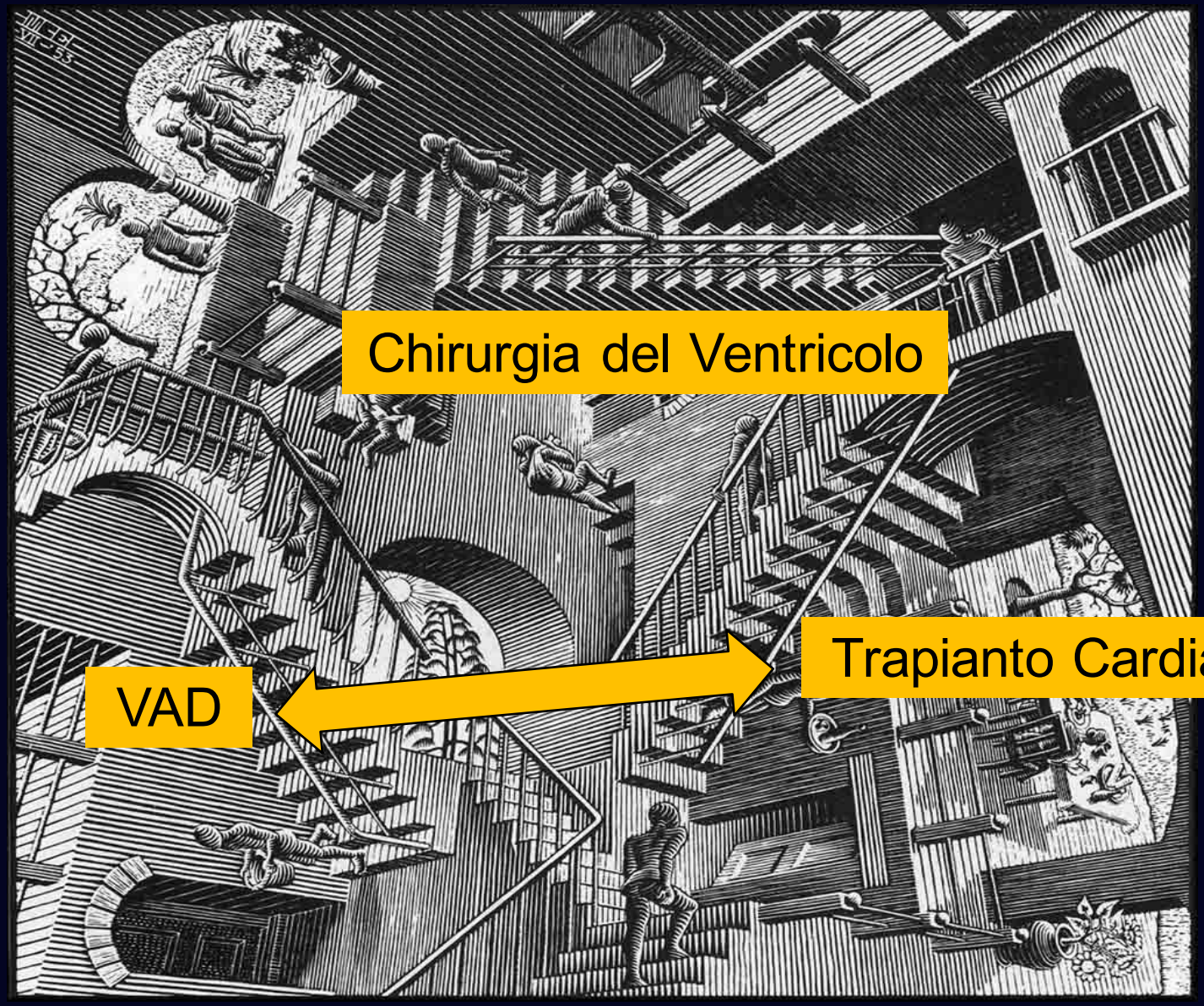
Mercoledì, 23 marzo 2016
3a Parte: I danni del rimodellamento
Moderatori: ***Massimo Lemma (Milano), Alfredo Posteraro (Roma)***

12.00 La chirurgia estrema ed il trapianto ***Stefano Pelenghi (Milano)***

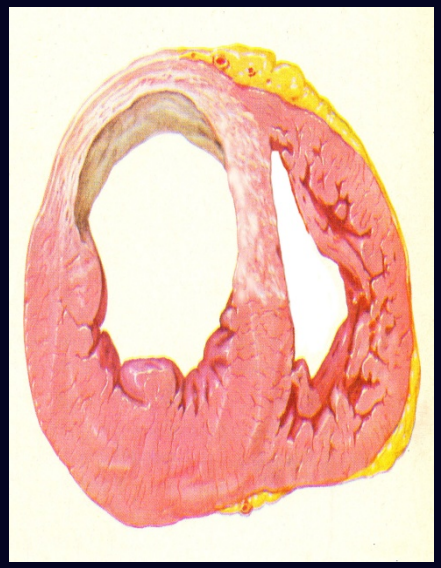
MINI CORSI SALA VERDI

Mercoledì, 23 marzo 2016
3a Parte: I danni del rimodellamento
Moderatori: ***Massimo Lemma (Milano), Alfredo Posteraro (Roma)***
11.00 Ruolo dell'ecostress (farmaco e/o sforzo) nella ricerca ischemia/vitalità ***Anna Maltagliati (Milano)***
11.20 Insufficienza mitralica ischemica: MitraClip? ***Giuseppe Grassi (Venezia)***
11.40 Insufficienza mitralica ischemica: cardiochirurgia? ***Carlo De Vincentiis (San Donato Milanese)***
12.00 La chirurgia estrema ed il trapianto ***Stefano Pelenghi (Milano)***
12.20 Discussione
MINI CORSI SALA VERDI

Insufficienza Cardiaca Ischemica
Chirurgia Estrema



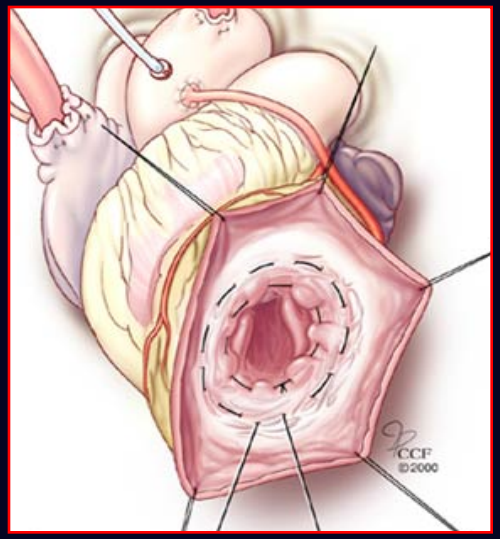
Razionale della chirurgia del VSx

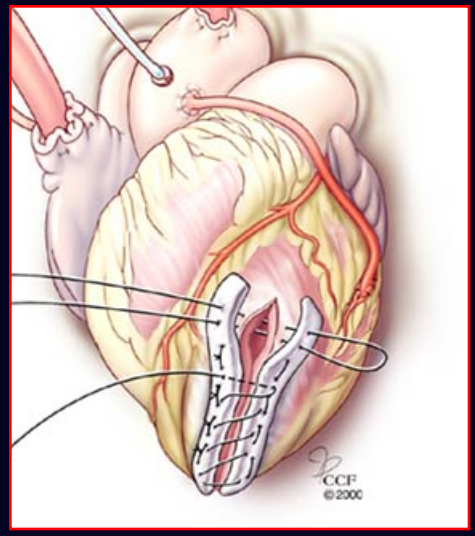


Esclusione funzionale del terr. asinergico (incluso SIV)
Riduzione di volume della cavità (< stress parete)

Ricostruzione cavità più ellittica (> efficienza contrattile)

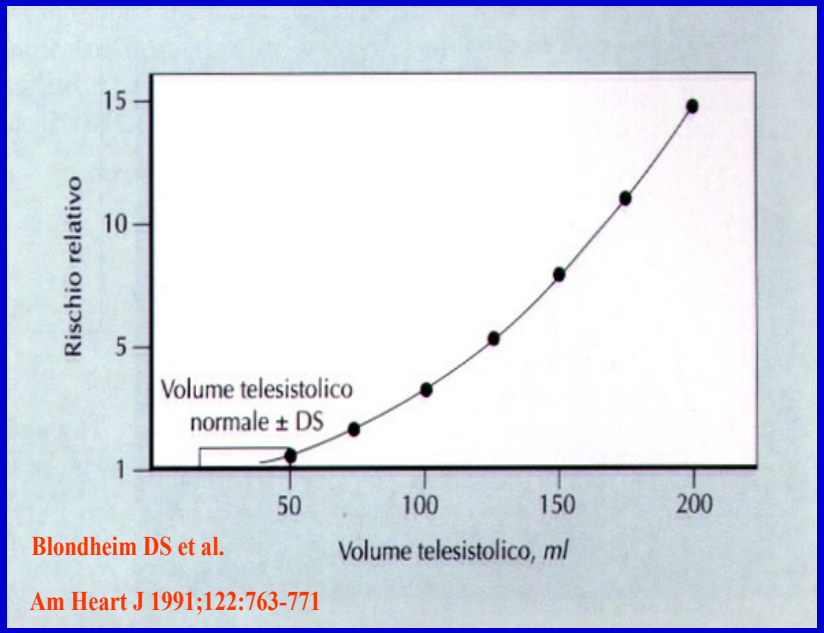
Migliorare la funzione del miocardio remoto





“la prognosi è più correlata al volume VSx che all’ FE”

Withe et al, Circulation 1987 !!



correlazione fra aumento del volume TS e incremento del rischio di mortalità

STICH peggior prognosi se
ESVI > 90 ml/mq

Solo BPAC: 60-90 mL/m => post-op > 60 mL/m

Chirurgia VSx: ESVI > 90 mL/m rimangono > 60 mL/m

60 - 90 mL/m migliori risultati:

post-op < 60 mL/m se SVR

Migliori risultati in assoluto: ESVI < 60 mL/m e FE≥33%

Peggiori risultati in assoluto: ESVI >90 mL/m e FE ≤25%

Solo BPAC: ESV[illegible]otto del 30% nel 20% dei pz post-op > 60 mL/m

Chirurg[illegible] mL/m rimangono > 60 mL/m

[illegible] mL/m migliori risultati:

Volumi VTSI > 90 ml/mq !

Dimensioni > 70 mm !

Migliori ris[illegible]: ESVI < 60 mL/m e FE≥33%

Peggiori risultati in assoluto: ESVI >90 mL/m e FE ≤25%

Scompenso cardiaco avanzato (NYHA IV)

Ospedalizzazioni ricorrenti per scompenso

Necessità di inotropi

Disfunzione VD severa (scompenso congestizio)

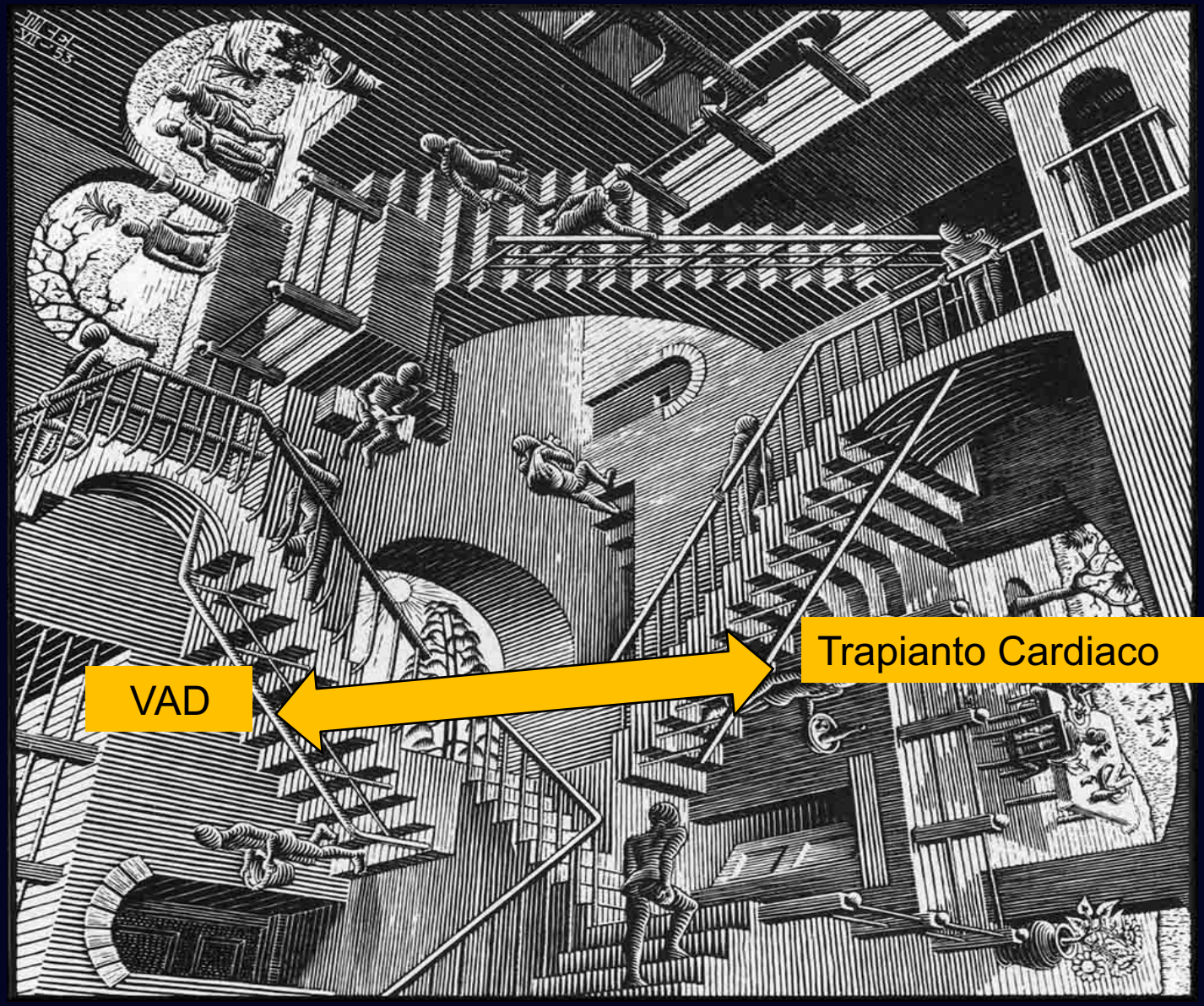
Scompenso cardiaco avanzato (NYHA IV)

Ospedalizzazioni ricorrenti per scompenso

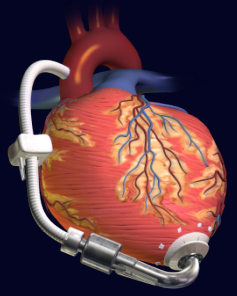
Necessità di inotropi

Disfunzione VD severa (scompenso congestizio)

Insufficienza Cardiaca Ischemica
Chirurgia Estrema

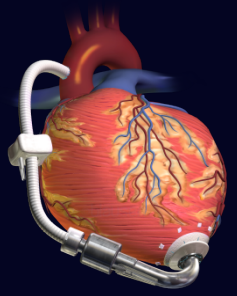


HT vs LVAD



Biventircular replacement	*ISSUE*	*LV support*
All	Cardiomyiopaties	No hypertroph/restrict
PVR < 5	Pulmonary Hypert	Therapeutic if high PVR
Yes	RVDysfunction	Controindicated
5-10%	30 d mortality	5-10%
10 yrs	Mean survival	3-4 yrs
+++	QoL	+/++
Donor availability	Availability	Cost limitation
Donor availability	Prompt availability	Yes
Donor availability	Performance	Reproducible

HT vs LVAD



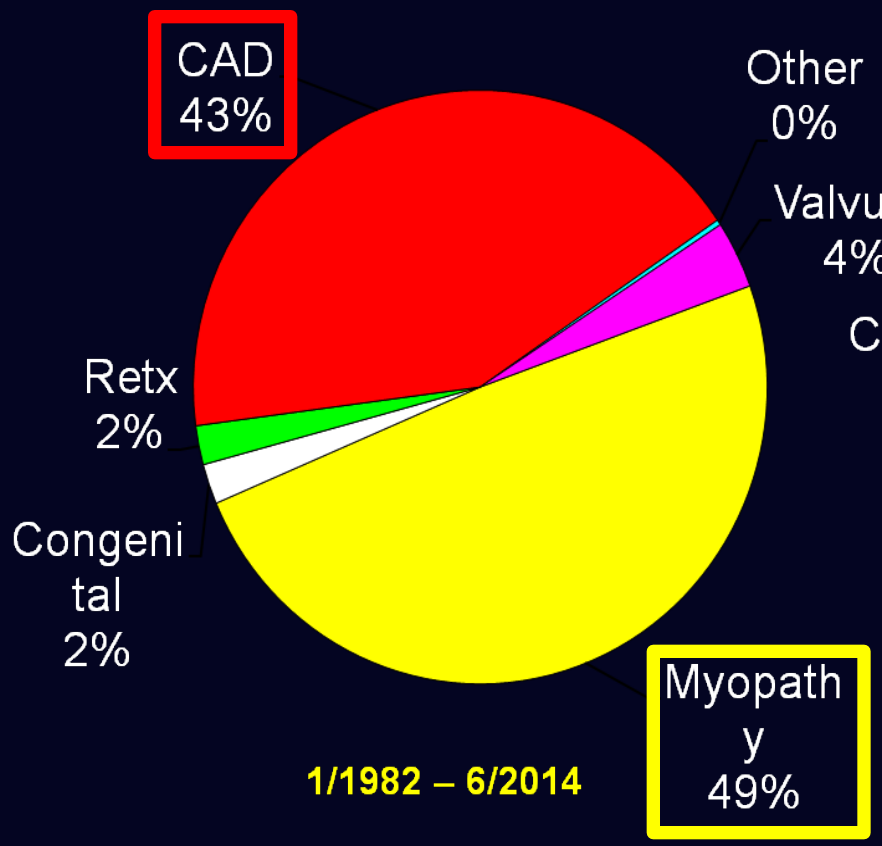
Biventircular replacement	*ISSUE*	*LV support*
All	Cardiomyiopaties	No hypertroph/restrict
PVR < 5	Pulmonary Hypert	Therapeutic if high PVR
Yes	RVDysfunction	Controindicated
5-10%	30 d mortality	5-10%
10 yrs	Mean survival	3-4 yrs
+++	QoL	+/++
Donor availability	Availability	Cost limitation
Donor availability	Prompt availability	Yes
Donor availability	Performance	Reproducible

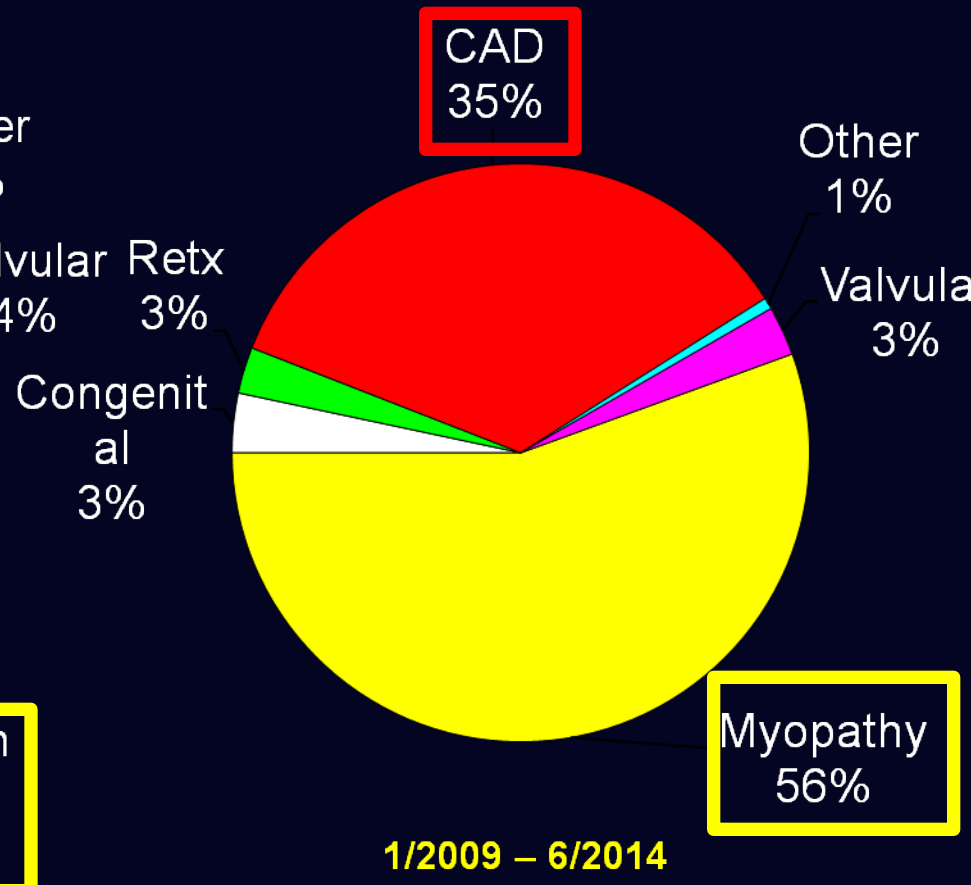
HEART TRANSPLANTATION

Adult Recipients

ISHLT • INTERNATIONAL SOCIETY FOR HEART AND LUNG TRANSPLANTATION

Adult Heart Transplants
Diagnosis

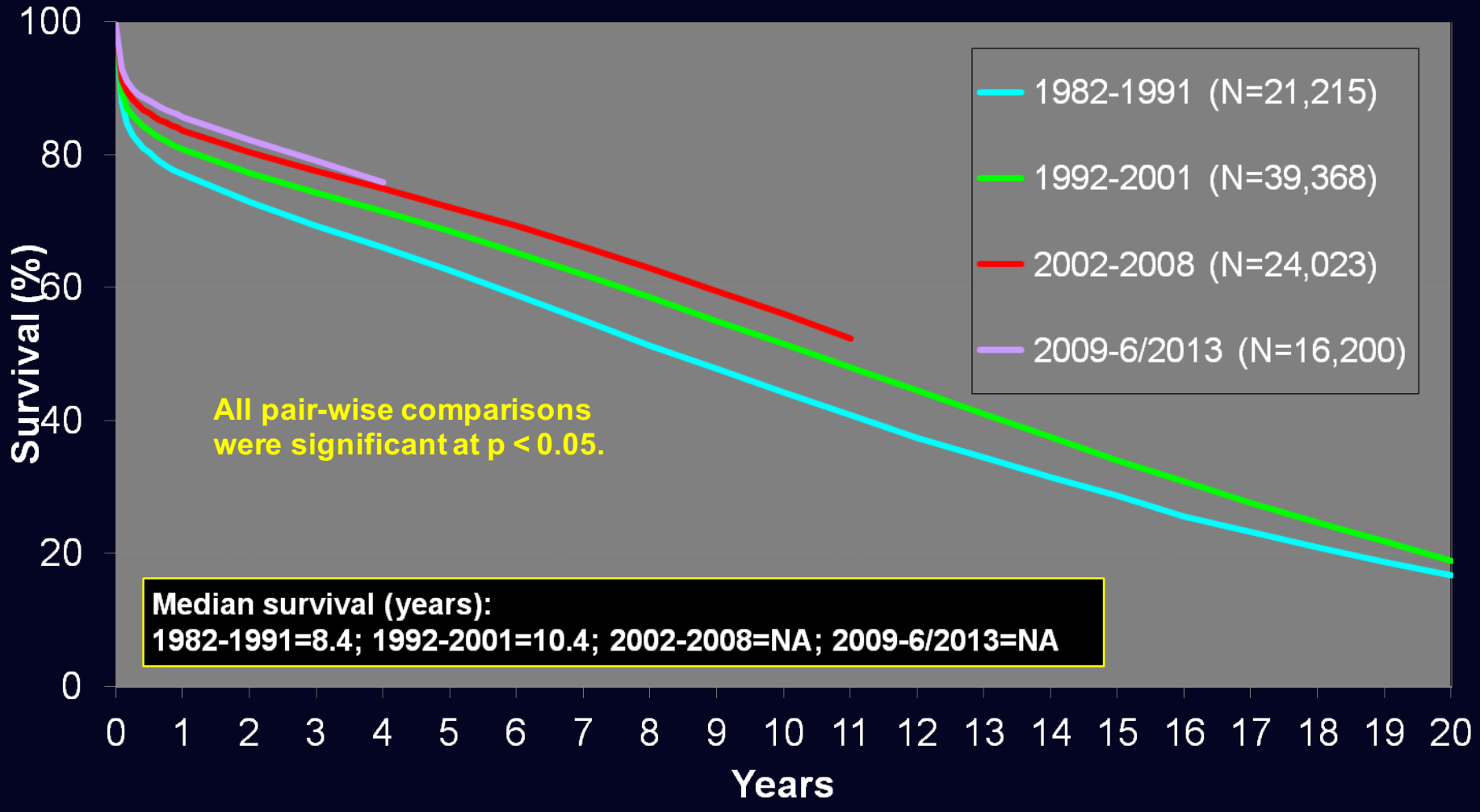




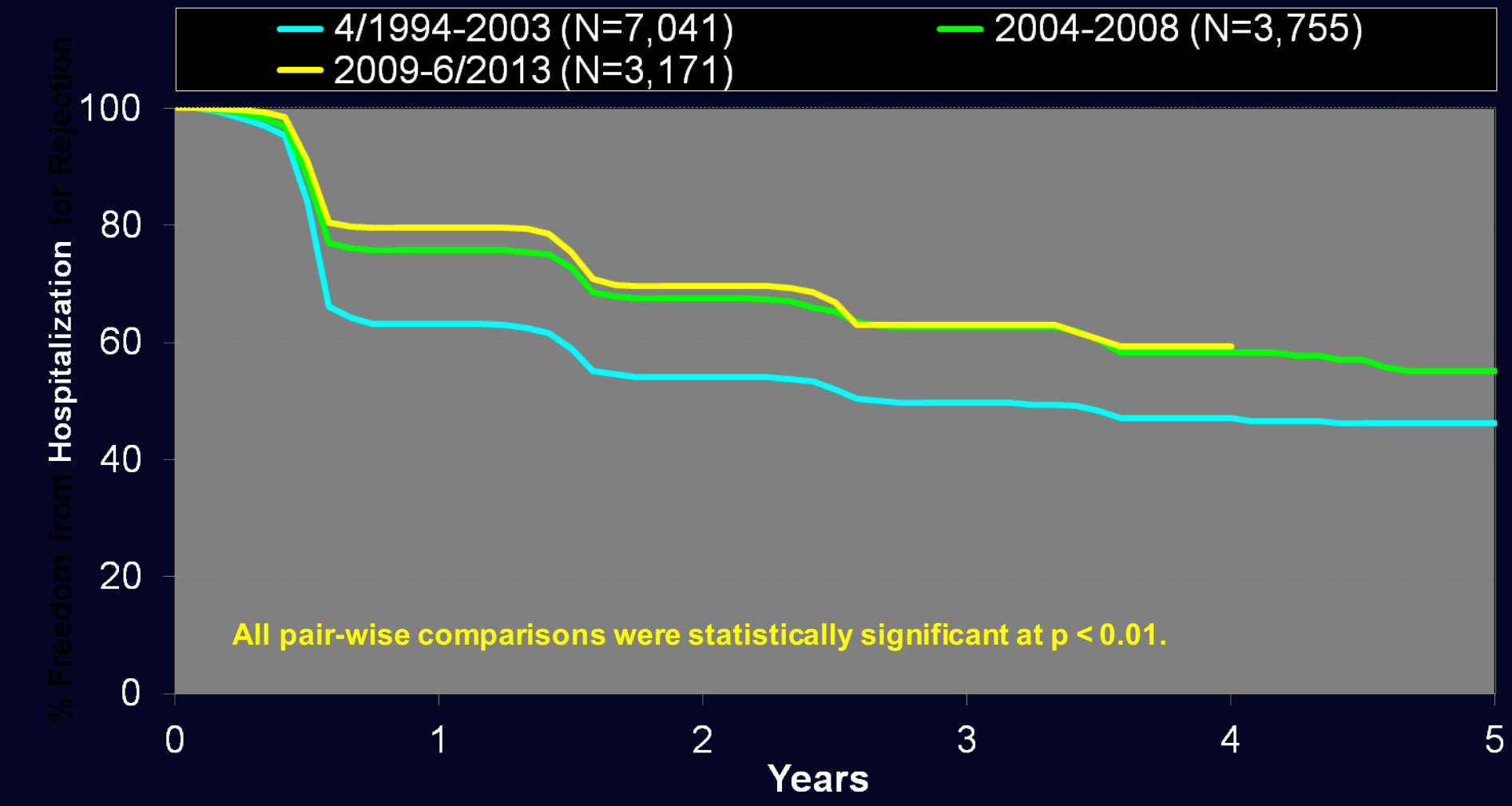
ISHLT • INTERNATIONAL SOCIETY FOR HEART AND LUNG TRANSPLANTATION

For some retransplants a diagnosis other than retransplant was reported, so the total percentage of retransplants may be greater.

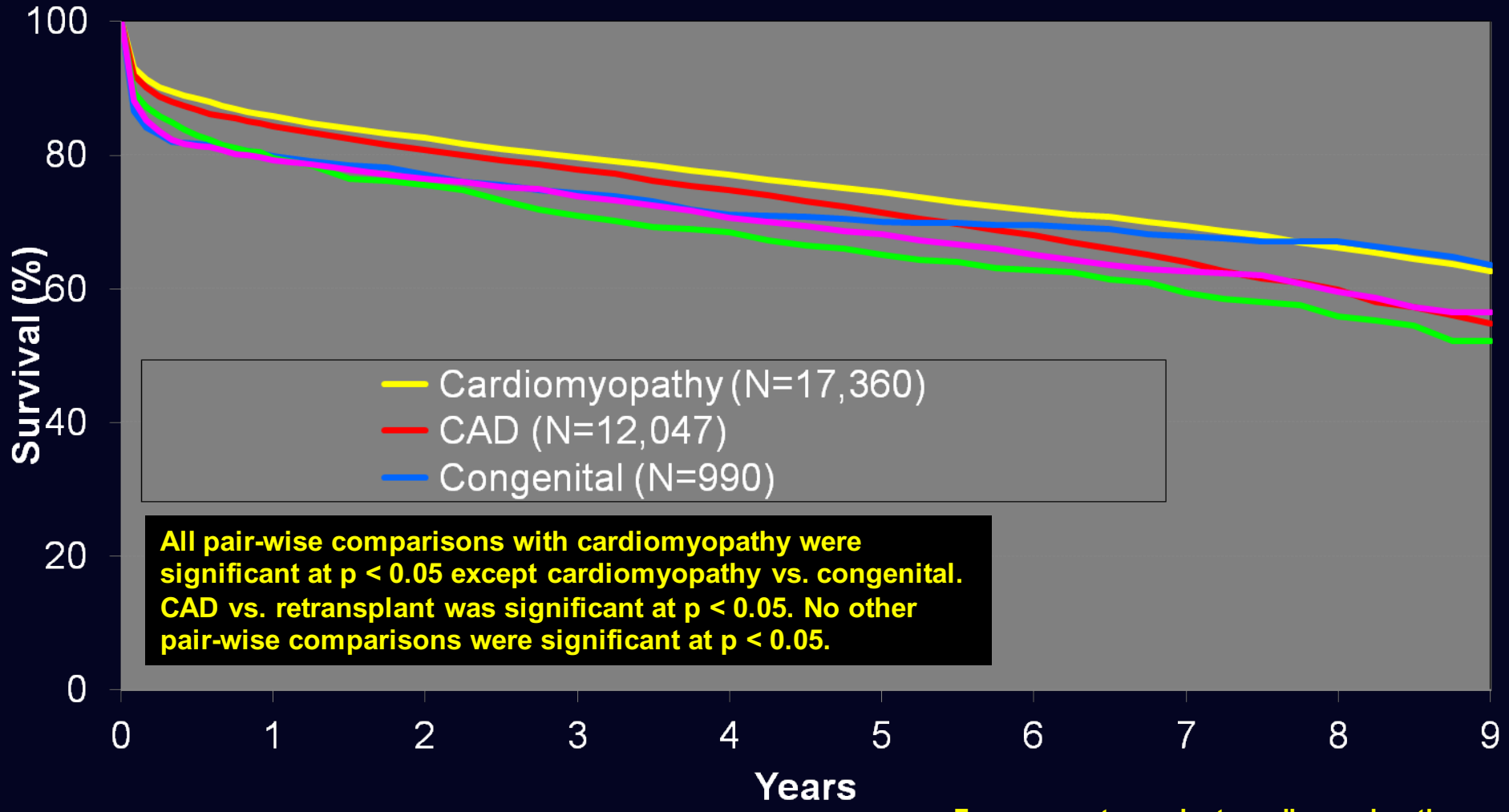
Adult Heart Transplants
Kaplan-Meier Survival by Era
(Transplants: January 1982 – June 2013)



Adult Heart Transplants
Freedom from Hospitalization for Rejection by Era
(Transplants: April 1994 – June 2013)



Adult Heart Transplants
Kaplan-Meier Survival by Diagnosis
(Transplants: January 2004 – June 2013)



All pair-wise comparisons with cardiomyopathy were significant at $p < 0.05$ except cardiomyopathy vs. congenital. CAD vs. retransplant was significant at $p < 0.05$. No other pair-wise comparisons were significant at $p < 0.05$.

For some retransplants, a diagnosis other than retransplant is reported, so the total number of retransplants may be greater.

Adult Heart Transplants
Donor and Recipient Characteristics

	1992-2003 (N=48,061)	2004-2008 (N=17,366)	2009-6/2014 (N=19,770)	p-value
Pre-operative support (multiple items may be reported)				
Hospitalized at time of transplant	58.9%	46.2%	43.8%	<0.0001
On IV inotropes	54.4%[1]	44.6%	39.9%	<0.0001
Ventilator	3.3%	3.0%	2.3%	<0.0001
IABP	6.5%	7.0%	6.2%	0.0865
Mechanical circulatory support	22.2%[2]	26.0%	43.0%	<0.0001
LVAD	13.2%[2]	21.8%	36.6%	<0.0001
RVAD	-	4.4%[3]	3.2%	<0.0001
TAH	0.0%[2]	0.5%	1.4%	<0.0001
ECMO	0.3%[4]	0.9%	1.2%	<0.0001

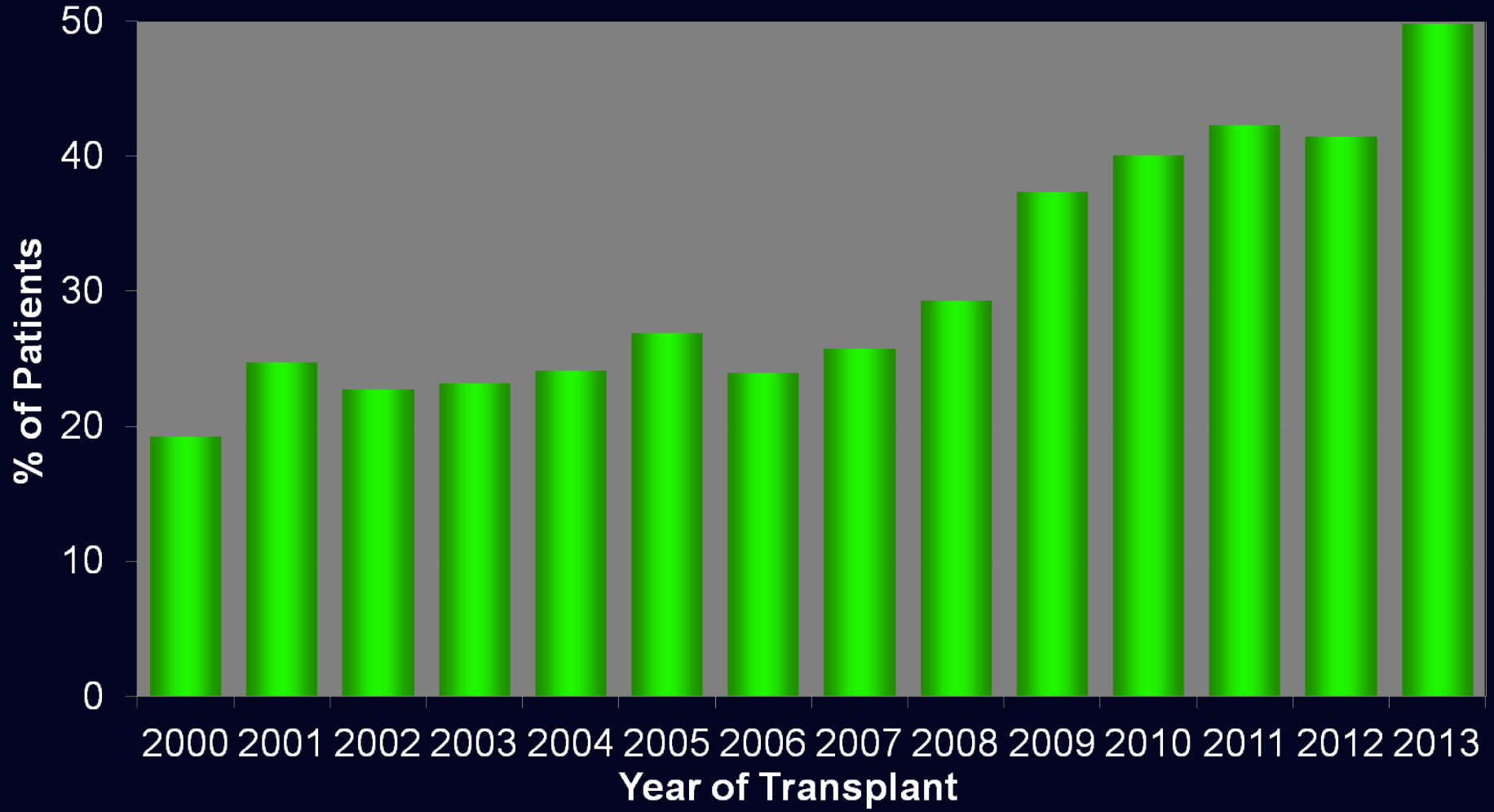
(Cont'd)

[1] Based on 4/1994-2003 transplants.
[2] Based on 11/1999-2003 transplants.
[3] Based on 2005-2008 transplants.
[4] Based on 5/1995-2008 transplants.

Adult Heart Transplants

% of Patients Bridged with Mechanical Circulatory Support*

(Transplants: January 2000 – December 2013)



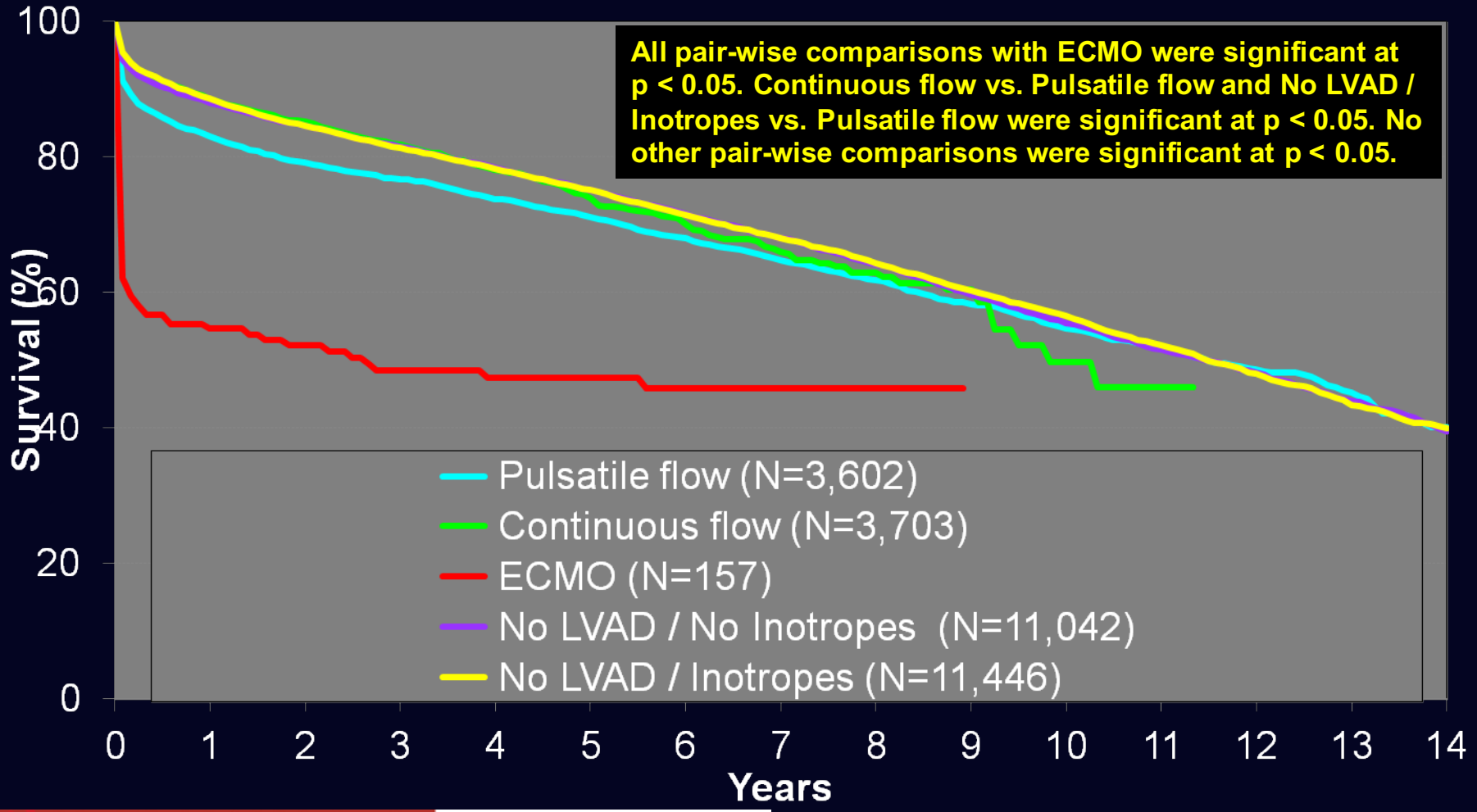
ISHLT • INTERNATIONAL SOCIETY FOR HEART AND LUNG TRANSPLANTATION

* LVAD, RVAD, TAH, ECMO

Adult Heart Transplants

Kaplan-Meier Survival by VAD usage

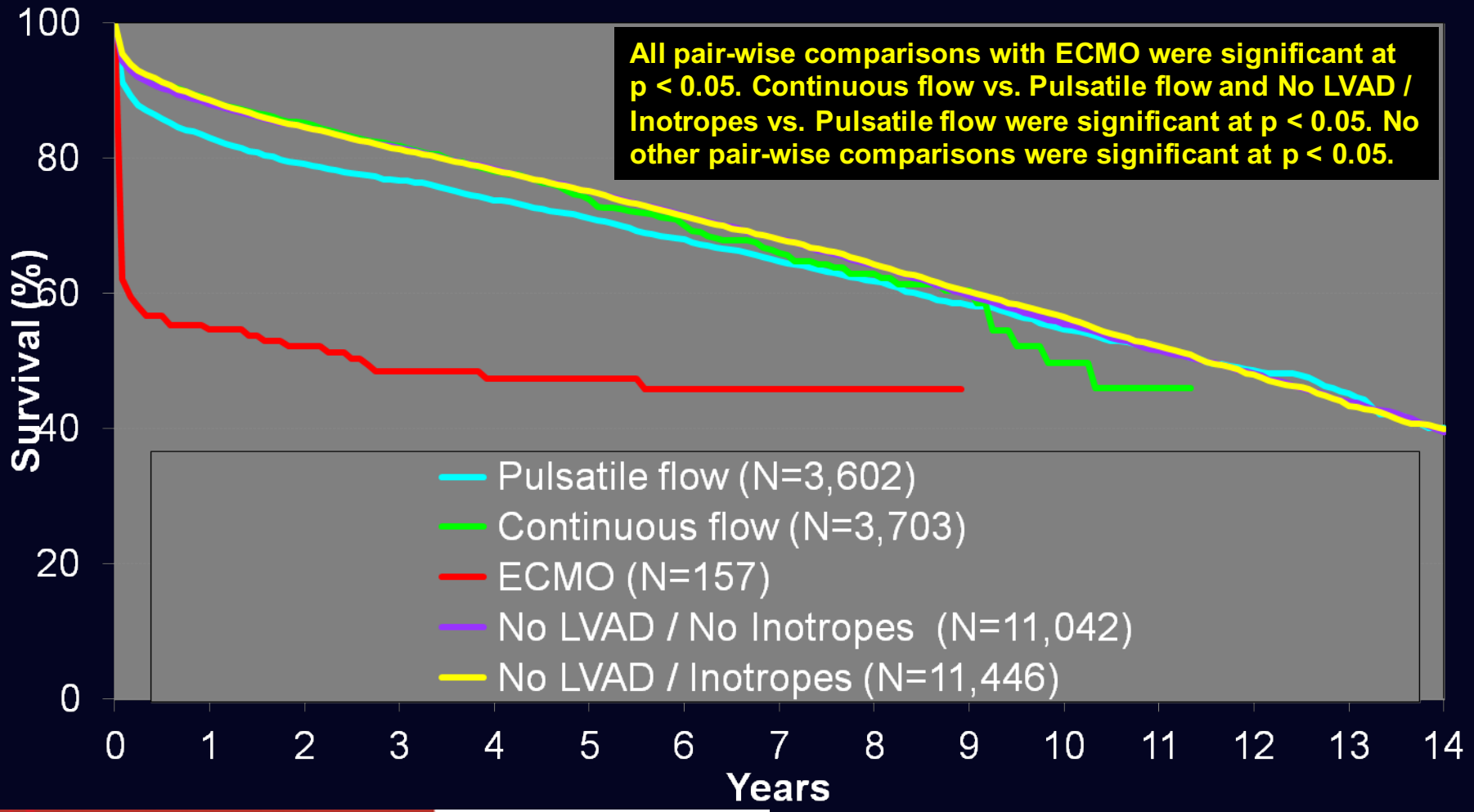
(Transplants: January 1999 – June 2013)



Adult Heart Transplants

Kaplan-Meier Survival by VAD usage

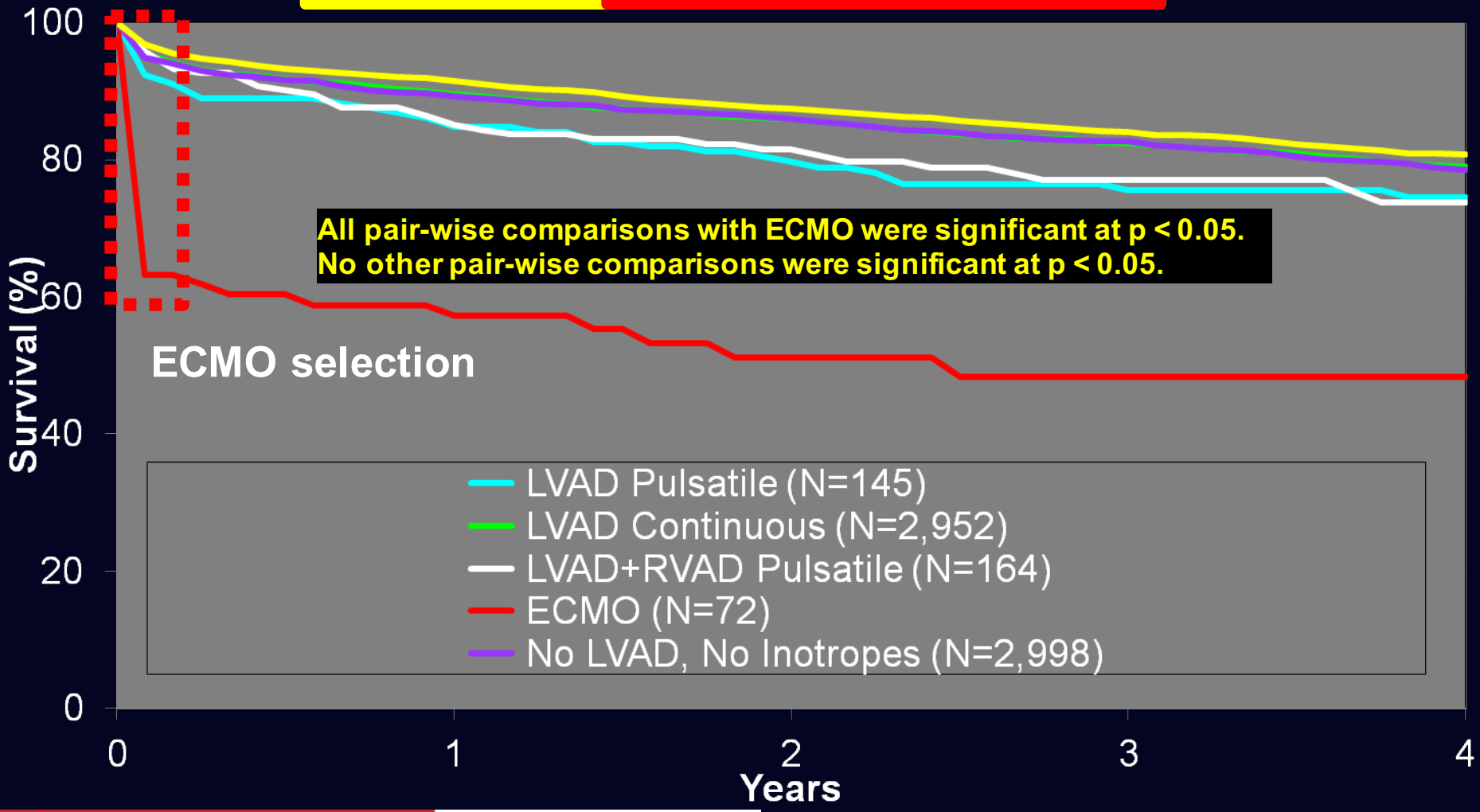
(Transplants: January 1999 – June 2013)



Adult Heart Transplants

Kaplan-Meier Survival by VAD usage

(Transplants: January 2009 – June 2013)



LVAD -Bridge to HTx- INDICATIONS

High risk Long Waiting List Time

- Prevent clinical deterioration

Rapid or imminent-crashing Clinical Deterioration

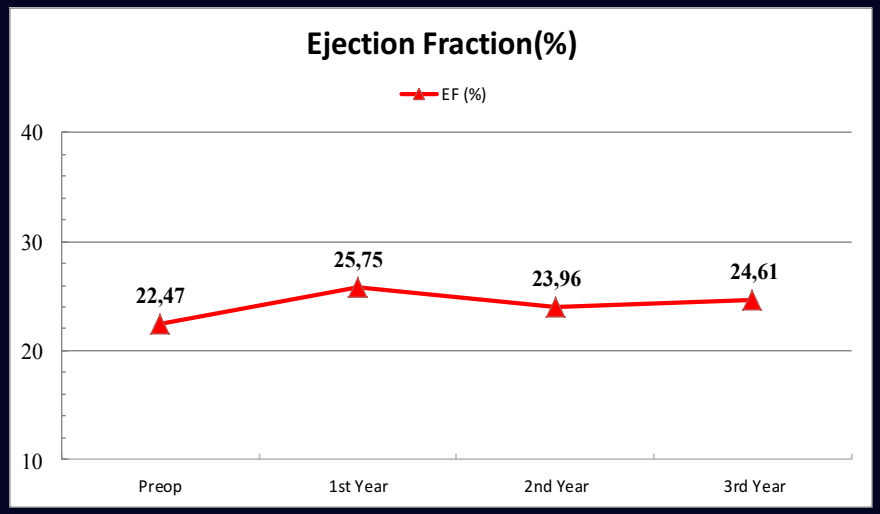
- Arrest ongoing clinical deterioration

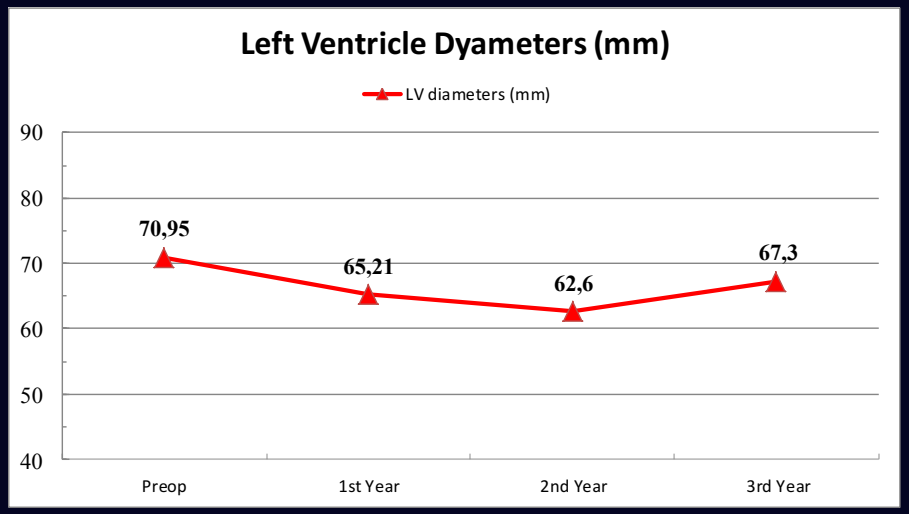
Pulmonary Vascular Disease with High PVR

- Reduce HTx risk (BRIDGE TO CANDIDACY)

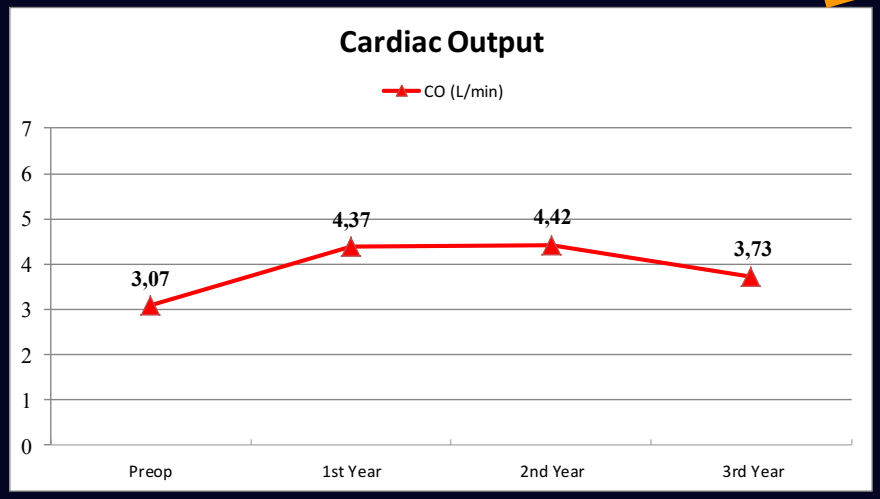
Pulmonary Vascular Disease treatment with LVAD

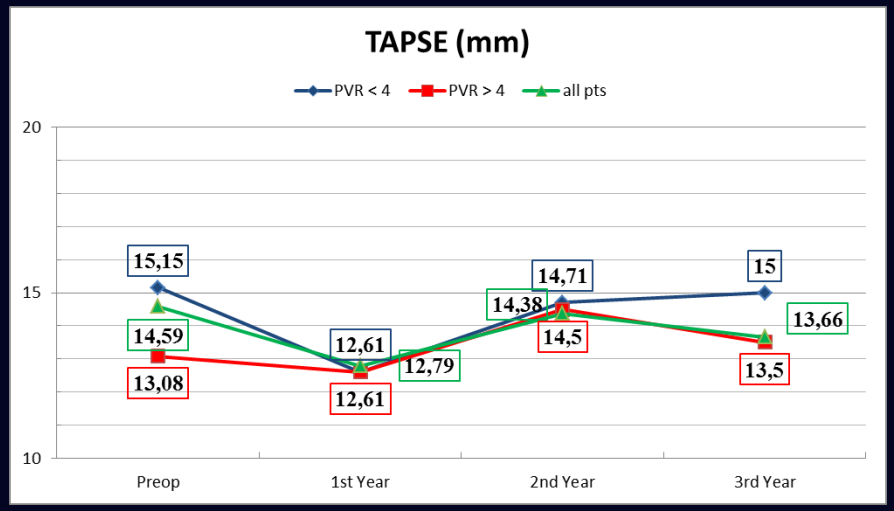
Azienda Ospedaliera Ospedale Niguarda Ca' Granda





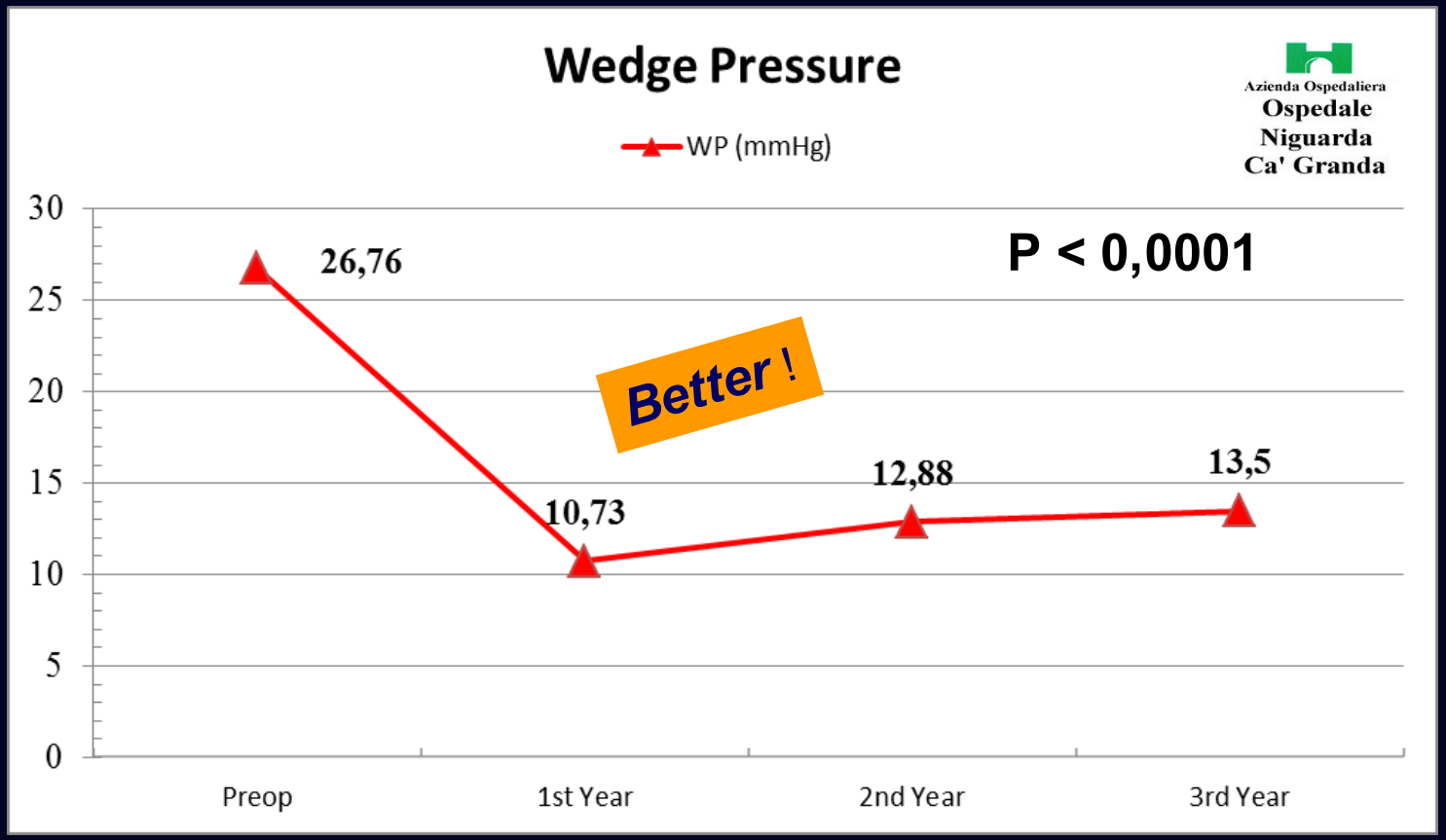
Better !





Costetti A

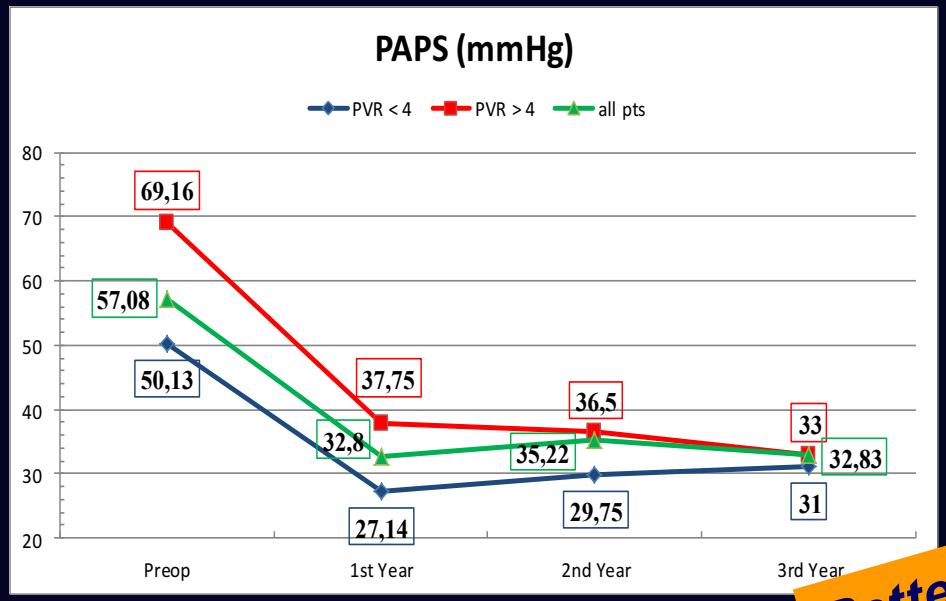
Pulmonary Vascular Disease treatment with LVAD

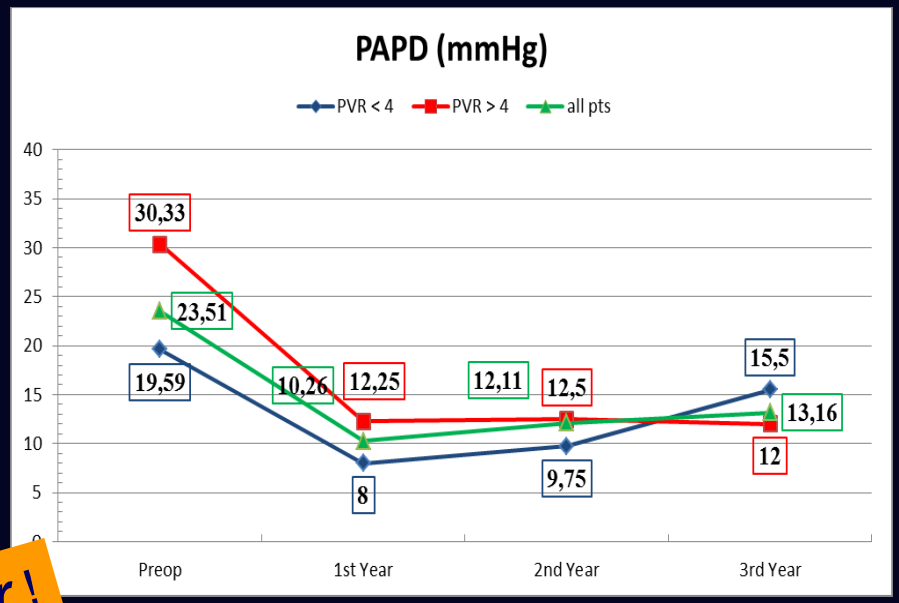


Costetti A

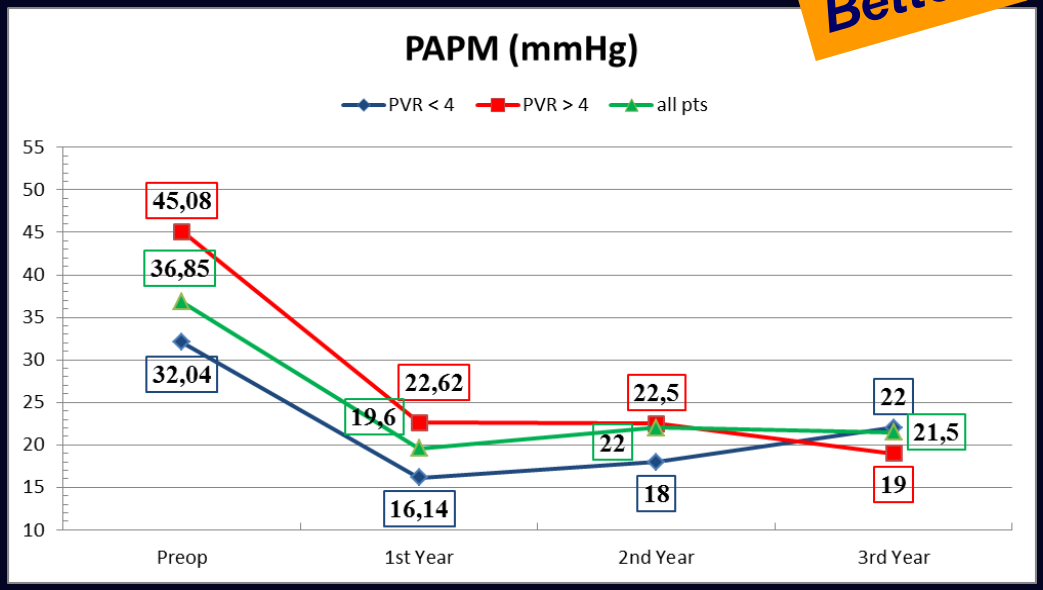
Pulmonary Vascular Disease treatment with LVAD

Azienda Ospedaliera Ospedale Niguarda Ca' Granda





Better !

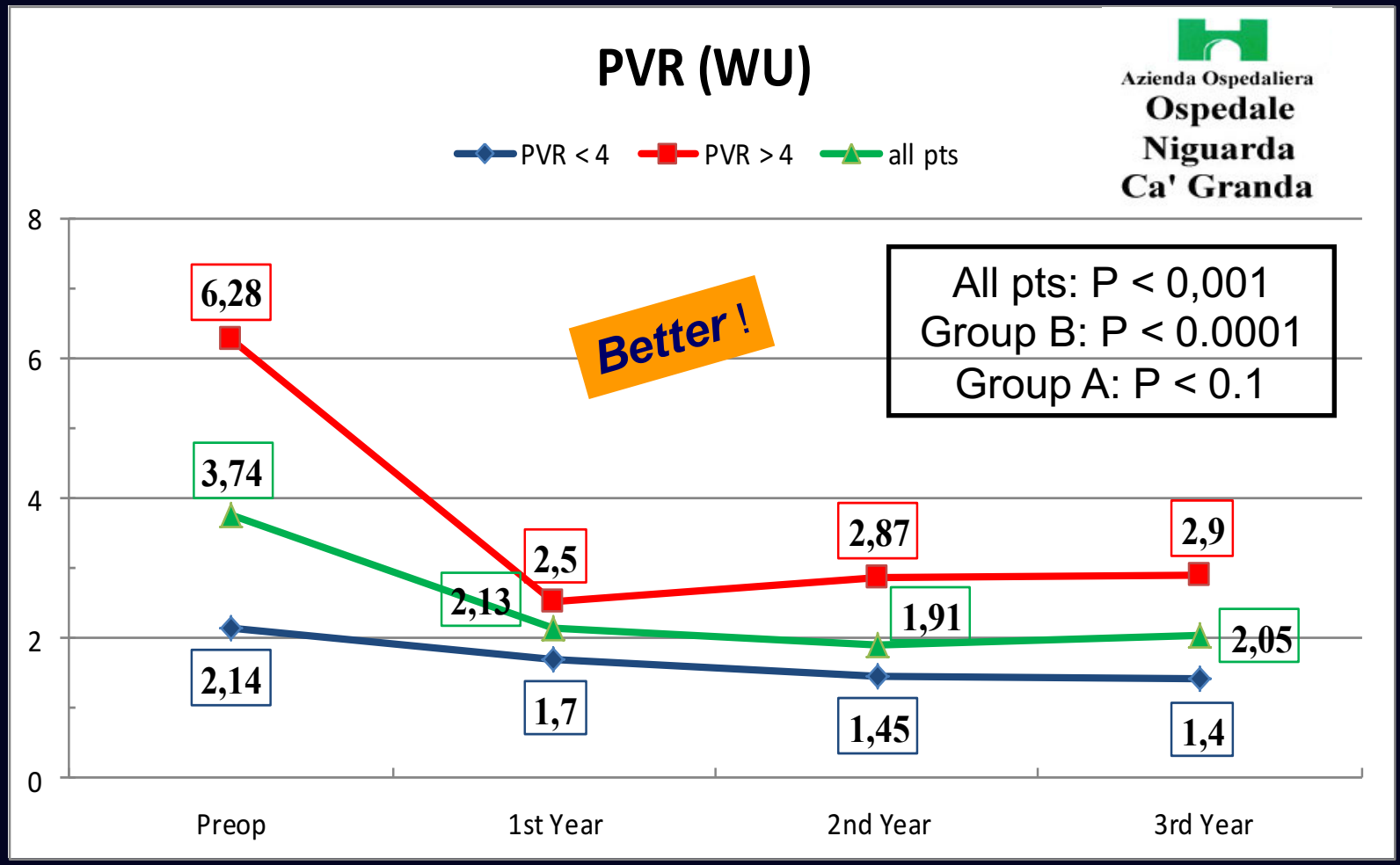


All pts: P < 0,0001
Group B: P < 0.0001
Group A: P < 0.01

Costetti A

Pulmonary Vascular Disease treatment with LVAD

Significant and persistent reduction of PVR also in case of *very high pre-implant PVR*

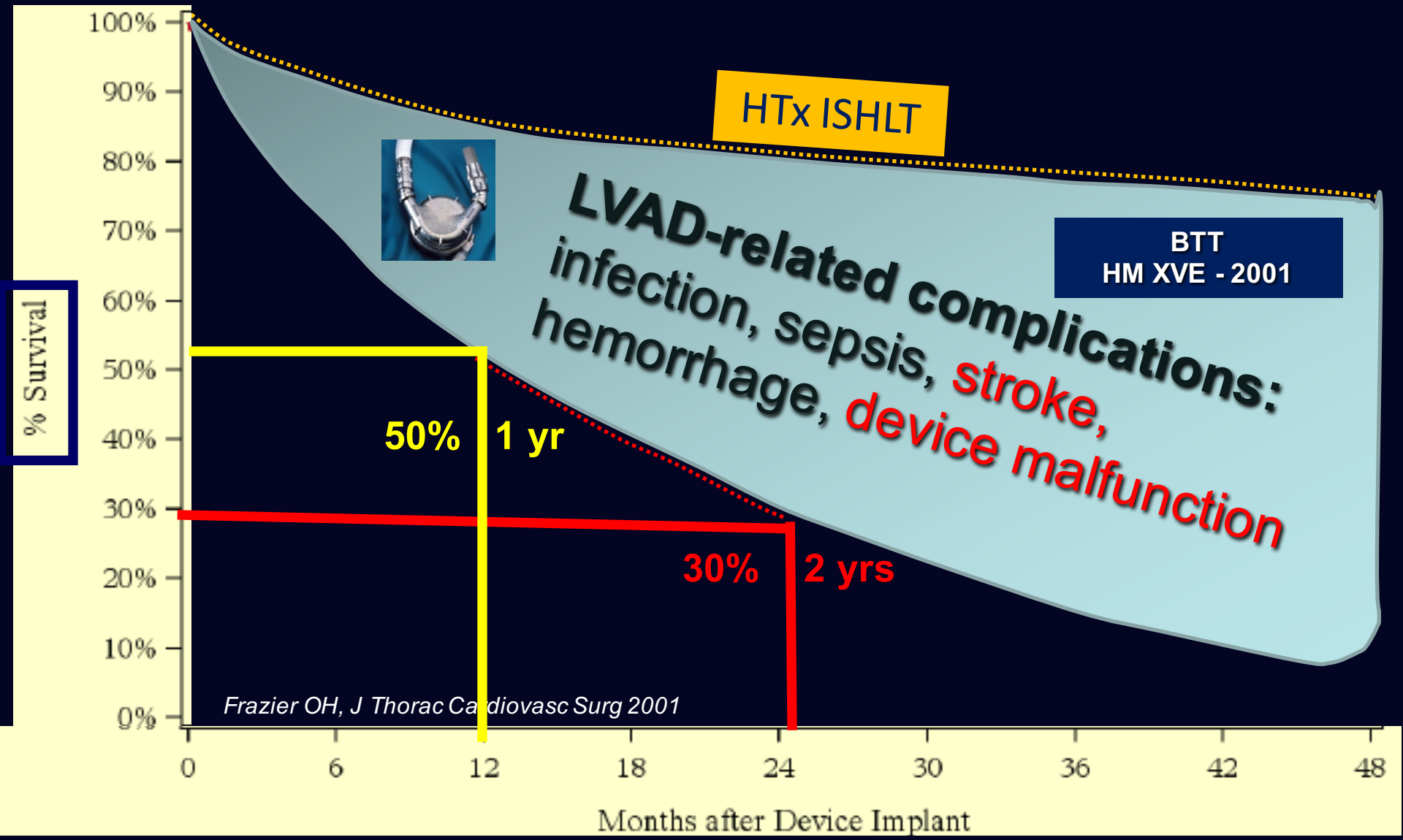


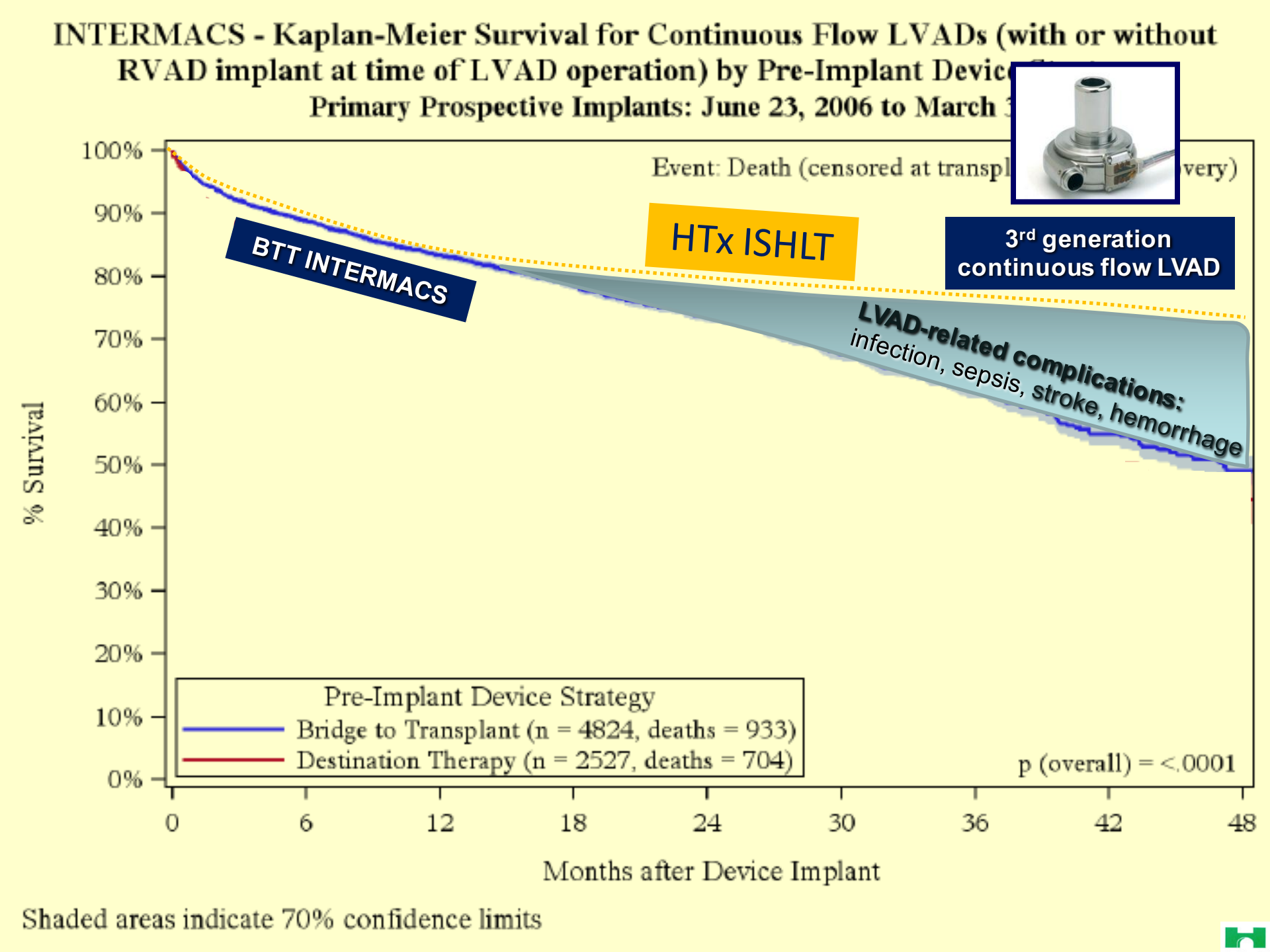
Costetti A

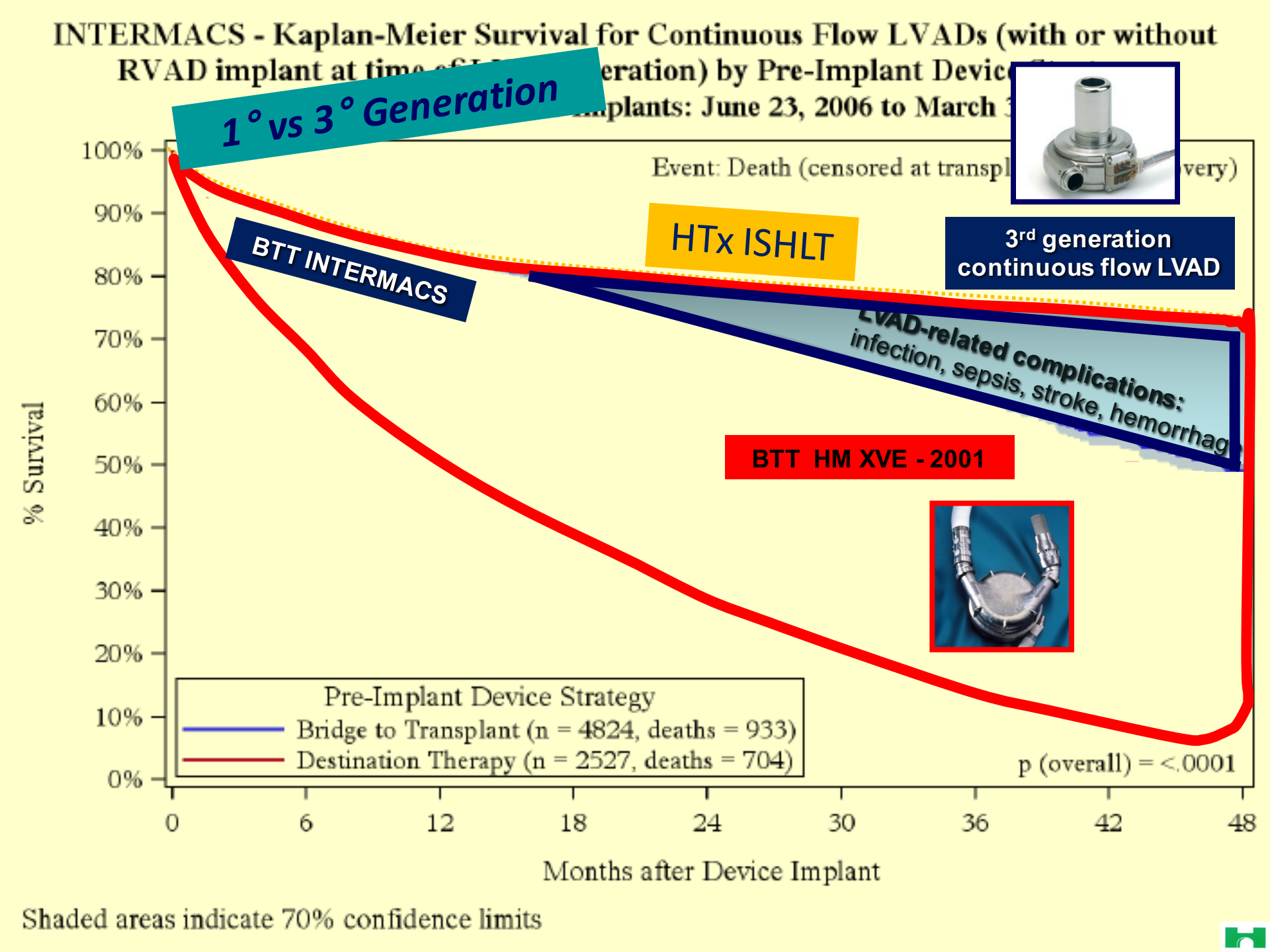
Advanced HF -*Niguarda approach-*

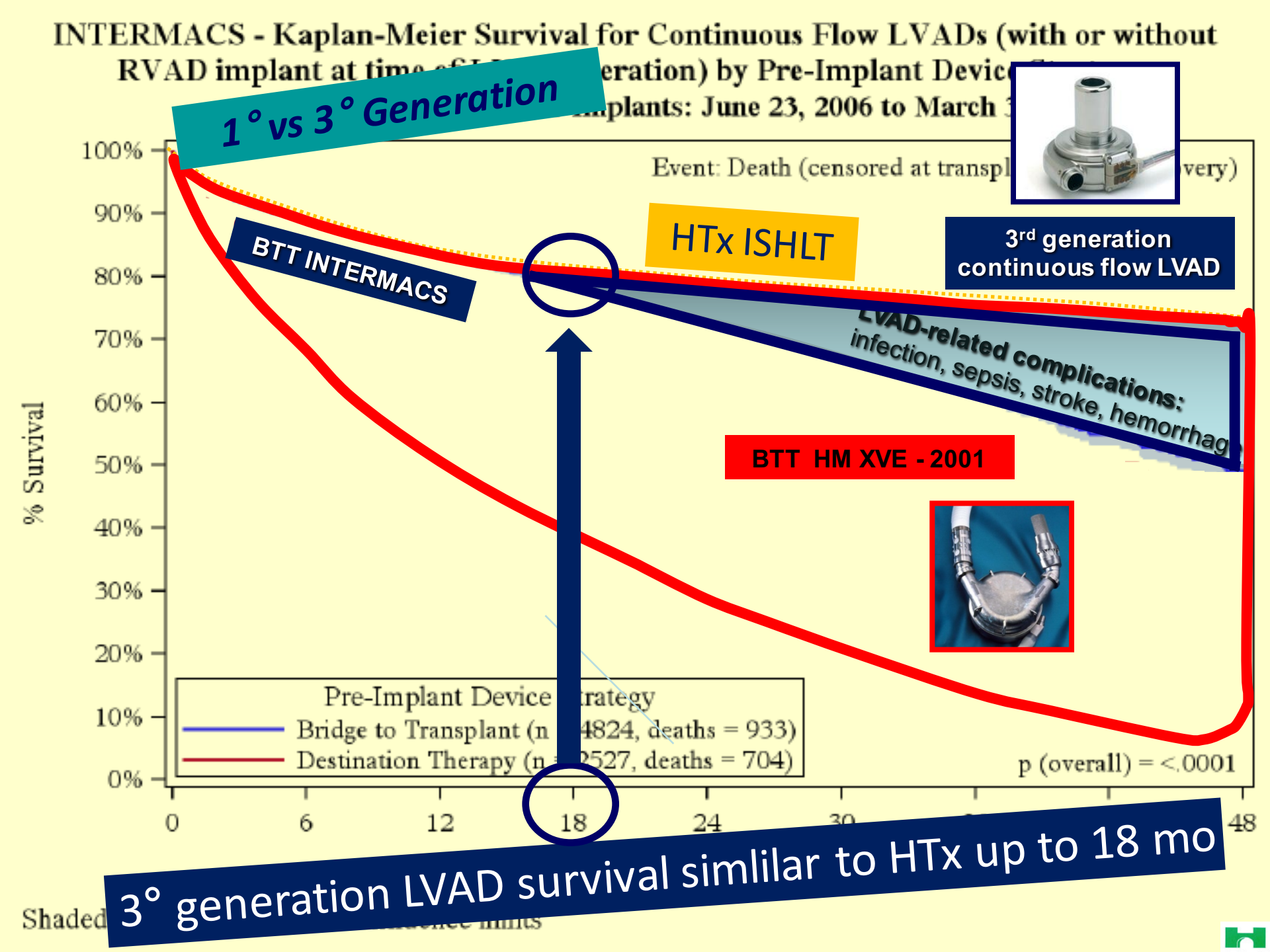
LVAD complications

Survival *HTx* vs *LVAD 1° generation* - related complication-




INTERMACS - Kaplan-Meier Survival for Continuous Flow LVADs (with or without RVAD implant at time of LVAD operation) by Pre-Implant Devic
Primary Prospective Implants: June 23, 2006 to March
Event: Death (censored at transpl very)
BTT INTERMACS
HTx ISHLT
3rd generation continuous flow LVAD
LVAD-related complications:
infection, sepsis, stroke, hemorrhage
% Survival
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Pre-Implant Device Strategy
Bridge to Transplant (n = 4824, deaths = 933)
Destination Therapy (n = 2527, deaths = 704)
p (overall) = <.0001
0
6
12
18
24
30
36
42
48
Months after Device Implant
Shaded areas indicate 70% confidence limits


INTERMACS - Kaplan-Meier Survival for Continuous Flow LVADs (with or without RVAD implant at time of
eration) by Pre-Implant Devic
plants: June 23, 2006 to March
1° vs 3° Generation
Event: Death (censored at transpl
very)
HTx ISHLT
3rd generation continuous flow LVAD
BTT INTERMACS
LVAD-related complications:
infection, sepsis, stroke, hemorrhag
BTT HM XVE - 2001
% Survival
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Pre-Implant Device Strategy
Bridge to Transplant (n = 4824, deaths = 933)
Destination Therapy (n = 2527, deaths = 704)
p (overall) = <.0001
0
6
12
18
24
30
36
42
48
Months after Device Implant
Shaded areas indicate 70% confidence limits


INTERMACS - Kaplan-Meier Survival for Continuous Flow LVADs (with or without RVAD implant at time of
eration) by Pre-Implant Devic
plants: June 23, 2006 to March
1° vs 3° Generation
Event: Death (censored at transpl
very)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Survival
BTT INTERMACS
HTx ISHLT
3rd generation continuous flow LVAD
LVAD-related complications:
infection, sepsis, stroke, hemorrhag
BTT HM XVE - 2001
Pre-Implant Device
Bridge to Transplant (n
4824, deaths = 933)
Destination Therapy (n
2527, deaths = 704)
p (overall) = <.0001
0
6
12
18
24
30
48
3° generation LVAD survival simlilar to HTx up to 18 mo
Shaded

BTTx evolving concept

- More Donors available
- High & early complication risk

HTx list admission

LVAD Implant

HTx

6 - 8 months

10 yrs ago…

time

BTTx evolving concept

- More Donors available
- High & early complication risk

HTx list admission

LVAD Implant

HTx

6 - 8 months

10 yrs ago…

time

- Less Donors available
- Lower & later complication risk

HTx list admission

LVAD Implant

- Better *HEMODYNAMIC status*

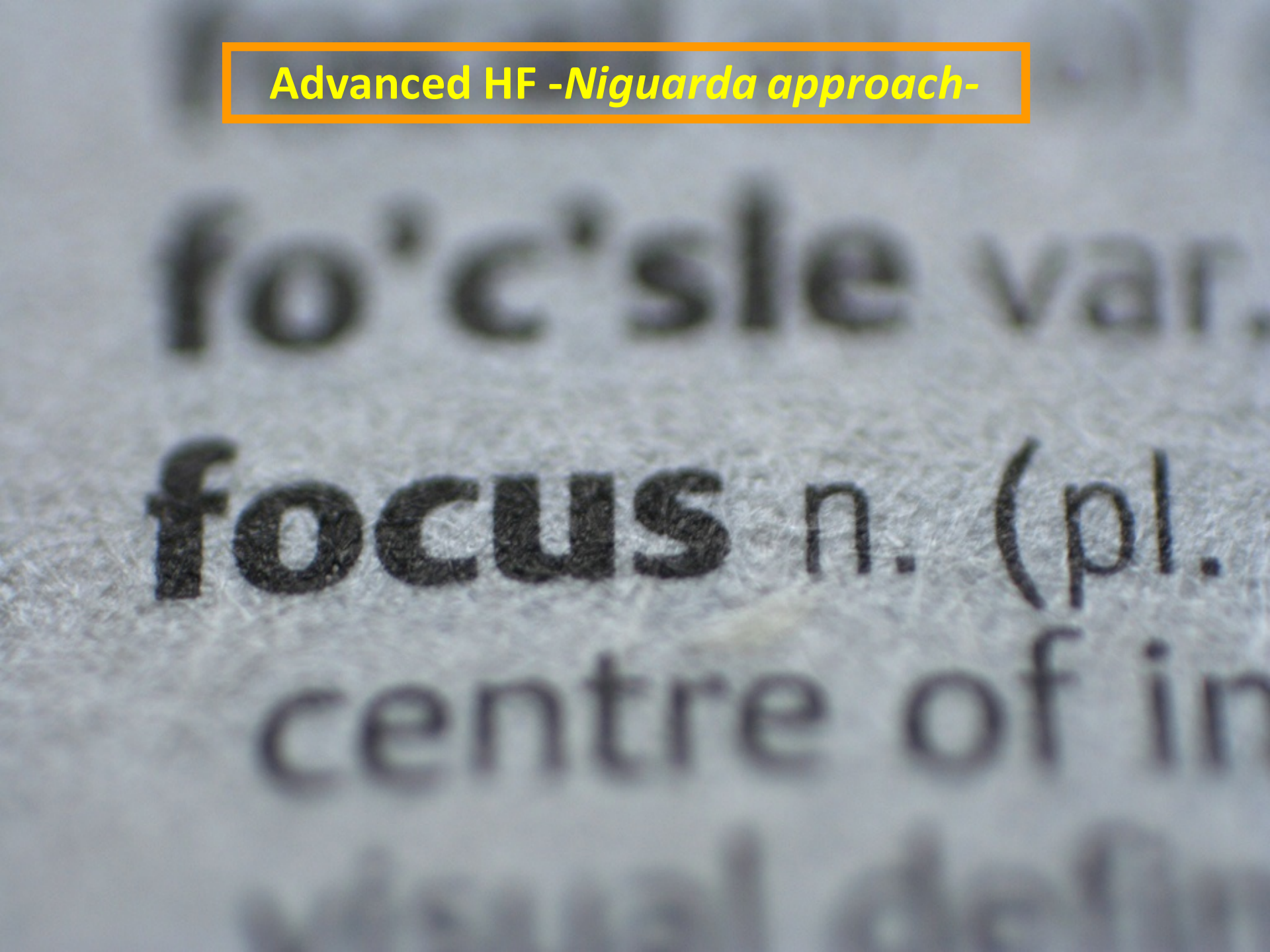
HTx

12- 24 months

Today…

time

Advanced HF -*Niguarda approach-*



Advanced HF -*Niguarda approach-*

Azienda Ospedaliera
Ospedale
Niguarda
Ca' Granda

Advanced HF -*Niguarda approach-*

No contraindications to LVAD

Contraindications to LVAD (small BSA, biventricular failure)

Age > 60-65 ys

Azienda Ospedaliera
Ospedale
Niguarda
Ca' Granda

Advanced HF -*Niguarda approach-*

No contraindications to LVAD

Age > 60-65 ys

Contraindications to LVAD (small BSA, biventricular failure)

HEART TRANSPLANT

Azienda Ospedaliera
Ospedale
Niguarda
Ca' Granda

Advanced HF -*Niguarda approach-*

No contraindications to LVAD

Age > 60-65 ys

Destination Therapy

Contraindications to LVAD (small BSA, biventricular failure)

HEART TRANSPLANT

Azienda Ospedaliera
Ospedale
Niguarda
Ca' Granda

Advanced HF -*Niguarda approach-*

No contraindications to LVAD

&

- **Long waiting time** (AB0 group, big BSA)
- **High risk HTx** (high PVR)
- **Impending deterioration** (INTERMACS level < 3)

Age > 60-65 ys

Destination Therapy

Contraindications to LVAD (small BSA, biventricular failure)

HEART TRANSPLANT

Azienda Ospedaliera Ospedale Niguarda Ca' Granda

Advanced HF -*Niguarda approach-*

No contraindications to LVAD

&

Long waiting time
(ABO group, big BSA)

High risk HTx
(high PVR)

Impending deterioration
(INTERMACS level < 3)

NO → **List for Htx** ⇢

Age > 60-65 ys

Destination Therapy

Contraindications to LVAD
(small BSA, biventricular failure)

HEART TRANSPLANT

Azienda Ospedaliera
Ospedale
Niguarda
Ca' Granda

Advanced HF -*Niguarda approach-*

No contraindications to LVAD

&

Long waiting time
(AB0 group, big BSA)

High risk HTx
(high PVR)

Impending deterioration
(INTERMACS level < 3)

NO → **List for Htx** ⇢

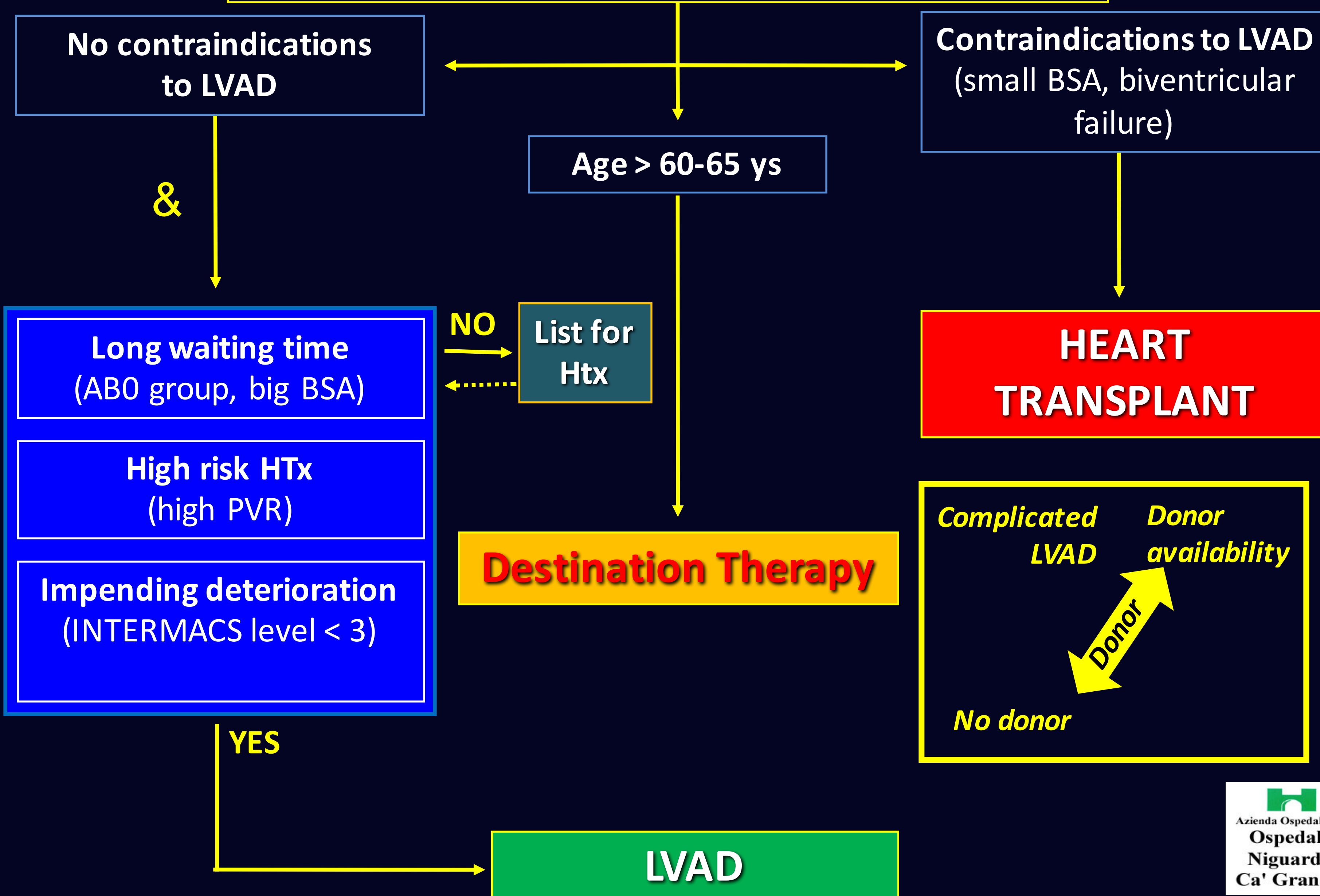
YES → **LVAD**

Age > 60-65 ys → **Destination Therapy**

Contraindications to LVAD
(small BSA, biventricular failure) → **HEART TRANSPLANT**

Azienda Ospedaliera
Ospedale
Niguarda
Ca' Granda

Advanced HF -*Niguarda approach*-



Azienda Ospedaliera Ospedale Niguarda Ca' Granda

Advanced HF -*Niguarda approach-*

No contraindications to LVAD

&

Long waiting time
(ABO group, big BSA)

High risk HTx
(high PVR)

Impending deterioration
(INTERMACS level < 3)

NO

List for Htx

YES

Age > 60-65 ys

Destination Therapy

Contraindications to LVAD
(small BSA, biventricular failure)

HEART TRANSPLANT

Complicated LVAD

Donor availability

LVAD

Azienda Ospedaliera
Ospedale
Niguarda
Ca' Granda

Advanced HF -*Niguarda approach*-

No contraindications to LVAD

&

Long waiting time
(ABO group, big BSA)

High risk HTx
(high PVR)

Impending deterioration
(INTERMACS level < 3)

YES

NO → **List for Htx** ⇢

Age > 60-65 ys

Contraindications to LVAD
(small BSA, biventricular failure)

Destination Therapy

Permanent LVAD

LVAD

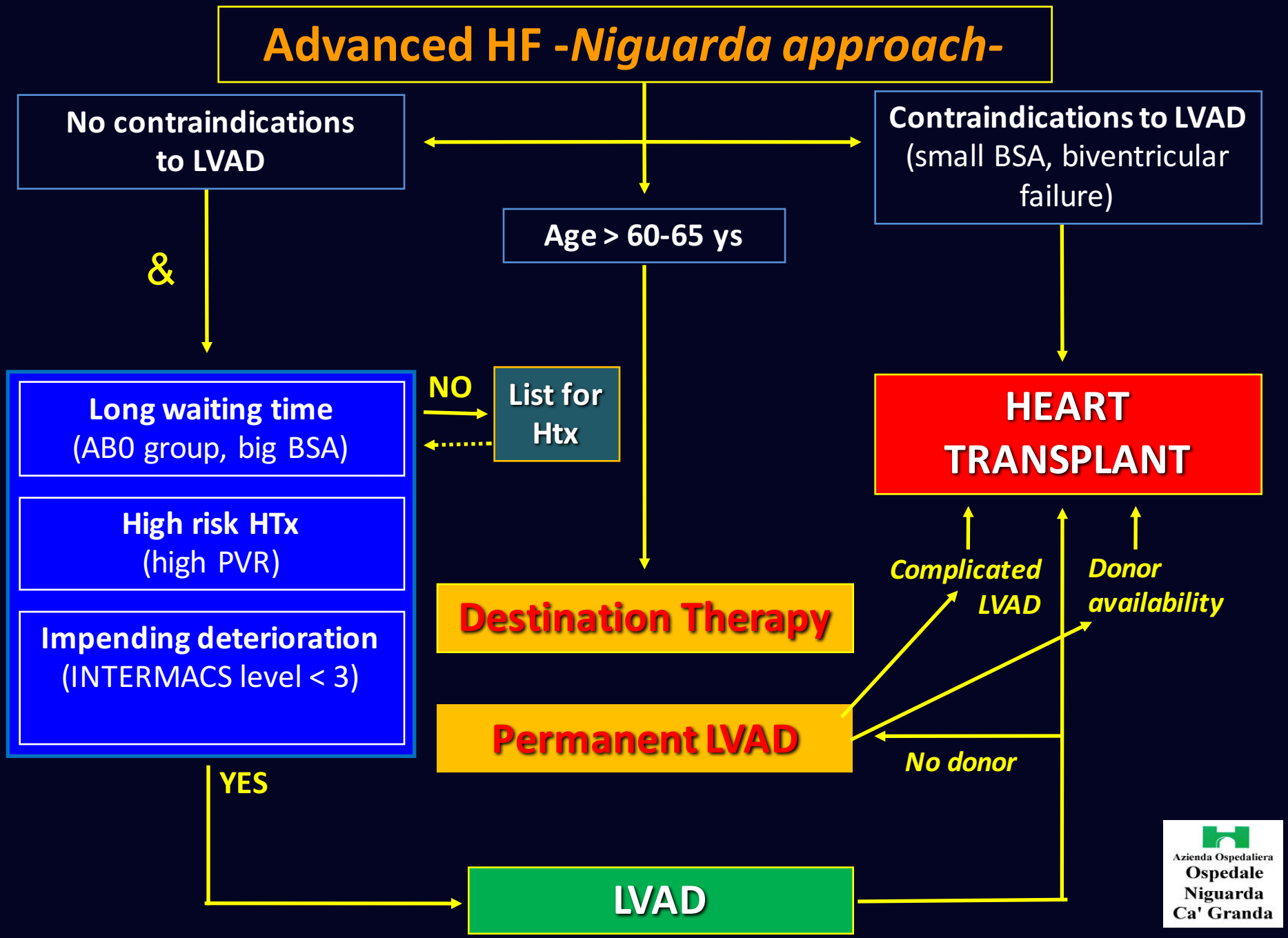
HEART TRANSPLANT

Complicated LVAD

Donor availability

No donor

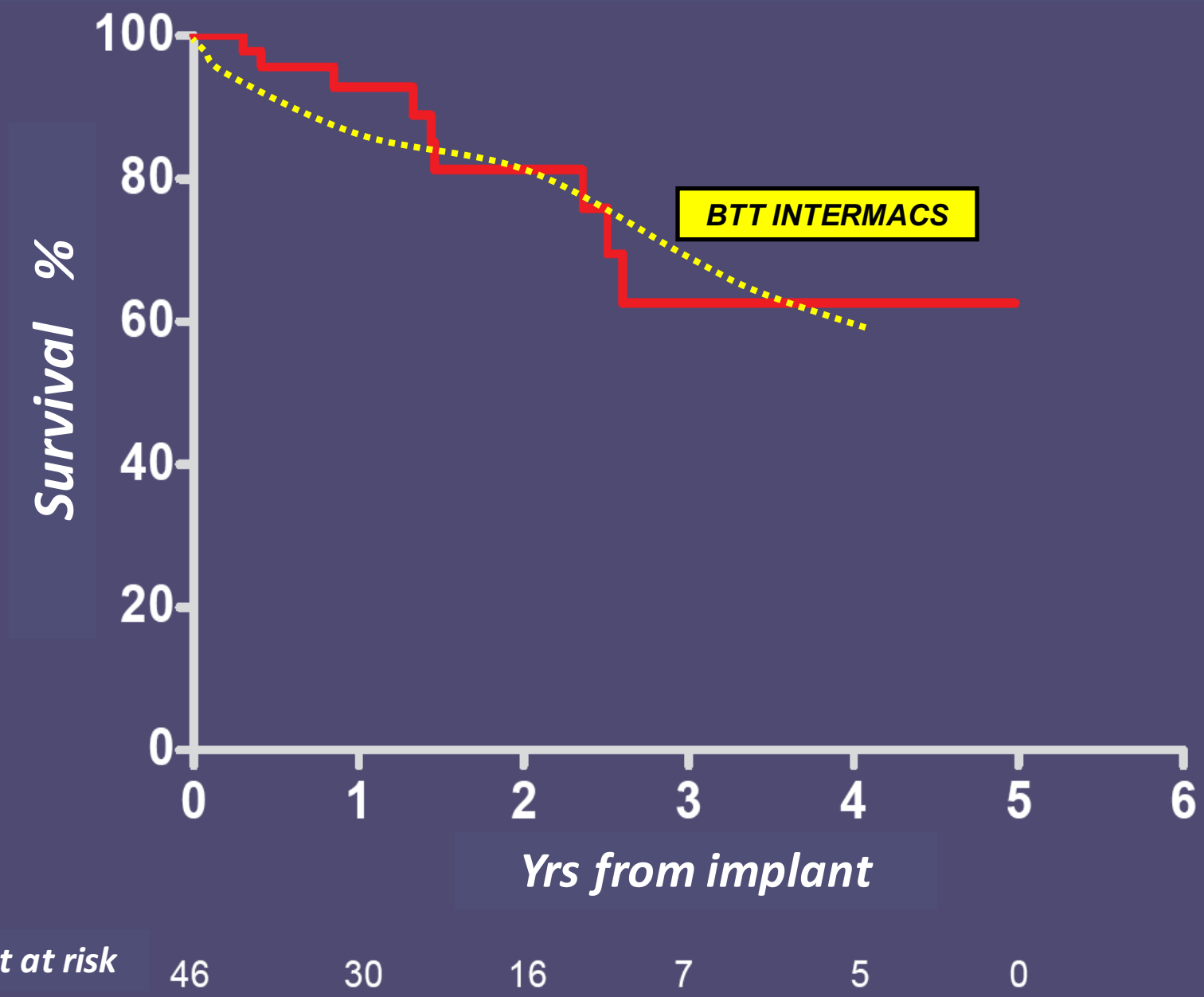
Azienda Ospedaliera
Ospedale
Niguarda
Ca' Granda


Advanced HF -Niguarda approach-
No contraindications to LVAD
&
Contraindications to LVAD (small BSA, biventricular failure)
Age > 60-65 ys
Long waiting time (AB0 group, big BSA)
High risk HTx (high PVR)
Impending deterioration (INTERMACS level < 3)
NO
List for Htx
YES
HEART TRANSPLANT
Destination Therapy
Permanent LVAD
LVAD
Complicated LVAD
Donor availability
No donor
Azienda Ospedaliera Ospedale Niguarda Ca' Granda

Advanced HF -*Niguarda approach-*

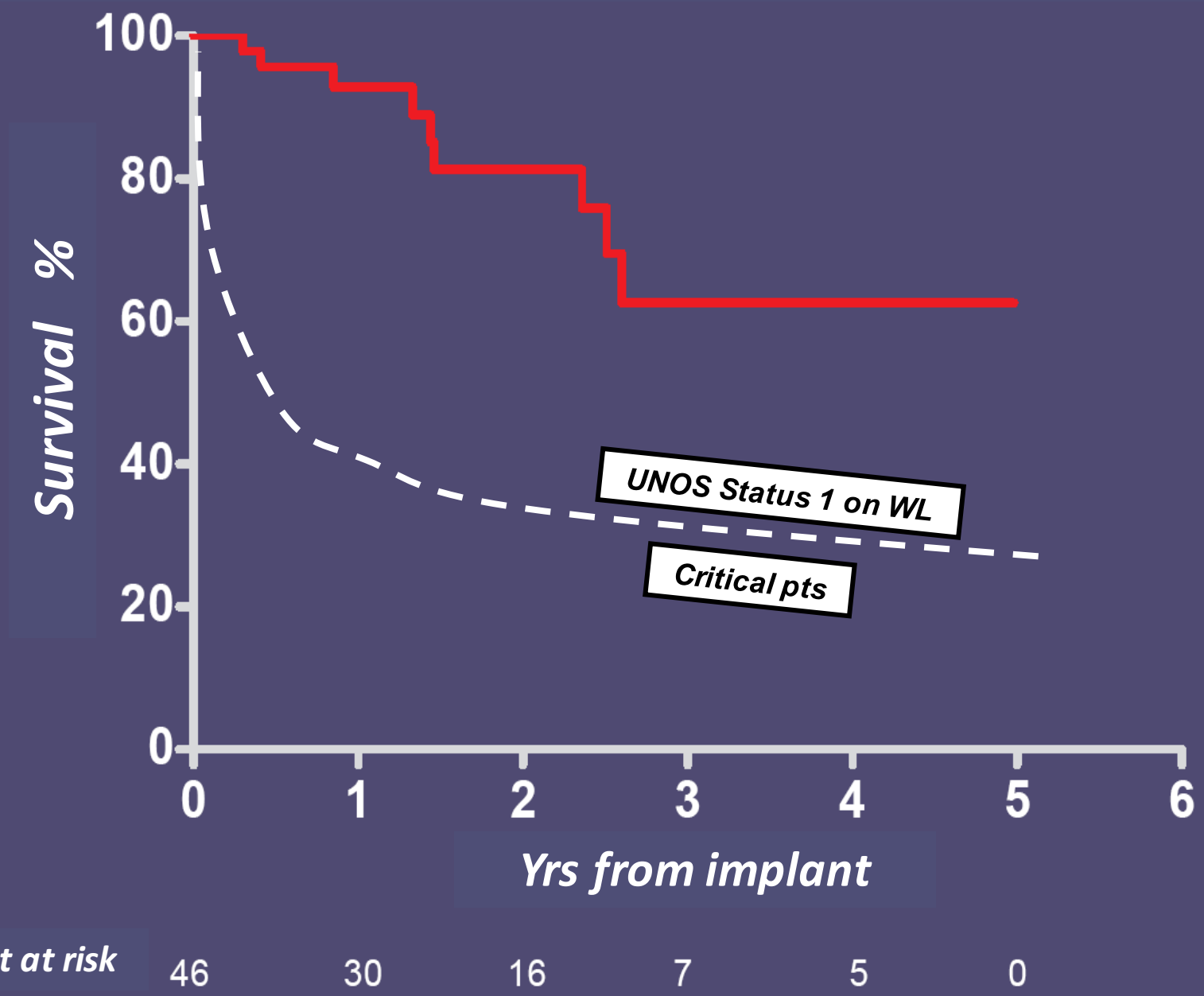
Results: Survival

Survival during LVAD as BTT



Azienda Ospedaliera
Ospedale
Niguarda
Ca' Granda

Survival during LVAD as BTT



Azienda Ospedaliera
Ospedale
Niguarda
Ca' Granda

Conclusioni

HT: gold standard
- Sopravvivenza «Time related»
- Numero donatori non sufficiente

VAD: «sempre la promessa»
- Ancora problemi strutturali
- Da utilizzare «congiuntamente e/o alternativamente al trapianto»

Mercoledì, 23 marzo 2016
3a Parte: I danni del rimodellamento
Moderatori: ***Massimo Lemma (Milano), Alfredo Posteraro (Roma)***

12.00 La chirurgia estrema ed il trapianto ***Stefano Pelenghi (Milano)***

MINI CORSI SALA VERDI