

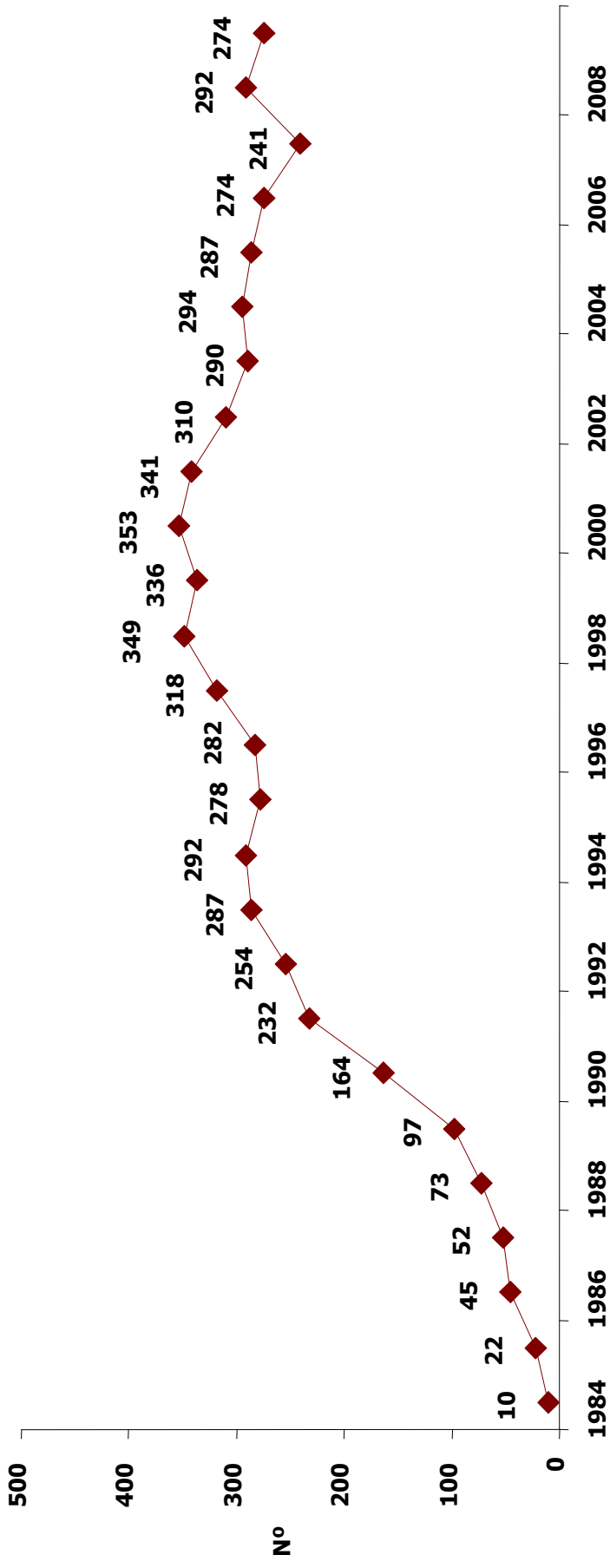
# ¿La edad es un factor limitante para el acceso al trasplante?

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Valencia



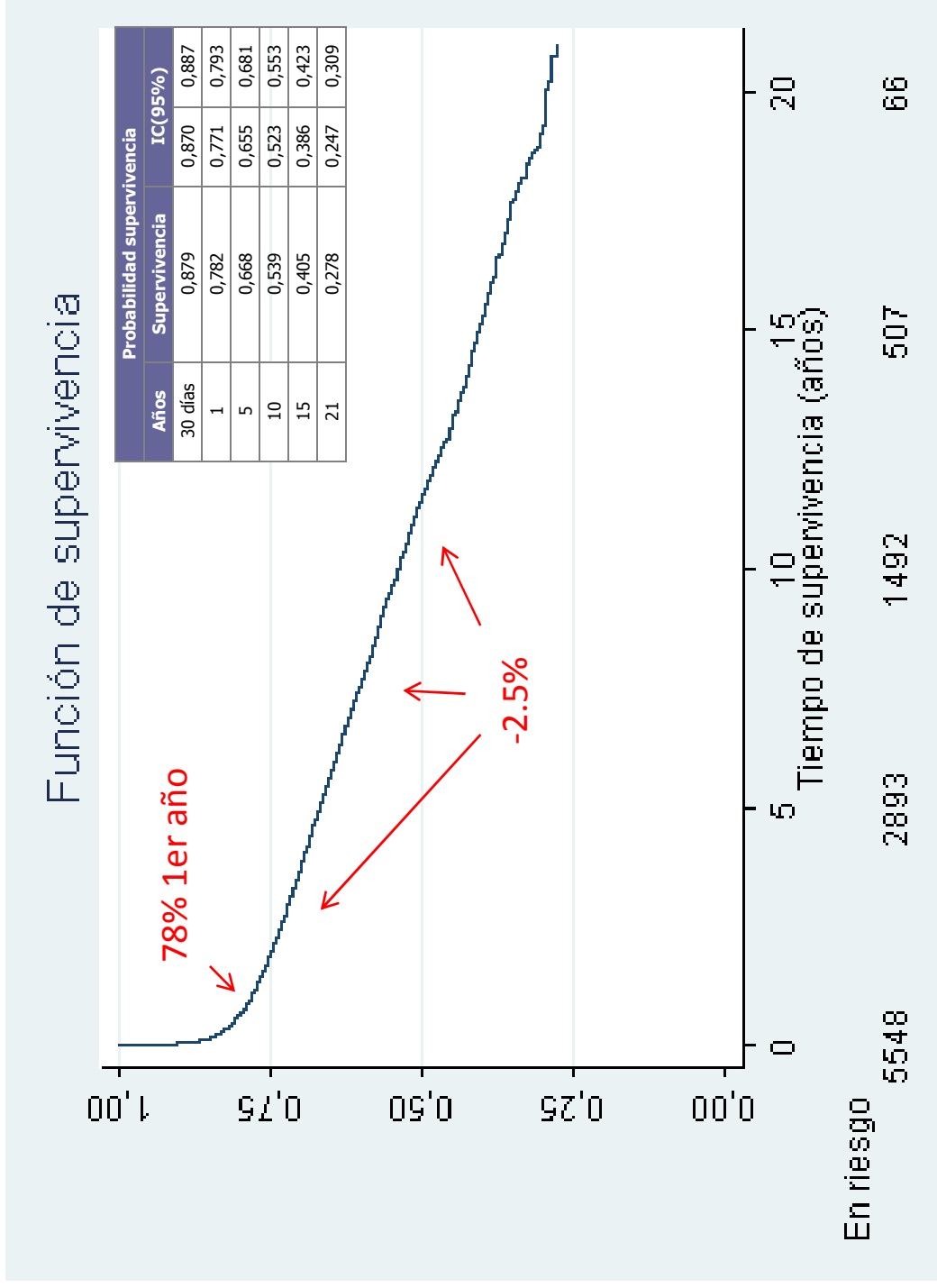
# Número de Trasplantes Cardíaco por año 1984-2009



# Supervivencia global 1984-2009



Registro Español de  
Trasplante Cardíaco



# Perfil clínico de los receptores 1984-2009



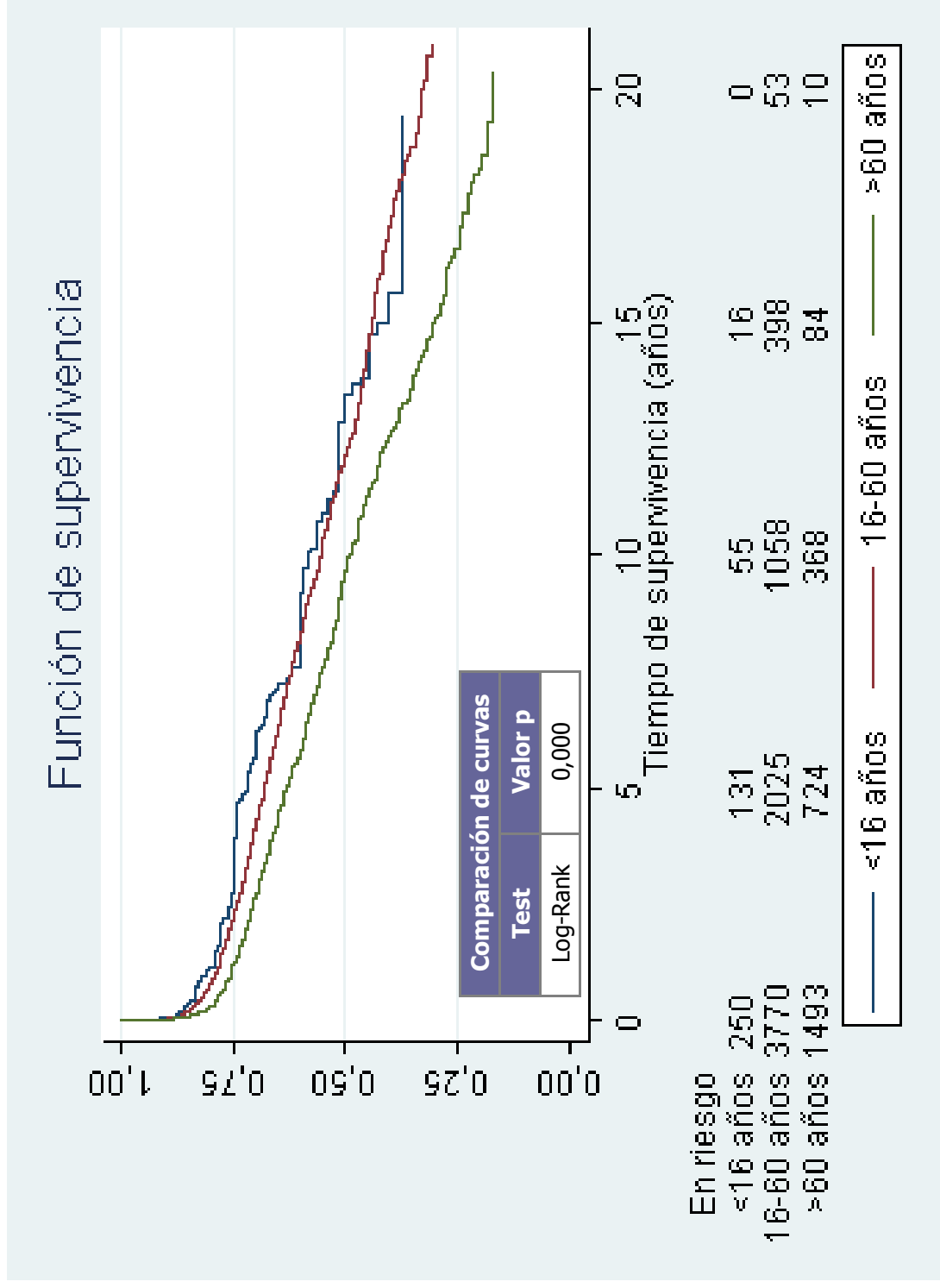
Registro Español de  
Trasplante Cardíaco

	< 16 años	>= 16 años	Retrasplantes
Número	262	5.263	141
Varones (%)	62,8	82,1	78,6
Edad (años)	6 ± 5,7	53,1 ± 11,9	50,6 ± 13,5
IMC	15,6 ± 4,8	25,3 ± 3,9	25,2 ± 4
Etiología de base (%)			
CI	< 16 años	>= 16 años	Retrasplantes
	1,9	35,0	5,0
MCDi	33,7	29,3	2,2
Valvular	1,2	8,8	0,0
CC	40,2	1,3	0,7
EVI			32,4
FAI			16,6
R.agudo			10,8
Otras	23,0	25,6	32,4
Grupo sanguíneo (%)			
	< 16 años	>= 16 años	Retrasplantes
A	54,9	49,8	62,6
B	6,2	8,5	7,3
AB	4,7	4,6	3,3
0	34,2	37,1	26,8

# Supervivencia por grupos de Edad RETIC 1984-2009



Registro Español de  
Trasplante Cardíaco



# Mortalidad precoz. Modelo multivariante

## RETC 1984-2009



Variable	Hazard Ratios		
	HR	IC(95%)	IC(95%)
<b>GOT/GPT (Sí)</b>	<b>1,24</b>	<b>1,02</b>	<b>1,52</b>
<b>Cirugía torácica previa (Sí)</b>	<b>1,91</b>	<b>1,59</b>	<b>2,30</b>
<b>Tiempo CEC</b>	<b>1,00</b>	<b>1,00</b>	<b>1,01</b>
<b>Ventilación mecánica (Sí)</b>	<b>1,25</b>	<b>0,93</b>	<b>1,69</b>
<b>Sexo donante (hombre)</b>	<b>1,49</b>	<b>1,24</b>	<b>1,80</b>
<b>Código TC (electivo)</b>	<b>0,69</b>	<b>0,54</b>	<b>0,88</b>
<b>Inducción (Sí)</b>	<b>0,39</b>	<b>0,32</b>	<b>0,48</b>

# Mortalidad tardía. Modelo multivariante

## RETC 1984-2009



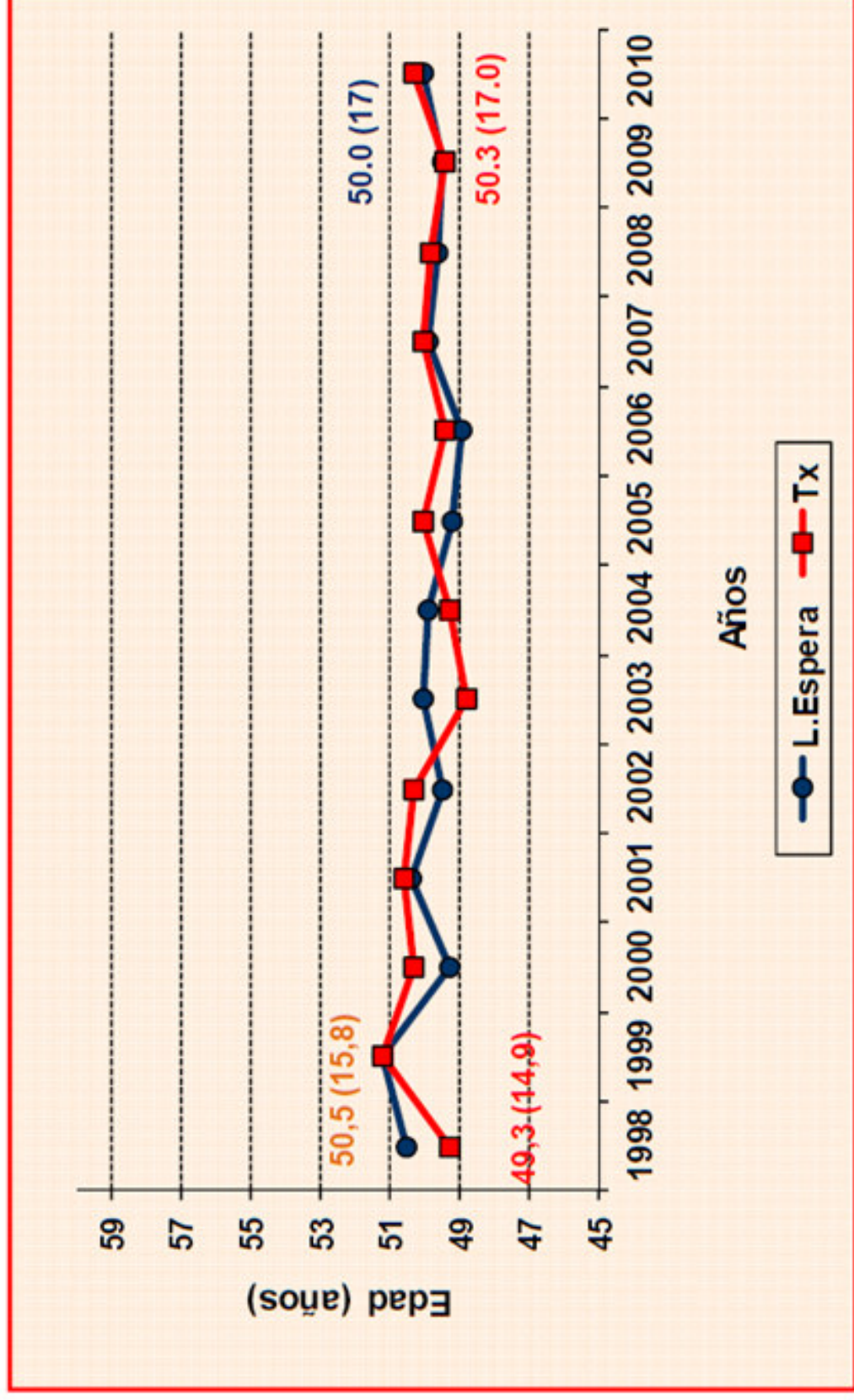
Hazard Ratios		
Variable	HR	IC(95%)
<b>Diálisis (Sí)</b>	<b>2,48</b>	<b>2,06</b>
<b>Edad</b>	<b>1,01</b>	<b>1,01</b>
<b>Complicaciones neurológicas (Sí)</b>	<b>1,22</b>	<b>1,06</b>
<b>Nº episodios de rechazo</b>	<b>1,09</b>	<b>1,05</b>
<b>Enfermedad vascular periférica (Sí)</b>	<b>1,26</b>	<b>1,03</b>
<b>Edad de donante</b>	<b>1,00</b>	<b>1,00</b>
<b>Situación hospitalizado y UCI</b>	<b>1,11</b>	<b>1,00</b>





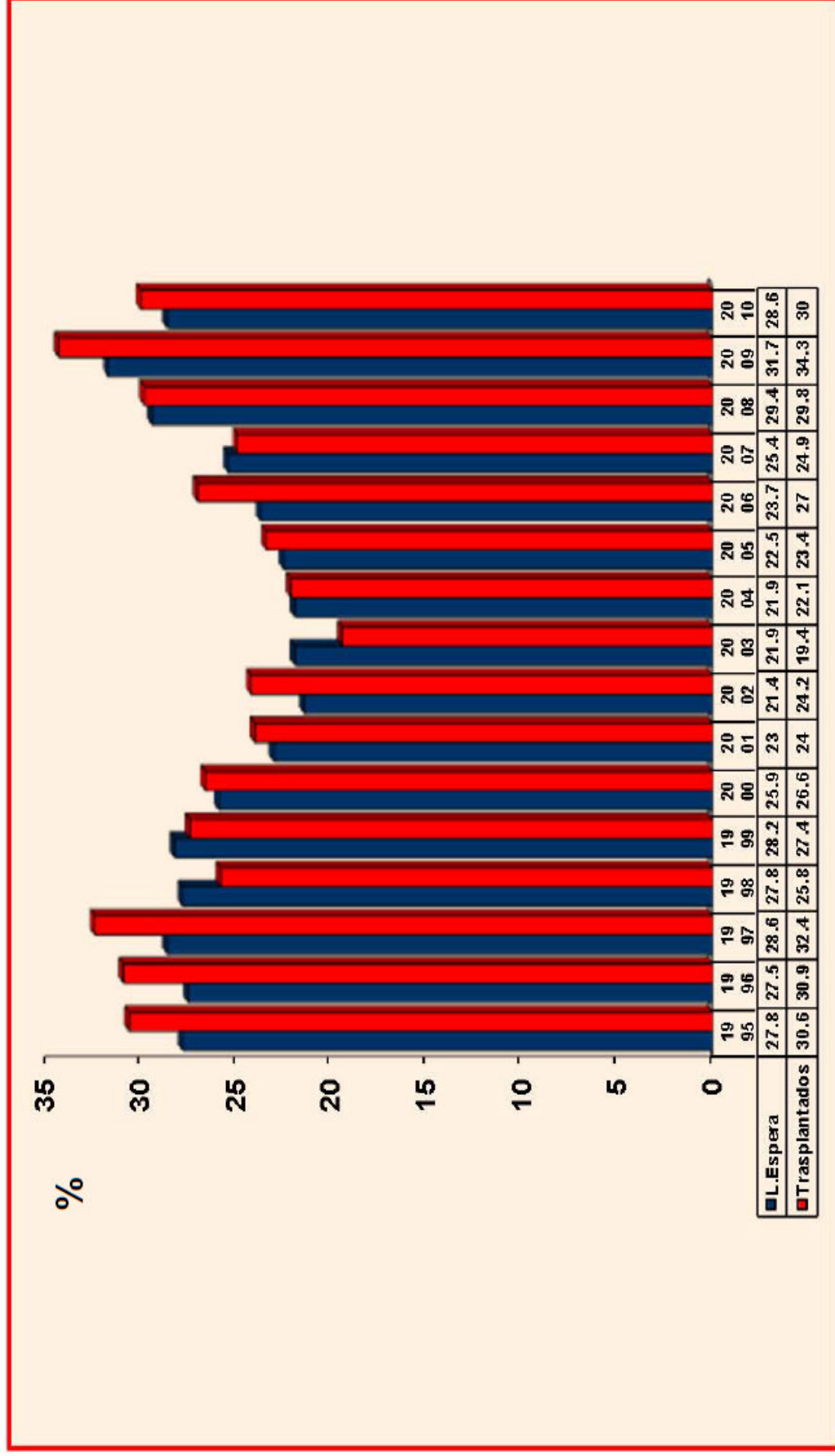
# Edad media trasplantados cardíacos

## Distribución anual



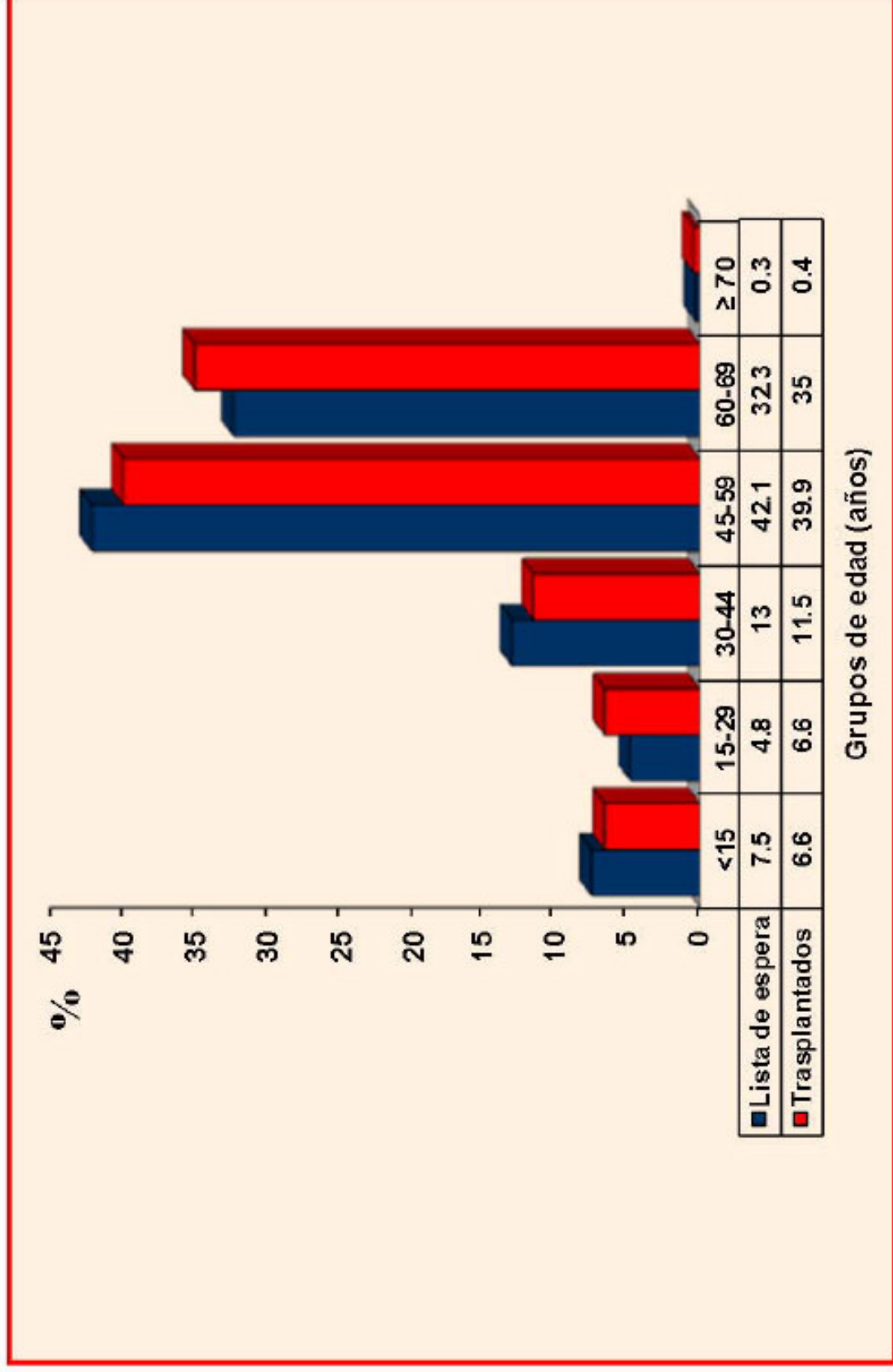
# Porcentaje de pacientes en lista de espera/trasplantados > 60 años

## Distribución por años



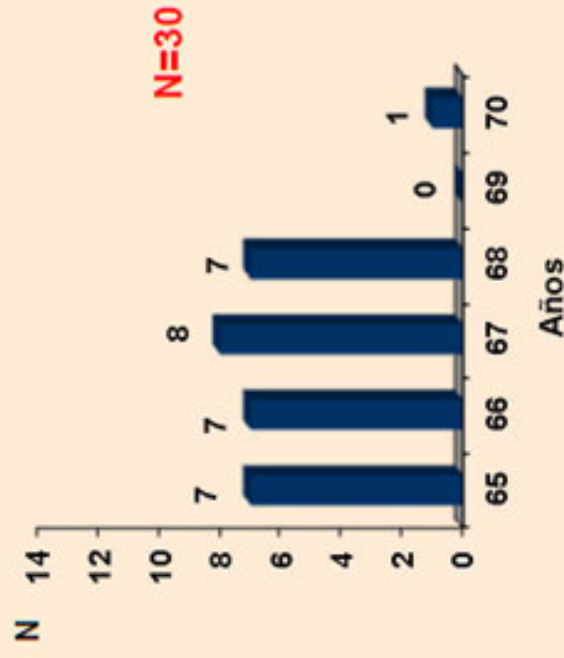
# Lista de espera/trasplantados

## Grupos de edad

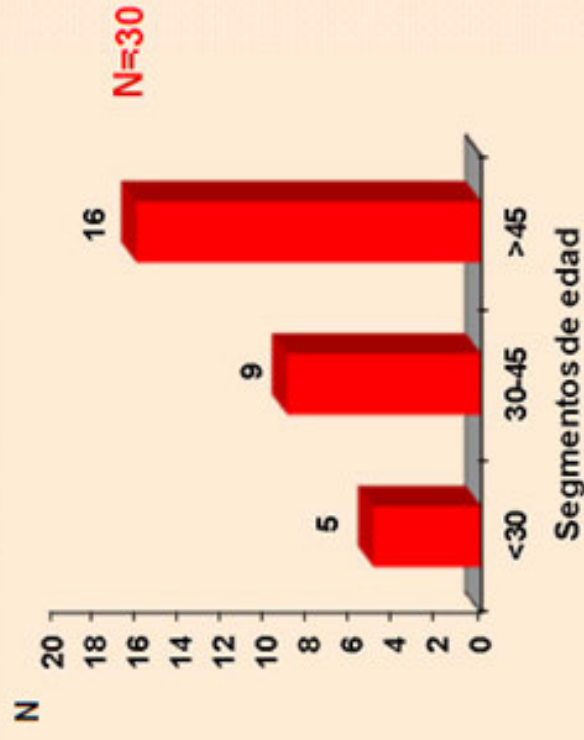


# Pacientes trasplantados cardíacos > 65 años

## Distribución por edad. 2010



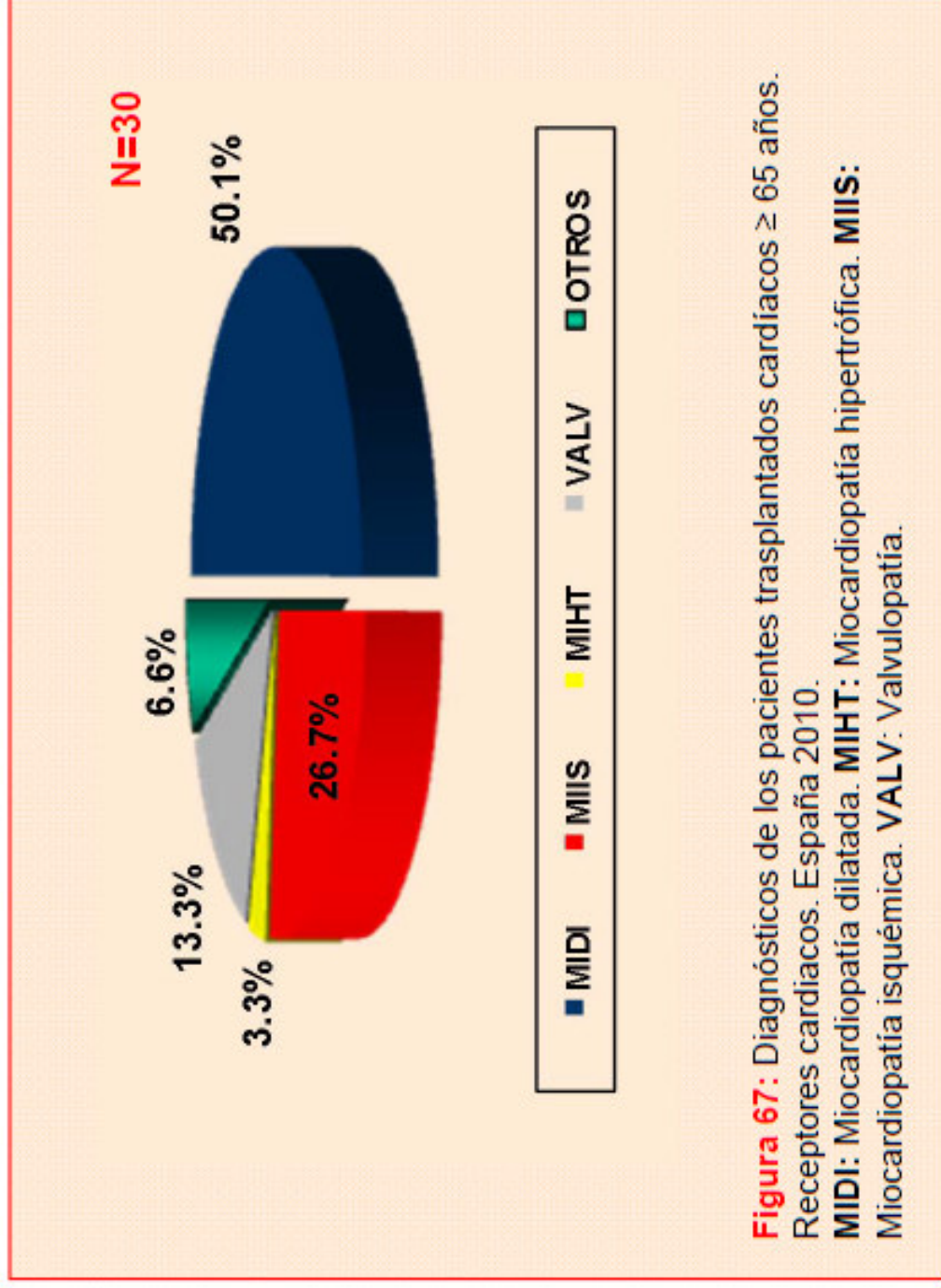
**Figura 65:** Edad (años) de los receptores de trasplante cardíaco  $\geq$  65 años. Receptores cardíacos. España 2010.



**Figura 66:** Segmentos de edad (años) de los donantes de los receptores de trasplante cardíaco  $\geq$  65 años. Receptores cardíacos. España 2010.

# Pacientes trasplantados cardíacos > 65 años

## Etiología de base. 2010

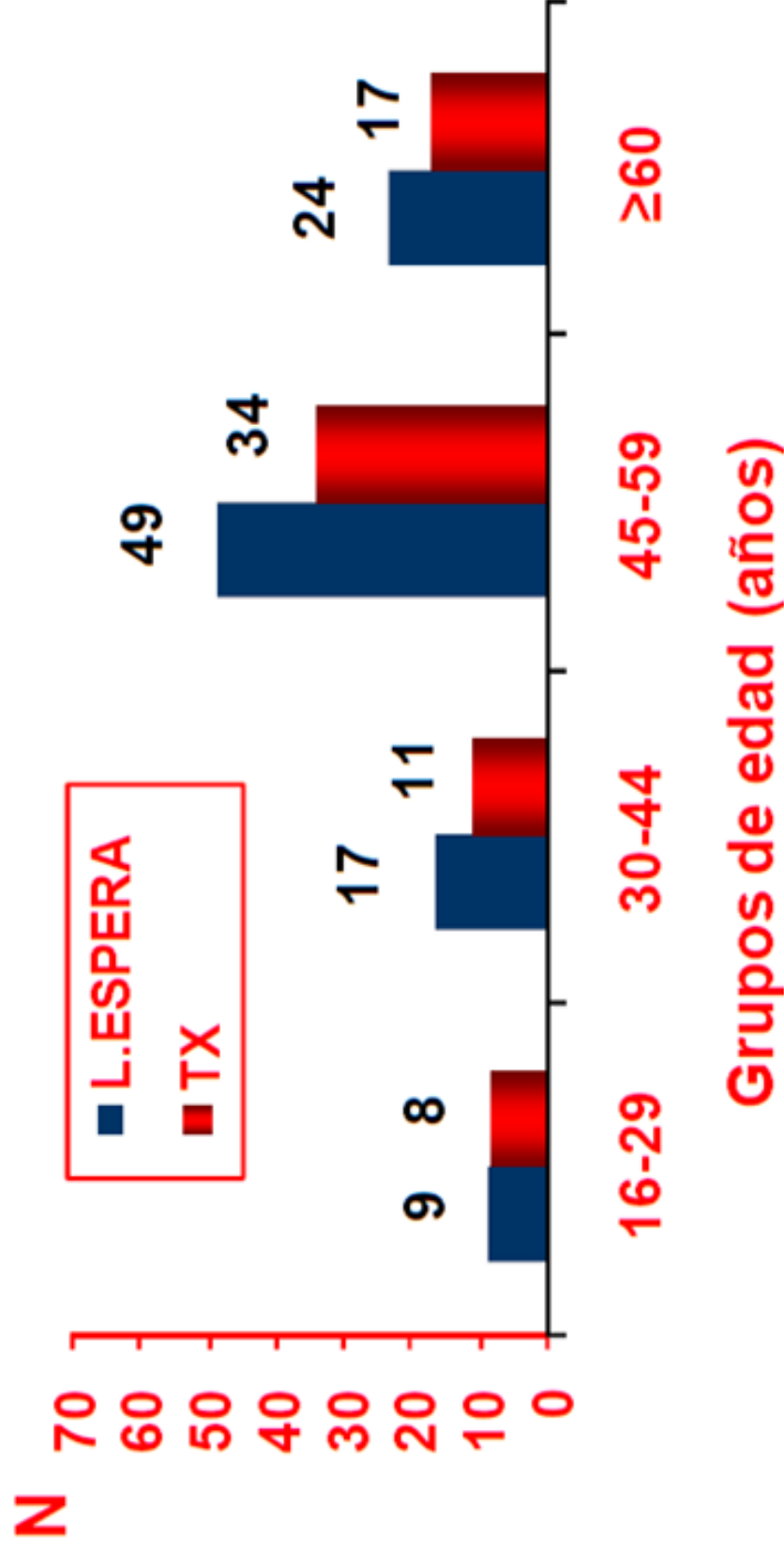


# Tiempo en lista de espera electiva en función del grupo de edad. 2010.

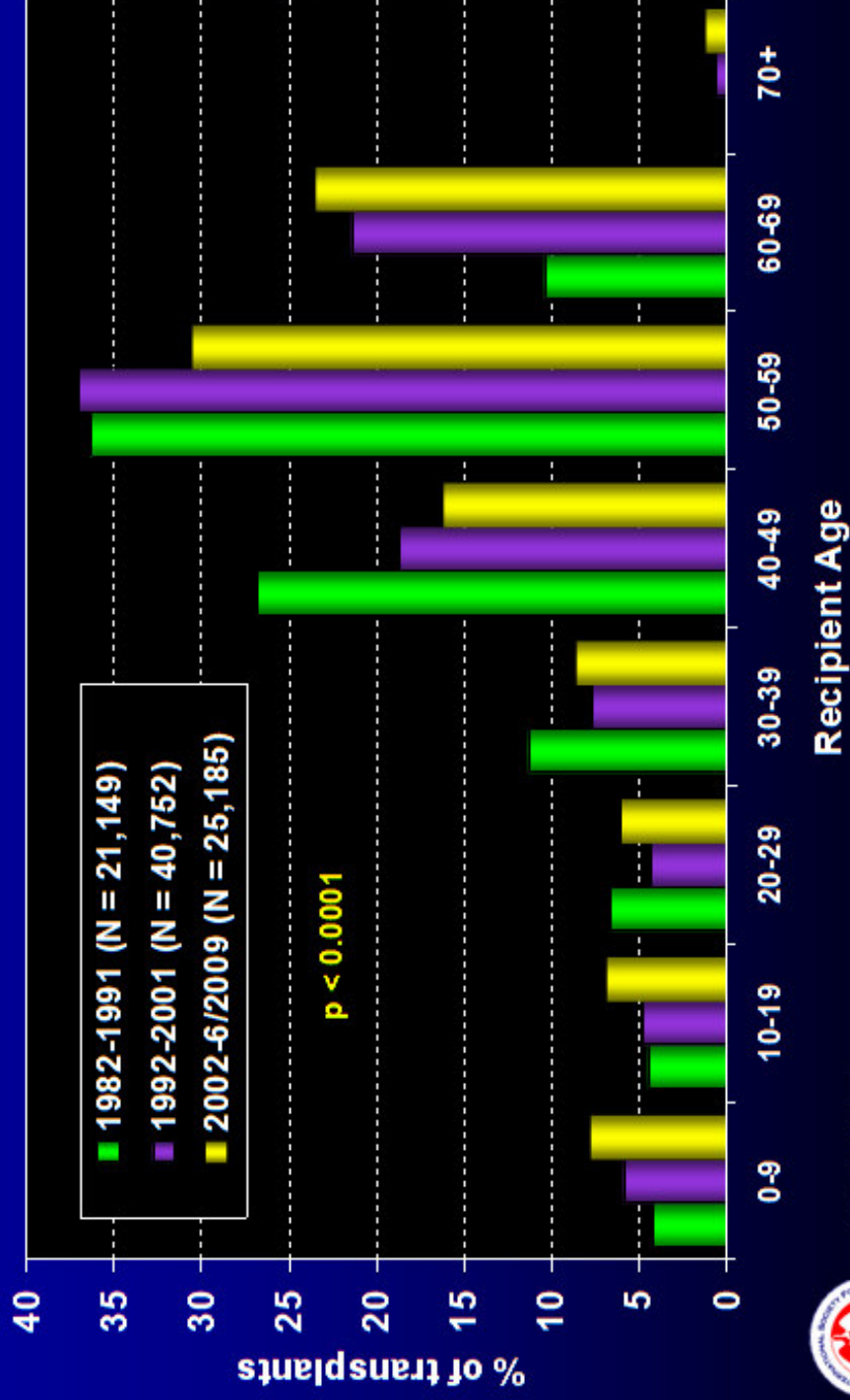


Grupo de edad (años)	N	Media (DE)	Mediana (%25-%75)
< 15	3	372 (325)	231 (141 - 744)
15 - 29	8	76 (80)	44 (14 - 169)
30 - 44	17	96 (117)	64 (27 - 139)
45 - 59	63	110 (141)	60 (28 - 137)
≥ 60	69	108 (137)	62 (24 - 126)
<b>Total</b>	<b>160</b>	<b>111 (142)</b>	<b>60 (26 - 140)</b>

# Grupos de edad de los pacientes trasplantados urgentes. 2010.



# AGE DISTRIBUTION OF HEART TRANSPLANT RECIPIENTS BY ERA



**ISHLT**

Recipient Age

2010

J Heart Lung Transplant. 2010 Oct; 29 (10): 1083-1141



# ADULT HEART TRANSPLANTATION

## Characteristics of Donors, Recipients and Transplants

	1992-2001 (N=36,836)	2002-6/2009 (N=21,862)	p-value
Recipient age (years)	54.0 ± 11.0 (28.0 - 65.0)	54.0 ± 12.4 (25.0 - 67.0)	0.0906
Donor age (years)	31.0 ± 12.9 (15.0 - 54.0)	33.0 ± 13.0 (16.0 - 55.0)	<0.0001
Recipient/donor gender (% male)	80.1%/ 67.9%	77.1%/ 69.4%	<0.0001/ 0.0001
Recipient weight (kg)	75.0 ± 17.1 (51.0 - 102.0)	78.0 ± 17.2 (53.0 - 108.4)	<0.0001
Recipient height (cm)	173.0 ± 11.3 (157.0 - 188.0)	174.0 ± 10.6 (157.5 - 188.0)	<0.0001
Recipient BMI	25.0 ± 4.3 (18.9 - 32.8)	25.7 ± 4.7 (19.2 - 34.3)	<0.0001
Donor weight (kg)	75.0 ± 17.5 (52.0 - 103.4)*	78.0 ± 17.0 (55.5 - 110.0)	<0.0001
Donor height (cm)	175.0 ± 18.9 (155.0 - 188.0)*	175.0 ± 10.2 (159.0 - 190.0)	<0.0001
Donor BMI	24.2 ± 4.5 (18.8 - 33.0)*	25.1 ± 4.9 (19.7 - 35.2)	<0.0001
Recipient/donor diabetes mellitus	14.2%*/ 1.6%*	22.4%*/ 2.3%	<0.0001/ <0.0001
Recipient amiodarone use (US only)	22.6%*	29.0%	<0.0001
Recipient/donor cigarette history	- / 37.5%*	47.2%**/ 24.4%*	- / <0.0001
Recipient/donor hypertension	34.5%*/ 10.8%*	40.5%*/ 12.0%	<0.0001/ 0.0006
Recipient prior cardiac surgery	-	41.6%**	-



**ISHLT**

Continuous factors are expressed as median ± standard deviation (5<sup>th</sup>-95<sup>th</sup> percentiles)

2010

\* Based on 4/1994-2001 transplants.

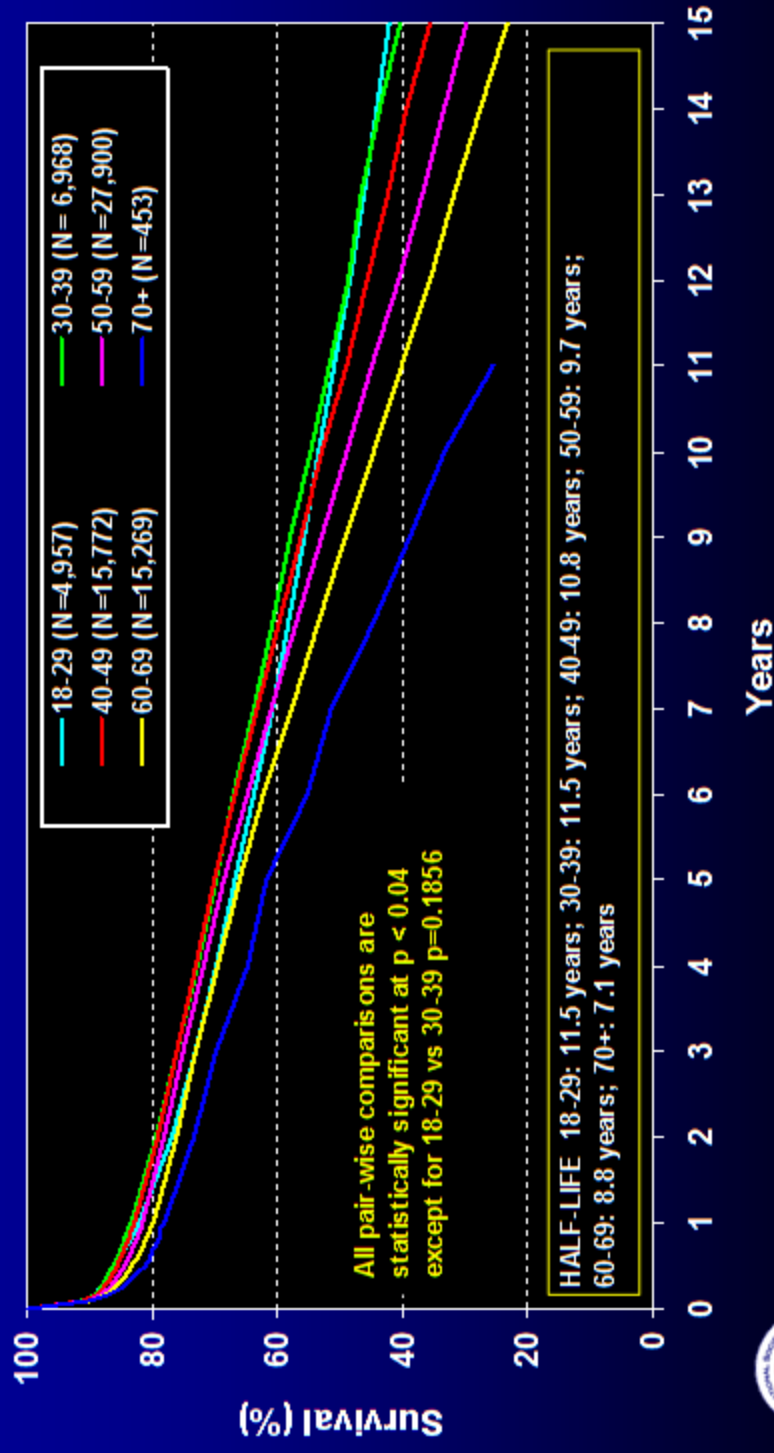
J Heart Lung Transplant. 2010 Oct; 29 (10): 1083-1141

\*\* Based on 7/2004-6/2009 transplants.

# ADULT HEART TRANSPLANTATION

## Kaplan-Meier Survival by Age Group

(Transplants: 1/1982-6/2008)



ISHLT

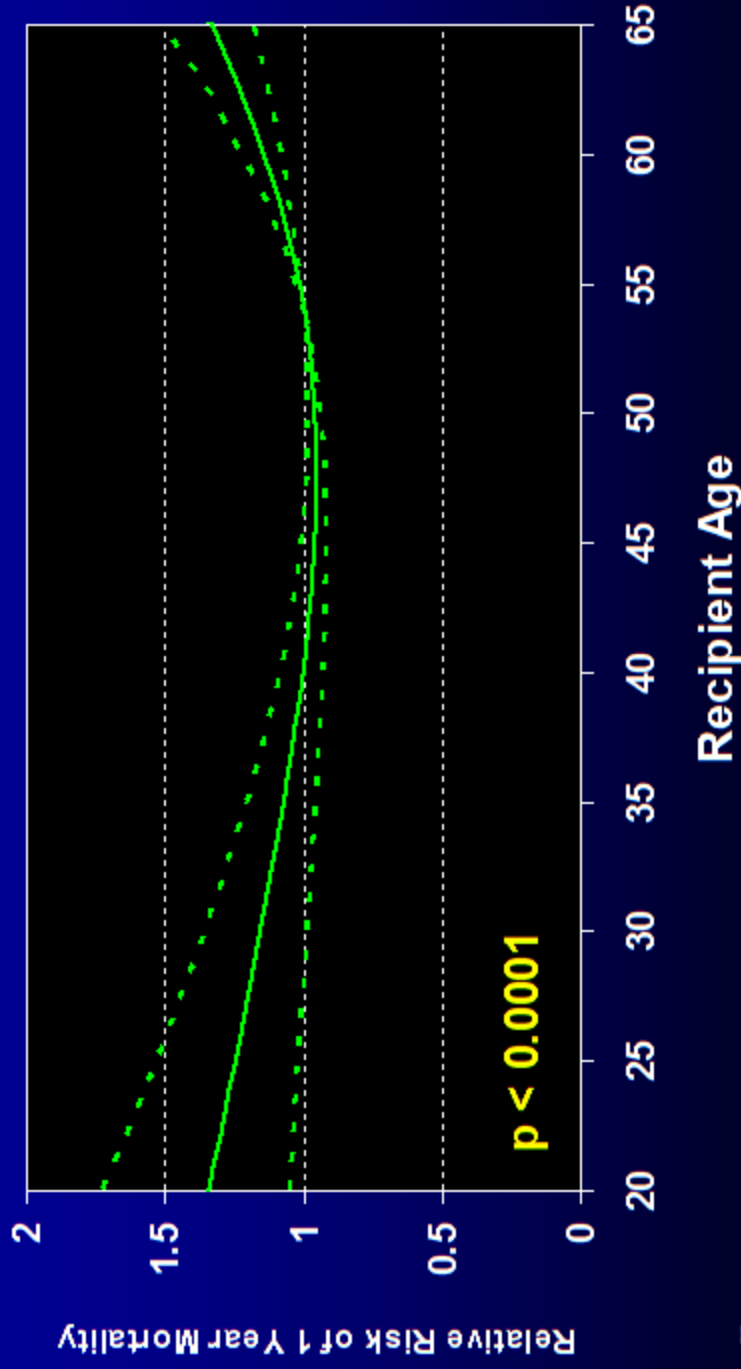
2010

J Heart Lung Transplant. 2010 Oct; 29 (10): 1083-1141

# ADULT HEART TRANSPLANTS (1/2003-6/2008)

## Relative Risk of 1 Year Mortality with 95% Confidence Limits

### Recipient Age



**ISHLT**

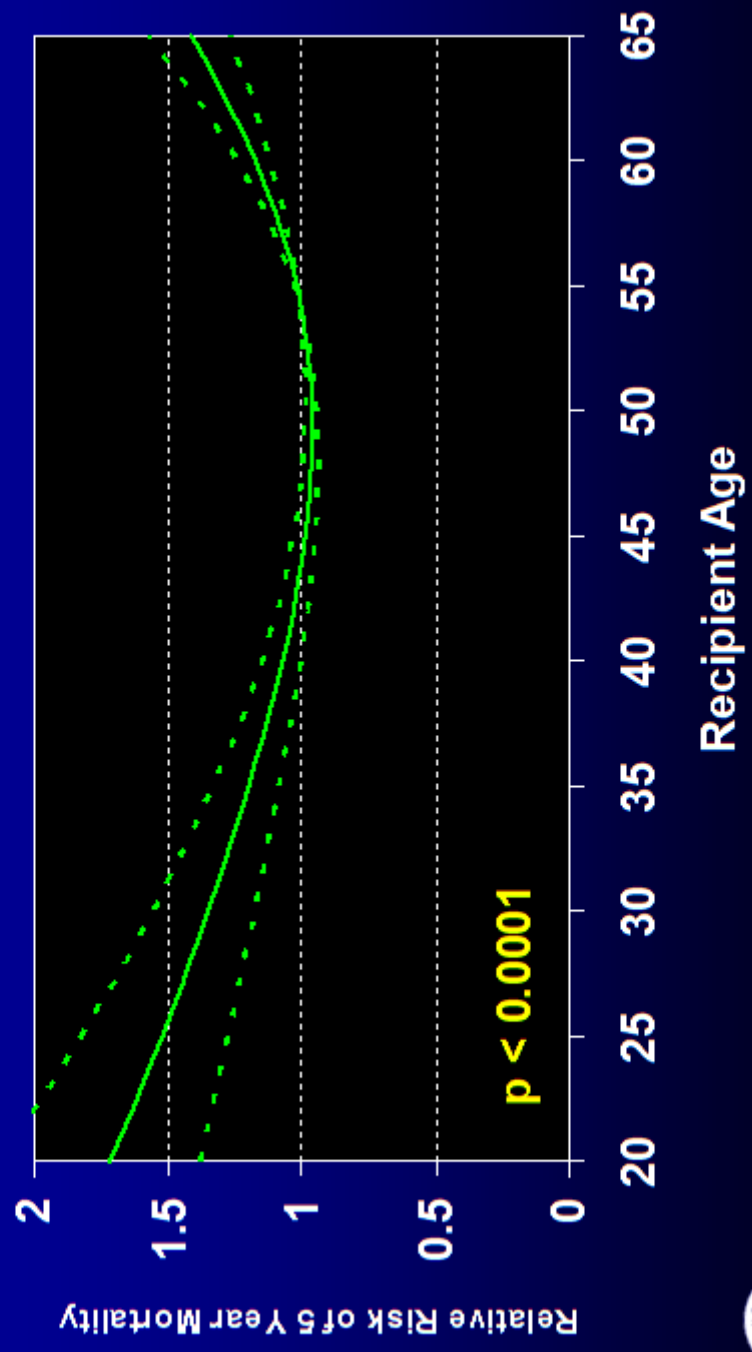
2010

**(N=10,547)**

J Heart Lung Transplant. 2010 Oct; 29 (10): 1083-1141

# ADULT HEART TRANSPLANTS (1/2001-6/2004)

Relative Risk of 5 Year Mortality with 95% Confidence Limits  
Recipient Age



ISHLT

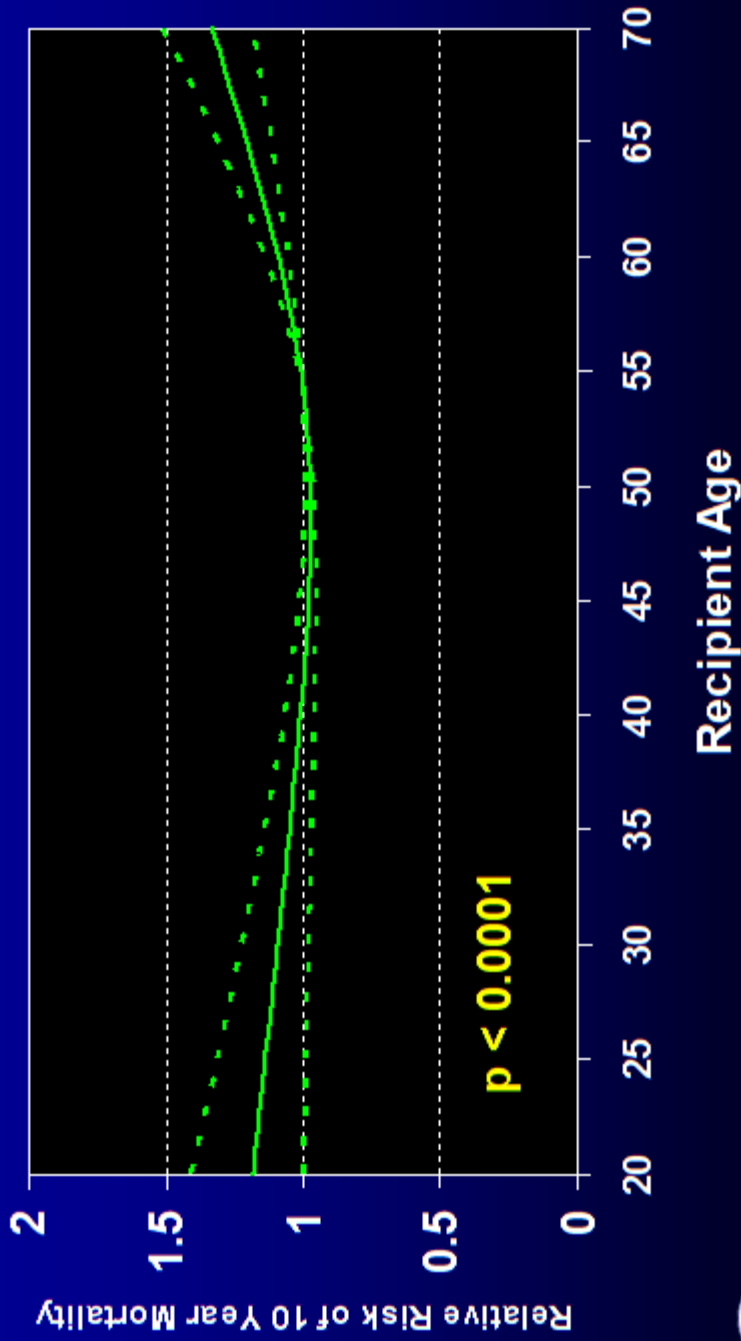
2010

(N=7,064)

J Heart Lung Transplant. 2010 Oct; 29 (10): 1083-1141

# ADULT HEART TRANSPLANTS (7/1995-6/1999)

Relative Risk of 10 Year Mortality with 95% Confidence Limits  
Recipient Age



ISHLT

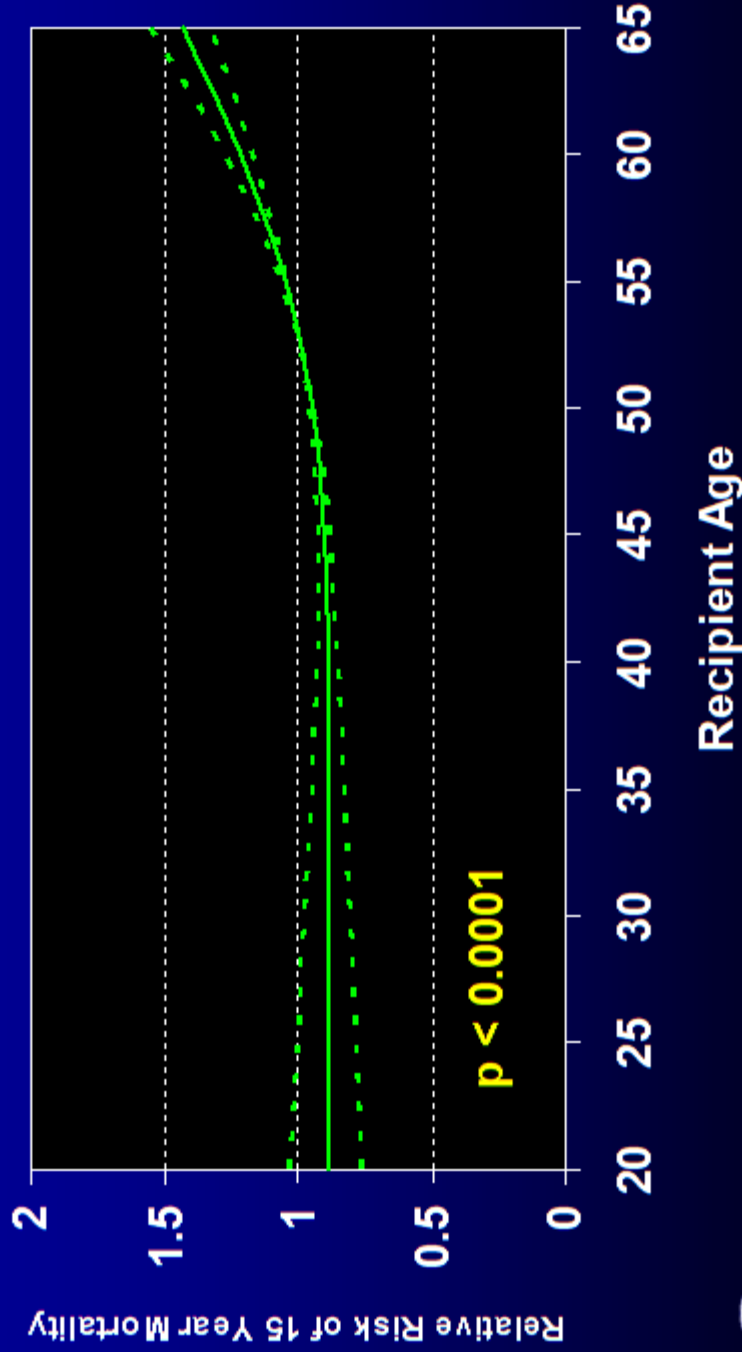
(N=8,778)

2010

J Heart Lung Transplant. 2010 Oct; 29 (10): 1083-1141

# ADULT HEART TRANSPLANTS (1/1990-6/1994)

Relative Risk of 15 Year Mortality with 95% Confidence Limits  
Recipient Age



**ISHLT**

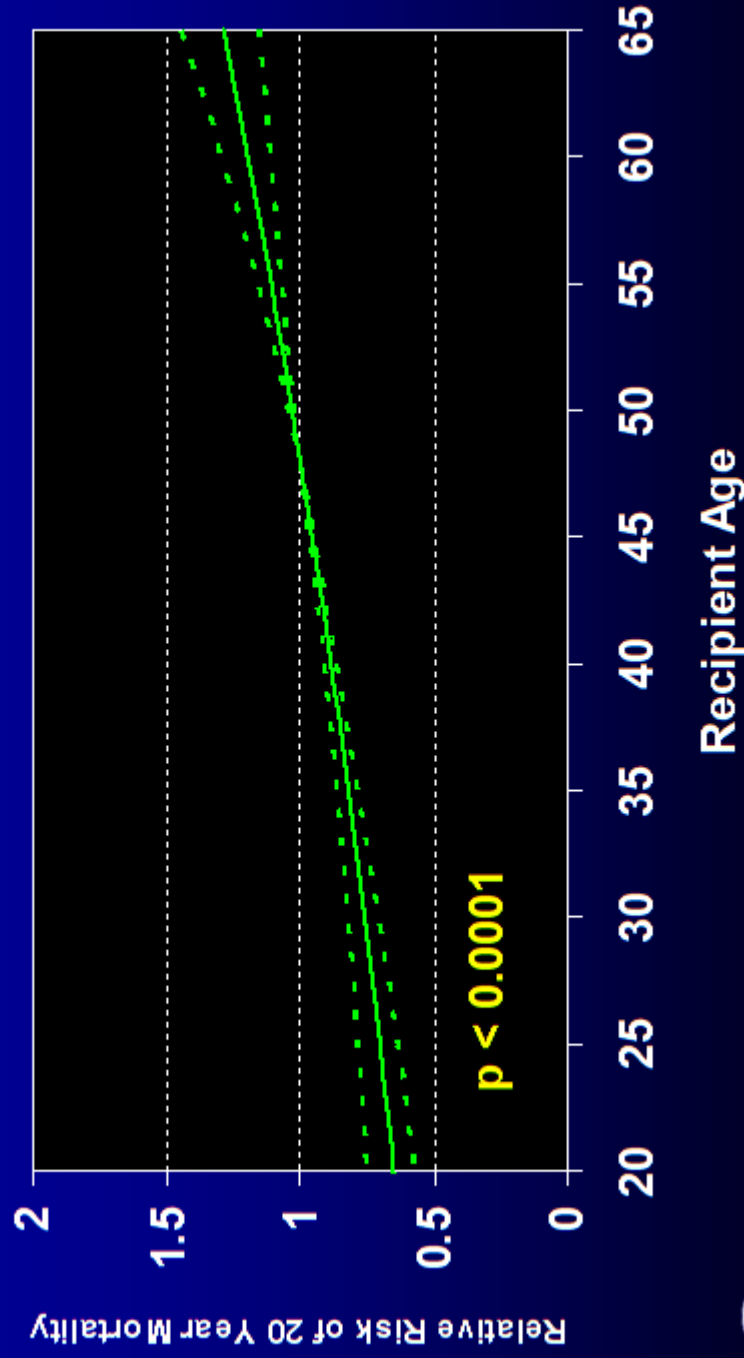
2010

(N=8,232)

J Heart Lung Transplant. 2010 Oct; 29 (10): 1083-1141

# ADULT HEART TRANSPLANTS (1/1983-6/1988)

Relative Risk of 20 Year Mortality with 95% Confidence Limits  
Recipient Age



ISHLT

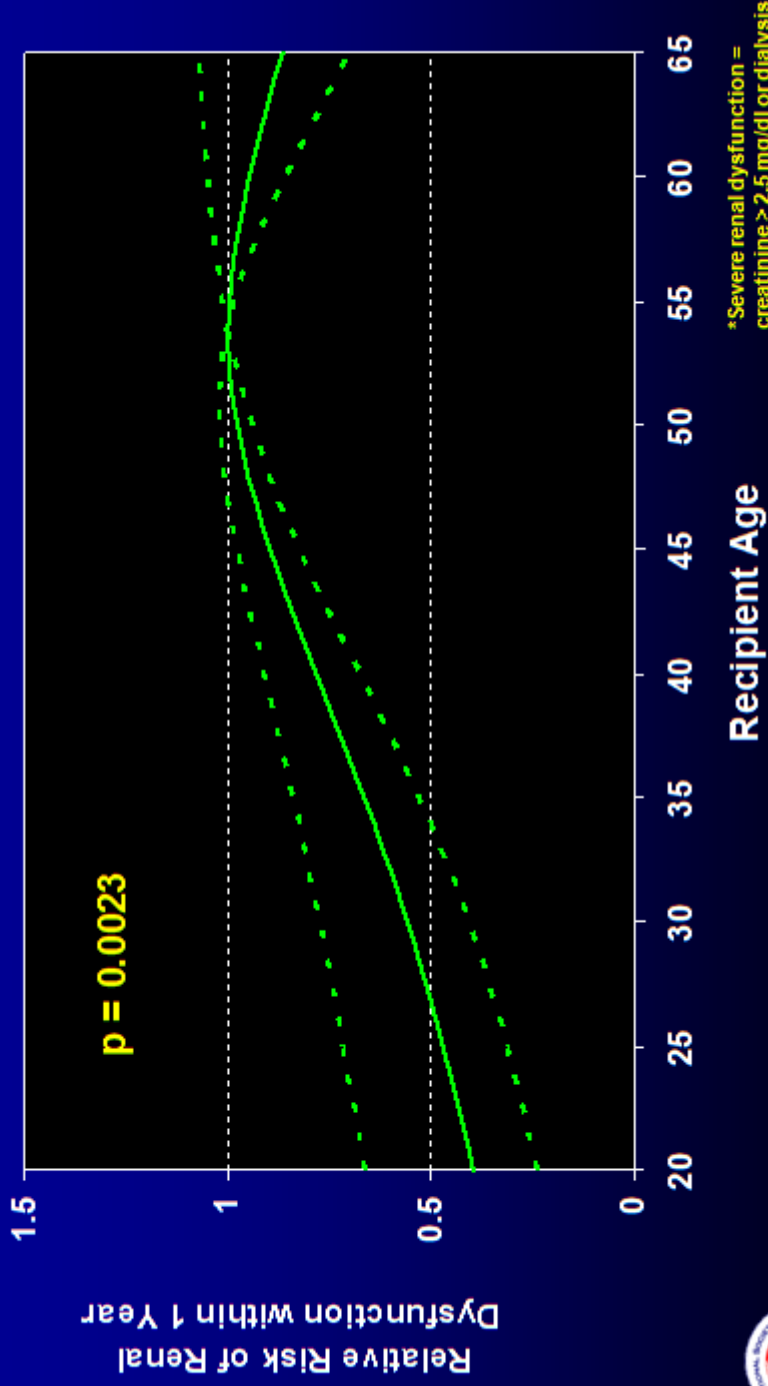
(N=6,365)

2010

J Heart Lung Transplant. 2010 Oct; 29 (10): 1083-1141

# ADULT HEART TRANSPLANTS (1/2001-6/2007)

Risk Factors for Developing Renal Dysfunction within 1 Year  
Limited to Recipients without Severe Renal Dysfunction\* Pre-Transplant  
**Recipient Age**



**ISHLT**

2010

(N=8,590)

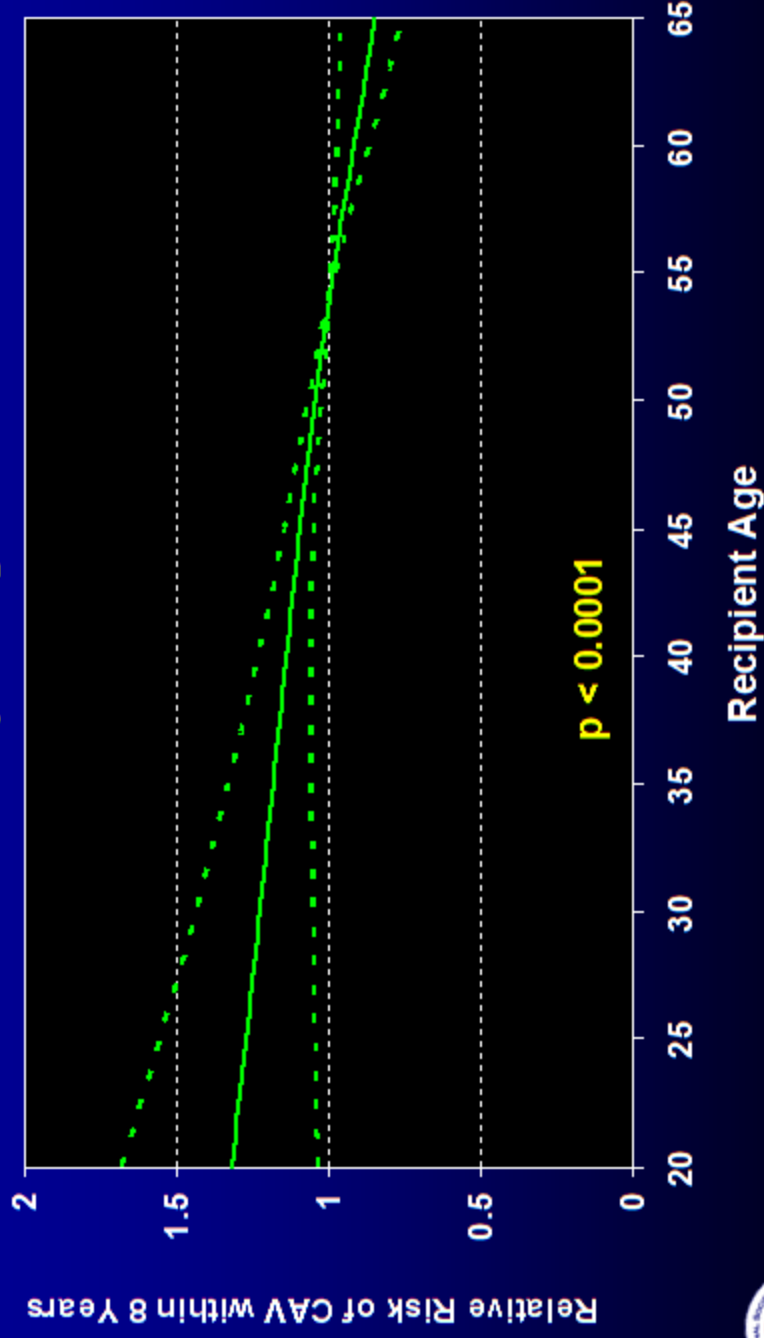
J Heart Lung Transplant. 2010 Oct; 29 (10): 1083-1141



# ADULT HEART TRANSPLANTS (7/1997-6/2001)

Relative Risk of Developing Cardiac Allograft Vasculopathy within 8 Years  
Conditional on Survival to Transplant Discharge

**Recipient Age**



**ISHLT**

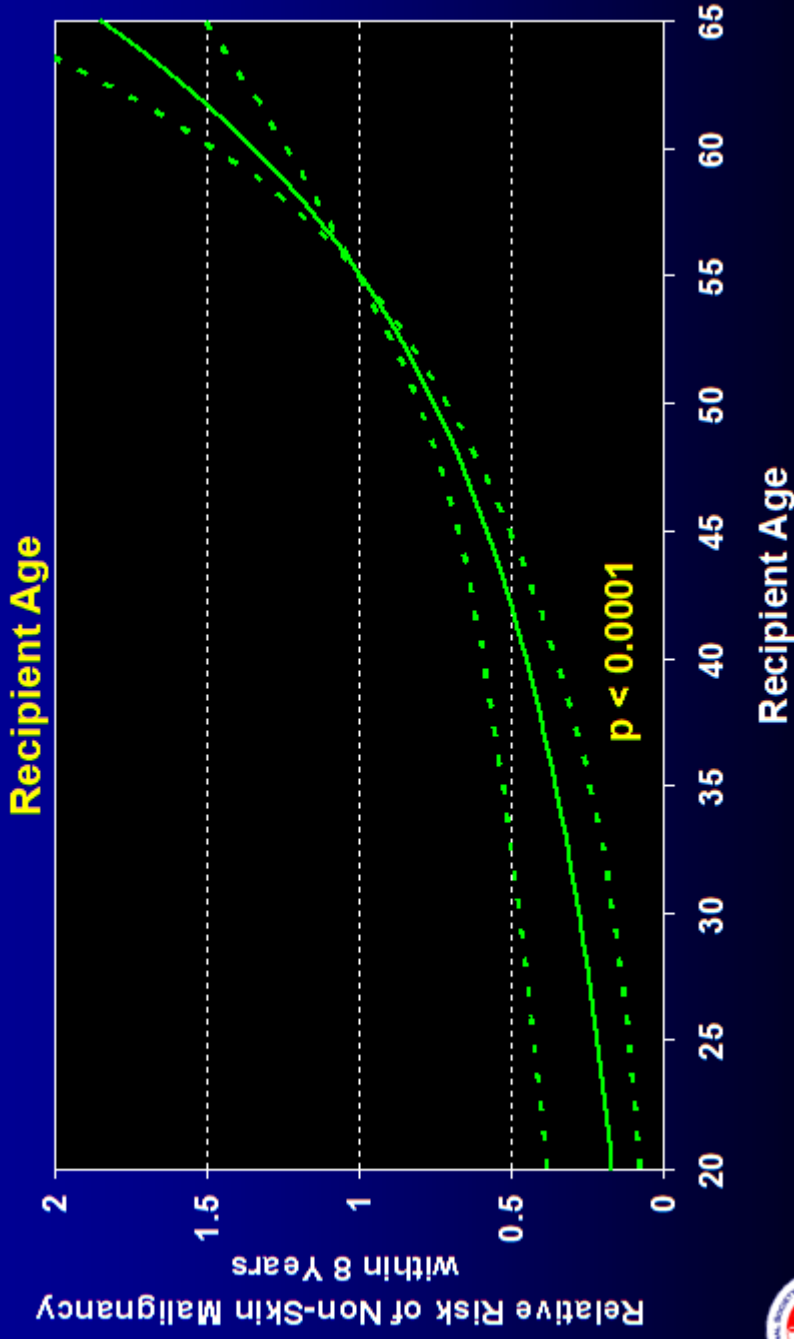
2010

(N=5,677)

J Heart Lung Transplant. 2010 Oct; 29 (10): 1083-1141

# ADULT HEART TRANSPLANTS (7/1997-6/2001)

Relative Risk for Developing Non-Skin Malignancy within 8 Years Limited to Recipients without History of Malignancy Pre-Transplant and Conditional on Survival to Transplant Discharge



ISHLT

2010

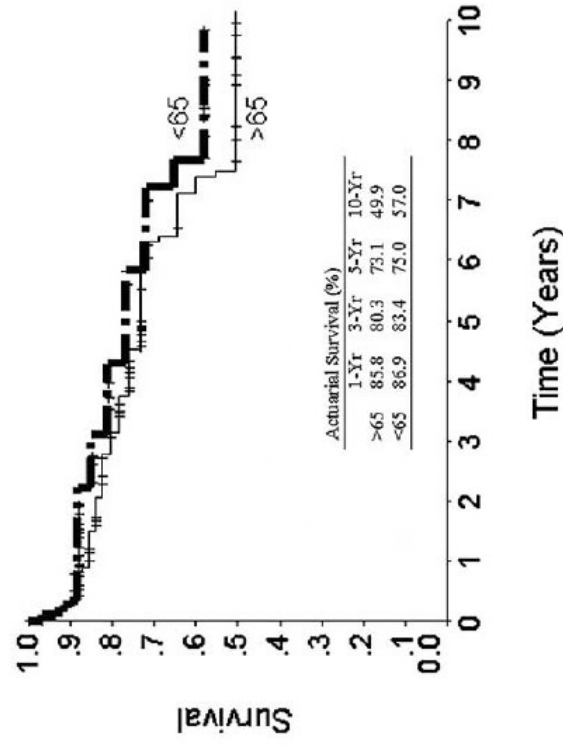
(N=4,935)

Jeffrey A. Morgan, MD, Ranjit John, MD, Alan D. Weinberg, MS, Romolo Remoli, Aftab R. Kherani, MD, Deon W. Vigilance, MD, Bella M. Schanzer, MD, Gianluigi Bisleri, MD, Donna M. Mancini, MD, Mehmet C. Oz, MD, and Niloo M. Edwards, MD

Department of Surgery, Division of Cardiothoracic Surgery, College of Physicians and Surgeons, Columbia University, New York, New York

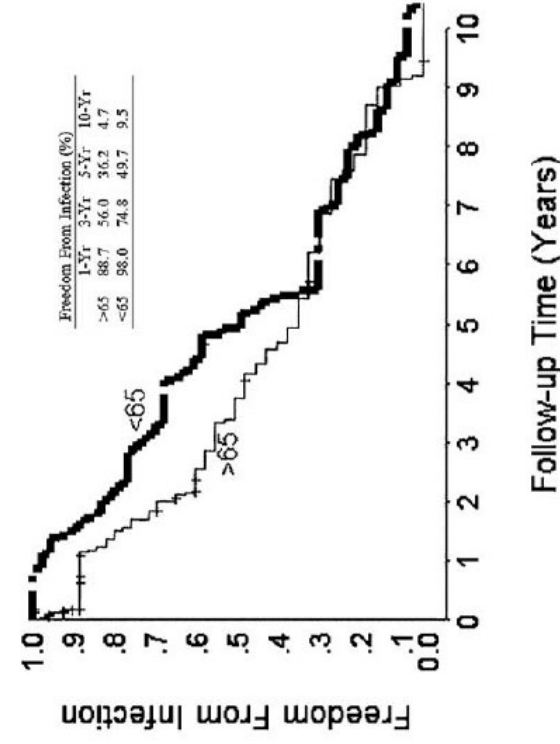
Ann Thorac Surg  
2003;76:1982-7

>65 años: 63 vs < 65 años: 883



Log Rank p = 0.597

Fig 1. Long-term survival after cardiac transplantation for recipients above age 65 years (light line) and below age 65 (heavy dashed line). There was no statistically significant difference in overall survival between the groups, with median survival of 9.0 years for the older group and 10.4 years for the younger group (p = 0.597).



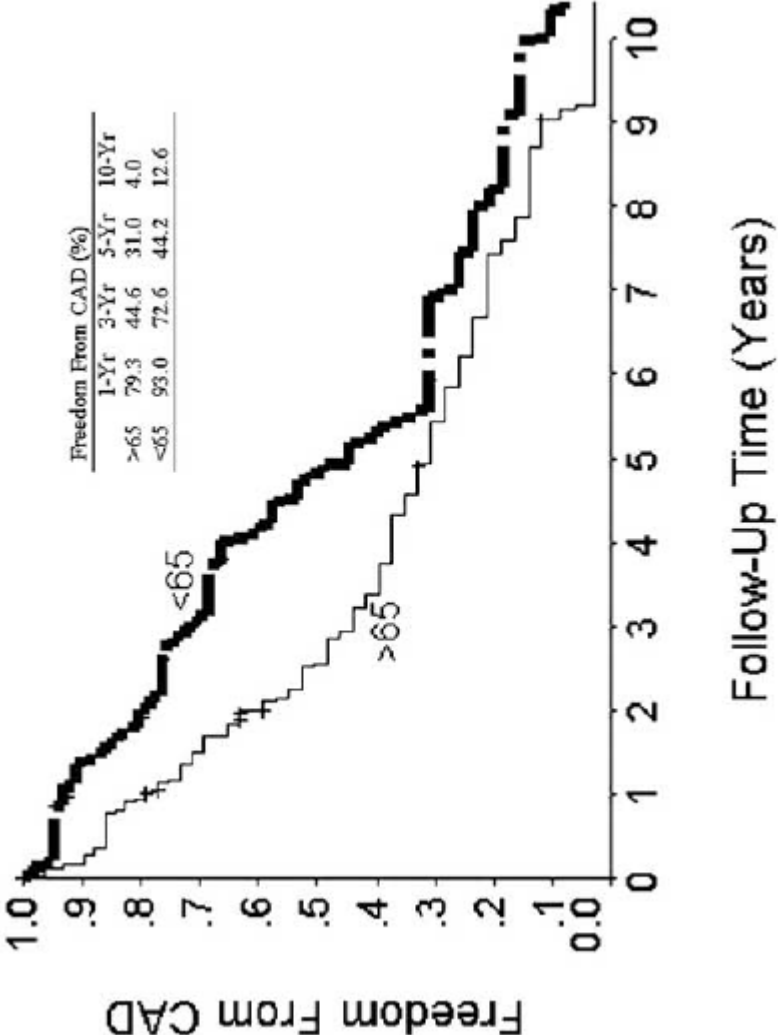
Log Rank p = 0.406

Fig 2. Freedom from infection after cardiac transplantation for recipients above age 65 years (light line) and below age 65 (heavy line). Median time to infection was 1350.5 days for the older group and 1788.5 days for the younger group (p = 0.406).

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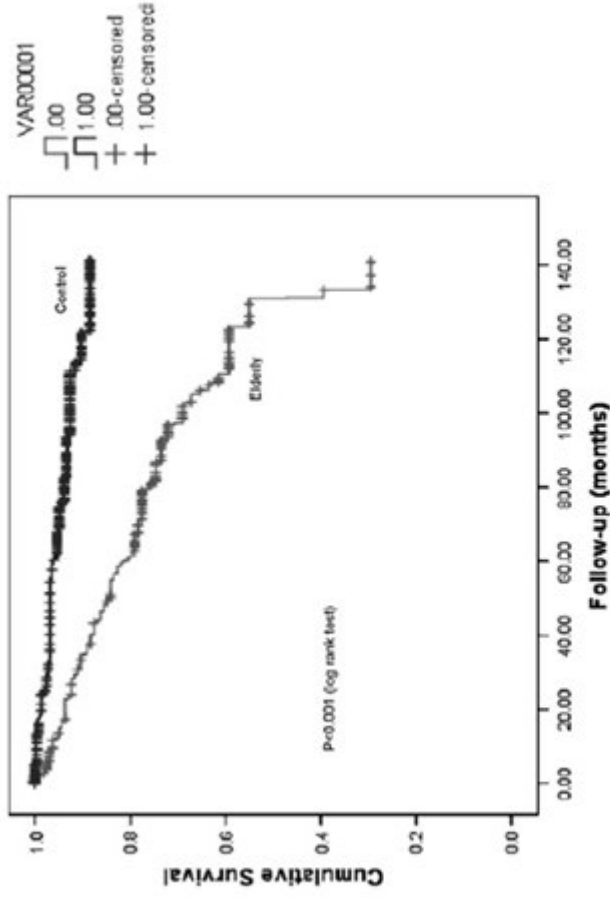
>65 años: 63 vs < 65 años:



Log Rank p = 0.025

# Long-term Outcomes of Heart Transplantation in Older Recipients

Daniel Marelli, MD, Jon Kobashigawa, MD, Michele A. Hamilton, MD, Jaime D. Moriguchi, MD, Reza Kermani, MD, Abbas Ardehali, MD, Jignesh Patel, MD, Emily Noguchi, BS, Ramin Beygui, MD, Hillel Laks, MD, Mark Plunkett, MD, Richard Shemin, MD, and Fardad Esmailian, MD



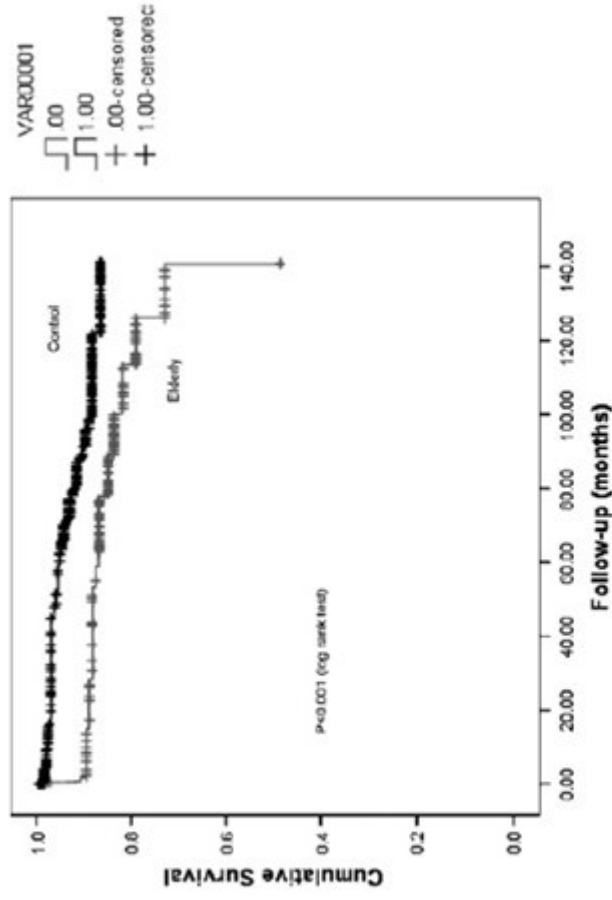
Number at risk:

Time (mos.)	0	25	50	75	100	125	150
Elderly	167	138	121	91	41	11	0
Control	310	274	256	201	114	40	0

**Figure 2.** Kaplan–Meier data for freedom from malignancy in the elderly (>62 years) and in younger controls (18 to 62 years). At 100 months, freedom from malignancy was 68% for the elderly (Group 1) and 95% for controls (Group 2).

# Long-term Outcomes of Heart Transplantation in Older Recipients

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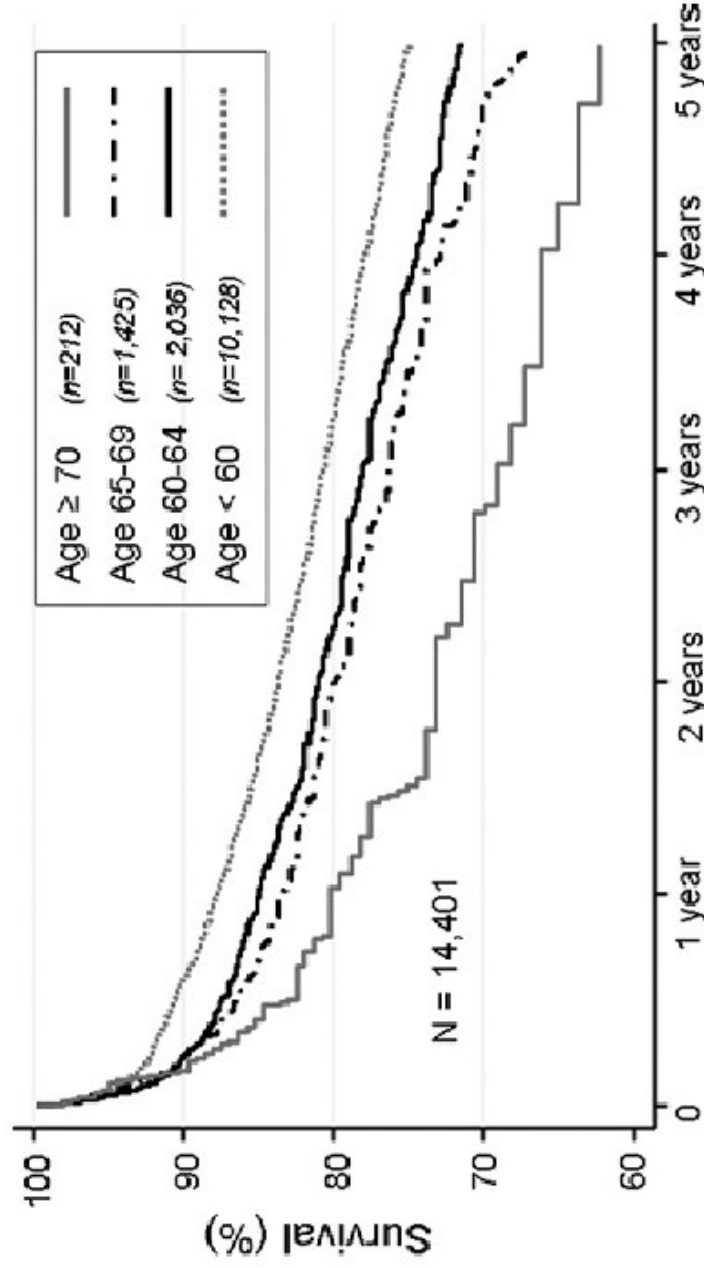
Number at risk:

Time (mos.)	0	25	50	75	100	125	150
Elderly	177	139	128	100	43	14	0
Control	347	276	258	201	117	39	0

**Figure 3.** Kaplan–Meier data for freedom from need for dialysis in the elderly (>62 years) and in younger controls (18 to 62 years). At 100 months, freedom from dialysis was 81% for the elderly (Group 1) and 87% for controls (Group 2).

# Outcomes in Patients Older Than 60 Years of Age Undergoing Orthotopic Heart Transplantation: An Analysis of the UNOS Database

Eric S. Weiss, MD, Lois U. Nwakanma, MD, Nishant D. Patel, BA, and David D. Yuh, MD



**Figure 4.** Kaplan–Meier estimates of 5-year survival stratified by age for patients <60 (solid gray line), 60 to 64 (solid black line), 65 to 69 (dashed black line) and ≥70 (dotted gray line) years of age (based on OPTN data, September 2006).

# Resumen

- La edad del paciente trasplantado ha variado muy poco en los últimos 10 años
- El porcentaje de pacientes trasplantados entre 60-65 años es del (23%)
- El porcentaje de pacientes trasplantados entre 65-70 años es de (12%)
- Cada año existe algún caso aislado con edad superior a 70 años (0.4%)
- 70 años es el límite “psicológico” que parece haberse establecido en los grupos de trasplante españoles y extranjeros
- La edad es un factor de riesgo independiente de mortalidad tardía, pero no precoz, que se repite en los Registros
- La edad se asocia a mayor EVI, tumores (cutáneos y no cutáneos) y disfunción renal



# Conclusiones

- En España nos sentimos cómodos con el valor de referencia de 65 años que ampliamos en casos seleccionados con criterios personales relacionados con la edad biológica y otros condicionantes.

# ¡¡Gracias!!



Fallas 2011