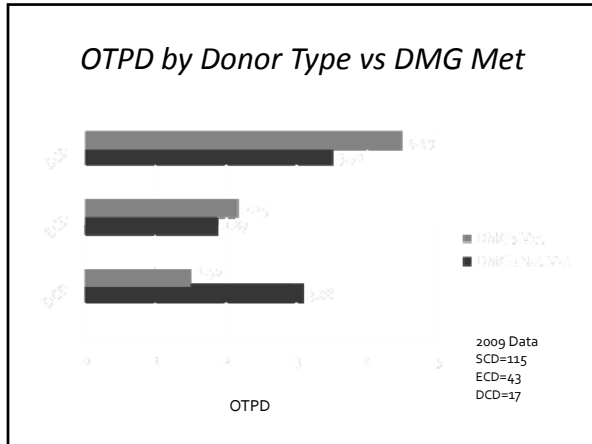


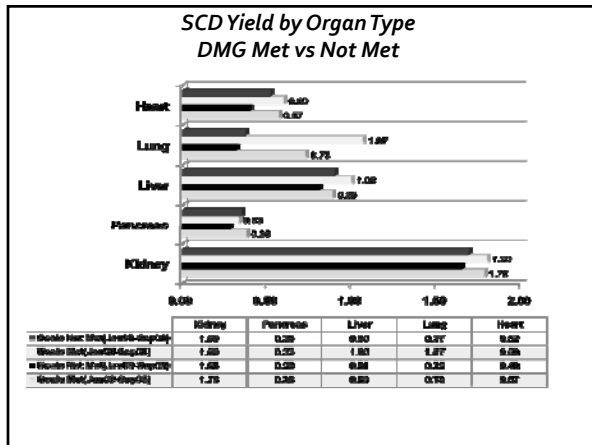
What's next in DMG's?

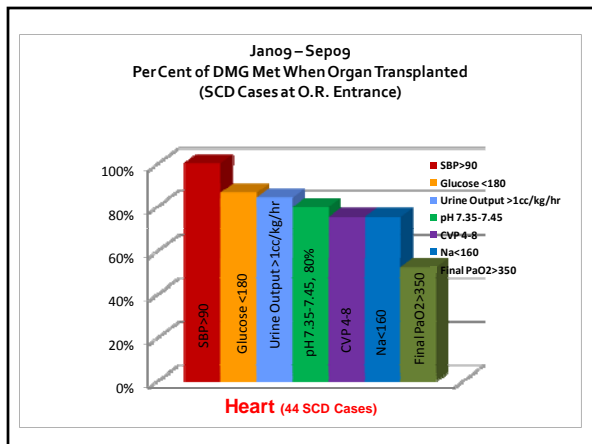
Tracy DeMars RN, CPTC

- What's working?*
- ◆ DMG data collection
 - Collected – case start and OR entrance
 - Donor management clinical pathway guides treatment choices toward goal achievement
 - ◆ Clinical Resource Coordinators
 - ◆ Advanced Practice Donation Coordinator
 - ◆ Monthly team DMG data review
 - Share successes!
 - Identify education opportunities
 - Enhance donation coordinators ownership of goals
 - ◆ Weekly case review conference call
 - Transplant Center staff and LifeSource staff

UNOS #	Entrance to OR Glucose	Pre OPO
VFF012 ECD	132	156
WFM125 SCD	135	127
VFB330 SCD	137	99
VFS143 SCD	175	108
VFX417 SCD	105	158
VFY024 SCD	131	100
VFY089 SCD	139	72
VF1321 SCD	283 no insulin pt documented. No elevated D5 given to decrease	107
VFG023 SCD	163	132
VFO448 SCD	110	420
VFY138 SCD	106	157







Customizing DMG's

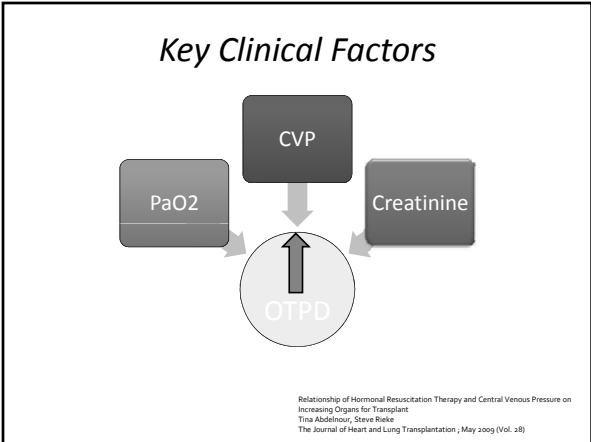
- Recognized need for revision of the Donor Management Goal set
- New DMG set developed and implemented July 1st, 2009

NEW Donor Management Goals

- ◆ SBP ≥ 90 (mmHg)
- ◆ CVP 4-8 (mmHg)
- ◆ EF ≥ 50%
- ◆ Final PaO₂ ≥ 300 on 100%
- ◆ pH 7.35-7.5
- ◆ Glucose < or equal to 180 (mg/dL)
- ◆ ≤ 1 pressor (Dopamine ≤ 10mcg/kg/min OR Neo ≤ 100mcg/min)
- ◆ Na < or equal to 160 (mmol/L)
- ◆ Urine Output at least 1ml/kg/hr
- ◆ *Creatinine
- ◆ *Net Fluid Balance @ DM & OR time (I+O=Net)

80% of the goals met within four hours of the OR indicate "goals met"

* Not factored into overall goals



Where are we going?

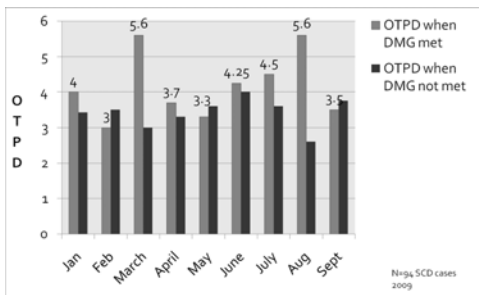
- A and B Hospital education
 - Identify Intensivist Champions
 - Hardwire CBIGs
 - Development of scorecard
- Preceptor program – intense clinical focus
- Involving donation coordinators in OPO strategic plan

OPO & Hospital Partnership

Pre-donor management is associated with outcomes.....

- Take this information to A Hospitals
 - Identify nurse and physician champions
 - Celebrate Successes with hospital staff!
- Present to Critical Care Committee
 - Identify improvement opportunities
 - Physician to Physician discussions

OTPD at the time of Auth/Disclosure



Opportunities for Growth

- ◆ Identify an effective analytical method for DMG data
 - ◆ Determine organ specific significance of individual goals considering the presence of co-morbidities
 - ◆ Do we continue to measure/analyze DCD donors vs. DMG met and not met

- ◆ Development of a team focused debrief system
 - Support clinical growth
 - Learn from one another

Thank you

Focused Donor Management Goals for Focused Outcomes...Taking it to the Bedside



The Transplant Institute
Ft. Lauderdale, FL
January 16, 2010
Lori Markham, RN, MSN, CCRN, CPTC
Director, Organ Procurement Services



Development of Our Goals

- Began with Critical Care Task Force
 - Intensivists (adult and pediatric)
 - Transplant Surgeons/Medical Directors
 - Organ Procurement Staff
- Surviving Sepsis Campaign/current Critical Care strategies
- Current needs of transplant centers

Critical Care Task Force



Focused Donor Management Goals



- MAP > 60 (or age appropriate if pediatric donor)
- C.I. > 2.5
- Urine Output 0.5-3cc/kg/hr
- pH 7.30 – 7.45
- PF Ratio > 350 (if > 60yo > 300)
- Pressor dose within specified range
- These goals should be met within **12 hours** of authorization/pronouncement (whichever comes last)

The POWER of Donor Management Goals

599 cases January, 2007-December, 2009

- When goals are met (within 12 hrs):
 - 4.08 OTPD
 - 44% heart transplantation rate
 - 47% lung transplantation rate
- When goals are NOT met (within 12 hrs):
 - 4.76 OTPD
 - 47% heart transplantation rate
 - 32% lung transplantation rate
- When goals are NEVER met:
 - 2.54 OTPD
 - 23% heart transplantation rate
 - 3% lung transplantation rate



DCD donors excluded in heart/lung transplantation rate

Let's break it down by Donor Type



	Met	Met Later	Never Met
SCD	5.05	5.59	3.10
Heart	64%	50%	35%
Lung	63%	34%	4%
ECD	2.10	2.30	1.38
Heart	7%	0%	0%
Lung	21%	10%	0%
DCD	2.34	NA	2.14

Focused Bedside Tool with Emphasis on DMGs

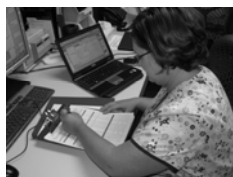
- Needed reference for coord/hospital staff real time
- Developed on-line, visual tool that allow staff to identify and focus on areas that were not within goals
- Staff complete at:
 - Time of authorization
 - 12 hours into case
 - Before OR
- Fields change color depending of if goals were met
 - Red are areas that are not within DMG
 - Green are areas that are within DMG

Creation of the 'Bittle Board'

MTN Donor Adult Management Guidelines			
	Height	Gender Type	Referral #
Date & Time Performed		Age/Sex/Race	Weight in KG
Date & Time of Consent			
Date & Time	Start of Case	12 Hours into Case	End of Case
Blood Pressure			
Adult MAP			
0-60 mmHg			
Ultrasonic Hemodynamics			
Cardiac Index			
2.5			
Ultrac Output			
0.5 - 3.0 ml/kg/minute			
HR			
60 - 70			
P/F Ratio			
6-8 years old			
> 100			
> 80 years old			
> 100			
Vasopressor Medication Administration			
Dopamine (mg/kg/min)			
0.5 - 2.0			
Vasopressin (mcg/kg/minute)			
0.5 - 2.0			
Epinephrine (mcg/kg/minute)			
0.5 - 2.0			
Levosimendan (mcg/kg/minute)			
0.5 - 2.0			
Neosynephrine (mcg/kg/minute)			
0.5 - 2.0			
Respiratory Medication			
Sulfam			
0.5 - 2.0			
Glucocorticoid			
0.5 - 2.0			

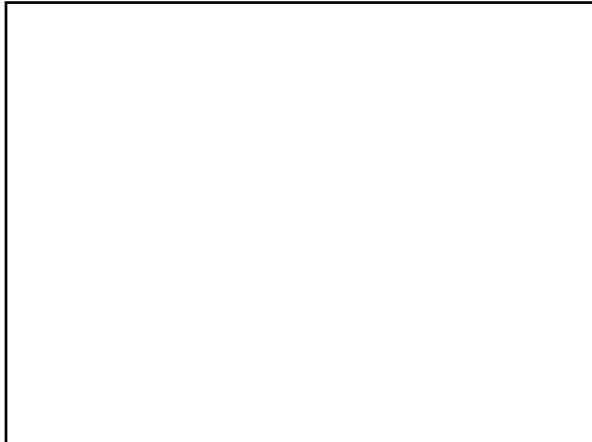
Use of the Bittle Boards...Real Time


- Coordinators input each goal directly into the computer
- Fields turn red/green dependent on value
- Donor Management begins with focus of managing all areas with emphasis on "red" goals





Donation & Transplantation Councils and
Physician & Staff Follow up





**The Future of Donor Management Goals:
What Is the Implication for Our Practice?**

Megan Shaughnessy CPTC
Manager of Clinical Services

QUESTIONS TO RUN ON

1. What are the role of DMGs?
2. What is the *true* current state of my DSA and Regional DMG initiative?
3. How can I improve my DSA and/or Regional DMG initiative?
4. Is my DSA willing to participate in a National DMG initiative?

National Update

- Donor Management Forum – August 2009
 - Intensivists, Transplant Surgeons, OPO representatives, National Organizations
- Four predominant REQUESTS:
 1. Increase Intensivist involvement
 2. Increase the science of donor management
 3. Tie donor management data to SRTR outcomes
 4. Funding for research

DONOR MANAGEMENT GOALS:

The Region 5 DMG Project

- Part 1: Retrospective
- Part 2: Prospective
- Part 3: Graft Outcome Data



BACKGROUND

- Checklists have demonstrated utility in several arenas
- Standardized critical care endpoints
- Donor Management Goals (DMGs)

HYPOTHESIS

- Meeting DMG's prior to organ procurement will be associated with more OTPD in brain dead donors

PART 1 - RETROSPECTIVE

- Universal template
- 40 SCD's from each OPO
- Retrospective collection of data regarding proposed DMG's (prior to procurement) and organ disposition information
- Statistical analyses:
 - 80% DMG's = goal met
 - >/= 4 OTPD = primary outcome measure
 - DMG-specific results
 - Other notable findings

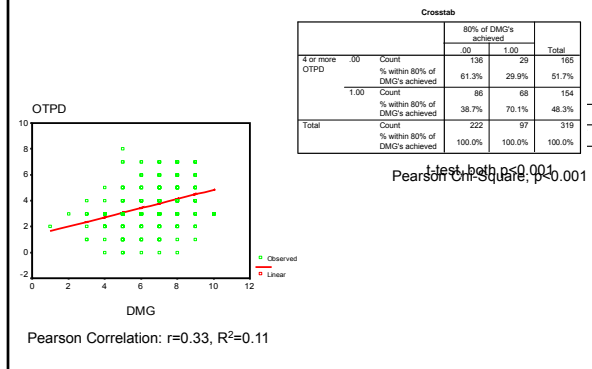
METHODS

- Universal template
- 40 standard criteria donors from each organ procurement organization (OPO)
- Retrospective data collection:
 - Donor age
 - DMG's met prior to procurement
 - Terminal creatinine
 - Thyroid Hormone use
 - Organ disposition information

METHODS

- Primary outcome measure: ≥ 4 OTPD
- “Goals met”: 80% of DMGs met prior to procurement
- Statistical analyses:
 - Univariate: Pearson’s Chi-square, Fisher’s Exact, and the student’s t-test
 - Multivariate: Binary logistic regression

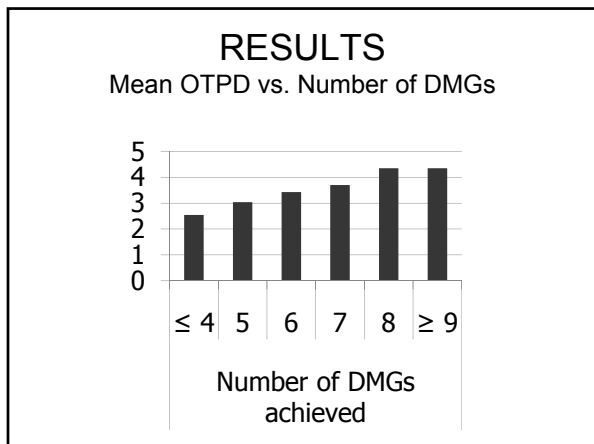
DMG’S AND OTPD



		80% of DMG's achieved		Total
		.00	1.00	
4 or more OTPD	.00	Count 136	29	165
		% within 80% of DMG's achieved 61.3%	29.9%	51.7%
1.00	Count	86	68	154
	% within 80% of DMG's achieved	38.7%	70.1%	48.3%
Total	Count	222	97	319
	% within 80% of DMG's achieved	100.0%	100.0%	100.0%

Number of DMG’s and OTPD

# of DMG's (out of 10)	OTPD when goal met	OTPD when not met	p value (t-test)
≥ 5	3.74	2.54	<0.001
≥ 6	3.88	2.86	<0.001
≥ 7	4.06	3.12	<0.001
≥ 8	4.35	3.32	<0.001
≥ 9	4.35	3.55	0.007
≥ 10 (n=3)	3	3.6	<0.001



RESULTS

Multivariate analyses

DMG/Variable	OR	95% CI	p value
Continuous Variables			
Age (years)	0.944	0.923 – 0.966	< 0.001
Creatinine (mg/dL)	0.636	0.409 – 0.987	0.044
Categorical Variables			
Thyroid Hormone use	1.969	1.082 – 3.582	0.026
CVP 4 – 10 mmHg	1.897	1.021 – 3.527	0.043
EF > 50%	3.988	2.095 – 7.592	< 0.001
P:F > 300 on PEEP 5	4.591	2.478 – 8.506	< 0.001
Na 135 – 160 mEq/L	3.352	1.141 – 9.851	0.028
"Goals met"	4.394	2.497 – 7.732	< 0.001

CONCLUSIONS

- Meeting predefined Donor Management Goals leads to more organs transplanted per donor.
- Donor factors, treatment modalities, and critical care endpoints are independent predictors of organ yield

CONCLUSIONS

- Causality between DMGs and OTPD cannot be established
- Prospective studies are needed to determine the true impact of each DMG on the number and function of transplanted organs

Part 2: Prospective Data

General Data

- | | |
|-----------------------------|------------------------------|
| • Part 1 | • Part 2 – July-Dec 2008 |
| • 320 donors | • 492 donors |
| • 100% SCD | • 380 (77%) SCD |
| • DMG's prior to OR | • DMG's at 3 time points |
| • Purely retrospective data | • Prospective implementation |
| • DMG's met = 8/10 | • DMG's met = 7/9 |
| | • Graft Function Data |

Multivariate analysis – Part 2
>= 4 OTPD (n=376, 4 missing)

Variable	OR	95% CI	p value
Age	0.95	0.93-0.96	<0.001
Terminal creatinine	0.74	0.6-0.9	0.004
DMG 1 met	1.9	1.02-3.7	0.044
DMG 3 met	2.2	1.3-3.6	0.002
Ejection fraction 3	3.3	1.8-6	<0.001
Pao2:Fio2 3	3.2	1.6-6	0.001

PART 3
Graft Outcome Data
 What Transplant Surgeons Will
 Care About...

PART 3 - preliminary
GRAFT FUNCTION DATA

- 380 SCD'S
- Left Kidney transplanted 86%
- Right Kidney transplanted 83%
- 670 Kidney's transplanted

- DGF = Dialysis in the first week
 - 157 (23.4%)
 - DGF rate in ECD's = 29% (p=0.042)
 - PRA and pulsatile perfusion data not available

Multivariate analysis – DGF
(n=590, 80 missing CIT)

Variable	OR	95% CI	p value
Age	1.018	1.004-1.03	0.01
Terminal creatinine	1.4	1.2-1.7	0.001
CIT	1.04	1.01-1.06	0.002
DMG 1 met	0.6	0.31-1.04	0.068
DMG 3 met ???	1.5	1.05-2.3	0.029

CVP out of range is protective

Crosstab

		cyp3_10		Total
		.00	1.00	
Kidney Delayed Graft Function	No DGF	Count 329	108	437
		% within cyp3_10 75.1%	83.1%	76.9%
	DGF	Count 109	22	131
		% within cyp3_10 24.9%	16.9%	23.1%
Total		Count 438	130	568
		% within cyp3_10 100.0%	100.0%	100.0%

UOP out of range is protective

Crosstab

		uop3 greater than 3cc/kg/hr		Total
		.00	1.00	
Kidney Delayed Graft Function	No DGF	Count 306	100	406
		% within uop3 greater than 3cc/kg/hr 74.6%	86.2%	77.2%
	DGF	Count 104	16	120
		% within uop3 greater than 3cc/kg/hr 25.4%	13.8%	22.8%
Total		Count 410	116	526
		% within uop3 greater than 3cc/kg/hr 100.0%	100.0%	100.0%

Percent of kidneys with DGF when other organs transplanted

Organ	Not transplanted (%)	Transplanted (%)	p
Heart	27	18	0.006
Liver*	19	25	0.17
Pancreas	26	17	0.011
Lung, Intestine, and overall OTPD were not associated with DGF			

PART 3 - CONCLUSIONS

- Age, Creatinine, CIT, and DMG's are associated with DGF
- Pre-donor management may have a REAL impact
- Addition of PRA and pulsatile perfusion data would be beneficial
- DMG's need refinement

CONCLUSIONS

- Retrospective and Prospective data suggest that meeting DMG's throughout case → more OTPD
- DMG's are associated with DGF

Future Directions

- Refine DMG's
- Develop Web-based data entry system
- Create national DMG's and donor database
- Continue to engage intensivist community
- Create a network for large-scale research

OPO Implications

- Provide benchmarks for onsite staff to maintain consistency in donor management (bigger OPO, more staff)
- Do better about increasing "in the moment" awareness
 - why we do what we do
 - intensivist

Next steps

- PDSA reviewing goals on pre-allocation huddle (in addition to post review of cases)
- Include in DonorNet offers
- Create a web-based system of entering, tracking, and sharing DMG data
 - → Link to SRTR/DonorNet
 - → National Donor Database

QUESTIONS TO RUN ON

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2. What is the *true* current state of my DSA and Regional DMG initiative?
3. How can I improve my DSA and/or Regional DMG initiative?
4. Is my DSA willing to participate in a National DMG initiative?
