

CURRENT INDICATIONS FOR MCS: DO THEY FACILITATE UNDERSTANDING OR MUDDY THE WATERS?

MEDCAC MEETING

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Jeffrey Teuteberg, MD

Presenting for

International Society for Heart and Lung Transplantation

Jeffrey Teuteberg

Chair, Mechanical Circulatory Council, ISHLT



MEDCAC

- Outcomes: mortality, AE, patient function, QoL
- Questions
 1. Specific patient criteria can be used to prospectively identify clinically meaningful changes by patients who receive VADs?
 2. One or more facility and/or operator characteristics predict clinically meaningful improvements by patients who receive VADs?
 3. Conclusions are generalizable to Medicare beneficiaries?
 4. Clinically significant knowledge gaps regarding the use of VADs?

Background

□ Evolution in MCS

- ▣ Devices
- ▣ Outcomes
 - Survival
 - Adverse Events
- ▣ Duration of support
- ▣ Patient populations

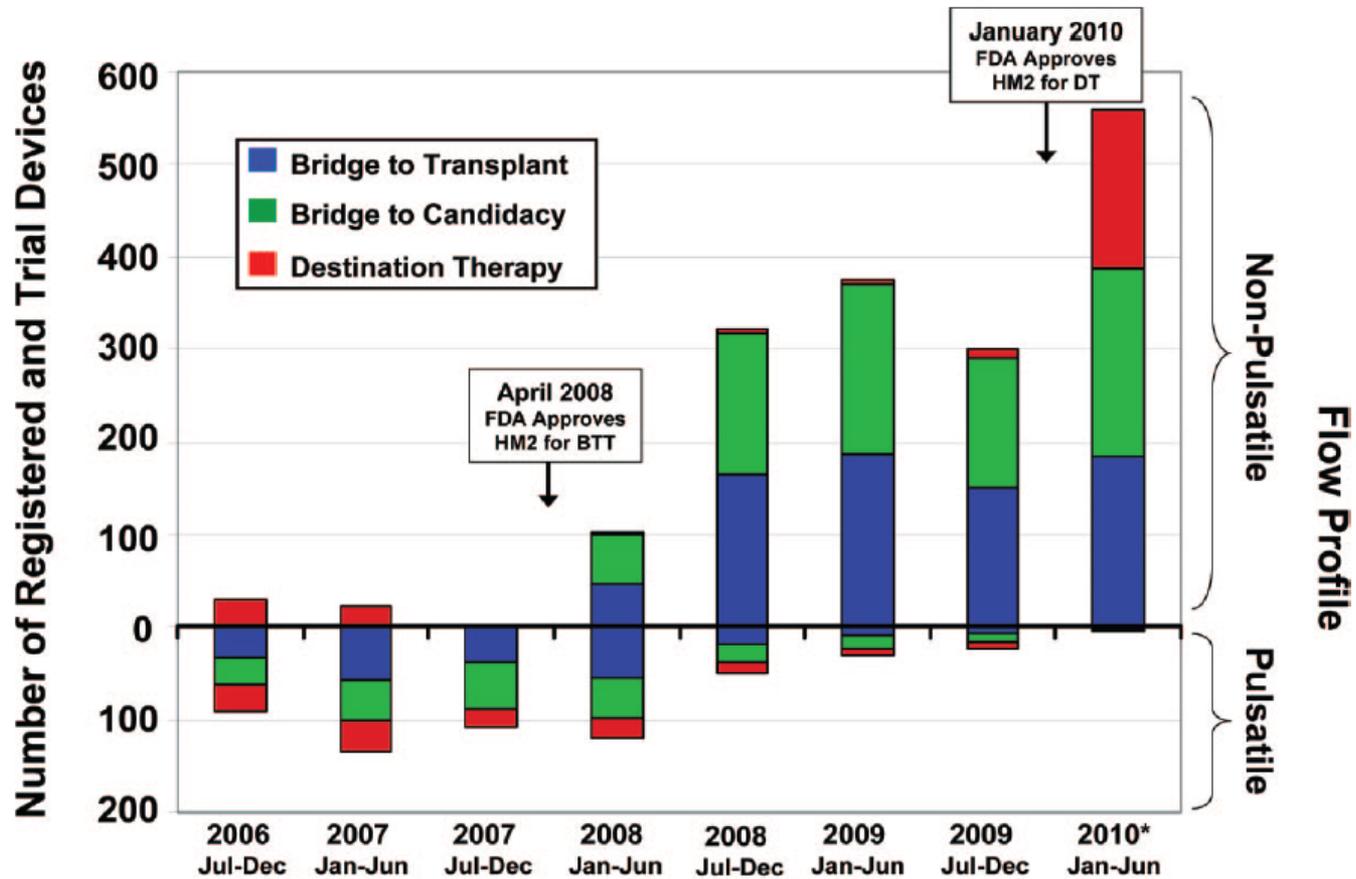
□ Indications

- ▣ BTT
 - Candidate
 - Short-term
- ▣ DT
 - *Not* a candidate
 - Long-term
- ▣ Describe different populations

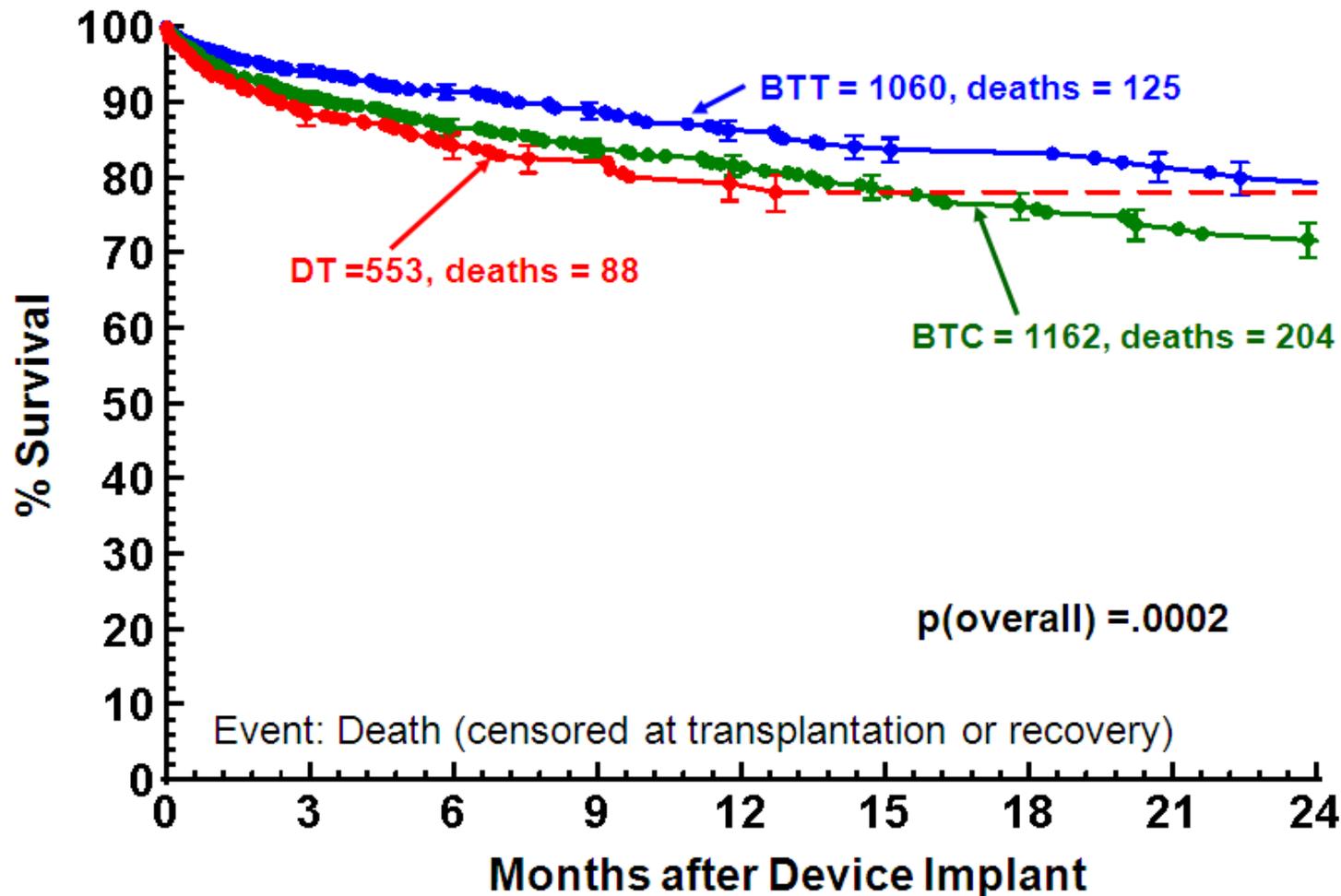
Transplant candidacy

- Definitions
 - ▣ Changes over time
 - ▣ Certainty
 - Listed at implant
 - Hope to list after implant
 - ▣ Consistency
 - Intra-institutionally
 - Inter-institutionally
 - ▣ Patient perspective
- BTT v. BTC v. DT

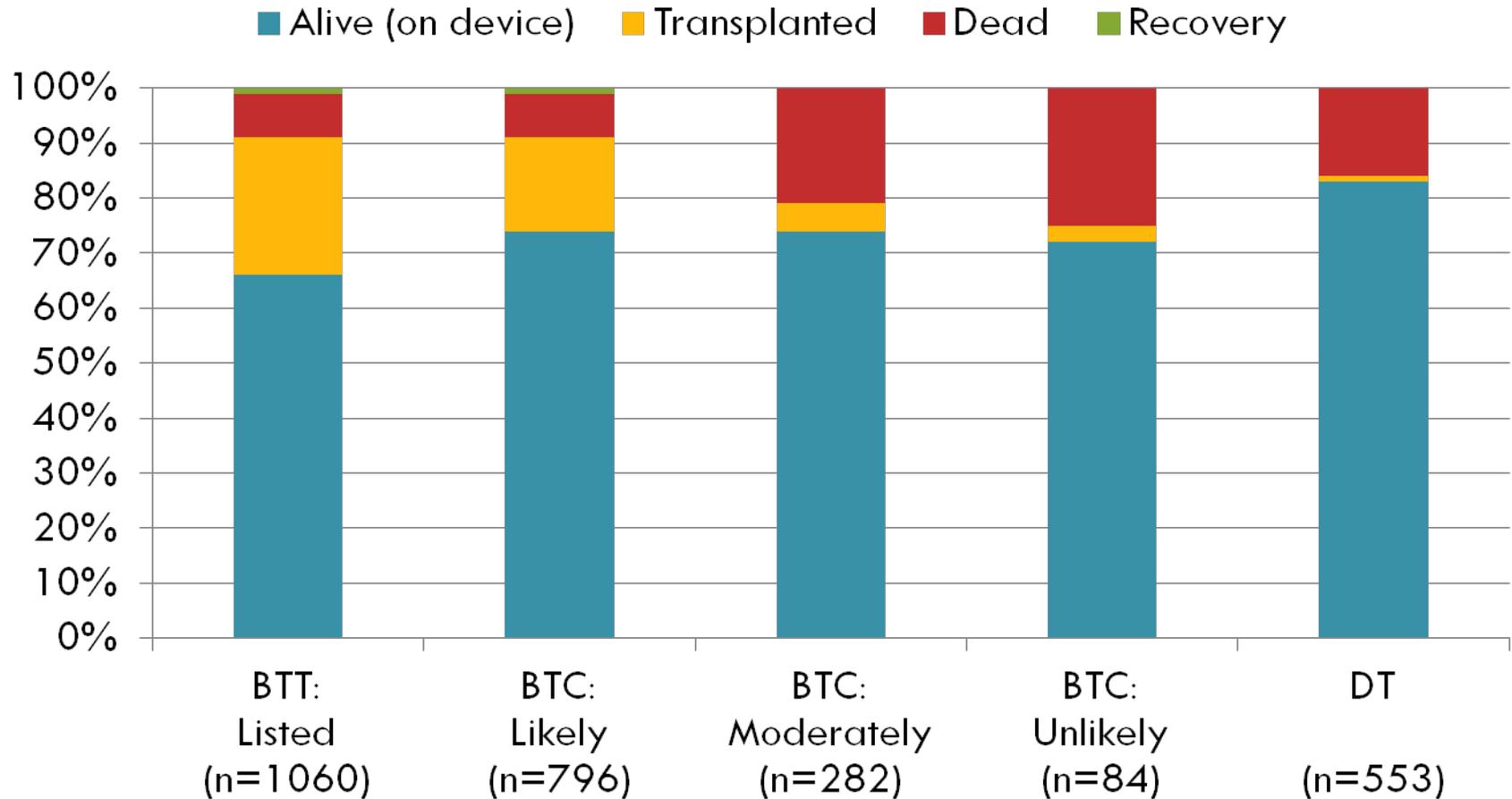
Strategies – real world



Survival – by strategy

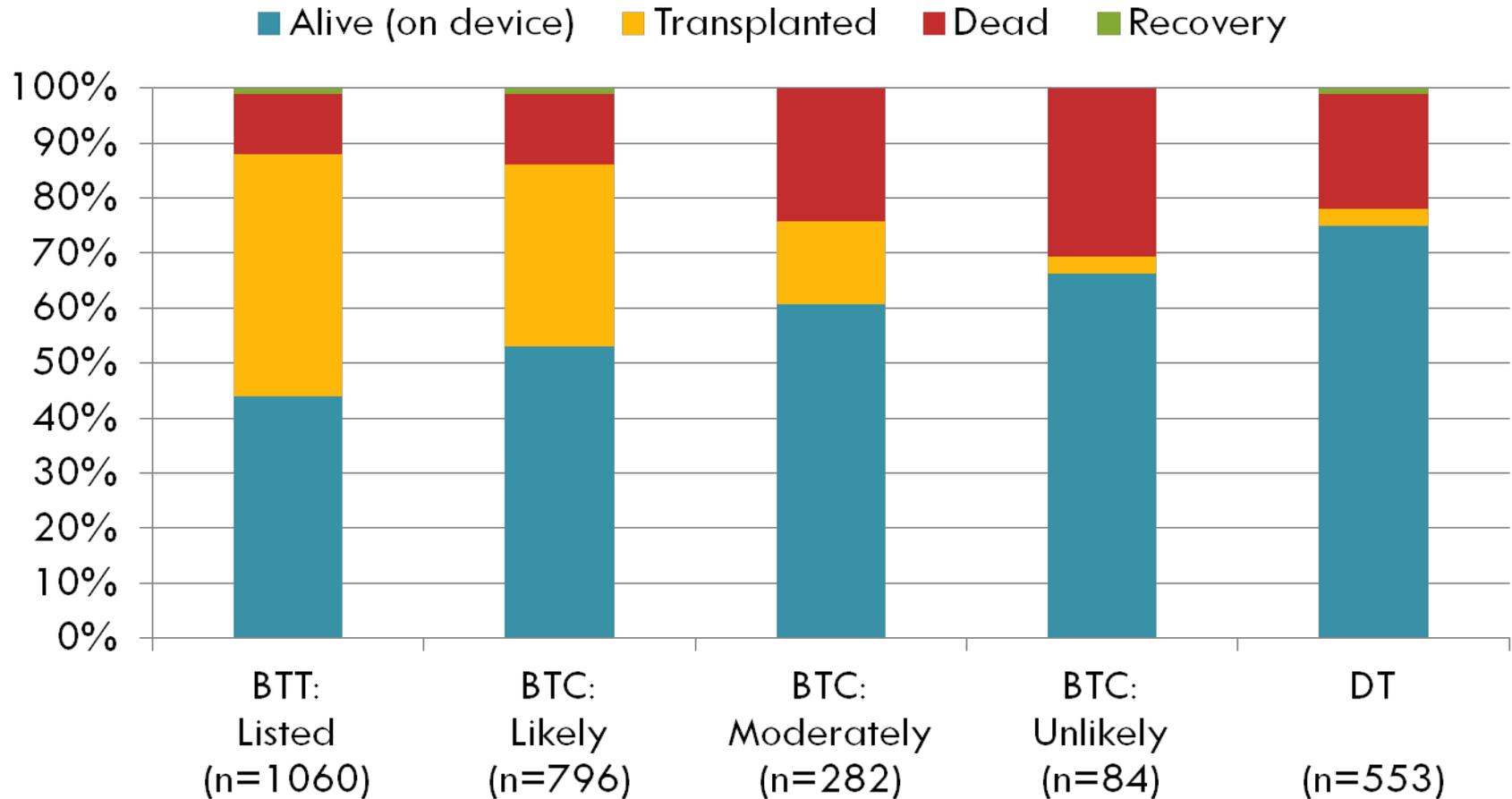


Competing outcomes: by strategy



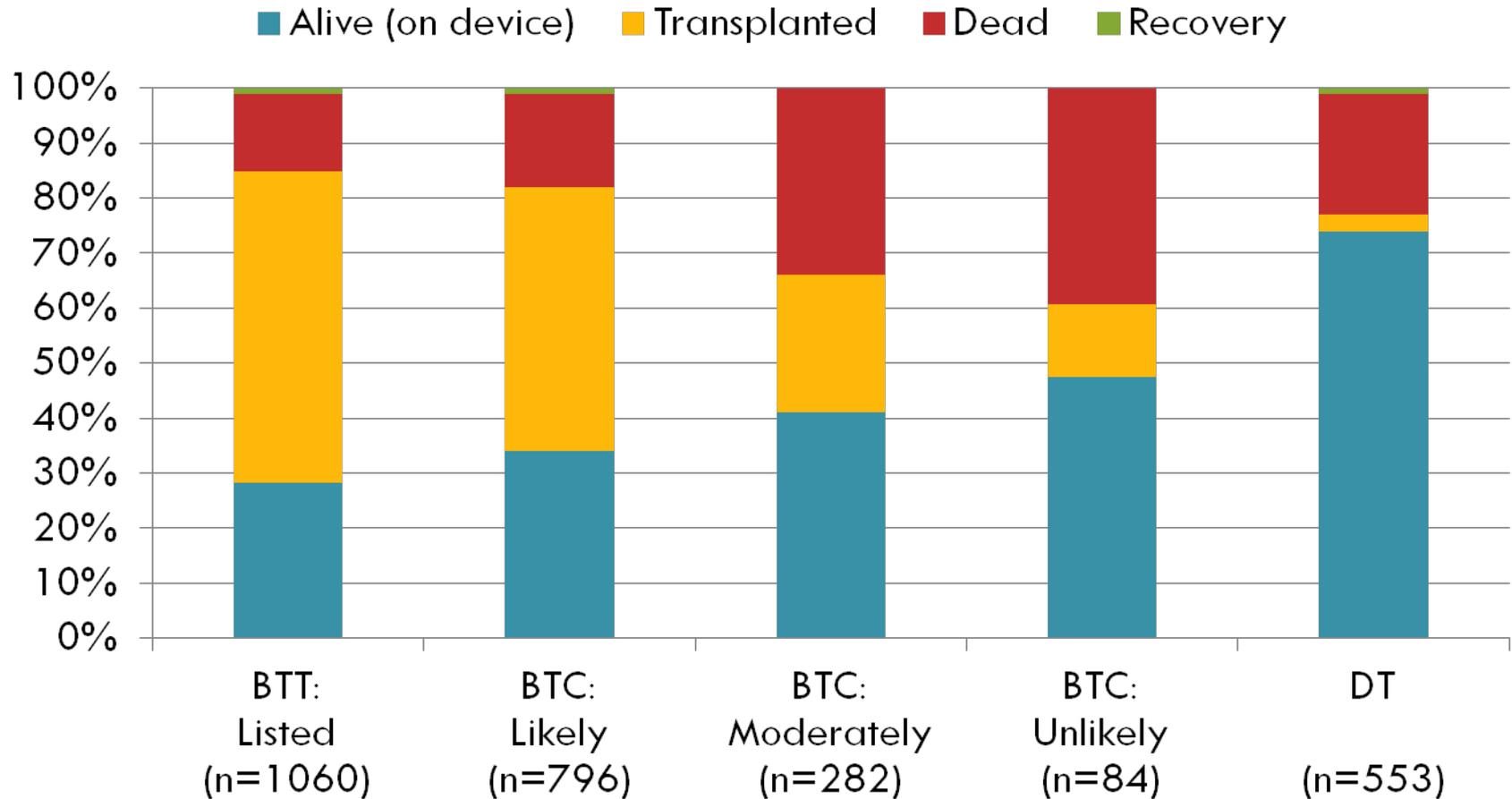
6 months

Competing outcomes: by strategy



12 months

Competing outcomes: by strategy



24 months

Patient characteristics

	BTT		BTC		DT
	Listed n=1060	Likely n=796	Moderately n=282	Unlikely n=84	n=553
Beta-Blockers	80	74	76	73	82*
ACE-I	59	55	53	48	47#*
ICD	85	76	75	83	87*
Inotropes	83	80	78	76	77#
Na	134	134	135	135	135#*
Cr	1.4	1.4	1.5	1.7	1.5#*
T. Bili	1.4	1.5	1.4	1.3	1.4
INR	1.4	1.3	1.4	1.4	1.3
Platelet	207	206	205	202	190#*
Prealb	19.5	17.8	18.2	19.0	18.5

p < 0.05 DT v. BTT * p < 0.05 DT v. BTC

Co-morbidities and strategy

	BTT		BTC		DT
	Listed n=1060	Likely n=796	Moderately n=282	Unlikely n=84	n=553
Age (years)	53	52	54	59	64 ^{#*}
BMI (kg/m ²)	28	28.8	31.0	30.0	28 [*]
PVR (Woods)	2.8	2.7	3.3	2.8	2.9
COPD (%)	10	13	18	25	23 ^{#*}
Cancer (%)	6	6	8	10	15 ^{#*}
PVD (%)	4	4	6	14	13 ^{#*}
Ascites (%)	5	7	11	11	10 [#]
Tobacco (%)	7	18	17	12	11 ^{#*}
Alcohol (%)	13	17	22	23	17 [#]
Drugs (%)	1	3	4	6	2 [*]

p < 0.05 DT v. BTT * p < 0.05 DT v. BTC

Cardiac dysfunction

	BTT		BTC		DT
	Listed n=1060	Likely n=796	Moderately n=282	Unlikely n=84	n=553
Hemodynamic					
SBP (mmHg)	101	101	103	106	105*†
RA (mmHg)	12	13	14	12	11†
W (mmHg)	25	25	24	25	23†
CI (L/min/M ²)	2.1	2.1	2.2	2.2	2.2
Echo					
LVEDD (cm)	6.9	6.9*	6.9	6.9	6.9
LVEF < 20%	73	72	75	67	60
RVEF – severe	25	26	26	30	18
Mod-Sev MR	61	59	60	55	57
Mod-Sev TR	47	45	43	49	54

p < 0.05 DT v. BTT * p < 0.05 DT v. BTC

Conclusions

- BTT v. BTC v. DT
 - ▣ Disease state – same
 - ▣ Therapy – same
 - ▣ Describe a continuum
 - Patient characteristics
 - Transplant eligibility
 - ~50% of bridge patients are BTC
 - Transplant criteria vary
 - At implant, at 3 months, 6 months, when?
 - Length of support
 - BTT not necessarily short
 - DT not necessarily long-term
 - What is long-term support?
 - Outcomes
 - ▣ Strategies are fluid

Conclusions

- Knowledge gap
 - ▣ Utility of current indications – BTT and DT
 - ▣ Categorization of BTC patients
- How patients categorized impacts
 - ▣ Survival – seen in INTERMACS
 - ▣ AE, QoL, functional capacity
 - ▣ Other outcome metrics
 - ▣ Outcome prediction models



Thank you