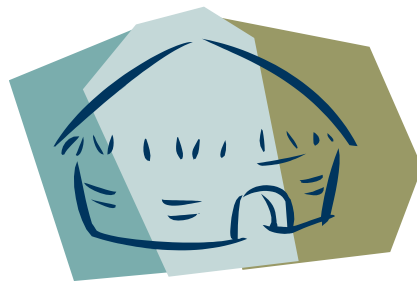
Yes, with advances in technology, you will be able to be monitored with a device via a computer. The coordinator will have the necessary equipment for this device.



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Is every local patient a candidate?

- Safety first
 - Fall risks
 - Infection risk
 - Caregiver 24/7
 - Children in the home
 - Food safety
- Pets allowed in the home but not during treatment times
 - Assess the pet living arrangements



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Reimbursement Issues

- Only private payers eligible
 - No medicare/medicaid
 - Advanced practice providers are billed as home visits
 - Attending physician “remote visit” is unbillable encounter
 - Most private payers pay on a case rate
 - Language
 - Transplant nurses as opposed to home health nurses

Care at home model

- Conditioning regimen administered in traditional setting
- HSCT administered in traditional setting
- Discharge for home care on DOT +1
- If naïve to transfusions, first transfusion administered in ABMT day hospital
- Methotrexate for GvHD prophylaxis administered in ABMT day hospital

Care at home model

- Advanced practice provider
 - Early am visit
 - Assessment
 - Vital signs and draw labs
 - Return to ABMT day hospital to run labs and discuss assessment with ABMT team
- RN visit
 - Administer therapy based on lab results/assessment
 - Blood products
 - Electrolyte supplementation
 - IV fluids
 - Symptom management
 - Education
- Supplies
 - Set up a treatment station in the home
 - Scale
 - CVC supplies



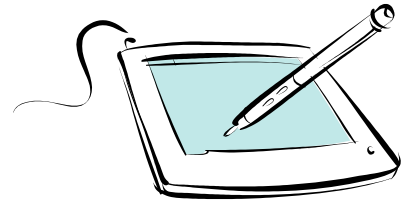
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Embracing technology

- Daily Facetime with attending physician
- Ability to Facetime with consultants
 - Registered dietitian
 - Social worker
 - Financial counselors
 - Clinical Nurse Specialist





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Results

- First treat at home transplant September, 2011
- Ability to treat 1 at home patient at a time
- Treated 19 home based transplant patients
 - Short hiatus 2012 due to staffing issues
 - Hiatus 2013 during EPIC implementation
 - Last half of 2014- 8 maternity leaves

Yes there are challenges

- Safety first
 - Environmental issues
 - Staffing issues
 - Not everyone is a candidate
 - Not all staff members are enthusiastic
- Resource allocation
 - Physician
 - APP's
 - RN's
- Cost unknown

Patient/Staff feedback

- Overall positive
- Unexpected feedback
 - Feeling of isolation
 - Began visits to the clinic daily
 - Palliative care
- A realistic view of home environments that we send ALL our HSCT patients home to
- A certain intimacy providing care in the patient's living room

Caregiver Comments

- Having the nurse here in the house allowed me to work from home staying in contact with work saving a good amount of vacation days.
- The only negative that I experienced was feeling that at times _____ might have been more cooperative at the clinic with the nurses than home with me (when the PAs and nurses had gone home). I was frustrated a few times that he wouldn't always follow "doctor's orders." However, I truly believe that _____ ultimate recovery was due in part to being able to remain in his own home.
- While going through an extremely difficult situation where so many things are out of your control and can be very scary, to have the comfort of being in your own space, sleeping in the comfort of your own bed, and having your own things certainly helped ease some of the stress of a very stressful situation.

Early data

Average # home visits (APP)	12.7
Average # home visits (RN)	10.1
Average # days of IV antibiotics in home	4.1 7.1 (total)
Overall # ED visits	1
Average # days of transfusions in the home (9 additional done in traditional setting for some patients)	2.2

****Based on 15 autologous transplant patients
4 allogeneic transplant patients

Live at home/Come to clinic

- Collecting same data
- Increased the range for patients to live at home
 - Traditionally Durham proper
 - Expanded to 3 county area

Duke Performs First At-home Bone Marrow Transplant

By Marty Fisher

When Nelson Chao, MD, visited his bone marrow transplant patient, David Lenat, one recent morning, the scene was not what you'd expect. No sterile hospital room, no awkward gown or face mask. Instead, Lenat sat in his own Raleigh living room in a comfortable leather recliner by a crackling fire, steaming mug of coffee in one hand and a copy of *The News & Observer* open on his lap. His wife, Georgia, returning from her morning run, leaned down to kiss his forehead.

Lenat is one of the first patients in the world to benefit from a new clinical trial of at-home bone marrow transplant led by Chao, chief of the Division of Cellular Therapy and professor of immunology.

Normally, the Lenats would have had to rent an apartment close by Duke University Hospital during the one- to two-month transplant and recovery. Instead, he received outpatient chemotherapy at Duke to treat multiple myeloma, then went home, where nurses and other practitioners came several times a day.

The actual transplant was performed at Duke in the outpatient setting. Lenat's stem cells were harvested from his bone marrow. Next, he received an injection to wipe out his remaining stem cells, leaving him with no immune system. Finally, the harvested stem cells were returned, and he went home to endure the month-long process of waiting for his immune system to regrow.

"I spent a lot of time reclining in a fancy leather chair my wife bought me," says Lenat. "We didn't have any real disruptions, no daily trips back and forth to Durham. [Renting an apartment] doesn't sound so bad, but there are a bazillion little things that you would miss."

Chao, who holds the Donald D. and Elizabeth G. Cooke Cancer Research Professorship, says trying the risky and challenging at-home transplant was motivated in part by listening to patients, who craved the security and comfort of home while undergoing a frightening, difficult procedure and recovery. He also was intrigued by

Continued on page 5



Jared Lazarus, Duke Photograph

David Lenat was able to stay in his own home with



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"The microbe is nothing, the terrain is everything."

-Claude Bernard

Father of "blind experiments" and homeostasis



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