

Australia and New Zealand Cardiothoracic Organ Transplant Registry



2017 REPORT

(Transplant Data collected from February 1984 to December 2017)

Edited By

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TABLE OF CONTENTS

| | |
|--|----|
| Forward | 4 |
| Number of All Transplants by Year 1984 – 2017 | 6 |
| Heart Transplants by Year by Hospital 1984 - 2017 | 7 |
| Heart Lung Transplants by Year by Hospital 1986 - 2017 | 8 |
| Single Lung Transplants by Year by Hospital 1990 - 2017 | 9 |
| Bilateral Lung Transplants by Year by Hospital 1992 – 2017 | 10 |
| Waiting Time Transplant by Blood Group | 11 |

HEART TRANSPLANTATION

| | |
|---|----|
| Reason for Transplant 1984 – 2017 | 13 |
| Pre Transplant Status 1984 – 2017 | 14 |
| Donor/Recipient State of Origin 1999 – 2017 | 15 |
| Demographics | |
| Waiting Time 1984 – 2017 | 16 |
| Recipient Age 1984 – 2017 | 17 |
| Donor Age 1984 – 2017 | 18 |
| Ischemic Time 1984 – 2017 | 19 |
| CUTLER-EDERER Survival 1984 - 2017 | |
| All Hearts | 20 |
| Orthotopic v Heterotopic v Domino | 21 |
| All Hearts Time Group Comparison | 22 |
| Pre-Transplant Diagnosis | 23 |
| Pre-Transplant Status | 24 |
| Recipient Age by Gender | 25 |
| Recipient Age | 26 |
| Donor Age | 27 |
| Donor Gender | 28 |
| Recipient Gender | 29 |
| Ischemic Time | 30 |
| Crossmatch | 31 |
| Panel Reactive Antibodies | 32 |
| CMV Status | 33 |
| HLA A or B Locus Mismatch | 34 |
| HLA DR Locus Mismatch | 35 |
| Malignancies | 36 |
| Malignancies 1984 - 2017 | 37 |
| All Recipient Cause of Death 1984 - 2017 | |
| Cause of Death All Heart Transplants | 38 |
| Cause of Death < 5 Years Post Transplant | 39 |
| Cause of Death ≥ 5 Years Post Transplant | 39 |

LUNG TRANSPLANTATION

| | |
|---|----|
| Reason for Transplant | |
| Heart-Lung 1986 - 2017 | 41 |
| Single Lung 1990 - 2017 | 42 |
| Bilateral Sequential Lung 1992 - 2017 | 43 |
| Donor/Recipient State of Origin 1999 – 2017 | 44 |
| Demographics | |
| Waiting Time 1990 – 2017 | 45 |
| Recipient Age 1989 – 2017 | 46 |
| Donor Age 1989 – 2017 | 47 |

| | |
|--|----|
| Ischemic Time 1989 – 2017 | 48 |
| Recipient Gender 1989 – 2017 | 49 |
| CUTLER-EDERER Survival 1986 - 2017 | |
| All Transplants | 50 |
| DCD 2006 - 2017 | 51 |
| Recipient Age | 52 |
| Donor Age | 53 |
| Ischemic Time | 54 |
| Crossmatch | 55 |
| CMV Status | 56 |
| HLA All Locus Mismatch | 57 |
| HLA DR Locus Mismatch | 58 |
| Recipient Cause of Death 1986 - 2017 | |
| Cause of Death All Lung Transplants | 59 |
| Cause of Death < 5 Years Post Transplant | 60 |
| Cause of Death ≥ 5 Years Post Transplant | 60 |

The Australia and New Zealand Cardiothoracic Organ Transplant Registry

TWENTY SECOND ANNUAL REPORT 1984 - 2017

This is the twenty second annual report of the Australia and New Zealand Cardiothoracic Transplant Registry (ANZCOTR) and includes data from all Cardiothoracic transplants performed between February 1984 and December 2017.

Participating Units

The Prince Charles Hospital, Brisbane
The Alfred Hospital, Melbourne
The Royal Children's Hospital, Melbourne
Auckland City Hospital, New Zealand
St Vincent's Hospital, Sydney
Fiona Stanley Hospital, Perth

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Funding

ANZCOTR : Unfunded 1990 - 1993
 : Funded by SVH Heart Transplant Unit 1994 – 1997
 : Funding since 2003 by The Commonwealth of Australia, Organ and Tissue Authority, Canberra

Management Committee Members for 2017

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Acknowledgements

The Editors would like to thank the Transplant Coordinators and Team Administrators, whose accurate and timely reporting of their transplantation data has made the 2017 Report possible.

St Vincent's, Sydney

Michelle Harkess
Lisa Singleton

The Prince Charles Hospital, Brisbane

Jo Maddicks-Law
Trish Leisfield

Auckland City Hospital, Auckland

Denise Reddy
Josephine Power

The Alfred Hospital, Melbourne

Jamie Hobson
Aimee Henriksen
Bronwyn Levvey

Fiona Stanley Hospital, Perth

Clare Fazackerley
Helen Hayes
Sharon Lawrence

The Royal Children's Hospital, Melbourne

Anne Shipp

The Editors would also like to thank the members of the Management Committee who have given up their valuable time to prove the Registry with their extensive knowledge and experience, and the Organ and Tissue Authority, for their continued invaluable assistance and support. Thanks also to Kylie Hurst, Registry Manager at ANZOD Registry and her team.

Data Requests

Additional data or research project material may be made available after consideration of the request by the Management Committee.

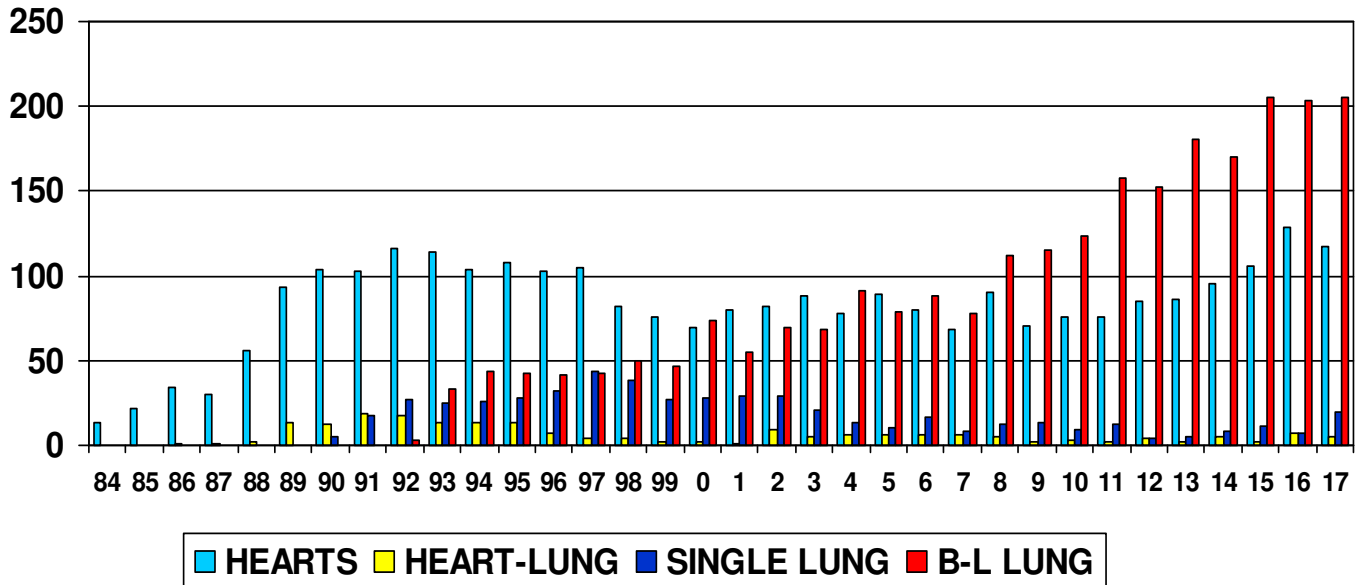
Statistical Methods

Cutler Ederer survival curves were produced using SPSS® for Windows™ Release 19.0, SPSS Inc.

Significance calculated using Log Rank testing.

All data and tables herein ©ANZCOTR 2017

NUMBER OF ALL TRANSPLANTS BY YEAR 1984 -2017



| YEAR | HEART | HEART-LUNG | SINGLE LUNG | BILATERAL LUNG | |
|---------------|-------------|------------|-------------|----------------|---|
| 1984 | 14 | 0 | 0 | 0 | |
| 1985 | 22 | 0 | 0 | 0 | |
| 1986 | 34 | 1 | 0 | 0 | |
| 1987 | 30 | 1 | 0 | 0 | |
| 1988 | 56 | 2 | 0 | 0 | |
| 1989 | 93 | 14 | 0 | 0 | |
| 1990 | 104 | 12 | 5 | 0 | |
| 1991 | 103 | 19 | 18 | 0 | |
| 1992 | 116 | 18 | 27 | 3 | |
| 1993 | 114 | 13 | 25 | 33 | |
| 1994 | 104 | 13 | 26 | 44 | |
| 1995 | 108 | 13 | 28 | 43 | |
| 1996 | 103 | 7 | 32 | 42 | |
| 1997 | 105 | 4 | 44 | 43 | |
| 1998 | 82 | 4 | 38 | 50 | |
| 1999 | 76 | 2 | 27 | 47 | |
| 2000 | 70 | 2 | 28 | 74 | |
| 2001 | 82 | 1 | 29 | 55 | |
| 2002 | 82 | 9 | 29 | 70 | |
| 2003 | 89 | 5 | 20 | 68 | |
| 2004 | 78 | 6 | 13 | 91 | |
| 2005 | 89 | 6 | 10 | 79 | |
| 2006 | 80 | 6 | 17 | 88 | |
| 2007 | 68 | 6 | 8 | 78 | |
| 2008 | 90 | 5 | 12 | 112 | |
| 2009 | 71 | 2 | 13 | 115 | |
| 2010 | 76 | 3 | 10 | 123 | |
| 2011 | 76 | 2 | 12 | 158 | |
| 2012 | 85 | 4 | 4 | 153 | |
| 2013 | 86 | 2 | 5 | 181 | |
| 2014 | 95 | 5 | 8 | 170 | |
| 2015 | 106 | 2 | 11 | 205 | |
| 2016 | 129 | 7 | 7 | 203 | |
| 2017 | 117 | 5 | 20 | 205 | |
| Totals | 2833 | 201 | 526 | 2533 | Grand Total All Transplants 6093 |

ALL HEART TRANSPLANTS* BY YEAR BY HOSPITAL 1984 - 2017

| | St Vincents | The Alfred | Perth | Auckland | Prince Charles | Royal Childrens | Year Totals |
|---------------|-------------|------------|------------|------------|----------------|-----------------|-------------|
| 1984 | 14 | 0 | 0 | 0 | 0 | 0 | 14 |
| 1985 | 22 | 0 | 0 | 0 | 0 | 0 | 22 |
| 1986 | 34 | 0 | 0 | 0 | 0 | 0 | 34 |
| 1987 | 28 | 0 | 0 | 2 | 0 | 0 | 30 |
| 1988 | 49 | 0 | 0 | 5 | 0 | 2 | 56 |
| 1989 | 50 | 30 | 0 | 8 | 0 | 5 | 93 |
| 1990 | 47 | 39 | 0 | 6 | 8 | 4 | 104 |
| 1991 | 41 | 33 | 0 | 5 | 20 | 4 | 103 |
| 1992 | 36 | 37 | 0 | 11 | 23 | 9 | 116 |
| 1993 | 39 | 35 | 0 | 8 | 28 | 4 | 114 |
| 1994 | 44 | 25 | 0 | 10 | 21 | 4 | 104 |
| 1995 | 41 | 25 | 7 | 7 | 20 | 8 | 108 |
| 1996 | 35 | 24 | 4 | 13 | 24 | 3 | 103 |
| 1997 | 35 | 28 | 5 | 14 | 21 | 2 | 105 |
| 1998 | 26 | 23 | 9 | 10 | 10 | 4 | 82 |
| 1999 | 19 | 25 | 8 | 10 | 11 | 3 | 76 |
| 2000 | 20 | 22 | 6 | 13 | 9 | 0 | 70 |
| 2001 | 17 | 30 | 7 | 15 | 8 | 5 | 82 |
| 2002 | 19 | 24 | 6 | 8 | 17 | 8 | 82 |
| 2003 | 14 | 24 | 11 | 22 | 16 | 2 | 89 |
| 2004 | 28 | 23 | 7 | 4 | 14 | 2 | 78 |
| 2005 | 26 | 22 | 12 | 13 | 13 | 3 | 89 |
| 2006 | 19 | 22 | 7 | 8 | 16 | 8 | 80 |
| 2007 | 18 | 21 | 5 | 9 | 13 | 2 | 68 |
| 2008 | 27 | 28 | 13 | 8 | 8 | 6 | 90 |
| 2009 | 19 | 18 | 7 | 11 | 10 | 6 | 71 |
| 2010 | 27 | 23 | 6 | 11 | 3 | 6 | 76 |
| 2011 | 24 | 17 | 9 | 11 | 10 | 5 | 76 |
| 2012 | 25 | 15 | 13 | 12 | 13 | 7 | 85 |
| 2013 | 25 | 23 | 7 | 9 | 13 | 9 | 86 |
| 2014 | 28 | 27 | 3 | 17 | 12 | 8 | 95 |
| 2015 | 31 | 28 | 10 | 12 | 15 | 10 | 106 |
| 2016 | 46 | 21 | 11 | 11 | 25 | 15 | 129 |
| 2017 | 42 | 24 | 9 | 24 | 8 | 10 | 117 |
| Totals | 1015 | 736 | 182 | 327 | 409 | 164 | 2833 |

*** Includes**

Heart - Kidney Transplants (40) St Vincent's 21, Prince Charles 7, Auckland City 6, The Alfred 6

Domino Transplants (36) St Vincent's 13, The Alfred 15, Royal Children's 4, Prince Charles 4

Retransplants (38) St Vincent's 14, Prince Charles 6, Auckland City 2, The Alfred 9, Royal Children's 4, Perth 3

Heterotopic Transplants (31) The Alfred 26, St Vincent's 5

DCD Donors (20) St Vincent's 20

HEART LUNG TRANSPLANTS BY YEAR BY HOSPITAL 1986 - 2017

| | St Vincents | The Alfred | Perth | Auckland | Prince Charles | Royal Childrens | Year Totals |
|---------------|-------------|------------|----------|----------|----------------|-----------------|-------------|
| 1986 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1987 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1988 | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| 1989 | 11 | 0 | 0 | 0 | 0 | 3 | 14 |
| 1990 | 6 | 6 | 0 | 0 | 0 | 0 | 12 |
| 1991 | 5 | 13 | 0 | 0 | 0 | 1 | 19 |
| 1992 | 8 | 10 | 0 | 0 | 0 | 0 | 18 |
| 1993 | 6 | 5 | 0 | 0 | 0 | 2 | 13 |
| 1994 | 6 | 6 | 0 | 0 | 0 | 1 | 13 |
| 1995 | 9 | 4 | 0 | 0 | 0 | 0 | 13 |
| 1996 | 4 | 3 | 0 | 0 | 0 | 0 | 7 |
| 1997 | 3 | 1 | 0 | 0 | 0 | 0 | 4 |
| 1998 | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| 1999 | 0 | 1 | 0 | 0 | 1 | 0 | 2 |
| 2000 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2001 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 2002 | 2 | 4 | 0 | 0 | 3 | 0 | 9 |
| 2003 | 1 | 2 | 0 | 0 | 2 | 0 | 5 |
| 2004 | 3 | 0 | 0 | 0 | 3 | 0 | 6 |
| 2005 | 1 | 0 | 1 | 0 | 4 | 0 | 6 |
| 2006 | 1 | 3 | 0 | 0 | 2 | 0 | 6 |
| 2007 | 3 | 0 | 1 | 0 | 2 | 0 | 6 |
| 2008 | 1 | 3 | 1 | 0 | 0 | 0 | 5 |
| 2009 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| 2010 | 0 | 1 | 2 | 0 | 0 | 0 | 3 |
| 2011 | 0 | 1 | 0 | 0 | 1 | 0 | 2 |
| 2012 | 3 | 0 | 0 | 0 | 1 | 0 | 4 |
| 2013 | 1 | 0 | 0 | 0 | 1 | 0 | 2 |
| 2014 | 2 | 2 | 0 | 0 | 1 | 0 | 5 |
| 2015 | 0 | 1 | 0 | 0 | 1 | 0 | 2 |
| 2016 | 3 | 1 | 1 | 0 | 2 | 0 | 7 |
| 2017 | 3 | 0 | 0 | 0 | 2 | 0 | 5 |
| Totals | 91 | 68 | 6 | 0 | 28 | 8 | 201 |

SINGLE LUNG TRANSPLANTS BY YEAR BY HOSPITAL 1990 – 2017

| | St Vincents | The Alfred | Royal Perth | Auckland | Prince Charles | Royal Childrens | Year Totals |
|---------------|-------------|------------|-------------|-----------|----------------|-----------------|-------------|
| 1990 | 3 | 2 | 0 | 0 | 0 | 0 | 5 |
| 1991 | 14 | 4 | 0 | 0 | 0 | 0 | 18 |
| 1992 | 19 | 8 | 0 | 0 | 0 | 0 | 27 |
| 1993 | 14 | 10 | 0 | 1 | 0 | 0 | 25 |
| 1994 | 10 | 14 | 0 | 2 | 0 | 0 | 26 |
| 1995 | 10 | 17 | 0 | 1 | 0 | 0 | 28 |
| 1996 | 9 | 18 | 0 | 2 | 3 | 0 | 32 |
| 1997 | 16 | 22 | 0 | 3 | 3 | 0 | 44 |
| 1998 | 10 | 25 | 0 | 3 | 0 | 0 | 38 |
| 1999 | 12 | 13 | 0 | 1 | 1 | 0 | 27 |
| 2000 | 7 | 16 | 0 | 3 | 2 | 0 | 28 |
| 2001 | 5 | 21 | 0 | 3 | 0 | 0 | 29 |
| 2002 | 3 | 20 | 0 | 3 | 3 | 0 | 29 |
| 2003 | 4 | 10 | 0 | 4 | 2 | 0 | 20 |
| 2004 | 0 | 10 | 1 | 0 | 2 | 0 | 13 |
| 2005 | 3 | 2 | 4 | 0 | 1 | 0 | 10 |
| 2006 | 2 | 9 | 3 | 1 | 2 | 0 | 17 |
| 2007 | 2 | 6 | 0 | 0 | 0 | 0 | 8 |
| 2008 | 3 | 4 | 4 | 0 | 1 | 0 | 12 |
| 2009 | 2 | 7 | 2 | 1 | 1 | 0 | 13 |
| 2010 | 1 | 7 | 0 | 0 | 2 | 0 | 10 |
| 2011 | 2 | 8 | 2 | 0 | 0 | 0 | 12 |
| 2012 | 0 | 2 | 2 | 0 | 0 | 0 | 4 |
| 2013 | 1 | 3 | 1 | 0 | 0 | 0 | 5 |
| 2014 | 1 | 3 | 3 | 1 | 0 | 0 | 8 |
| 2015 | 3 | 8 | 0 | 0 | 0 | 0 | 11 |
| 2016 | 2 | 4 | 0 | 0 | 1 | 0 | 7 |
| 2017 | 0 | 18 | 0 | 2 | 0 | 0 | 20 |
| Totals | 158 | 291 | 22 | 31 | 24 | 0 | 526 |

BILATERAL LUNG TRANSPLANTS BY YEAR BY HOSPITAL 1992 - 2017

| | St Vincents | The Alfred | Royal Perth | Auckland | Prince Charles | Royal Childrens | Year Totals |
|--------------|-------------|-------------|-------------|------------|----------------|-----------------|-------------|
| 1992 | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| 1993 | 14 | 19 | 0 | 0 | 0 | 0 | 33 |
| 1994 | 21 | 22 | 0 | 1 | 0 | 0 | 44 |
| 1995 | 18 | 23 | 0 | 2 | 0 | 0 | 43 |
| 1996 | 23 | 12 | 0 | 6 | 0 | 1 | 42 |
| 1997 | 13 | 20 | 0 | 1 | 8 | 1 | 43 |
| 1998 | 17 | 16 | 0 | 2 | 13 | 2 | 50 |
| 1999 | 13 | 20 | 0 | 6 | 7 | 1 | 47 |
| 2000 | 29 | 25 | 0 | 9 | 10 | 1 | 74 |
| 2001 | 28 | 18 | 0 | 8 | 1 | 0 | 55 |
| 2002 | 28 | 25 | 0 | 5 | 12 | 0 | 70 |
| 2003 | 28 | 25 | 0 | 10 | 5 | 0 | 68 |
| 2004 | 31 | 32 | 0 | 9 | 19 | 0 | 91 |
| 2005 | 28 | 27 | 2 | 8 | 14 | 0 | 79 |
| 2006 | 32 | 34 | 4 | 9 | 8 | 0 | 87 |
| 2007 | 25 | 29 | 6 | 9 | 9 | 0 | 78 |
| 2008 | 40 | 41 | 6 | 12 | 14 | 0 | 113 |
| 2009 | 38 | 50 | 4 | 7 | 17 | 0 | 116 |
| 2010 | 40 | 54 | 7 | 9 | 12 | 0 | 122 |
| 2011 | 43 | 70 | 12 | 10 | 23 | 0 | 158 |
| 2012 | 47 | 57 | 12 | 12 | 25 | 0 | 153 |
| 2013 | 45 | 68 | 11 | 19 | 38 | 0 | 181 |
| 2014 | 39 | 79 | 9 | 16 | 27 | 0 | 170 |
| 2015 | 57 | 75 | 20 | 23 | 30 | 0 | 205 |
| 2016 | 48 | 88 | 14 | 17 | 36 | 0 | 203 |
| 2017 | 45 | 84 | 14 | 18 | 44 | 0 | 205 |
| Total | 792 | 1014 | 121 | 228 | 372 | 6 | 2533 |

WAITING LIST ACTIVITY 2017

| | HEARTS | LUNGS |
|---|-----------|-----------|
| Active as at 1 January 2017 | 53 | 85 |
| New Additions during 2017 | 159 | 268 |
| from on hold to active from 2016 | 10 | 7 |
| Removals from Waiting List (Permanent) | | |
| W1 - Transplant Performed | 117 | 230 |
| W2 - Patients condition Improved | 3 | 2 |
| W3 - Too ill, New develop of contraindications etc | 9 | 9 |
| W4 - Patient declined | 2 | 1 |
| W5 - Transferred to an interstate list | 0 | 0 |
| W6 - Died waiting | 8 | 9 |
| W7 - Removed - unspecified | 2 | 1 |
| TOTAL at Year end - (Active) 31 December 2017 | 72 | 95 |
| Total at year end inactive - (On Hold) | 9 | 13 |

WAIT TIME IN DAYS TO TRANSPLANT BY BLOOD GROUP 2017* v ALL

| | ABO | A | | B | | AB | | O | |
|-------------------------|-----------|------|--------|------|--------|------|--------|------|--------|
| | Year/s | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| ORTHOTOPIC HEART | 2017 | 101 | 62 | 77 | 55 | 23 | 18 | 257 | 154 |
| | 1984-2017 | 113 | 61 | 154 | 88 | 114 | 62 | 226 | 130 |
| BILATERAL LUNG | 2017 | 71 | 49 | 127 | 75 | 67 | 56 | 137 | 85 |
| | 1992-2017 | 152 | 85 | 225 | 151 | 108 | 75 | 237 | 148 |
| SINGLE LUNG | 1990-2017 | 175 | 105 | 305 | 208 | 194 | 140 | 258 | 170 |
| HEART LUNG | 1986-2017 | 351 | 235 | 377 | 246 | 113 | 75 | 380 | 305 |

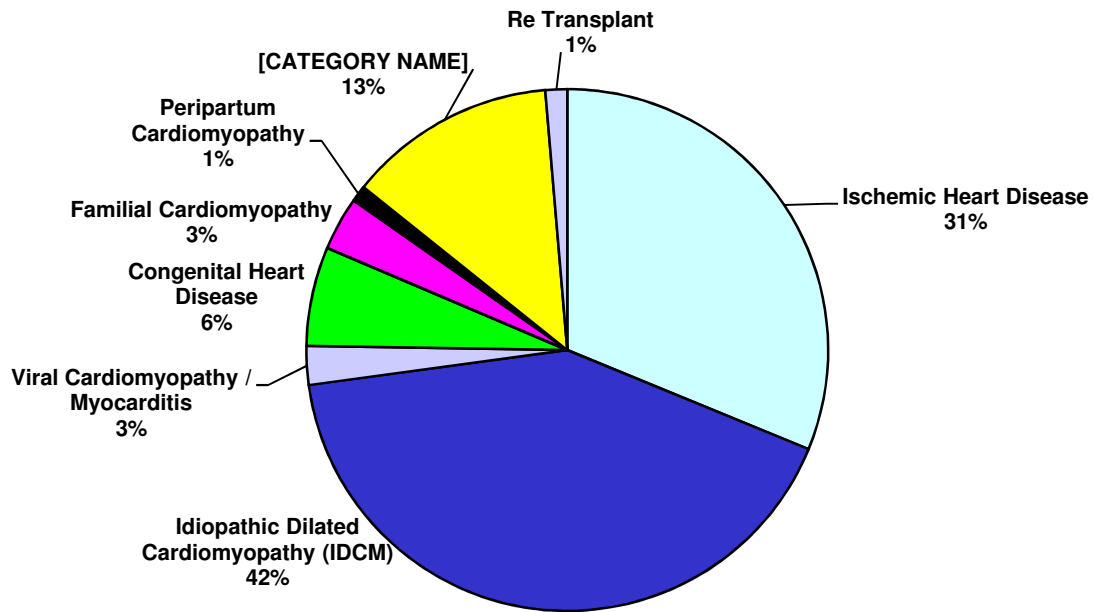
*Analysis for 2017 are excluded for Single Lungs and Heart Lungs due to small number of transplants, only ALL period shown.

HEART TRANSPLANTATION

1984 – 2017

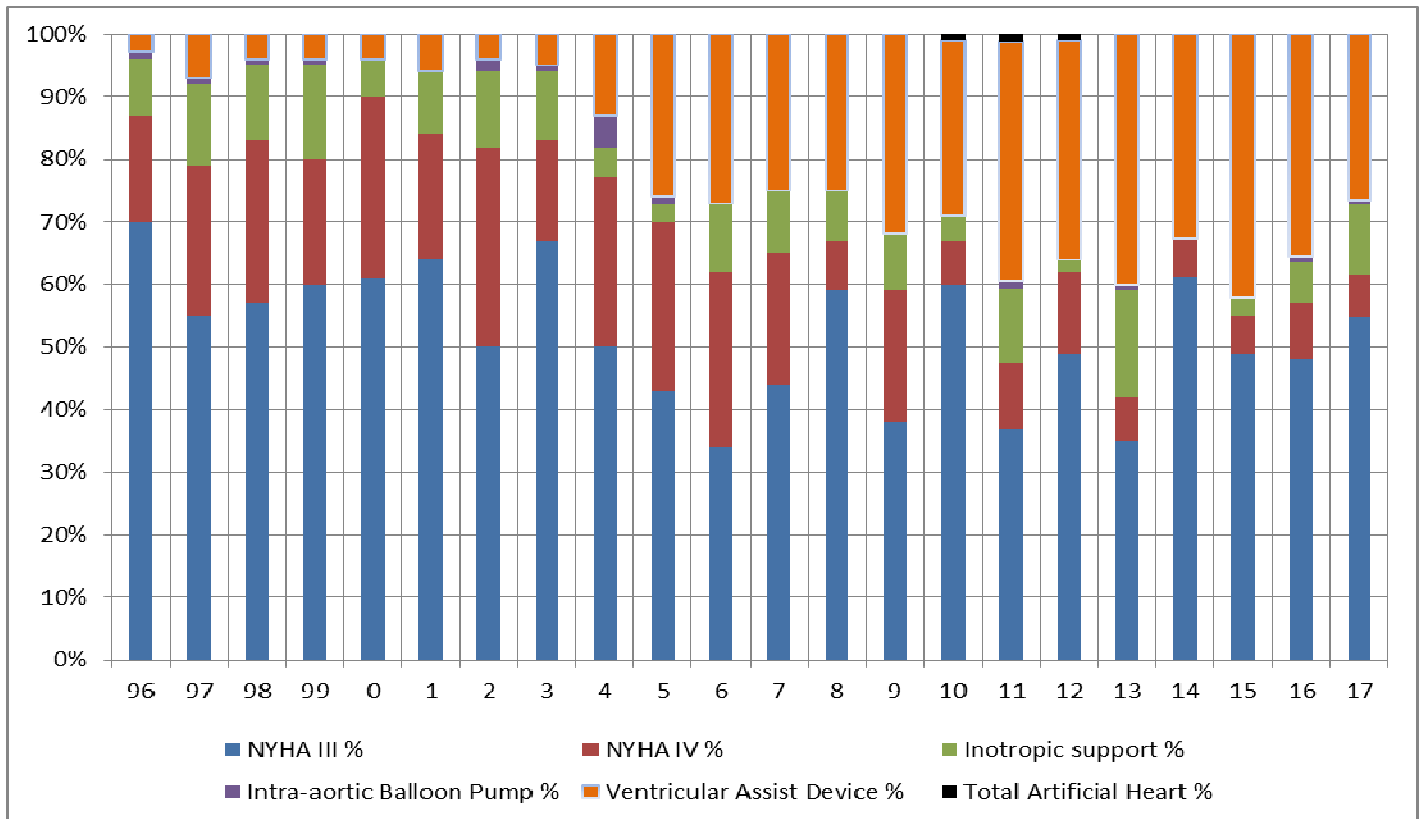
PRE TRANSPLANT DIAGNOSIS

ALL HEARTS 1984 – 2017 n = 2833



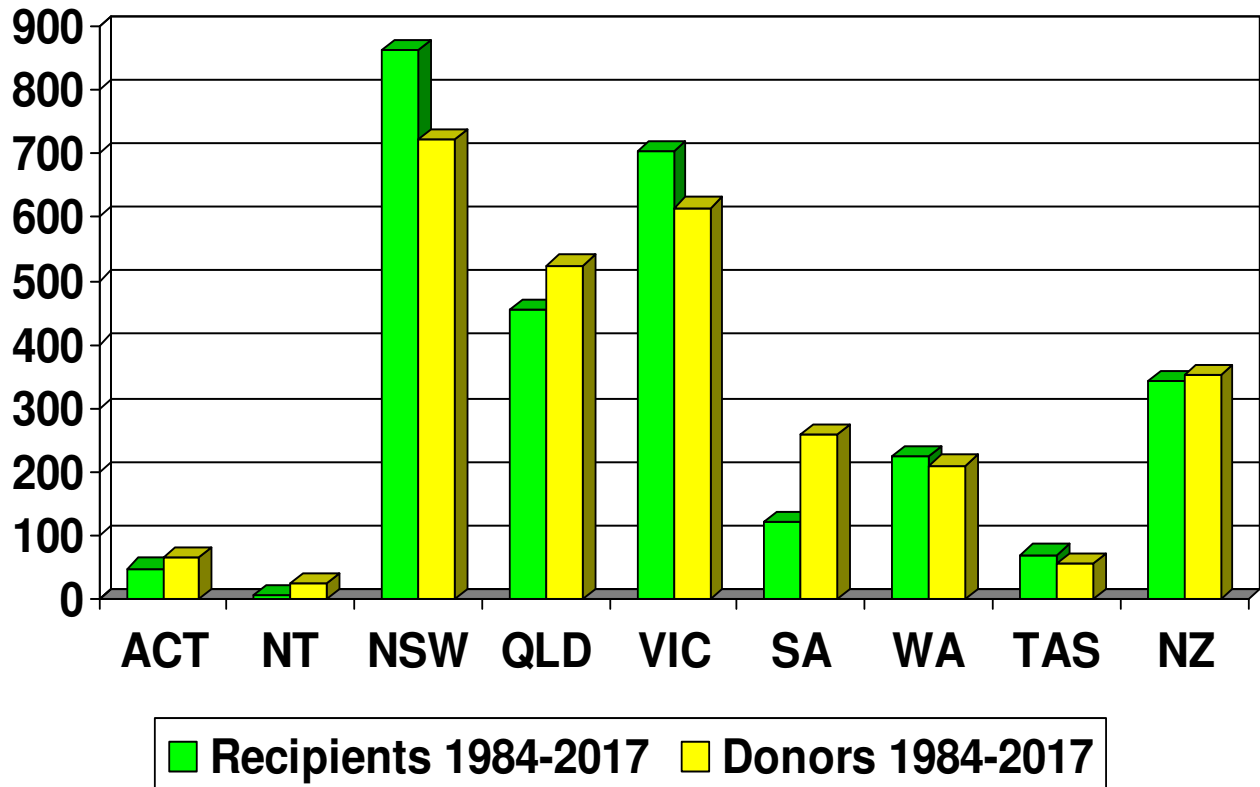
| | | |
|--|-------------|-------------|
| Idiopathic Dilated Cardiomyopathy (IDCM) | 1180 | 42% |
| Ischemic Heart Disease (IHD) | 884 | 31% |
| Other (eg. Valve disease, adriamycin toxicity) | 366 | 13% |
| Congenital Heart Disease | 174 | 6% |
| Familial Cardiomyopathy | 94 | 3% |
| Viral Cardiomyopathy/Myocarditis | 68 | 2% |
| Retransplantation | 38 | 1% |
| Peripartum Cardiomyopathy | 29 | 1% |
| Total | 2833 | 100% |

PRE-TRANSPLANT STATUS ALL HEARTS 1984 – 2017



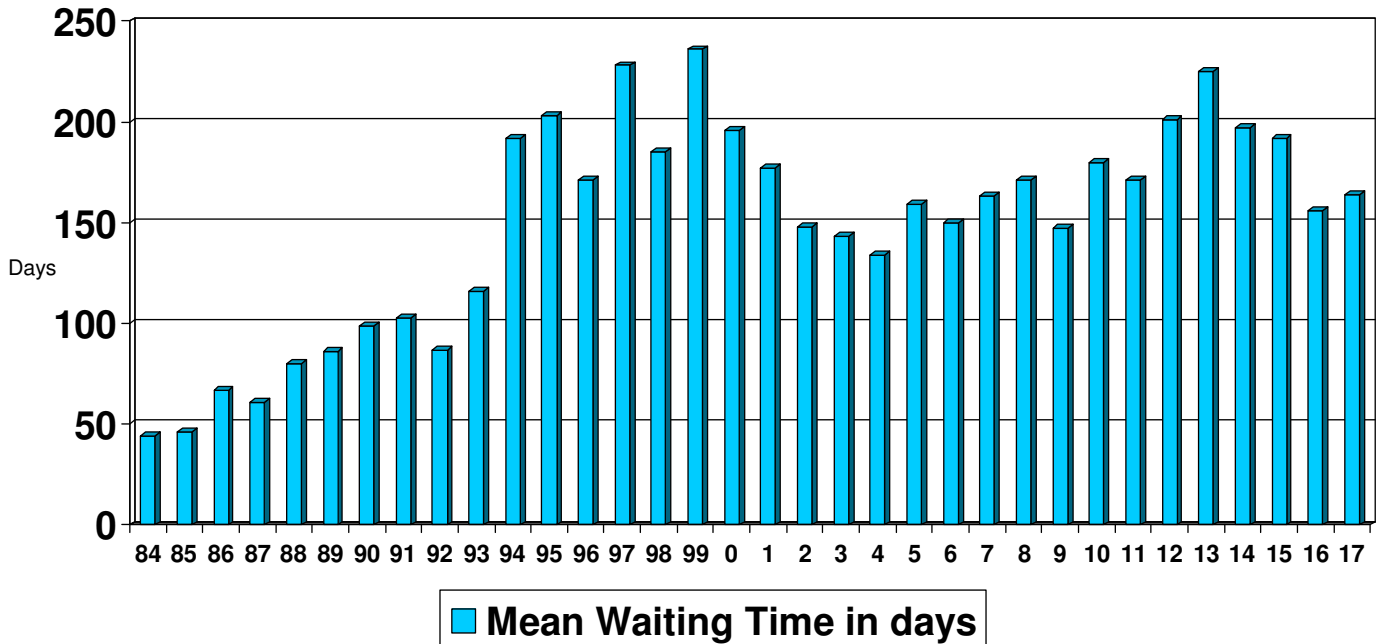
| STATUS | Year | 96 | 97 | 98 | 99 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|-----------------------------|------|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|
| | n= | 103 | 105 | 82 | 75 | 70 | 80 | 82 | 88 | 76 | 89 | 79 | 68 | 90 | 71 | 76 | 76 | 84 | 86 | 95 | 102 | 124 | 117 |
| NYHA III % | | 70 | 55 | 57 | 60 | 61 | 64 | 50 | 67 | 50 | 43 | 34 | 44 | 59 | 38 | 60 | 28 | 49 | 35 | 58 | 50 | 58 | 64 |
| NYHA IV % | | 17 | 24 | 26 | 20 | 29 | 20 | 32 | 16 | 27 | 27 | 28 | 21 | 8 | 21 | 7 | 8 | 13 | 7 | 6 | 6 | 11 | 8 |
| Inotropic support % | | 9 | 13 | 12 | 15 | 6 | 10 | 12 | 11 | 5 | 3 | 11 | 10 | 8 | 9 | 4 | 9 | 2 | 17 | 0 | 3 | 8 | 13 |
| Intra-aortic Balloon Pump % | | 1 | 1 | 1 | 1 | 0 | 0 | 2 | 1 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| Ventricular Assist Device % | | 3 | 7 | 4 | 4 | 4 | 6 | 4 | 5 | 13 | 26 | 27 | 25 | 25 | 32 | 28 | 29 | 35 | 40 | 31 | 43 | 43 | 31 |
| Total Artificial Heart % | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

DONOR / RECIPIENT STATE OF ORIGIN ALL HEARTS 1984 - 2017



| Location | Recipients 84-17 | % | Donors 84-17 | % | Recipients 2017 | % | Donors 2017 | % |
|---------------|------------------|--------------|--------------|--------------|-----------------|------------|-------------|--------------|
| ACT | 48 | 1.7 | 64 | 2.3 | 1 | 1 | 2 | 1.7 |
| NT | 6 | 0.2 | 24 | 0.8 | 1 | 1 | 0 | 0.0 |
| NSW | 862 | 30.4 | 723 | 25.6 | 40 | 34 | 30 | 25.6 |
| QLD | 454 | 16.0 | 525 | 18.6 | 9 | 8 | 13 | 11.1 |
| VIC | 704 | 24.9 | 615 | 21.7 | 24 | 21 | 21 | 17.9 |
| SA | 120 | 4.2 | 258 | 9.1 | 7 | 6 | 7 | 6.0 |
| WA | 224 | 7.9 | 210 | 7.4 | 10 | 9 | 14 | 12.0 |
| TAS | 70 | 2.5 | 57 | 2.0 | 1 | 1 | 7 | 6.0 |
| NZ | 343 | 12.1 | 352 | 12.4 | 24 | 21 | 23 | 19.7 |
| TOTALS | 2831 | 100.0 | 2828 | 100.0 | 117 | 100 | 117 | 100.0 |

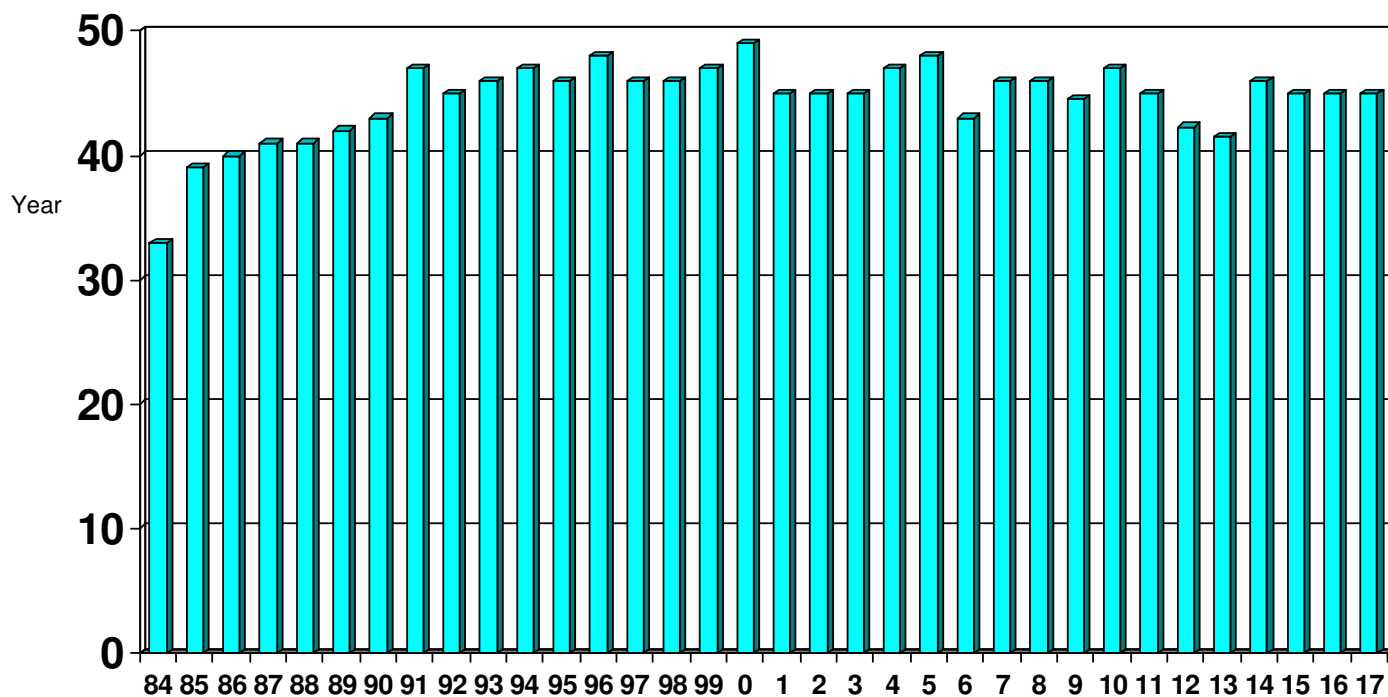
MEAN WAITING TIME TO TRANSPLANT ALL HEARTS 1984 - 2017



| Year | n= | mean | std dev + - | median | min-max |
|------|-----|------|-------------|--------|---------|
| 1984 | 14 | 44 | 77 | 10 | 4-295 |
| 1985 | 19 | 46 | 54 | 19 | 3-209 |
| 1986 | 32 | 67 | 76 | 37 | 3-295 |
| 1987 | 30 | 61 | 80 | 40 | 3-424 |
| 1988 | 56 | 80 | 102 | 33 | 1-400 |
| 1989 | 93 | 86 | 87 | 61 | 1-445 |
| 1990 | 103 | 99 | 154 | 35 | 1-842 |
| 1991 | 103 | 103 | 126 | 57 | 1-633 |
| 1992 | 115 | 87 | 119 | 51 | 1-790 |
| 1993 | 114 | 116 | 127 | 78 | 1-626 |
| 1994 | 104 | 192 | 219 | 128 | 1-999* |
| 1995 | 108 | 203 | 236 | 107 | 3-999* |
| 1996 | 103 | 171 | 200 | 92 | 2-999* |
| 1997 | 105 | 228 | 265 | 127 | 1-999* |
| 1998 | 82 | 185 | 219 | 117 | 1-999* |
| 1999 | 75 | 236 | 260 | 133 | 1-999* |
| 2000 | 70 | 196 | 227 | 120 | 1-999* |
| 2001 | 80 | 177 | 212 | 88 | 1-999* |
| 2002 | 82 | 148 | 219 | 64 | 1-999* |
| 2003 | 88 | 143 | 162 | 91 | 1-782 |
| 2004 | 76 | 134 | 176 | 67 | 1-908 |
| 2005 | 89 | 159 | 169 | 113 | 2-792 |
| 2006 | 79 | 150 | 155 | 102 | 2-764 |
| 2007 | 63 | 163 | 180 | 125 | 2-974 |
| 2008 | 89 | 171 | 174 | 127 | 1-976 |
| 2009 | 68 | 147 | 132 | 103 | 5-565 |
| 2010 | 74 | 180 | 232 | 97 | 1-999* |
| 2011 | 76 | 171 | 165 | 115 | 1-586 |
| 2012 | 84 | 202 | 213 | 139 | 2-1181 |
| 2013 | 84 | 225 | 298 | 102 | 0-1668 |
| 2014 | 95 | 197 | 279 | 96 | 0-1638 |
| 2015 | 102 | 194 | 203 | 123 | 0-1027 |
| 2016 | 124 | 156 | 219 | 68 | 0-1268 |
| 2017 | 117 | 164 | 221 | 78 | 1-1043 |

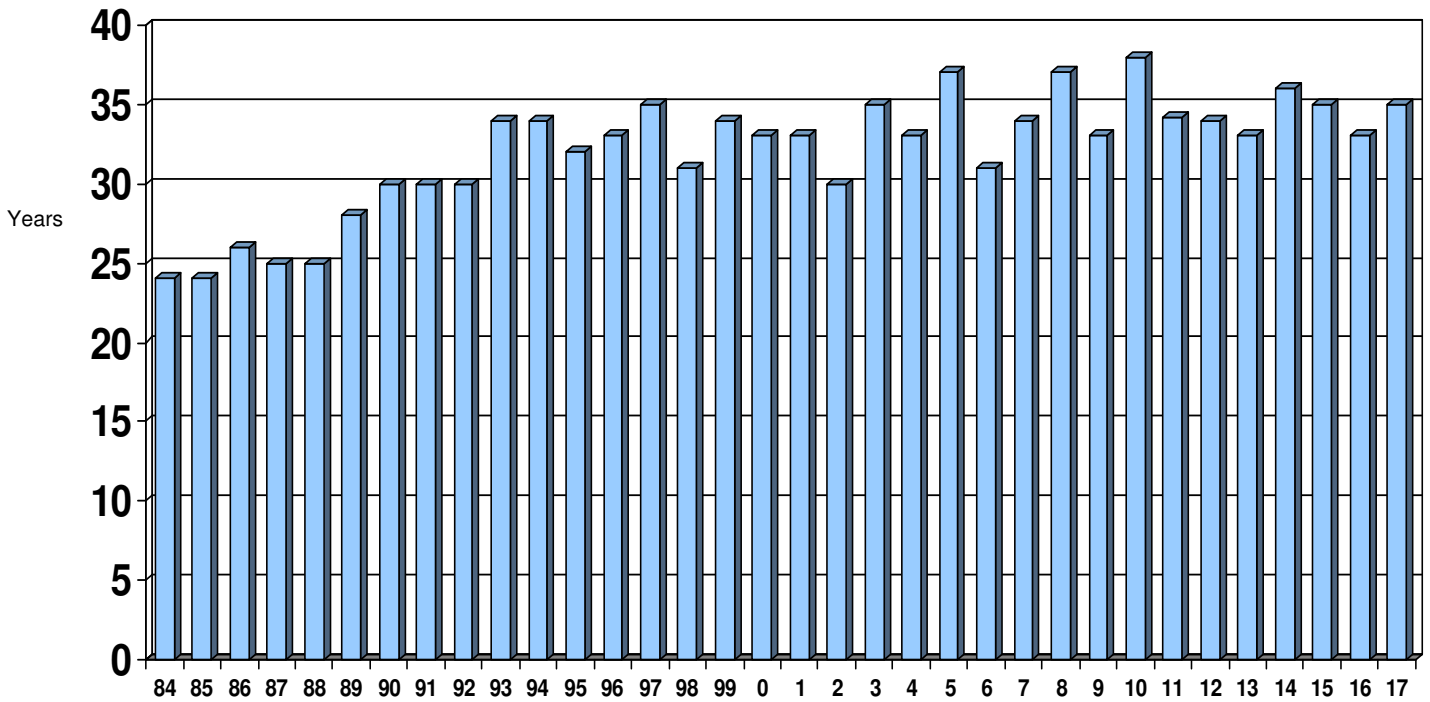
* Due to limitations within the software, values over 1000 until 2012 are represented as 999

MEAN RECIPIENT AGE AT TRANSPLANT ALL HEARTS 1984 - 2017



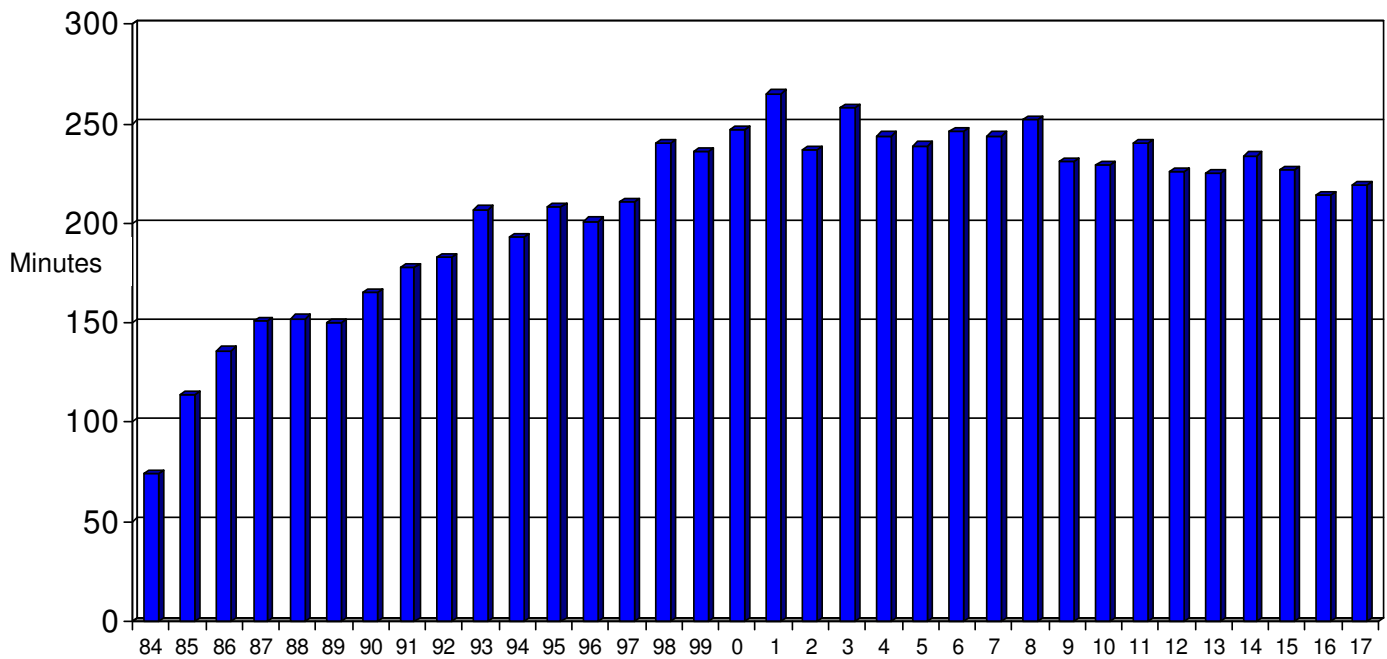
| Year | n= | mean | std dev + - | median | min-max |
|------|-----|------|-------------|--------|---------|
| 1984 | 14 | 33 | 15 | 39 | 11-51 |
| 1985 | 19 | 39 | 13 | 38 | 10-54 |
| 1986 | 32 | 40 | 13 | 43 | 11-57 |
| 1987 | 30 | 41 | 12 | 46 | 13-56 |
| 1988 | 56 | 41 | 14 | 45 | 4-63 |
| 1989 | 93 | 42 | 14 | 46 | 1-65 |
| 1990 | 103 | 43 | 15 | 47 | 6-65 |
| 1991 | 103 | 47 | 14 | 52 | 1-64 |
| 1992 | 115 | 45 | 15 | 51 | 4-66 |
| 1993 | 114 | 46 | 14 | 51 | 6-65 |
| 1994 | 104 | 47 | 13 | 50 | 1-66 |
| 1995 | 108 | 46 | 16 | 50 | 2-68 |
| 1996 | 103 | 48 | 13 | 53 | 10-64 |
| 1997 | 105 | 46 | 14 | 50 | 9-66 |
| 1998 | 82 | 46 | 15 | 51 | 1-64 |
| 1999 | 75 | 47 | 15 | 53 | 2-67 |
| 2000 | 70 | 49 | 13 | 53 | 12-66 |
| 2001 | 80 | 45 | 15 | 49 | 2-64 |
| 2002 | 82 | 45 | 18 | 52 | 7-70 |
| 2003 | 88 | 45 | 15 | 47 | 1-67 |
| 2004 | 76 | 47 | 15 | 52 | 9-66 |
| 2005 | 89 | 48 | 14 | 52 | 5-65 |
| 2006 | 79 | 43 | 17 | 49 | 3-67 |
| 2007 | 66 | 46 | 16 | 49 | 5-71 |
| 2008 | 89 | 46 | 17 | 50 | 6-67 |
| 2009 | 68 | 45 | 17 | 48 | 1-69 |
| 2010 | 74 | 47 | 16 | 52 | 5-70 |
| 2011 | 76 | 45 | 17 | 48 | 5-72 |
| 2012 | 84 | 42 | 16 | 47 | 1-67 |
| 2013 | 84 | 42 | 18 | 48 | 1-70 |
| 2014 | 95 | 46 | 19 | 52 | 1-70 |
| 2015 | 102 | 45 | 20 | 51 | 1-72 |
| 2016 | 124 | 45 | 19 | 51 | 1-73 |
| 2017 | 117 | 45 | 19 | 52 | 1-69 |

MEAN DONOR AGE ALL HEARTS 1984 - 2017



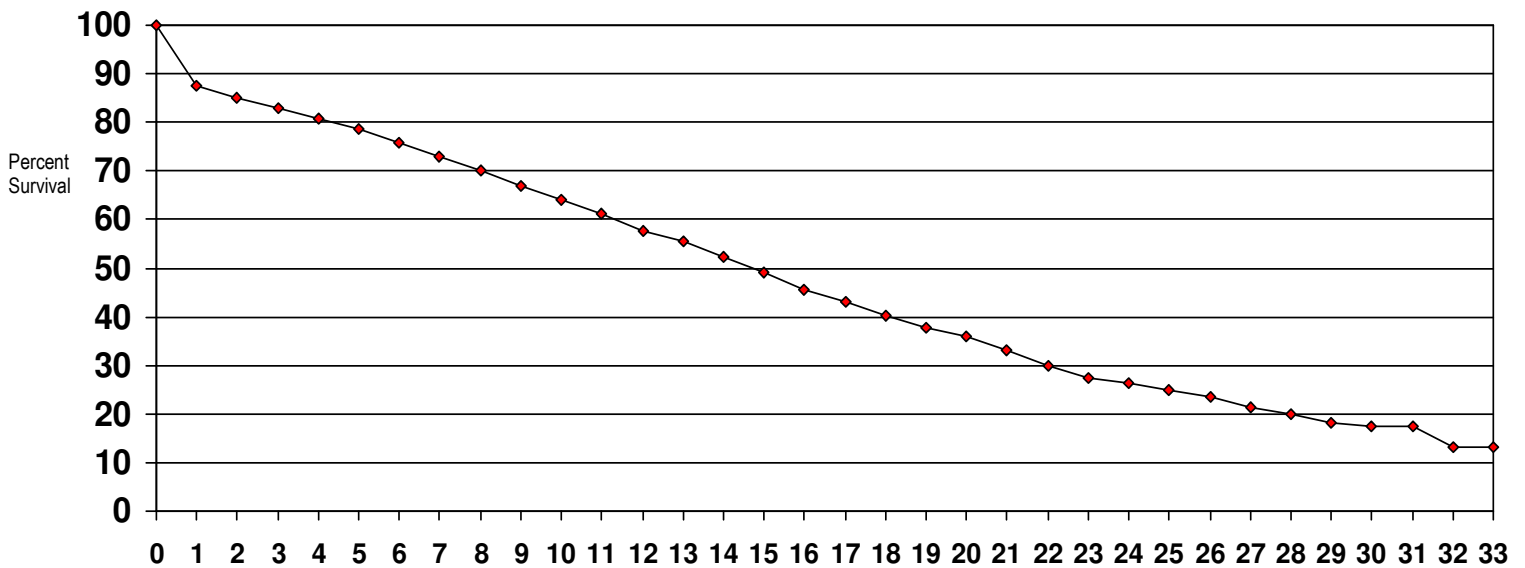
| Year | n= | mean | std dev + - | median | min-max |
|------|-----|------|-------------|--------|---------|
| 1984 | 14 | 24 | 8 | 23 | 13-41 |
| 1985 | 19 | 24 | 7 | 21 | 15-43 |
| 1986 | 32 | 26 | 7 | 25 | 16-39 |
| 1987 | 30 | 25 | 7 | 24 | 14-41 |
| 1988 | 56 | 25 | 8 | 23 | 12-44 |
| 1989 | 93 | 28 | 11 | 26 | 1-50 |
| 1990 | 103 | 30 | 11 | 28 | 9-52 |
| 1991 | 103 | 30 | 12 | 28 | 5-58 |
| 1992 | 115 | 30 | 12 | 28 | 1-56 |
| 1993 | 114 | 34 | 13 | 32 | 8-61 |
| 1994 | 104 | 34 | 14 | 31 | 1-66 |
| 1995 | 108 | 32 | 14 | 33 | 2-59 |
| 1996 | 103 | 33 | 12 | 33 | 1-57 |
| 1997 | 105 | 35 | 13 | 35 | 12-58 |
| 1998 | 82 | 31 | 13 | 30 | 1-62 |
| 1999 | 75 | 34 | 16 | 32 | 1-64 |
| 2000 | 70 | 33 | 13 | 33 | 5-57 |
| 2001 | 80 | 33 | 14 | 33 | 6-58 |
| 2002 | 82 | 30 | 15 | 25 | 2-60 |
| 2003 | 88 | 35 | 14 | 36 | 8-62 |
| 2004 | 76 | 33 | 14 | 31 | 7-59 |
| 2005 | 89 | 37 | 14 | 39 | 9-61 |
| 2006 | 79 | 31 | 14 | 29 | 5-59 |
| 2007 | 66 | 34 | 15 | 35 | 10-59 |
| 2008 | 86 | 37 | 13 | 40 | 2-61 |
| 2009 | 68 | 33 | 14 | 34 | 5-62 |
| 2010 | 74 | 38 | 12 | 39 | 6-60 |
| 2011 | 76 | 34 | 14 | 33 | 5-58 |
| 2012 | 84 | 34 | 14 | 34 | 4-58 |
| 2013 | 84 | 33 | 15 | 34 | 1-57 |
| 2014 | 95 | 36 | 14 | 37 | 1-60 |
| 2015 | 102 | 35 | 13 | 35 | 2-59 |
| 2016 | 124 | 33 | 15 | 32 | 1-61 |
| 2017 | 117 | 35 | 14 | 37 | 1-62 |

ALL HEARTS - MEAN COLD ISCHEMIC TIME 1984 - 2017



| Year | n | mean | std dev +/- | median | min-max |
|------|-----|------|-------------|--------|---------|
| 1984 | 14 | 74 | 16 | 70 | 54-108 |
| 1985 | 19 | 114 | 41 | 95 | 53-183 |
| 1986 | 32 | 136 | 47 | 133 | 80-235 |
| 1987 | 30 | 151 | 45 | 155 | 60-260 |
| 1988 | 56 | 152 | 44 | 158 | 78-240 |
| 1989 | 93 | 150 | 57 | 147 | 39-311 |
| 1990 | 103 | 165 | 74 | 144 | 54-441 |
| 1991 | 103 | 178 | 80 | 163 | 55-390 |
| 1992 | 115 | 183 | 76 | 164 | 52-420 |
| 1993 | 114 | 207 | 82 | 198 | 41-446 |
| 1994 | 104 | 193 | 75 | 190 | 75-445 |
| 1995 | 108 | 208 | 98 | 186 | 42-465 |
| 1996 | 103 | 201 | 79 | 177 | 60-405 |
| 1997 | 105 | 211 | 90 | 194 | 60-454 |
| 1998 | 82 | 240 | 103 | 213 | 74-612 |
| 1999 | 75 | 236 | 101 | 244 | 43-447 |
| 2000 | 70 | 247 | 89 | 242 | 102-516 |
| 2001 | 80 | 265 | 102 | 253 | 186-338 |
| 2002 | 82 | 237 | 79 | 224 | 107-443 |
| 2003 | 88 | 258 | 90 | 268 | 176-323 |
| 2004 | 76 | 244 | 87 | 239 | 88-427 |
| 2005 | 89 | 239 | 91 | 239 | 59-491 |
| 2006 | 79 | 246 | 84 | 238 | 109-413 |
| 2007 | 66 | 244 | 91 | 248 | 73-510 |
| 2008 | 86 | 252 | 88 | 244 | 115-540 |
| 2009 | 68 | 231 | 89 | 227 | 90-254 |
| 2010 | 74 | 229 | 74 | 226 | 94-390 |
| 2011 | 76 | 240 | 80 | 239 | 101-472 |
| 2012 | 84 | 226 | 67 | 227 | 59-448 |
| 2013 | 84 | 225 | 90 | 209 | 70-470 |
| 2014 | 86 | 234 | 93 | 230 | 59-482 |
| 2015 | 99 | 227 | 86 | 227 | 64-412 |
| 2016 | 111 | 214 | 92 | 206 | 63-488 |
| 2017 | 105 | 219 | 75 | 222 | 80-420 |

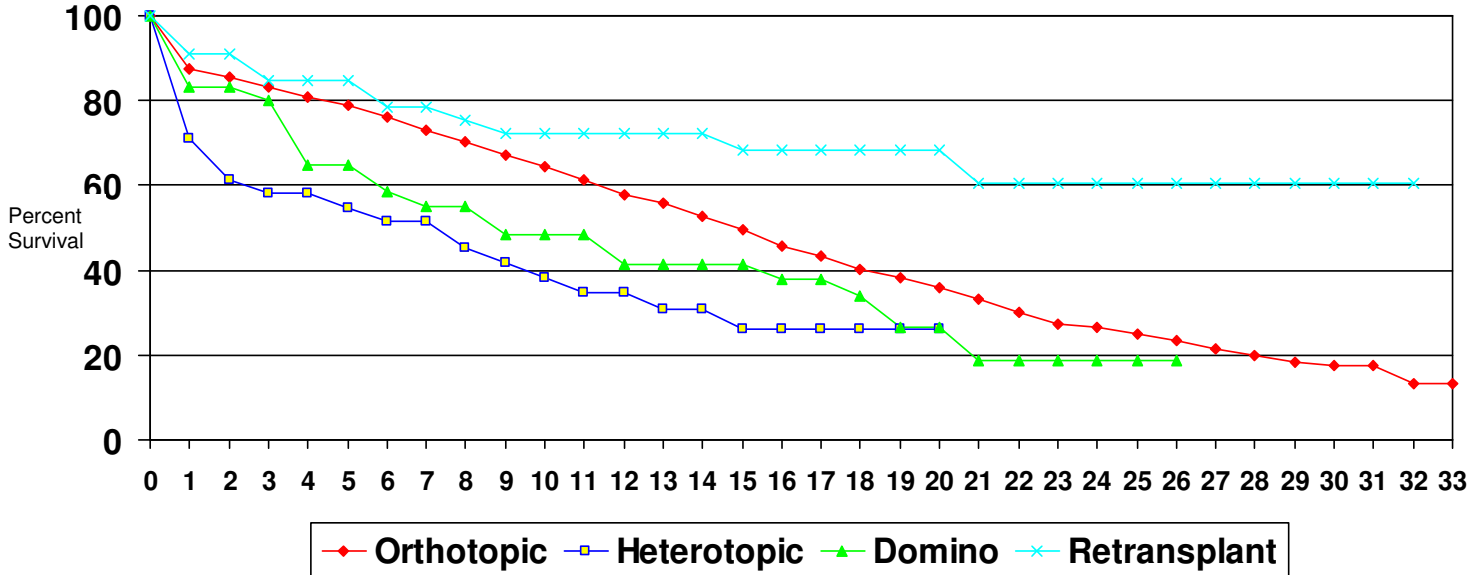
CUTLER-EDERER SURVIVAL – ALL* HEART TRANSPLANTS 1984 - 2017



| YEAR | n= | % |
|------|------|-------|
| 0 | 2833 | 100.0 |
| 1 | 2397 | 87.5 |
| 2 | 2218 | 85.1 |
| 3 | 2060 | 82.8 |
| 4 | 1934 | 80.7 |
| 5 | 1813 | 78.7 |
| 6 | 1676 | 75.7 |
| 7 | 1558 | 72.9 |
| 8 | 1440 | 70.1 |
| 9 | 1321 | 66.9 |
| 10 | 1204 | 64.1 |
| 11 | 1102 | 61.1 |
| 12 | 984 | 57.6 |
| 13 | 895 | 55.5 |
| 14 | 799 | 52.4 |
| 15 | 701 | 49.2 |
| 16 | 606 | 45.5 |
| 17 | 525 | 43.0 |
| 18 | 460 | 40.2 |
| 19 | 404 | 37.9 |
| 20 | 353 | 35.9 |
| 21 | 294 | 33.1 |
| 22 | 239 | 30.0 |
| 23 | 201 | 27.4 |
| 24 | 158 | 26.3 |
| 25 | 120 | 24.9 |
| 26 | 91 | 23.5 |
| 27 | 66 | 21.5 |
| 28 | 44 | 20.0 |
| 29 | 23 | 18.3 |
| 30 | 15 | 17.3 |
| 31 | 11 | 17.3 |
| 32 | 4 | 13.3 |
| 33 | 2 | 13.3 |

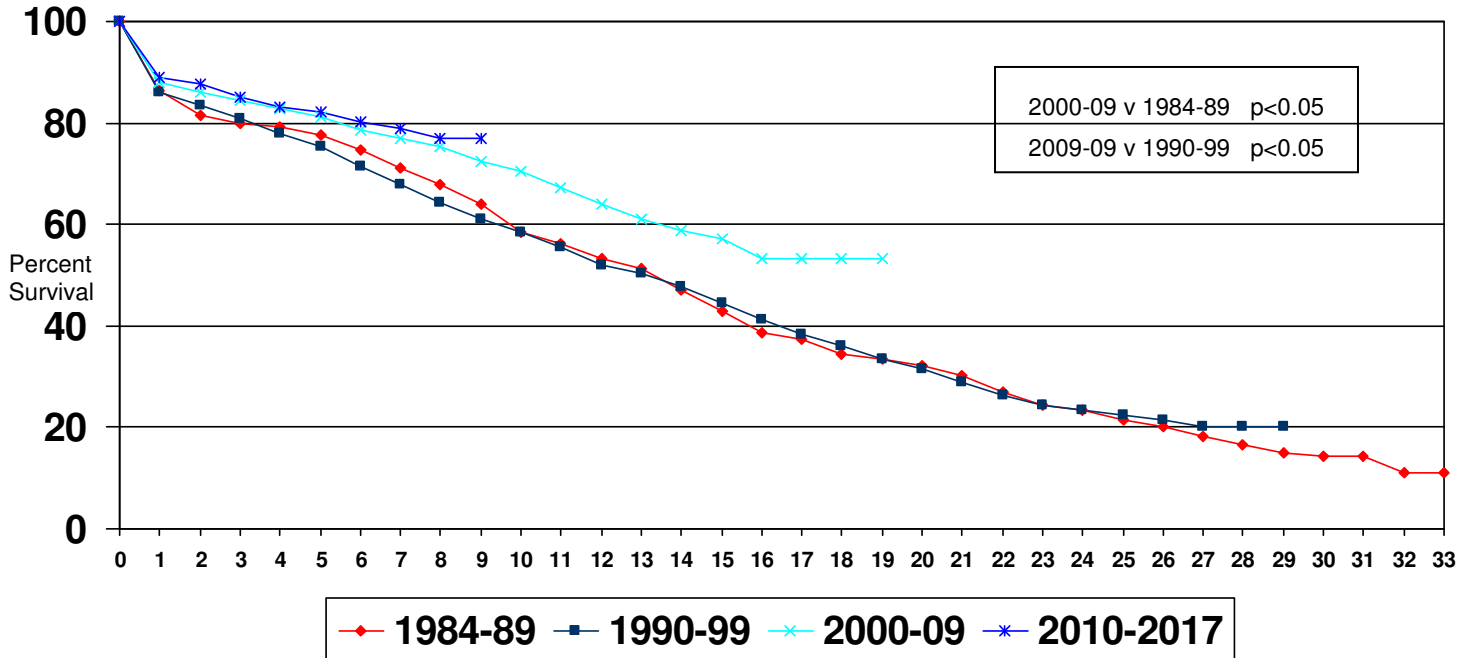
*All Hearts includes Orthotopic(2802), Heterotopic(31), Domino(36), Retransplant(38)

CUTLER-EDERER SURVIVAL ORTHOTOPIC v HETEROTOPIC v DOMINO v RETRANSPLANT HEART TRANSPLANTS 1984 - 2017



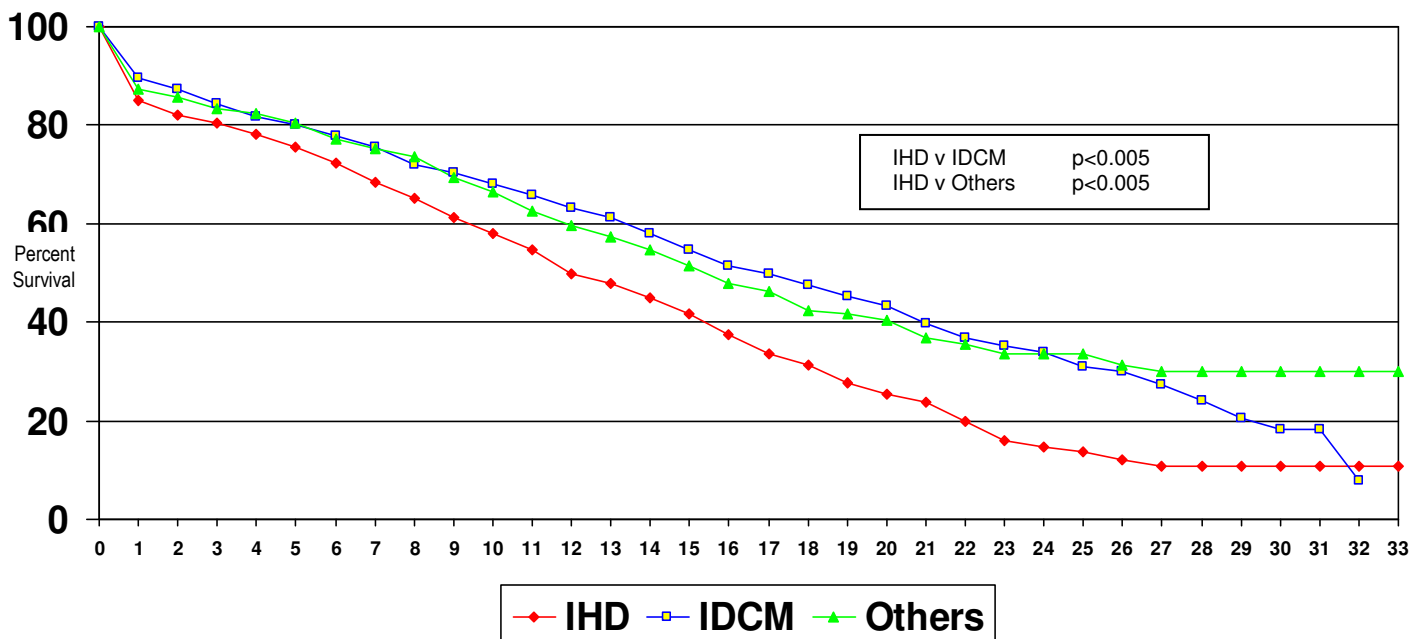
| YEAR | Orthotopic | | Heterotopic | | Domino | | Retransplant | |
|------|------------|-------|-------------|-------|--------|-------|--------------|-------|
| | n | % | n | % | n | % | n | % |
| 0 | 2802 | 100.0 | 31 | 100.0 | 36 | 100.0 | 38 | 100.0 |
| 1 | 2375 | 87.6 | 22 | 71.0 | 29 | 83.1 | 28 | 83.3 |
| 2 | 2199 | 85.4 | 19 | 61.3 | 29 | 83.1 | 20 | 73.5 |
| 3 | 2042 | 83.1 | 18 | 58.1 | 26 | 80.1 | 17 | 73.5 |
| 4 | 1916 | 80.9 | 18 | 58.1 | 21 | 64.7 | 15 | 69.1 |
| 5 | 1796 | 79.0 | 17 | 54.8 | 21 | 64.7 | 14 | 69.1 |
| 6 | 1660 | 76.0 | 16 | 51.6 | 18 | 58.4 | 14 | 69.1 |
| 7 | 1542 | 73.2 | 16 | 51.6 | 17 | 55.2 | 14 | 69.1 |
| 8 | 1426 | 70.4 | 14 | 45.2 | 17 | 55.2 | 11 | 58.8 |
| 9 | 1308 | 67.2 | 13 | 41.9 | 14 | 48.5 | 7 | 58.8 |
| 10 | 1194 | 64.4 | 10 | 38.4 | 14 | 48.5 | 6 | 50.4 |
| 11 | 1093 | 61.4 | 9 | 34.6 | 14 | 48.5 | 5 | 50.4 |
| 12 | 975 | 57.9 | 9 | 34.6 | 12 | 41.6 | 4 | 50.4 |
| 13 | 887 | 55.8 | 8 | 30.8 | 11 | 41.6 | 4 | 50.4 |
| 14 | 792 | 52.7 | 7 | 30.8 | 11 | 41.6 | 3 | 50.4 |
| 15 | 696 | 49.5 | 5 | 26.0 | 11 | 41.6 | 2 | 50.4 |
| 16 | 602 | 45.7 | 4 | 26.0 | 10 | 37.8 | 2 | 50.4 |
| 17 | 522 | 43.2 | 3 | 26.0 | 10 | 37.8 | 1 | 50.4 |
| 18 | 459 | 40.4 | 1 | 26.0 | 9 | 34.0 | 1 | 50.4 |
| 19 | 403 | 38.1 | 1 | 26.0 | 7 | 26.4 | 1 | 50.4 |
| 20 | 353 | 36.0 | | | 7 | 26.4 | 1 | 50.4 |
| 21 | 294 | 33.2 | | | 5 | 18.9 | 1 | 50.4 |
| 22 | 239 | 30.1 | | | 5 | 18.9 | 1 | 50.4 |
| 23 | 201 | 27.5 | | | 5 | 18.9 | 1 | 50.4 |
| 24 | 158 | 26.5 | | | 4 | 18.9 | 1 | 50.4 |
| 25 | 120 | 25.0 | | | 4 | 18.9 | 1 | 50.4 |
| 26 | 91 | 23.6 | | | | | 1 | 50.4 |
| 27 | 66 | 21.6 | | | | | 1 | 50.4 |
| 28 | 44 | 20.1 | | | | | 1 | 50.4 |
| 29 | 23 | 18.4 | | | | | 1 | 50.4 |
| 30 | 15 | 17.4 | | | | | 1 | 50.4 |
| 31 | 11 | 17.4 | | | | | 1 | 50.4 |
| 32 | 4 | 13.3 | | | | | 1 | 50.4 |
| 33 | 2 | 13.3 | | | | | 1 | 50.4 |

CUTLER-EDERER SURVIVAL ALL HEARTS PERIOD COMPARISON 1984 – 2017



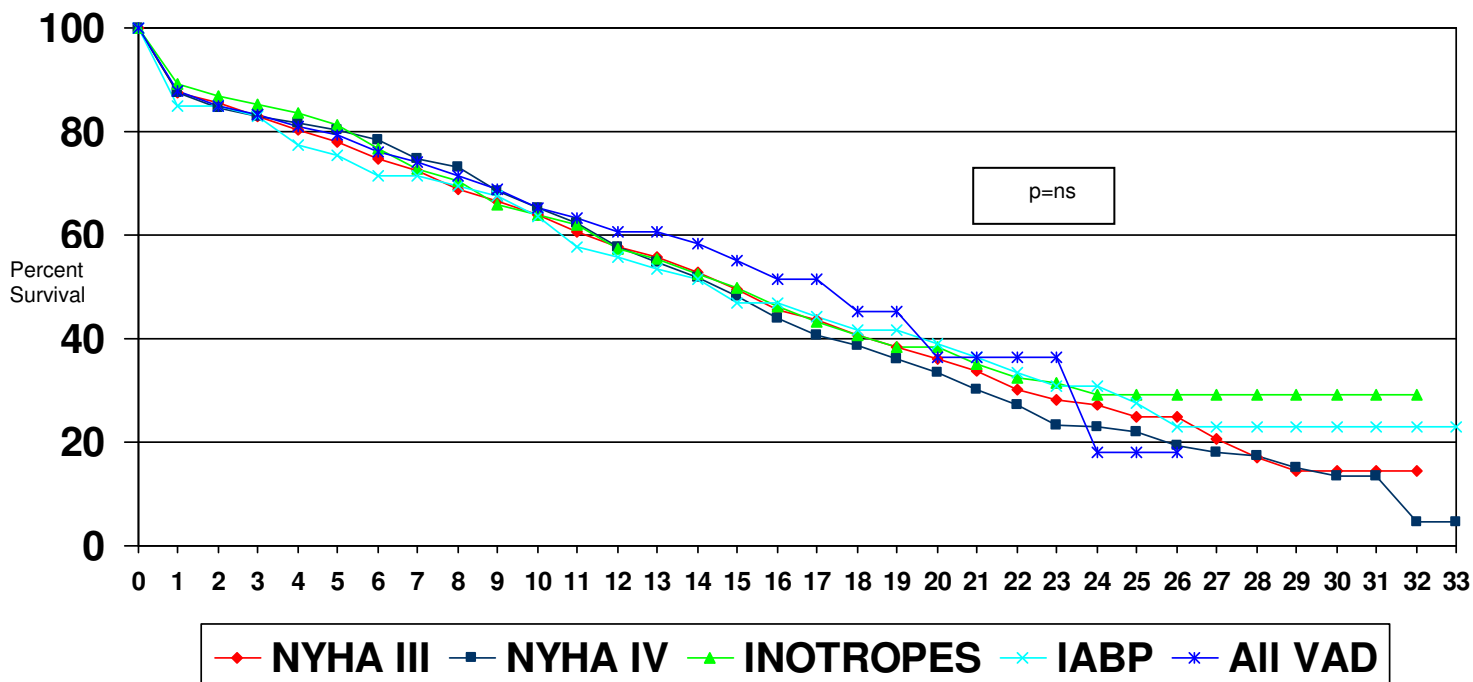
| Year | 1984-1989 | | 1990-1999 | | 2000-2009 | | 2010-2017 | |
|------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| | n= | % | n= | % | n= | % | n= | % |
| 0 | 249 | 100.0 | 1015 | 100.0 | 799 | 100.0 | 770 | 100.0 |
| 1 | 215 | 86.3 | 873 | 86.0 | 704 | 88.1 | 605 | 89.1 |
| 2 | 203 | 81.5 | 848 | 83.5 | 687 | 86.0 | 480 | 87.8 |
| 3 | 199 | 79.9 | 820 | 80.8 | 674 | 84.4 | 367 | 85.0 |
| 4 | 197 | 79.1 | 790 | 77.8 | 661 | 82.7 | 286 | 83.2 |
| 5 | 193 | 77.5 | 763 | 75.2 | 648 | 81.1 | 209 | 82.2 |
| 6 | 186 | 74.7 | 726 | 71.5 | 628 | 78.6 | 136 | 80.3 |
| 7 | 177 | 71.1 | 689 | 67.9 | 616 | 77.1 | 76 | 78.8 |
| 8 | 169 | 67.9 | 653 | 64.3 | 602 | 75.3 | 16 | 77.1 |
| 9 | 159 | 63.9 | 620 | 61.1 | 542 | 72.5 | | |
| 10 | 146 | 58.6 | 594 | 58.5 | 464 | 70.4 | | |
| 11 | 140 | 56.2 | 564 | 55.6 | 398 | 67.3 | | |
| 12 | 133 | 53.4 | 529 | 52.1 | 322 | 63.9 | | |
| 13 | 128 | 51.4 | 511 | 50.3 | 256 | 61.1 | | |
| 14 | 117 | 47.0 | 483 | 47.6 | 199 | 58.7 | | |
| 15 | 107 | 43.0 | 451 | 44.4 | 143 | 57.0 | | |
| 16 | 96 | 38.6 | 418 | 41.2 | 92 | 53.2 | | |
| 17 | 93 | 37.3 | 389 | 38.3 | 43 | 53.2 | | |
| 18 | 86 | 34.5 | 364 | 35.9 | 10 | 53.2 | | |
| 19 | 83 | 33.3 | 321 | 33.5 | | | | |
| 20 | 80 | 32.1 | 273 | 31.6 | | | | |
| 21 | 75 | 30.1 | 219 | 29.0 | | | | |
| 22 | 67 | 26.9 | 172 | 26.4 | | | | |
| 23 | 61 | 24.5 | 140 | 24.2 | | | | |
| 24 | 58 | 23.3 | 100 | 23.4 | | | | |
| 25 | 53 | 21.3 | 67 | 22.5 | | | | |
| 26 | 50 | 20.1 | 41 | 21.3 | | | | |
| 27 | 45 | 18.1 | 21 | 20.0 | | | | |
| 28 | 41 | 16.5 | 3 | 20.0 | | | | |
| 29 | 23 | 15.0 | | | | | | |
| 30 | 15 | 14.2 | | | | | | |
| 31 | 11 | 14.2 | | | | | | |
| 32 | 4 | 10.9 | | | | | | |
| 33 | 2 | 10.9 | | | | | | |

CUTLER-EDERER SURVIVAL ALL HEARTS PRE- TRANSPLANT DIAGNOSIS 1984 - 2017



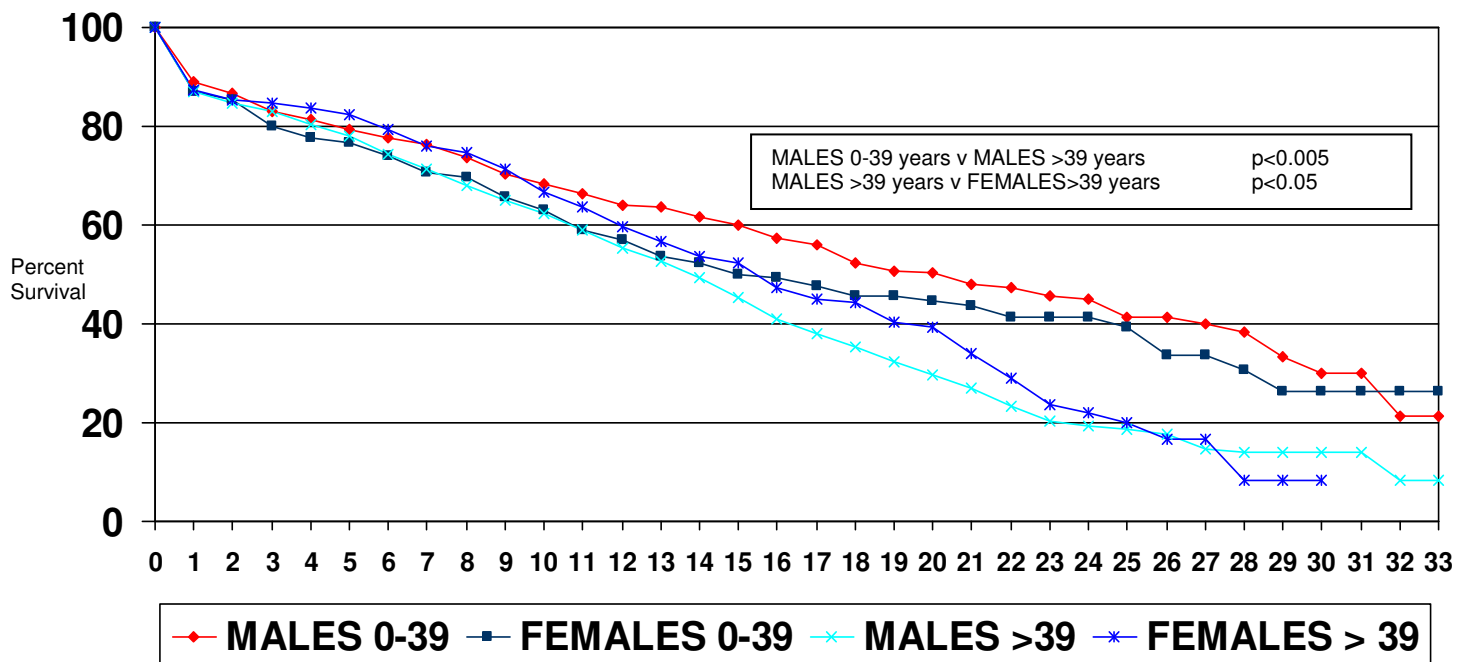
| Year | IHD n= | % | IDCM n= | % | Others n= | % |
|------|-----------|-------|------------|-------|--------------|-------|
| 0 | 884 | 100.0 | 1180 | 100.0 | 840 | 100.0 |
| 1 | 736 | 84.9 | 1022 | 89.5 | 690 | 87.4 |
| 2 | 688 | 82.1 | 942 | 87.2 | 629 | 85.8 |
| 3 | 657 | 80.4 | 866 | 84.5 | 567 | 83.4 |
| 4 | 624 | 78.2 | 800 | 81.8 | 527 | 82.3 |
| 5 | 592 | 75.7 | 742 | 80.2 | 488 | 80.4 |
| 6 | 555 | 72.2 | 687 | 77.7 | 437 | 77.3 |
| 7 | 515 | 68.4 | 640 | 75.5 | 403 | 75.2 |
| 8 | 480 | 65.3 | 586 | 72.1 | 374 | 73.6 |
| 9 | 440 | 61.2 | 552 | 70.4 | 329 | 69.4 |
| 10 | 402 | 58.0 | 509 | 68.0 | 293 | 66.3 |
| 11 | 370 | 54.8 | 470 | 65.8 | 262 | 62.4 |
| 12 | 325 | 50.0 | 428 | 63.2 | 231 | 59.6 |
| 13 | 299 | 48.0 | 388 | 61.1 | 208 | 57.3 |
| 14 | 268 | 44.9 | 346 | 57.9 | 185 | 54.7 |
| 15 | 240 | 41.8 | 303 | 54.6 | 158 | 51.6 |
| 16 | 197 | 37.3 | 274 | 51.6 | 135 | 47.9 |
| 17 | 167 | 33.7 | 242 | 49.7 | 116 | 46.4 |
| 18 | 140 | 31.4 | 224 | 47.4 | 96 | 42.2 |
| 19 | 115 | 27.7 | 200 | 45.4 | 89 | 41.7 |
| 20 | 100 | 25.5 | 175 | 43.3 | 78 | 40.3 |
| 21 | 85 | 23.9 | 148 | 39.7 | 61 | 36.9 |
| 22 | 63 | 19.8 | 123 | 36.9 | 53 | 35.6 |
| 23 | 44 | 15.8 | 107 | 35.3 | 50 | 33.6 |
| 24 | 34 | 14.6 | 82 | 33.8 | 42 | 33.6 |
| 25 | 23 | 13.6 | 63 | 31.1 | 34 | 33.6 |
| 26 | 15 | 12.2 | 52 | 30.1 | 24 | 31.4 |
| 27 | 12 | 10.6 | 38 | 27.5 | 16 | 29.9 |
| 28 | 9 | 10.6 | 25 | 24.2 | 10 | 29.9 |
| 29 | 3 | 10.6 | 11 | 20.5 | 9 | 29.9 |
| 30 | 1 | 10.6 | 7 | 18.3 | 7 | 29.9 |
| 31 | 1 | 10.6 | 5 | 18.3 | 5 | 29.9 |
| 32 | 1 | 10.6 | 2 | 7.9 | 3 | 29.9 |
| 33 | 1 | 10.6 | | | 2 | 29.9 |

CUTLER-EDERER SURVIVAL PRE-TRANSPLANT STATUS ALL HEARTS 1984 - 2017



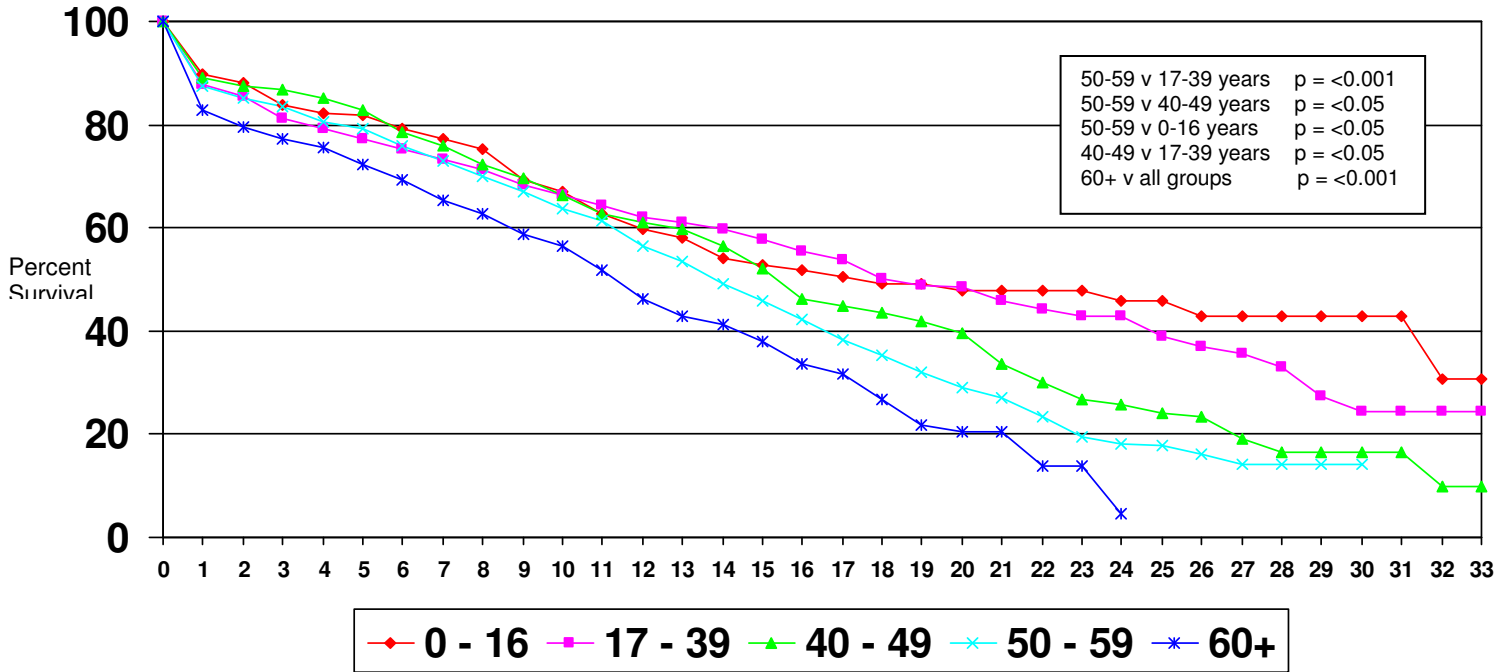
| Year | NYHA III | | NYHA IV | | INOTROPES | | IABP | | All VAD | |
|------|----------|-------|---------|-------|-----------|-------|------|-------|---------|-------|
| | n= | % | n= | % | n= | % | n= | % | n= | % |
| 0 | 1241 | 100.0 | 637 | 100.0 | 298 | 100.0 | 54 | 100.0 | 432 | 100.0 |
| 1 | 1072 | 87.7 | 550 | 87.5 | 256 | 89.1 | 45 | 85.0 | 356 | 87.8 |
| 2 | 1027 | 85.6 | 514 | 84.6 | 240 | 86.9 | 44 | 85.0 | 310 | 85.0 |
| 3 | 989 | 82.8 | 498 | 83.0 | 231 | 85.1 | 43 | 83.1 | 253 | 83.2 |
| 4 | 940 | 80.2 | 482 | 81.8 | 224 | 83.6 | 40 | 77.3 | 226 | 81.1 |
| 5 | 898 | 78.0 | 466 | 80.2 | 211 | 81.4 | 39 | 75.4 | 190 | 79.2 |
| 6 | 844 | 74.8 | 443 | 78.3 | 193 | 76.7 | 37 | 71.5 | 157 | 76.1 |
| 7 | 795 | 72.4 | 419 | 74.9 | 179 | 72.7 | 36 | 71.5 | 132 | 74.0 |
| 8 | 733 | 69.0 | 400 | 73.0 | 169 | 70.6 | 35 | 69.5 | 107 | 71.6 |
| 9 | 681 | 66.5 | 365 | 68.5 | 155 | 66.0 | 34 | 67.5 | 88 | 68.7 |
| 10 | 617 | 64.0 | 342 | 65.3 | 145 | 63.8 | 32 | 63.6 | 71 | 65.3 |
| 11 | 563 | 60.7 | 320 | 62.2 | 136 | 62.0 | 29 | 57.6 | 57 | 63.3 |
| 12 | 514 | 57.7 | 279 | 57.8 | 121 | 57.4 | 27 | 55.6 | 44 | 60.8 |
| 13 | 476 | 55.8 | 252 | 54.8 | 114 | 55.4 | 26 | 53.5 | 28 | 60.8 |
| 14 | 432 | 52.7 | 224 | 51.7 | 101 | 52.4 | 24 | 51.4 | 19 | 58.3 |
| 15 | 376 | 49.5 | 198 | 48.2 | 90 | 49.8 | 20 | 47.0 | 16 | 55.1 |
| 16 | 321 | 45.7 | 173 | 43.9 | 78 | 46.3 | 19 | 47.0 | 13 | 51.4 |
| 17 | 278 | 43.6 | 152 | 40.8 | 66 | 43.2 | 17 | 44.4 | 10 | 51.4 |
| 18 | 239 | 40.7 | 137 | 38.6 | 60 | 40.6 | 16 | 41.8 | 6 | 45.4 |
| 19 | 205 | 38.2 | 122 | 36.0 | 54 | 38.5 | 16 | 41.8 | 5 | 45.4 |
| 20 | 179 | 36.1 | 105 | 33.6 | 49 | 38.5 | 14 | 39.1 | 4 | 36.3 |
| 21 | 148 | 33.7 | 86 | 30.2 | 41 | 35.2 | 13 | 36.3 | 4 | 36.3 |
| 22 | 119 | 30.3 | 71 | 27.3 | 33 | 32.5 | 12 | 33.5 | 2 | 36.3 |
| 23 | 98 | 28.2 | 58 | 23.4 | 30 | 31.4 | 11 | 30.7 | 2 | 36.3 |
| 24 | 67 | 27.2 | 53 | 22.9 | 25 | 29.2 | 11 | 30.7 | 1 | 18.1 |
| 25 | 47 | 24.9 | 42 | 22.0 | 22 | 29.2 | 7 | 27.5 | 1 | 18.1 |
| 26 | 33 | 24.9 | 35 | 19.3 | 18 | 29.2 | 4 | 22.9 | 1 | 18.1 |
| 27 | 22 | 20.7 | 25 | 18.1 | 13 | 29.2 | 4 | 22.9 | | |
| 28 | 8 | 17.0 | 20 | 17.3 | 12 | 29.2 | 3 | 22.9 | | |
| 29 | 4 | 14.4 | 11 | 15.2 | 5 | 29.2 | 2 | 22.9 | | |
| 30 | 3 | 14.4 | 6 | 13.5 | 3 | 29.2 | 2 | 22.9 | | |
| 31 | 3 | 14.4 | 3 | 13.5 | 2 | 29.2 | 2 | 22.9 | | |
| 32 | | | 1 | 4.5 | | | 2 | 22.9 | | |
| 33 | | | 1 | 4.5 | | | 1 | 22.9 | | |

CUTLER-EDERER SURVIVAL BY RECIPIENT AGE AND GENDER HEARTS 1984 - 2017



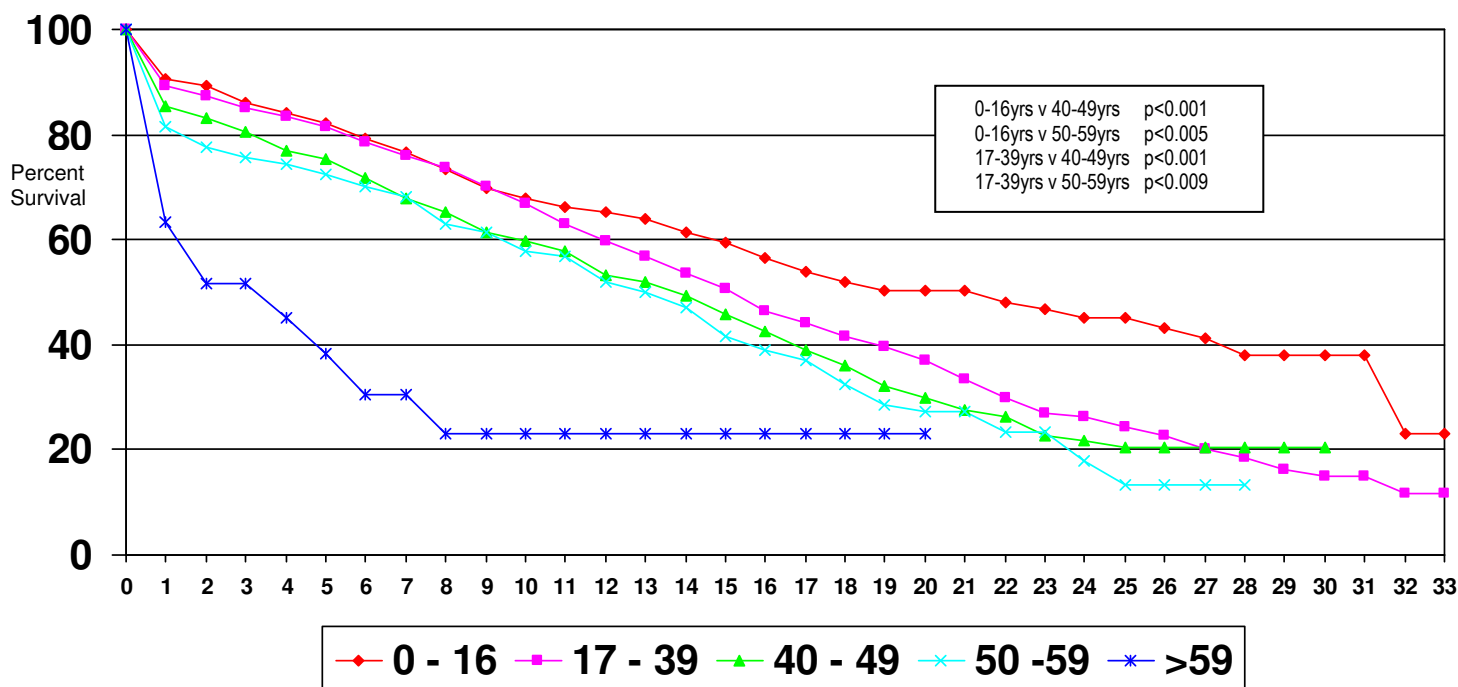
| Year | MALES 0-39 | | FEMALES 0 - 39 | | MALES >39 | | FEMALES > 39 | |
|------|------------|-------|----------------|-------|-----------|-------|--------------|-------|
| | n= | % | n= | % | n= | % | n= | % |
| 0 | 541 | 100.0 | 291 | 100.0 | 1615 | 100.0 | 386 | 100.0 |
| 1 | 468 | 89.1 | 242 | 87.0 | 1368 | 87.0 | 319 | 87.3 |
| 2 | 435 | 86.6 | 225 | 85.2 | 1270 | 84.6 | 288 | 85.3 |
| 3 | 395 | 82.9 | 196 | 80.1 | 1198 | 82.9 | 271 | 84.7 |
| 4 | 375 | 81.4 | 183 | 77.6 | 1124 | 80.3 | 252 | 83.7 |
| 5 | 351 | 79.4 | 172 | 76.7 | 1055 | 78.0 | 235 | 82.3 |
| 6 | 325 | 77.6 | 161 | 74.0 | 973 | 74.5 | 217 | 79.5 |
| 7 | 309 | 76.4 | 149 | 70.7 | 906 | 71.5 | 194 | 76.1 |
| 8 | 286 | 73.6 | 141 | 69.8 | 835 | 68.1 | 178 | 74.8 |
| 9 | 263 | 70.2 | 125 | 65.7 | 772 | 65.1 | 161 | 71.4 |
| 10 | 245 | 68.5 | 111 | 63.0 | 709 | 62.2 | 139 | 66.8 |
| 11 | 224 | 66.5 | 100 | 58.9 | 652 | 59.1 | 126 | 63.8 |
| 12 | 203 | 64.1 | 88 | 57.1 | 583 | 55.2 | 110 | 59.6 |
| 13 | 188 | 63.8 | 77 | 53.7 | 532 | 52.8 | 98 | 56.8 |
| 14 | 169 | 61.6 | 74 | 52.3 | 471 | 49.2 | 85 | 53.8 |
| 15 | 153 | 60.1 | 65 | 50.1 | 407 | 45.2 | 76 | 52.5 |
| 16 | 137 | 57.3 | 61 | 49.3 | 345 | 40.9 | 63 | 47.5 |
| 17 | 123 | 56.0 | 54 | 47.6 | 295 | 38.0 | 53 | 45.1 |
| 18 | 111 | 52.3 | 49 | 45.8 | 251 | 35.2 | 49 | 44.2 |
| 19 | 100 | 50.8 | 47 | 45.8 | 215 | 32.4 | 42 | 40.5 |
| 20 | 90 | 50.3 | 43 | 44.8 | 183 | 29.6 | 37 | 39.5 |
| 21 | 74 | 47.9 | 37 | 43.7 | 154 | 26.9 | 29 | 33.9 |
| 22 | 68 | 47.2 | 31 | 41.2 | 117 | 23.4 | 23 | 29.1 |
| 23 | 63 | 45.8 | 30 | 41.2 | 92 | 20.4 | 16 | 23.7 |
| 24 | 54 | 45.0 | 25 | 41.2 | 66 | 19.2 | 13 | 22.1 |
| 25 | 40 | 41.4 | 22 | 39.5 | 52 | 18.6 | 6 | 19.9 |
| 26 | 32 | 41.4 | 15 | 33.6 | 39 | 17.8 | 5 | 16.6 |
| 27 | 26 | 40.0 | 14 | 33.6 | 24 | 14.7 | 2 | 16.6 |
| 28 | 19 | 38.2 | 8 | 30.6 | 16 | 14.0 | 1 | 8.3 |
| 29 | 11 | 33.4 | 5 | 26.3 | 6 | 14.0 | 1 | 8.3 |
| 30 | 8 | 30.1 | 4 | 26.3 | 3 | 14.0 | | |
| 31 | 5 | 30.1 | 3 | 26.3 | 3 | 14.0 | | |
| 32 | 1 | 21.5 | 2 | 26.3 | 1 | 8.4 | | |
| 33 | 1 | 21.5 | 1 | 26.3 | | | | |

CUTLER-EDERER SURVIVAL RECIPIENT AGE ALL HEARTS 1984 - 2017



| Year | 0 - 16 | | 17 - 39 | | 40 - 49 | | 50 - 59 | | 60+ | |
|------|--------|-------|---------|-------|---------|-------|---------|-------|-----|-------|
| | n= | % | n= | % | n= | % | n= | % | n= | % |
| 0 | 259 | 100.0 | 1584 | 100.0 | 619 | 100.0 | 349 | 100.0 | 19 | 100.0 |
| 1 | 229 | 90.6 | 1375 | 89.4 | 509 | 85.4 | 270 | 81.5 | 12 | 63.2 |
| 2 | 210 | 89.4 | 1289 | 87.5 | 467 | 83.0 | 243 | 77.5 | 8 | 51.7 |
| 3 | 191 | 85.9 | 1200 | 85.2 | 432 | 80.6 | 228 | 75.5 | 8 | 51.7 |
| 4 | 182 | 84.1 | 1139 | 83.5 | 397 | 77.0 | 208 | 74.2 | 7 | 45.2 |
| 5 | 171 | 82.2 | 1077 | 81.4 | 372 | 75.2 | 187 | 72.3 | 5 | 38.3 |
| 6 | 157 | 79.2 | 1003 | 78.5 | 337 | 71.7 | 174 | 70.0 | 4 | 30.6 |
| 7 | 147 | 76.7 | 944 | 75.9 | 306 | 67.8 | 156 | 68.3 | 4 | 30.6 |
| 8 | 138 | 73.5 | 881 | 73.6 | 280 | 65.1 | 137 | 62.9 | 3 | 23.0 |
| 9 | 126 | 69.7 | 814 | 70.2 | 253 | 61.5 | 125 | 61.5 | 2 | 23.0 |
| 10 | 121 | 68.0 | 743 | 66.9 | 229 | 59.7 | 108 | 57.9 | 2 | 23.0 |
| 11 | 114 | 66.3 | 678 | 63.0 | 210 | 57.9 | 97 | 56.8 | 2 | 23.0 |
| 12 | 107 | 65.1 | 606 | 59.7 | 182 | 53.3 | 86 | 52.0 | 2 | 23.0 |
| 13 | 103 | 63.9 | 549 | 56.9 | 168 | 52.1 | 73 | 50.1 | 1 | 23.0 |
| 14 | 95 | 61.4 | 490 | 53.6 | 151 | 49.3 | 61 | 47.2 | 1 | 23.0 |
| 15 | 85 | 59.4 | 436 | 50.6 | 128 | 45.8 | 50 | 41.6 | 1 | 23.0 |
| 16 | 71 | 56.4 | 380 | 46.3 | 110 | 42.5 | 43 | 39.0 | 1 | 23.0 |
| 17 | 62 | 53.9 | 337 | 44.1 | 89 | 38.8 | 35 | 37.0 | 1 | 23.0 |
| 18 | 58 | 52.1 | 298 | 41.4 | 75 | 36.1 | 27 | 32.6 | 1 | 23.0 |
| 19 | 53 | 50.3 | 265 | 39.5 | 63 | 32.1 | 21 | 28.7 | 1 | 23.0 |
| 20 | 46 | 50.3 | 234 | 37.0 | 54 | 30.0 | 18 | 27.3 | | |
| 21 | 43 | 50.3 | 192 | 33.4 | 43 | 27.6 | 15 | 27.3 | | |
| 22 | 38 | 47.9 | 158 | 29.8 | 31 | 26.2 | 11 | 23.4 | | |
| 23 | 34 | 46.6 | 131 | 26.9 | 25 | 22.7 | 10 | 23.4 | | |
| 24 | 30 | 45.1 | 104 | 26.2 | 18 | 21.7 | 5 | 17.9 | | |
| 25 | 27 | 45.1 | 77 | 24.5 | 13 | 20.3 | 2 | 13.4 | | |
| 26 | 21 | 43.3 | 57 | 22.7 | 11 | 20.3 | 1 | 13.4 | | |
| 27 | 17 | 41.1 | 40 | 20.1 | 7 | 20.3 | 1 | 13.4 | | |
| 28 | 10 | 38.1 | 29 | 18.4 | 4 | 20.3 | 1 | 13.4 | | |
| 29 | 6 | 38.1 | 15 | 16.1 | 1 | 20.3 | | | | |
| 30 | 5 | 38.1 | 9 | 14.8 | 1 | 20.3 | | | | |
| 31 | 3 | 38.1 | 7 | 14.8 | | | | | | |
| 32 | 1 | 22.9 | 2 | 11.8 | | | | | | |
| 33 | 1 | 22.9 | 2 | 11.8 | | | | | | |

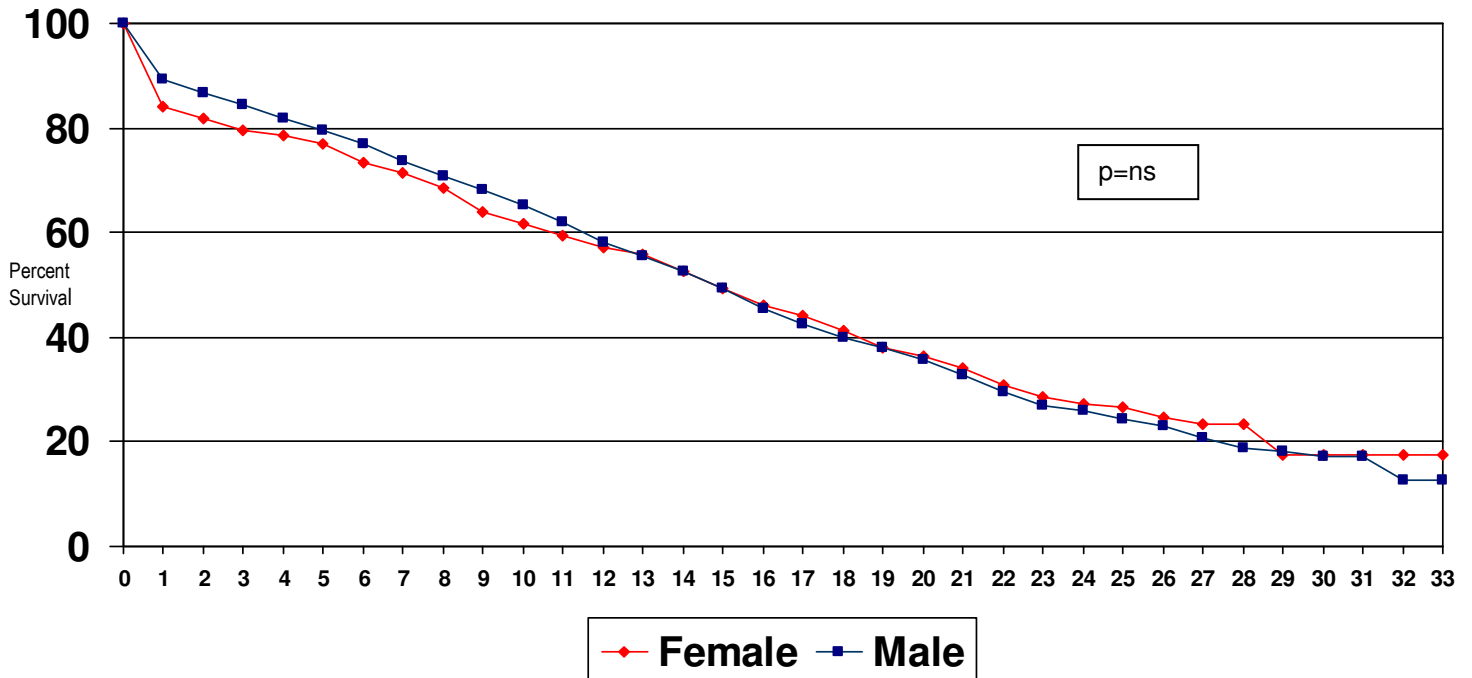
CUTLER-EDERER SURVIVAL DONOR AGE ALL HEARTS 1984 - 2017



| Year | 0 - 16 | | 17 - 39 | | 40 - 49 | | 50 - 59 | | >59 | |
|------|--------|-------|---------|-------|---------|-------|---------|-------|-----|-------|
| | n= | % | n= | % | n= | % | n= | % | n= | % |
| 0 | 259 | 100.0 | 1584 | 100.0 | 619 | 100.0 | 349 | 100.0 | 19 | 100.0 |
| 1 | 229 | 90.6 | 1375 | 89.4 | 509 | 85.4 | 270 | 81.5 | 12 | 63.2 |
| 2 | 210 | 89.4 | 1289 | 87.5 | 467 | 83.0 | 243 | 77.5 | 8 | 51.7 |
| 3 | 191 | 85.9 | 1200 | 85.2 | 432 | 80.6 | 228 | 75.5 | 8 | 51.7 |
| 4 | 182 | 84.1 | 1139 | 83.5 | 397 | 77.0 | 208 | 74.2 | 7 | 45.2 |
| 5 | 171 | 82.2 | 1077 | 81.4 | 372 | 75.2 | 187 | 72.3 | 5 | 38.3 |
| 6 | 157 | 79.2 | 1003 | 78.5 | 337 | 71.7 | 174 | 70.0 | 4 | 30.6 |
| 7 | 147 | 76.7 | 944 | 75.9 | 306 | 67.8 | 156 | 68.3 | 4 | 30.6 |
| 8 | 138 | 73.5 | 881 | 73.6 | 280 | 65.1 | 137 | 62.9 | 3 | 23.0 |
| 9 | 126 | 69.7 | 814 | 70.2 | 253 | 61.5 | 125 | 61.5 | 2 | 23.0 |
| 10 | 121 | 68.0 | 743 | 66.9 | 229 | 59.7 | 108 | 57.9 | 2 | 23.0 |
| 11 | 114 | 66.3 | 678 | 63.0 | 210 | 57.9 | 97 | 56.8 | 2 | 23.0 |
| 12 | 107 | 65.1 | 606 | 59.7 | 182 | 53.3 | 86 | 52.0 | 2 | 23.0 |
| 13 | 103 | 63.9 | 549 | 56.9 | 168 | 52.1 | 73 | 50.1 | 1 | 23.0 |
| 14 | 95 | 61.4 | 490 | 53.6 | 151 | 49.3 | 61 | 47.2 | 1 | 23.0 |
| 15 | 85 | 59.4 | 436 | 50.6 | 128 | 45.8 | 50 | 41.6 | 1 | 23.0 |
| 16 | 71 | 56.4 | 380 | 46.3 | 110 | 42.5 | 43 | 39.0 | 1 | 23.0 |
| 17 | 62 | 53.9 | 337 | 44.1 | 89 | 38.8 | 35 | 37.0 | 1 | 23.0 |
| 18 | 58 | 52.1 | 298 | 41.4 | 75 | 36.1 | 27 | 32.6 | 1 | 23.0 |
| 19 | 53 | 50.3 | 265 | 39.5 | 63 | 32.1 | 21 | 28.7 | 1 | 23.0 |
| 20 | 46 | 50.3 | 234 | 37.0 | 54 | 30.0 | 18 | 27.3 | | |
| 21 | 43 | 50.3 | 192 | 33.4 | 43 | 27.6 | 15 | 27.3 | | |
| 22 | 38 | 47.9 | 158 | 29.8 | 31 | 26.2 | 11 | 23.4 | | |
| 23 | 34 | 46.6 | 131 | 26.9 | 25 | 22.7 | 10 | 23.4 | | |
| 24 | 30 | 45.1 | 104 | 26.2 | 18 | 21.7 | 5 | 17.9 | | |
| 25 | 27 | 45.1 | 77 | 24.5 | 13 | 20.3 | 2 | 13.4 | | |
| 26 | 21 | 43.3 | 57 | 22.7 | 11 | 20.3 | 1 | 13.4 | | |
| 27 | 17 | 41.1 | 40 | 20.1 | 7 | 20.3 | 1 | 13.4 | | |
| 28 | 10 | 38.1 | 29 | 18.4 | 4 | 20.3 | 1 | 13.4 | | |
| 29 | 6 | 38.1 | 15 | 16.1 | 1 | 20.3 | | | | |
| 30 | 5 | 38.1 | 9 | 14.8 | 1 | 20.3 | | | | |
| 31 | 3 | 38.1 | 7 | 14.8 | | | | | | |
| 32 | 1 | 22.9 | 2 | 11.8 | | | | | | |
| 33 | 1 | 22.9 | 2 | 11.8 | | | | | | |

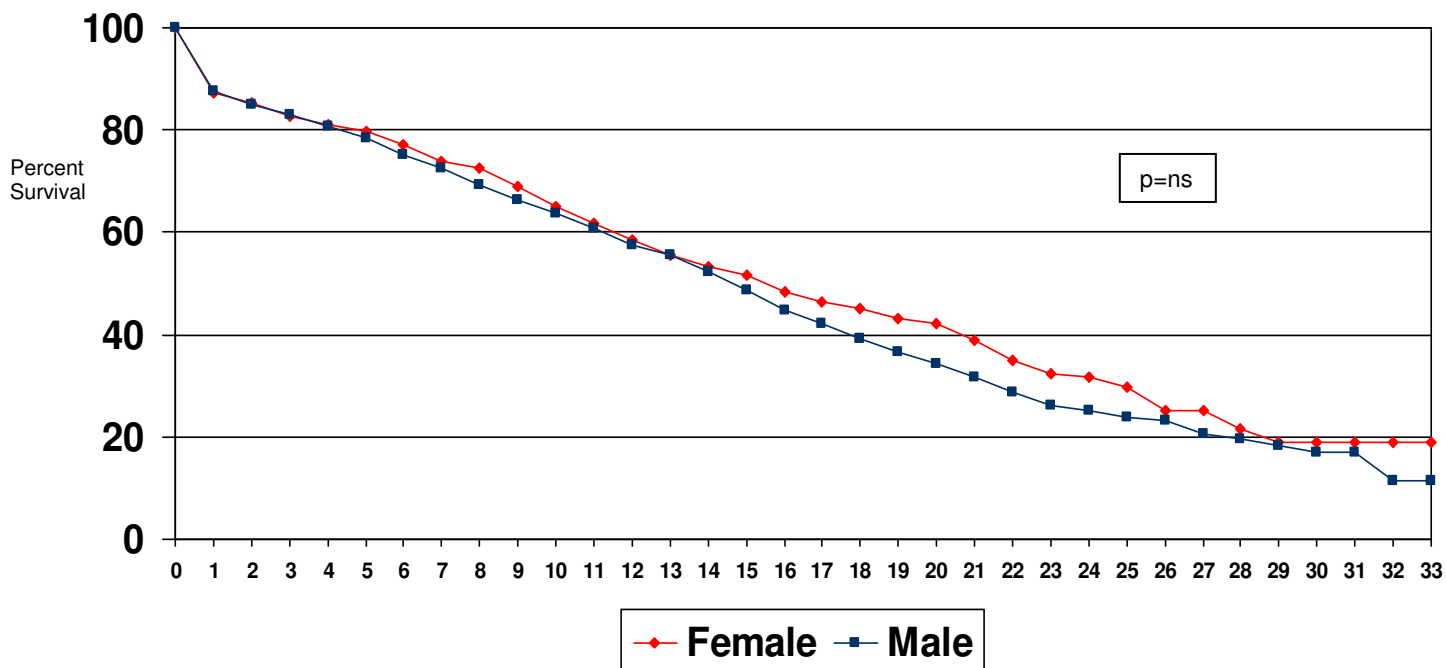
* 2 of the 10 cases in the >59 years category are Heterotopic Heart Transplants

CUTLER-EDERER SURVIVAL DONOR GENDER ALL HEARTS 1984 - 2017



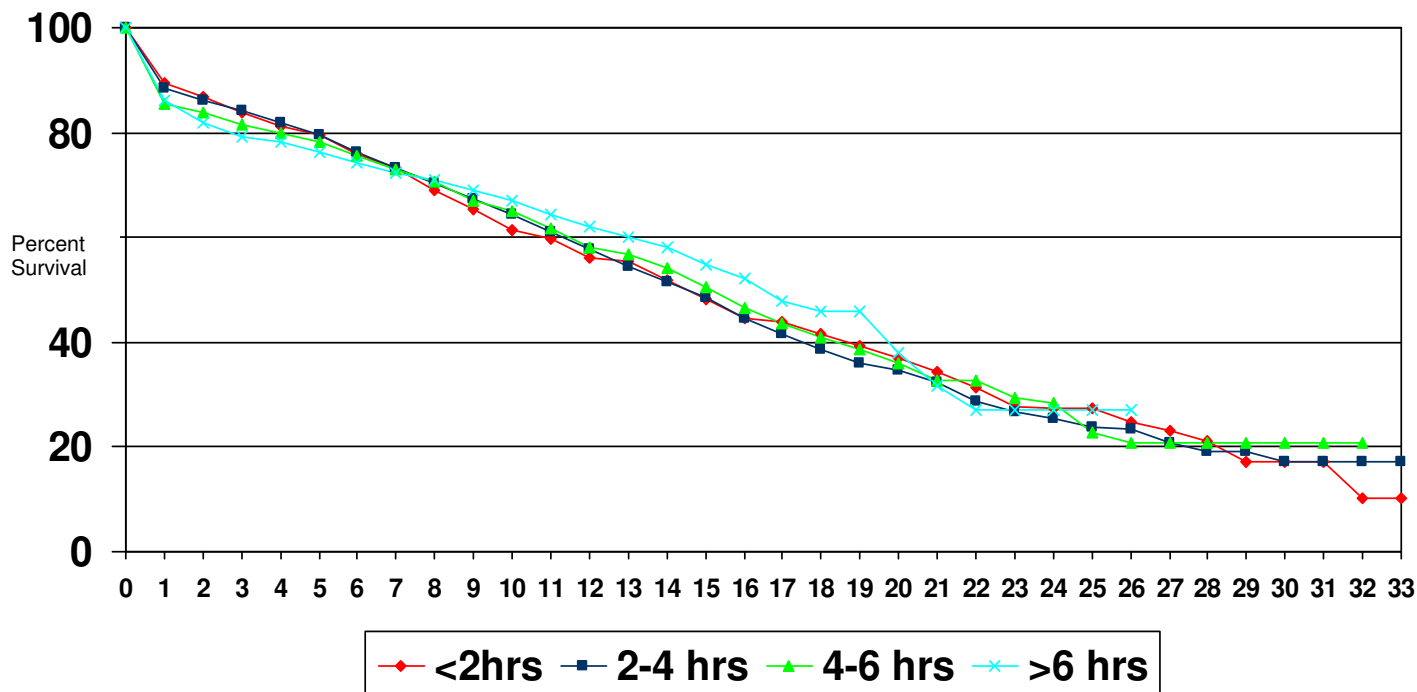
| Year | Female n= | % | Male n= | % |
|------|--------------|-------|------------|-------|
| 0 | 920 | 100.0 | 1910 | 100.0 |
| 1 | 746 | 84.0 | 1649 | 89.2 |
| 2 | 692 | 81.8 | 1525 | 86.8 |
| 3 | 642 | 79.6 | 1417 | 84.4 |
| 4 | 602 | 78.5 | 1331 | 81.8 |
| 5 | 563 | 76.9 | 1249 | 79.6 |
| 6 | 512 | 73.4 | 1163 | 76.9 |
| 7 | 477 | 71.5 | 1080 | 73.7 |
| 8 | 438 | 68.6 | 1001 | 70.9 |
| 9 | 392 | 64.1 | 928 | 68.3 |
| 10 | 353 | 61.7 | 851 | 65.3 |
| 11 | 323 | 59.4 | 779 | 62.0 |
| 12 | 286 | 57.1 | 698 | 58.0 |
| 13 | 258 | 55.7 | 637 | 55.5 |
| 14 | 231 | 52.6 | 568 | 52.5 |
| 15 | 204 | 49.5 | 497 | 49.2 |
| 16 | 177 | 46.2 | 429 | 45.3 |
| 17 | 157 | 44.1 | 368 | 42.6 |
| 18 | 136 | 41.2 | 324 | 40.0 |
| 19 | 116 | 38.0 | 288 | 37.9 |
| 20 | 100 | 36.3 | 253 | 35.8 |
| 21 | 83 | 34.0 | 211 | 32.8 |
| 22 | 65 | 30.9 | 174 | 29.7 |
| 23 | 55 | 28.5 | 146 | 27.1 |
| 24 | 44 | 27.3 | 114 | 26.0 |
| 25 | 31 | 26.6 | 89 | 24.3 |
| 26 | 23 | 24.7 | 68 | 23.1 |
| 27 | 18 | 23.5 | 48 | 20.8 |
| 28 | 10 | 23.5 | 34 | 18.9 |
| 29 | 4 | 17.6 | 19 | 18.2 |
| 30 | 1 | 17.6 | 14 | 17.1 |
| 31 | 1 | 17.6 | 10 | 17.1 |
| 32 | 1 | 17.6 | 4 | 12.8 |
| 33 | 1 | 17.6 | 2 | 12.8 |

CUTLER-EDERER SURVIVAL RECIPIENT GENDER ALL HEARTS 1984 - 2017



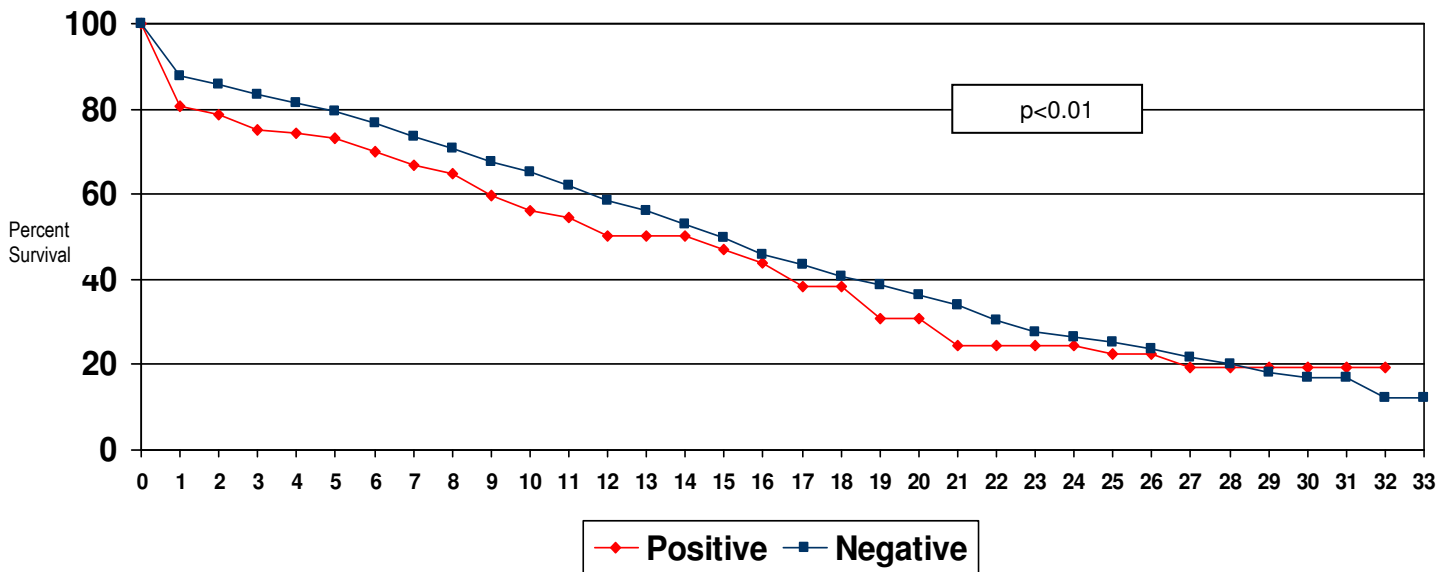
| Year | Female n= | % | Male n= | % |
|------|--------------|-------|------------|-------|
| 0 | 677 | 100.0 | 2156 | 100.0 |
| 1 | 561 | 87.2 | 1836 | 87.5 |
| 2 | 513 | 85.2 | 1705 | 85.1 |
| 3 | 467 | 82.7 | 1593 | 82.9 |
| 4 | 435 | 81.0 | 1499 | 80.6 |
| 5 | 407 | 79.9 | 1406 | 78.4 |
| 6 | 378 | 77.1 | 1298 | 75.3 |
| 7 | 343 | 73.7 | 1215 | 72.7 |
| 8 | 319 | 72.6 | 1121 | 69.4 |
| 9 | 286 | 68.9 | 1035 | 66.3 |
| 10 | 250 | 65.1 | 954 | 63.8 |
| 11 | 226 | 61.7 | 876 | 60.9 |
| 12 | 198 | 58.5 | 786 | 57.4 |
| 13 | 175 | 55.5 | 720 | 55.4 |
| 14 | 159 | 53.2 | 640 | 52.2 |
| 15 | 141 | 51.5 | 560 | 48.6 |
| 16 | 124 | 48.5 | 482 | 44.7 |
| 17 | 107 | 46.4 | 418 | 42.1 |
| 18 | 98 | 45.1 | 362 | 39.1 |
| 19 | 89 | 43.2 | 315 | 36.6 |
| 20 | 80 | 42.2 | 273 | 34.3 |
| 21 | 66 | 38.8 | 228 | 31.7 |
| 22 | 54 | 35.1 | 185 | 28.8 |
| 23 | 46 | 32.4 | 155 | 26.2 |
| 24 | 38 | 31.7 | 120 | 25.1 |
| 25 | 28 | 29.8 | 92 | 23.7 |
| 26 | 20 | 25.2 | 71 | 23.1 |
| 27 | 16 | 25.2 | 50 | 20.6 |
| 28 | 9 | 21.5 | 35 | 19.6 |
| 29 | 6 | 18.8 | 17 | 18.2 |
| 30 | 4 | 18.8 | 11 | 16.9 |
| 31 | 3 | 18.8 | 8 | 16.9 |
| 32 | 2 | 18.8 | 2 | 11.3 |
| 33 | 2 | 18.8 | 2 | 11.3 |

CUTLER-EDERER SURVIVAL ISCHEMIC TIME ALL HEARTS 1984 - 2017



| Year | <2hrs | | 2-4 hrs | | 4-6 hrs | | >6 hrs | |
|------|-------|-------|---------|-------|---------|-------|--------|-------|
| | n= | % | n= | % | n= | % | n= | % |
| 0 | 413 | 100.0 | 1376 | 100.0 | 847 | 100.0 | 202 | 100.0 |
| 1 | 358 | 89.4 | 1181 | 88.6 | 700 | 85.4 | 170 | 86.0 |
| 2 | 327 | 86.9 | 1093 | 86.3 | 653 | 83.8 | 158 | 81.9 |
| 3 | 299 | 83.9 | 1027 | 84.1 | 602 | 81.6 | 146 | 79.3 |
| 4 | 279 | 81.3 | 960 | 81.7 | 572 | 79.9 | 138 | 78.1 |
| 5 | 262 | 79.5 | 902 | 79.4 | 533 | 78.1 | 130 | 76.4 |
| 6 | 242 | 75.8 | 835 | 76.2 | 486 | 75.7 | 126 | 74.1 |
| 7 | 232 | 73.3 | 772 | 73.3 | 448 | 72.9 | 119 | 72.3 |
| 8 | 216 | 68.9 | 707 | 70.4 | 419 | 70.7 | 111 | 71.0 |
| 9 | 200 | 65.3 | 651 | 67.2 | 378 | 67.1 | 104 | 69.1 |
| 10 | 184 | 61.3 | 598 | 64.4 | 340 | 64.9 | 96 | 67.0 |
| 11 | 175 | 59.7 | 549 | 61.2 | 305 | 61.7 | 88 | 64.2 |
| 12 | 164 | 56.2 | 489 | 57.6 | 267 | 58.2 | 75 | 61.9 |
| 13 | 160 | 55.6 | 441 | 54.4 | 239 | 56.8 | 64 | 60.1 |
| 14 | 146 | 51.7 | 396 | 51.4 | 208 | 54.1 | 57 | 58.1 |
| 15 | 130 | 48.1 | 363 | 48.6 | 174 | 50.5 | 45 | 54.8 |
| 16 | 120 | 44.7 | 310 | 44.6 | 145 | 46.6 | 40 | 52.3 |
| 17 | 116 | 44.0 | 270 | 41.6 | 116 | 43.5 | 28 | 47.9 |
| 18 | 110 | 41.7 | 239 | 38.5 | 92 | 41.0 | 21 | 46.0 |
| 19 | 98 | 39.4 | 211 | 36.0 | 78 | 38.7 | 19 | 46.0 |
| 20 | 91 | 36.9 | 189 | 34.8 | 61 | 36.0 | 13 | 38.1 |
| 21 | 79 | 34.4 | 159 | 32.3 | 48 | 32.8 | 9 | 31.7 |
| 22 | 71 | 31.4 | 124 | 28.6 | 41 | 32.8 | 4 | 27.2 |
| 23 | 60 | 27.8 | 107 | 26.7 | 32 | 29.4 | 3 | 27.2 |
| 24 | 50 | 27.3 | 82 | 25.3 | 24 | 28.4 | 2 | 27.2 |
| 25 | 45 | 27.3 | 61 | 23.9 | 13 | 22.9 | 1 | 27.2 |
| 26 | 37 | 24.7 | 46 | 23.5 | 8 | 20.8 | | |
| 27 | 27 | 23.2 | 32 | 20.7 | 7 | 20.8 | | |
| 28 | 18 | 21.2 | 22 | 19.2 | 4 | 20.8 | | |
| 29 | 10 | 17.1 | 11 | 19.2 | 2 | 20.8 | | |
| 30 | 7 | 17.1 | 6 | 17.1 | 1 | 20.8 | | |
| 31 | 6 | 17.1 | 3 | 17.1 | 1 | 20.8 | | |
| 32 | 2 | 10.3 | 1 | 17.1 | | | | |
| 33 | 2 | 10.3 | | | | | | |

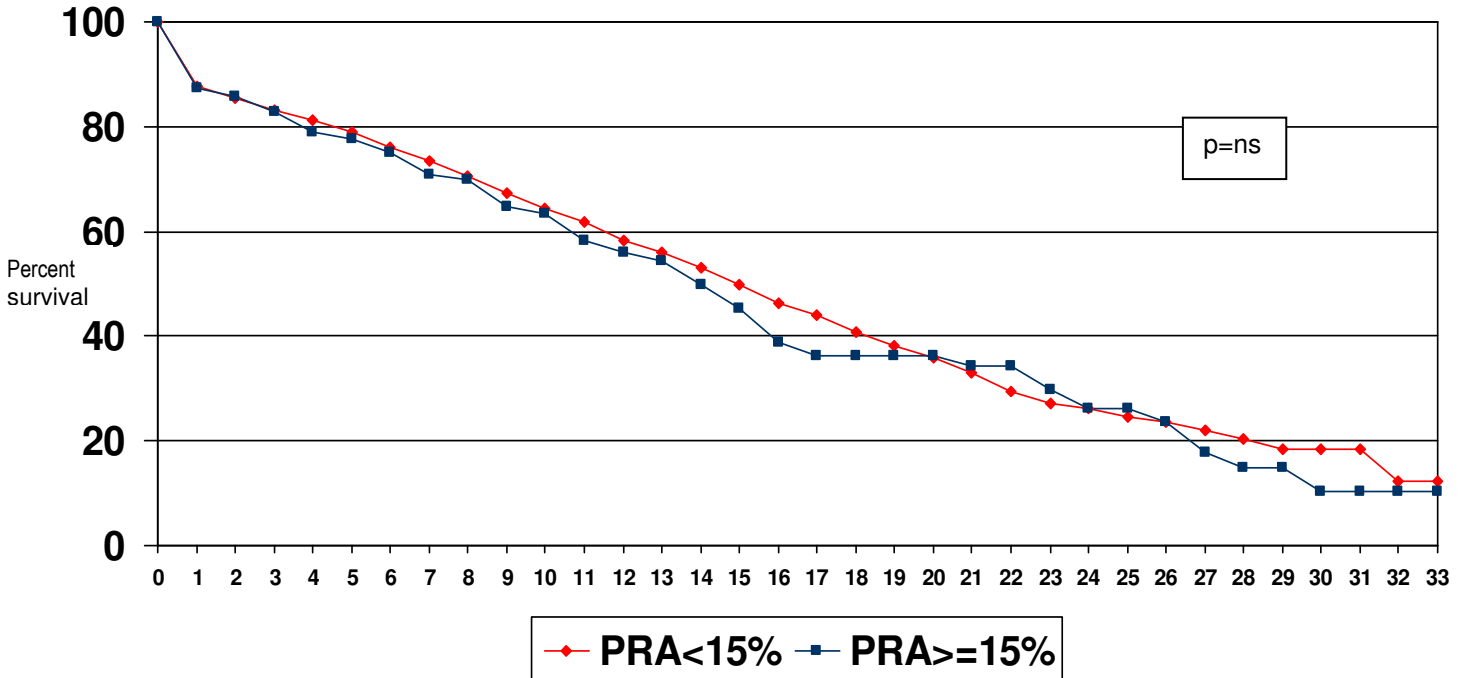
CUTLER-EDERER SURVIVAL CROSSMATCH* ALL HEARTS 1984 - 2017



| Year | Positive | | Negative | |
|------|----------|-------|----------|-------|
| | n= | % | n= | % |
| 0 | 182 | 100.0 | 2257 | 100.0 |
| 1 | 147 | 80.8 | 1948 | 87.9 |
| 2 | 138 | 78.5 | 1840 | 85.6 |
| 3 | 129 | 75.1 | 1746 | 83.5 |
| 4 | 125 | 74.5 | 1652 | 81.4 |
| 5 | 119 | 73.3 | 1564 | 79.4 |
| 6 | 109 | 70.1 | 1454 | 76.5 |
| 7 | 98 | 66.8 | 1363 | 73.7 |
| 8 | 89 | 64.7 | 1277 | 70.8 |
| 9 | 78 | 59.5 | 1189 | 67.7 |
| 10 | 66 | 56.3 | 1098 | 65.1 |
| 11 | 62 | 54.6 | 1006 | 61.9 |
| 12 | 56 | 50.1 | 902 | 58.5 |
| 13 | 54 | 50.1 | 824 | 56.3 |
| 14 | 53 | 50.1 | 738 | 53.0 |
| 15 | 46 | 47.2 | 651 | 49.7 |
| 16 | 40 | 44.0 | 563 | 45.9 |
| 17 | 33 | 38.4 | 489 | 43.6 |
| 18 | 30 | 38.4 | 428 | 40.6 |
| 19 | 24 | 30.7 | 378 | 38.7 |
| 20 | 22 | 30.7 | 330 | 36.4 |
| 21 | 15 | 24.7 | 279 | 33.9 |
| 22 | 15 | 24.7 | 223 | 30.6 |
| 23 | 15 | 24.7 | 185 | 27.7 |
| 24 | 13 | 24.7 | 144 | 26.5 |
| 25 | 10 | 22.6 | 109 | 25.1 |
| 26 | 7 | 22.6 | 83 | 23.6 |
| 27 | 5 | 19.2 | 60 | 21.7 |
| 28 | 4 | 19.2 | 39 | 20.0 |
| 29 | 2 | 19.2 | 20 | 18.1 |
| 30 | 1 | 19.2 | 13 | 17.0 |
| 31 | 1 | 19.2 | 9 | 17.0 |
| 32 | 1 | 19.2 | 3 | 12.1 |
| 33 | | | 2 | 12.1 |

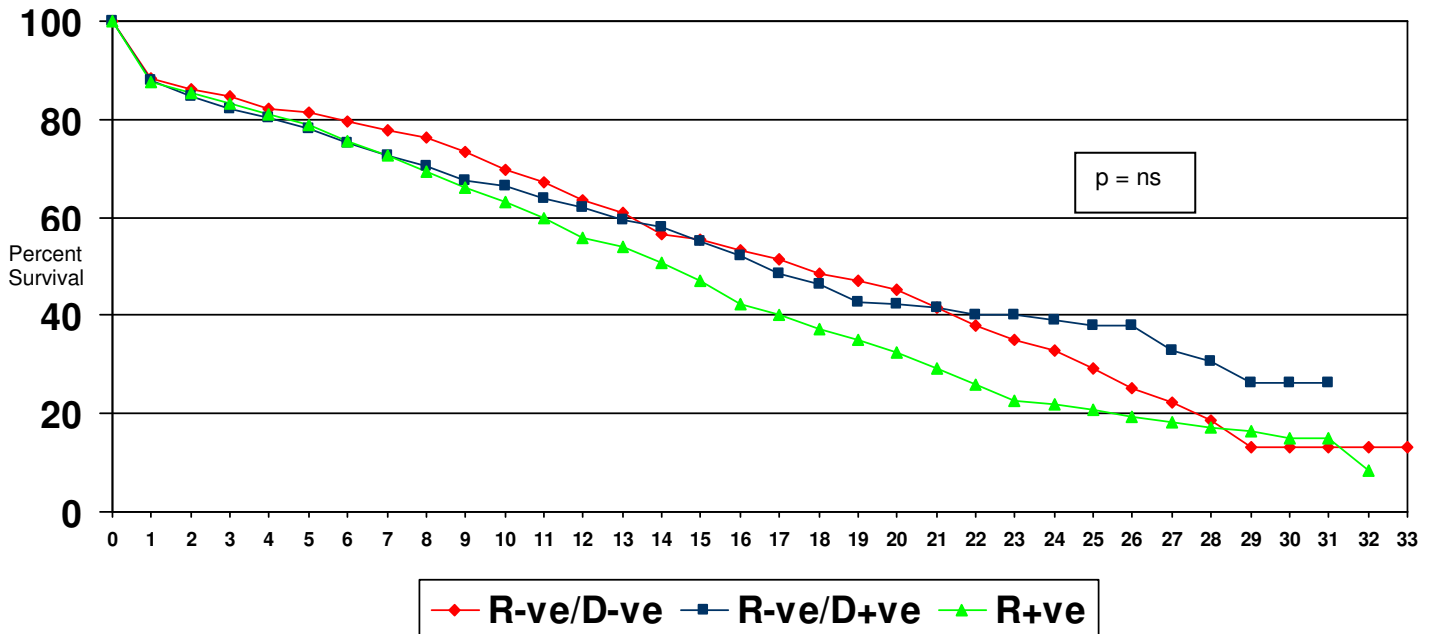
* B or T cell positive are combined

CUTLER-EDERER SURVIVAL PEAK PANEL REACTIVE ANTIBODIES PRE HEART TRANSPLANT 1984 – 2017



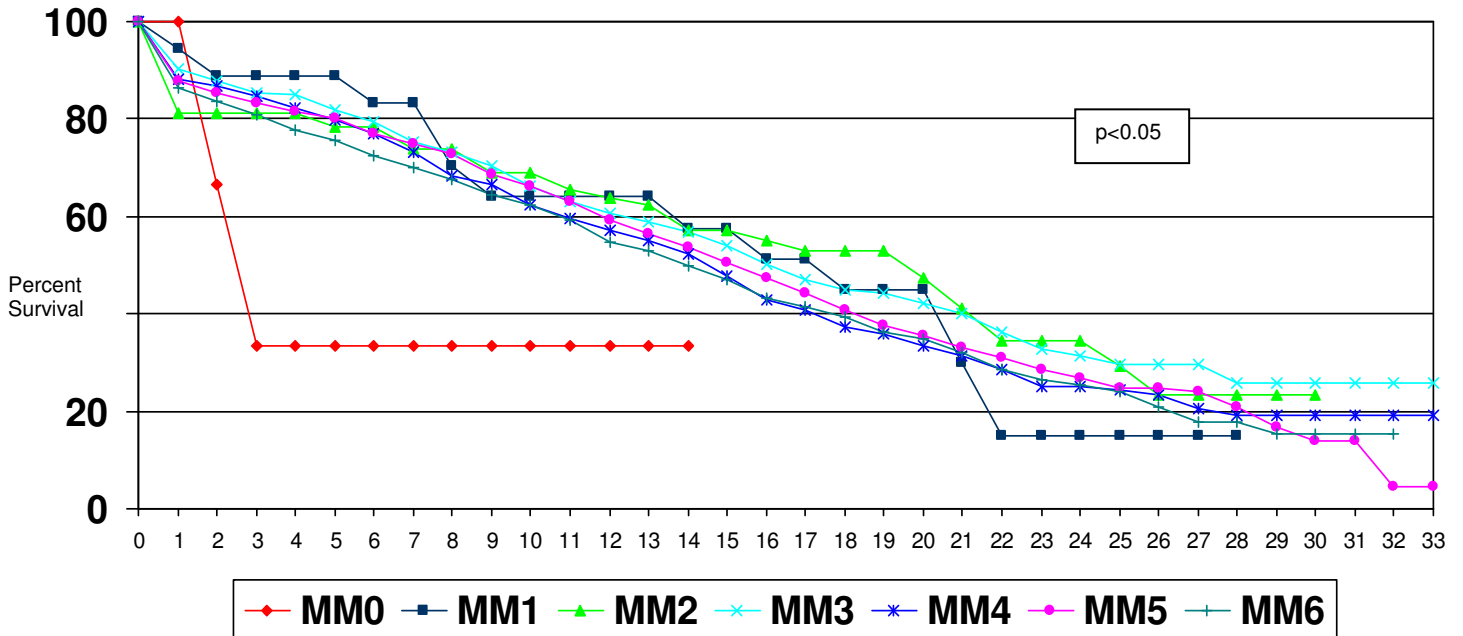
| Year | PRA<15% | | PRA>=15 | |
|------|---------|-------|---------|-------|
| | n= | % | n= | % |
| 0 | 2498 | 100.0 | 281 | 100.0 |
| 1 | 2128 | 87.6 | 227 | 87.5 |
| 2 | 1975 | 85.3 | 213 | 85.9 |
| 3 | 1847 | 83.1 | 197 | 83.0 |
| 4 | 1746 | 81.1 | 178 | 79.1 |
| 5 | 1646 | 79.1 | 163 | 77.7 |
| 6 | 1526 | 76.0 | 146 | 75.2 |
| 7 | 1423 | 73.4 | 132 | 71.0 |
| 8 | 1318 | 70.5 | 121 | 69.9 |
| 9 | 1212 | 67.4 | 109 | 64.7 |
| 10 | 1102 | 64.5 | 103 | 63.5 |
| 11 | 1011 | 61.7 | 92 | 58.4 |
| 12 | 897 | 58.1 | 86 | 55.9 |
| 13 | 814 | 55.9 | 80 | 54.5 |
| 14 | 728 | 53.0 | 70 | 49.7 |
| 15 | 639 | 49.9 | 63 | 45.4 |
| 16 | 554 | 46.4 | 51 | 38.8 |
| 17 | 478 | 43.9 | 46 | 36.4 |
| 18 | 415 | 40.8 | 44 | 36.4 |
| 19 | 363 | 38.2 | 40 | 36.4 |
| 20 | 315 | 35.9 | 37 | 36.4 |
| 21 | 263 | 33.0 | 31 | 34.3 |
| 22 | 213 | 29.6 | 25 | 34.3 |
| 23 | 182 | 27.2 | 18 | 29.9 |
| 24 | 144 | 26.3 | 13 | 26.2 |
| 25 | 108 | 24.7 | 11 | 26.2 |
| 26 | 82 | 23.5 | 8 | 23.6 |
| 27 | 59 | 21.9 | 6 | 17.7 |
| 28 | 38 | 20.5 | 5 | 14.8 |
| 29 | 18 | 18.5 | 4 | 14.8 |
| 30 | 12 | 18.5 | 2 | 10.5 |
| 31 | 8 | 18.5 | 2 | 10.5 |
| 32 | 2 | 12.3 | 2 | 10.5 |
| 33 | 2 | 12.3 | 2 | 10.5 |

CUTLER-EDERER SURVIVAL CMV STATUS HEARTS 1984 - 2017



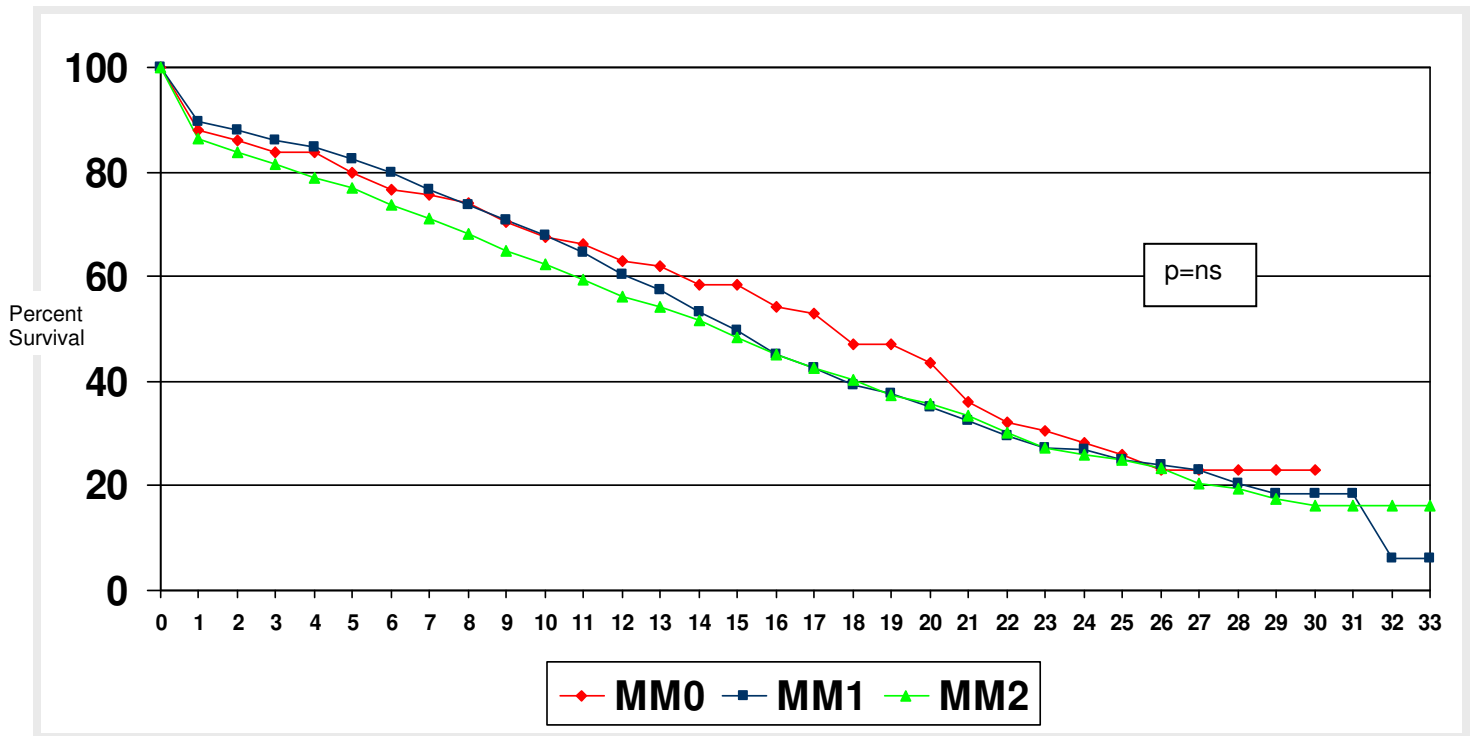
| Year | Donor Neg | | Donor Pos | | Recipient Pos | |
|------|---------------|-------|---------------|-------|---------------|-------|
| | Rec Neg n= | % | Rec Neg n= | % | Rec Pos n= | % |
| 0 | 446 | 100.0 | 509 | 100.0 | 1824 | 100.0 |
| 1 | 381 | 88.2 | 437 | 87.9 | 1540 | 87.5 |
| 2 | 360 | 86.3 | 392 | 84.8 | 1430 | 85.3 |
| 3 | 337 | 84.8 | 353 | 82.1 | 1341 | 83.2 |
| 4 | 311 | 82.2 | 333 | 80.2 | 1261 | 81.1 |
| 5 | 289 | 81.4 | 314 | 78.2 | 1185 | 78.9 |
| 6 | 269 | 79.4 | 290 | 75.2 | 1093 | 75.6 |
| 7 | 254 | 77.6 | 268 | 72.5 | 1016 | 72.7 |
| 8 | 244 | 76.1 | 248 | 70.3 | 932 | 69.5 |
| 9 | 228 | 73.5 | 234 | 67.7 | 847 | 66.0 |
| 10 | 205 | 69.6 | 222 | 66.3 | 768 | 63.2 |
| 11 | 189 | 67.1 | 204 | 63.8 | 703 | 59.9 |
| 12 | 167 | 63.5 | 190 | 61.9 | 620 | 56.0 |
| 13 | 152 | 61.1 | 173 | 59.6 | 563 | 53.9 |
| 14 | 135 | 56.6 | 158 | 58.1 | 499 | 50.6 |
| 15 | 123 | 55.3 | 138 | 55.1 | 435 | 46.9 |
| 16 | 107 | 53.4 | 120 | 52.2 | 373 | 42.5 |
| 17 | 94 | 51.3 | 100 | 48.5 | 326 | 40.1 |
| 18 | 80 | 48.5 | 89 | 46.5 | 287 | 37.2 |
| 19 | 73 | 47.2 | 77 | 42.7 | 250 | 34.9 |
| 20 | 65 | 45.2 | 69 | 42.2 | 216 | 32.5 |
| 21 | 57 | 41.6 | 60 | 41.5 | 175 | 29.3 |
| 22 | 51 | 38.0 | 49 | 40.0 | 136 | 25.9 |
| 23 | 43 | 34.9 | 46 | 40.0 | 109 | 22.7 |
| 24 | 30 | 33.0 | 39 | 39.1 | 86 | 21.8 |
| 25 | 18 | 29.1 | 29 | 37.9 | 70 | 20.7 |
| 26 | 10 | 25.2 | 25 | 37.9 | 53 | 19.4 |
| 27 | 6 | 22.3 | 17 | 32.9 | 40 | 18.2 |
| 28 | 5 | 18.6 | 9 | 30.5 | 27 | 17.2 |
| 29 | 1 | 13.3 | 4 | 26.1 | 15 | 16.4 |
| 30 | 1 | 13.3 | 2 | 26.1 | 9 | 15.1 |
| 31 | 1 | 13.3 | | | 7 | 15.1 |
| 32 | 1 | 13.3 | | | 2 | 8.4 |
| 33 | 1 | 13.3 | | | | |

CUTLER-EDERER SURVIVAL HLA MISMATCH HEARTS 1984 - 2017



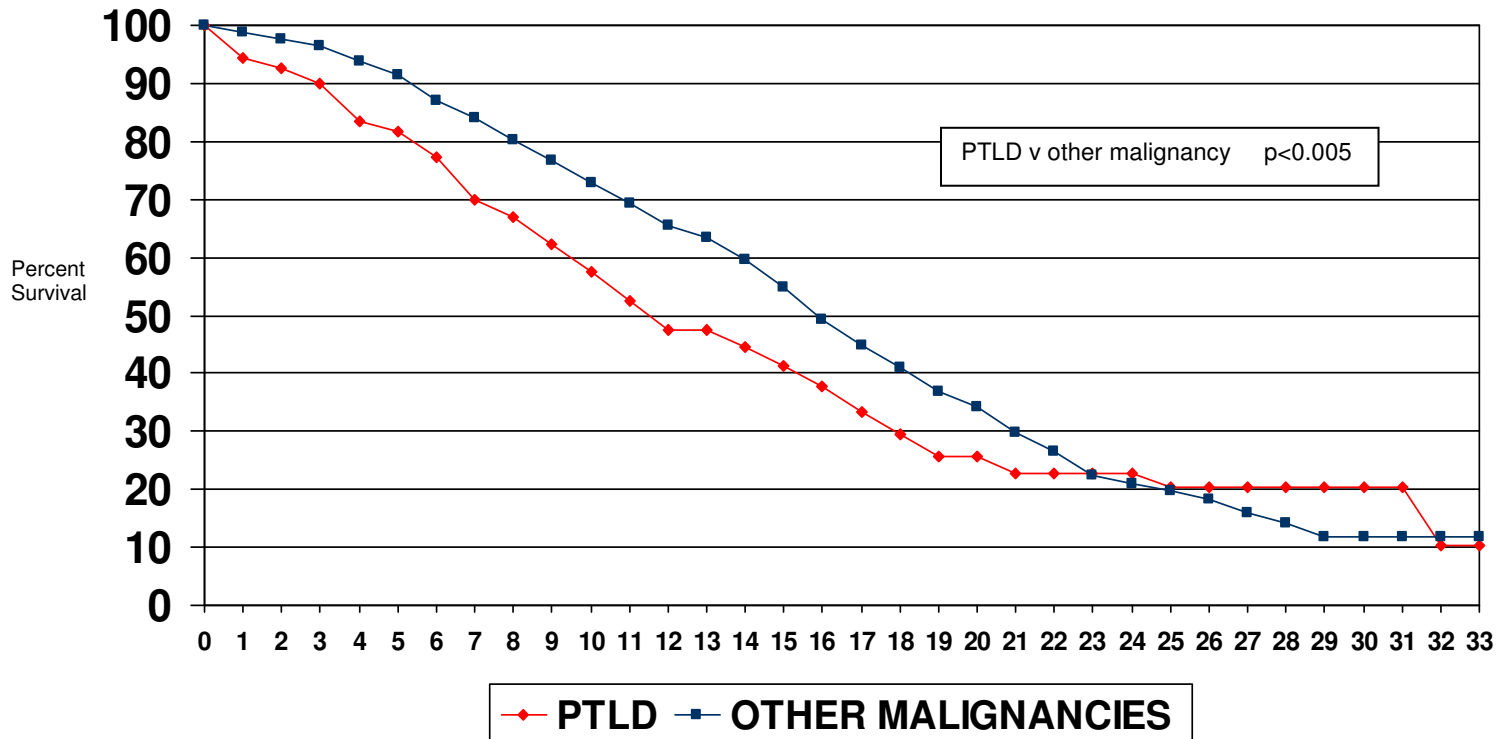
| Year | MM0 n= | % | MM1 n= | % | MM2 n= | % | MM3 n= | % | MM4 n= | % | MM5 n= | % | MM6 n= | % |
|------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| 0 | 3 | 100.0 | 18 | 100.0 | 81 | 100.0 | 261 | 100.0 | 601 | 100.0 | 933 | 100.0 | 936 | 100.0 |
| 1 | 3 | 100.0 | 17 | 94.4 | 63 | 81.1 | 229 | 90.3 | 515 | 88.0 | 788 | 87.7 | 783 | 86.4 |
| 2 | 2 | 66.7 | 16 | 88.9 | 62 | 81.1 | 215 | 87.9 | 481 | 86.8 | 726 | 85.3 | 717 | 83.5 |
| 3 | 1 | 33.3 | 16 | 88.9 | 59 | 81.1 | 201 | 85.4 | 454 | 84.6 | 673 | 83.2 | 656 | 80.7 |
| 4 | 1 | 33.3 | 16 | 88.9 | 57 | 81.1 | 194 | 85.0 | 429 | 82.3 | 634 | 81.5 | 603 | 77.6 |
| 5 | 1 | 33.3 | 16 | 88.9 | 54 | 78.3 | 185 | 81.9 | 398 | 79.8 | 598 | 80.2 | 562 | 75.6 |
| 6 | 1 | 33.3 | 14 | 83.2 | 52 | 78.3 | 169 | 79.6 | 370 | 76.9 | 550 | 76.9 | 520 | 72.3 |
| 7 | 1 | 33.3 | 13 | 83.2 | 48 | 73.7 | 155 | 75.3 | 334 | 73.1 | 518 | 75.0 | 489 | 69.9 |
| 8 | 1 | 33.3 | 11 | 70.4 | 48 | 73.7 | 148 | 73.3 | 295 | 68.2 | 487 | 72.8 | 451 | 67.6 |
| 9 | 1 | 33.3 | 10 | 64.0 | 42 | 68.9 | 136 | 70.3 | 276 | 66.5 | 448 | 68.6 | 410 | 64.5 |
| 10 | 1 | 33.3 | 10 | 64.0 | 42 | 68.9 | 122 | 66.1 | 246 | 62.3 | 406 | 66.2 | 379 | 62.3 |
| 11 | 1 | 33.3 | 10 | 64.0 | 39 | 65.6 | 107 | 63.2 | 229 | 59.7 | 368 | 62.9 | 350 | 59.3 |
| 12 | 1 | 33.3 | 10 | 64.0 | 38 | 63.9 | 97 | 60.8 | 207 | 57.3 | 328 | 59.2 | 303 | 54.7 |
| 13 | 1 | 33.3 | 10 | 64.0 | 37 | 62.3 | 92 | 58.9 | 191 | 55.1 | 301 | 56.6 | 263 | 52.8 |
| 14 | 1 | 0.0 | 9 | 57.6 | 31 | 57.0 | 81 | 56.9 | 178 | 52.2 | 279 | 53.8 | 221 | 49.7 |
| 15 | | | 9 | 57.6 | 28 | 57.0 | 71 | 54.0 | 150 | 47.6 | 250 | 50.4 | 195 | 47.1 |
| 16 | | | 8 | 51.2 | 26 | 54.9 | 64 | 50.1 | 126 | 42.7 | 219 | 47.5 | 163 | 43.1 |
| 17 | | | 8 | 51.2 | 25 | 52.8 | 55 | 46.9 | 114 | 40.6 | 183 | 44.1 | 140 | 41.4 |
| 18 | | | 7 | 44.8 | 22 | 52.8 | 50 | 45.1 | 99 | 37.3 | 155 | 40.8 | 127 | 39.3 |
| 19 | | | 7 | 44.8 | 20 | 52.8 | 46 | 44.2 | 92 | 35.8 | 130 | 37.5 | 109 | 36.4 |
| 20 | | | 6 | 44.8 | 16 | 47.3 | 40 | 42.2 | 82 | 33.4 | 114 | 35.4 | 95 | 35.0 |
| 21 | | | 4 | 29.9 | 13 | 41.2 | 35 | 40.0 | 70 | 31.3 | 96 | 33.1 | 77 | 31.9 |
| 22 | | | 2 | 14.9 | 10 | 34.6 | 29 | 36.4 | 61 | 28.5 | 80 | 31.0 | 57 | 28.7 |
| 23 | | | 2 | 14.9 | 9 | 34.6 | 26 | 32.6 | 49 | 25.1 | 66 | 28.5 | 49 | 26.6 |
| 24 | | | 2 | 14.9 | 7 | 34.6 | 20 | 31.2 | 37 | 25.1 | 53 | 26.7 | 39 | 25.5 |
| 25 | | | 2 | 14.9 | 5 | 29.3 | 14 | 29.5 | 31 | 24.4 | 36 | 24.9 | 32 | 24.1 |
| 26 | | | 1 | 14.9 | 4 | 23.4 | 12 | 29.5 | 25 | 23.5 | 26 | 24.9 | 23 | 20.8 |
| 27 | | | 1 | 14.9 | 2 | 23.4 | 9 | 29.5 | 19 | 20.5 | 20 | 23.9 | 15 | 17.8 |
| 28 | | | | 14.9 | 1 | 23.4 | 6 | 25.8 | 14 | 19.3 | 12 | 21.0 | 11 | 17.8 |
| 29 | | | | | 1 | 23.4 | 5 | 25.8 | 7 | 19.3 | 6 | 16.8 | 4 | 15.5 |
| 30 | | | | | | 23.4 | 3 | 25.8 | 5 | 19.3 | 4 | 13.8 | 3 | 15.5 |
| 31 | | | | | | | 1 | 25.8 | 5 | 19.3 | 3 | 13.8 | 2 | 15.5 |
| 32 | | | | | | | 1 | 25.8 | 2 | 19.3 | 1 | 4.6 | | |
| 33 | | | | | | | | 25.8 | 1 | 19.3 | 1 | 4.6 | | |

CUTLER-EDERER SURVIVAL HLA DR LOCUS MISMATCH HEARTS 1984 - 2017



| Year | MM0 n= | % | MM1 n= | % | MM2 n= | % |
|------|-----------|-------|-----------|-------|-----------|-------|
| 0 | 152 | 100.0 | 774 | 100.0 | 1907 | 100.0 |
| 1 | 129 | 88.0 | 672 | 89.6 | 1597 | 86.5 |
| 2 | 121 | 85.9 | 632 | 88.0 | 1466 | 83.9 |
| 3 | 114 | 83.7 | 588 | 85.9 | 1358 | 81.5 |
| 4 | 110 | 83.7 | 564 | 84.7 | 1260 | 78.8 |
| 5 | 101 | 79.8 | 531 | 82.4 | 1182 | 77.1 |
| 6 | 91 | 76.6 | 493 | 80.0 | 1092 | 73.8 |
| 7 | 86 | 75.7 | 455 | 76.7 | 1017 | 71.2 |
| 8 | 82 | 73.9 | 421 | 73.8 | 938 | 68.3 |
| 9 | 75 | 70.3 | 388 | 70.9 | 860 | 65.0 |
| 10 | 67 | 67.4 | 356 | 67.8 | 783 | 62.3 |
| 11 | 62 | 66.3 | 324 | 64.5 | 718 | 59.3 |
| 12 | 57 | 63.1 | 284 | 60.3 | 643 | 56.1 |
| 13 | 53 | 61.9 | 264 | 57.5 | 578 | 54.1 |
| 14 | 46 | 58.3 | 236 | 53.1 | 517 | 51.7 |
| 15 | 43 | 58.3 | 204 | 49.8 | 456 | 48.3 |
| 16 | 39 | 54.2 | 176 | 45.1 | 391 | 45.0 |
| 17 | 37 | 52.8 | 154 | 42.4 | 334 | 42.5 |
| 18 | 32 | 47.0 | 132 | 39.3 | 296 | 40.2 |
| 19 | 29 | 47.0 | 118 | 37.8 | 257 | 37.3 |
| 20 | 24 | 43.6 | 105 | 35.1 | 224 | 35.6 |
| 21 | 19 | 36.1 | 89 | 32.4 | 187 | 33.3 |
| 22 | 17 | 32.3 | 75 | 29.7 | 147 | 30.1 |
| 23 | 15 | 30.4 | 64 | 27.3 | 122 | 27.3 |
| 24 | 13 | 28.3 | 49 | 26.8 | 96 | 26.1 |
| 25 | 10 | 25.9 | 35 | 24.9 | 75 | 24.9 |
| 26 | 7 | 23.0 | 28 | 24.1 | 56 | 23.4 |
| 27 | 6 | 23.0 | 21 | 23.2 | 39 | 20.6 |
| 28 | 4 | 23.0 | 13 | 20.6 | 27 | 19.4 |
| 29 | 2 | 23.0 | 7 | 18.6 | 14 | 17.6 |
| 30 | | | 4 | 18.6 | 11 | 16.2 |
| 31 | | | 3 | 18.6 | 8 | 16.2 |
| 32 | | | 1 | 6.2 | 3 | 16.2 |
| 33 | | | | 6.2 | 2 | 16.2 |

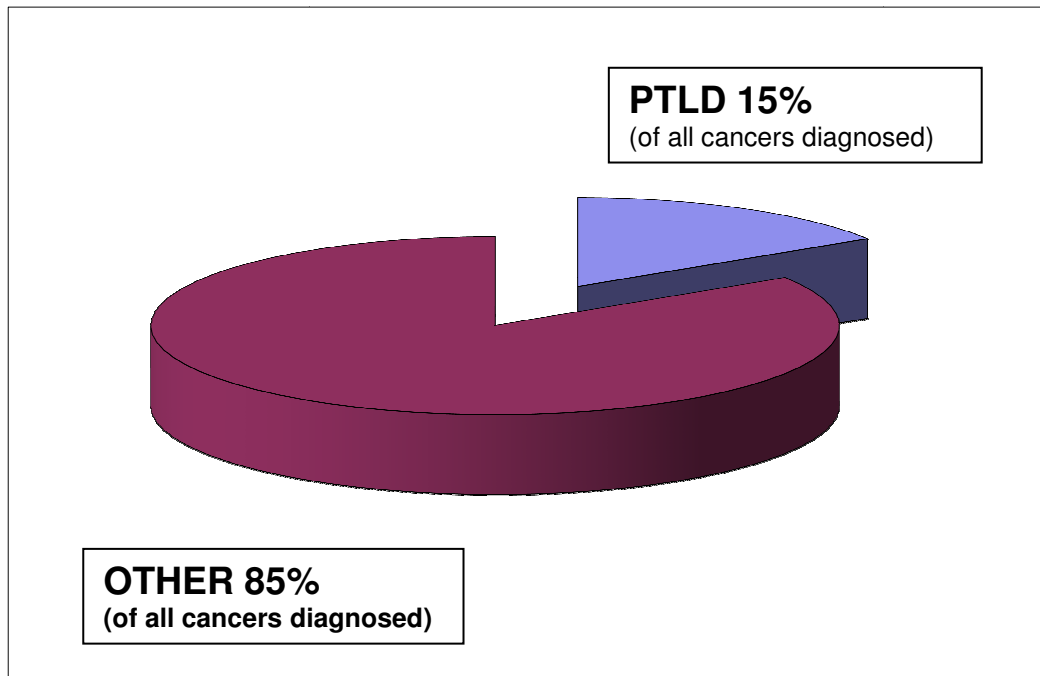
CUTLER-EDERER SURVIVAL MALIGNANCIES HEARTS 1984 - 2017



| Year | PTLD | | OTHER MALIGNANCIES (skin SCC/other) | |
|------|------|-------|-------------------------------------|-------|
| | n= | % | n= | % |
| 0 | 110 | 100.0 | 611 | 100.0 |
| 1 | 104 | 94.5 | 603 | 98.7 |
| 2 | 102 | 92.7 | 596 | 97.5 |
| 3 | 99 | 90.0 | 589 | 96.6 |
| 4 | 92 | 83.6 | 572 | 93.9 |
| 5 | 89 | 81.8 | 552 | 91.3 |
| 6 | 84 | 77.2 | 521 | 87.0 |
| 7 | 75 | 69.8 | 496 | 84.1 |
| 8 | 71 | 67.0 | 467 | 80.2 |
| 9 | 65 | 62.3 | 440 | 76.7 |
| 10 | 59 | 57.4 | 406 | 72.8 |
| 11 | 53 | 52.5 | 378 | 69.4 |
| 12 | 48 | 47.6 | 350 | 65.5 |
| 13 | 46 | 47.6 | 332 | 63.4 |
| 14 | 43 | 44.5 | 303 | 59.6 |
| 15 | 38 | 41.3 | 272 | 55.0 |
| 16 | 33 | 37.9 | 235 | 49.4 |
| 17 | 28 | 33.3 | 204 | 44.7 |
| 18 | 24 | 29.6 | 183 | 41.1 |
| 19 | 19 | 25.8 | 156 | 37.0 |
| 20 | 19 | 25.8 | 139 | 34.3 |
| 21 | 14 | 22.8 | 116 | 29.8 |
| 22 | 12 | 22.8 | 93 | 26.6 |
| 23 | 10 | 22.8 | 73 | 22.4 |
| 24 | 10 | 22.8 | 52 | 21.0 |
| 25 | 8 | 20.4 | 41 | 19.7 |
| 26 | 6 | 20.4 | 33 | 18.2 |
| 27 | 6 | 20.4 | 23 | 15.8 |
| 28 | 5 | 20.4 | 15 | 14.2 |
| 29 | 3 | 20.4 | 6 | 11.7 |
| 30 | 3 | 20.4 | 4 | 11.7 |
| 31 | 2 | 20.4 | 3 | 11.7 |
| 32 | 1 | 10.2 | 1 | 11.7 |
| 33 | 1 | 10.2 | 1 | 11.7 |

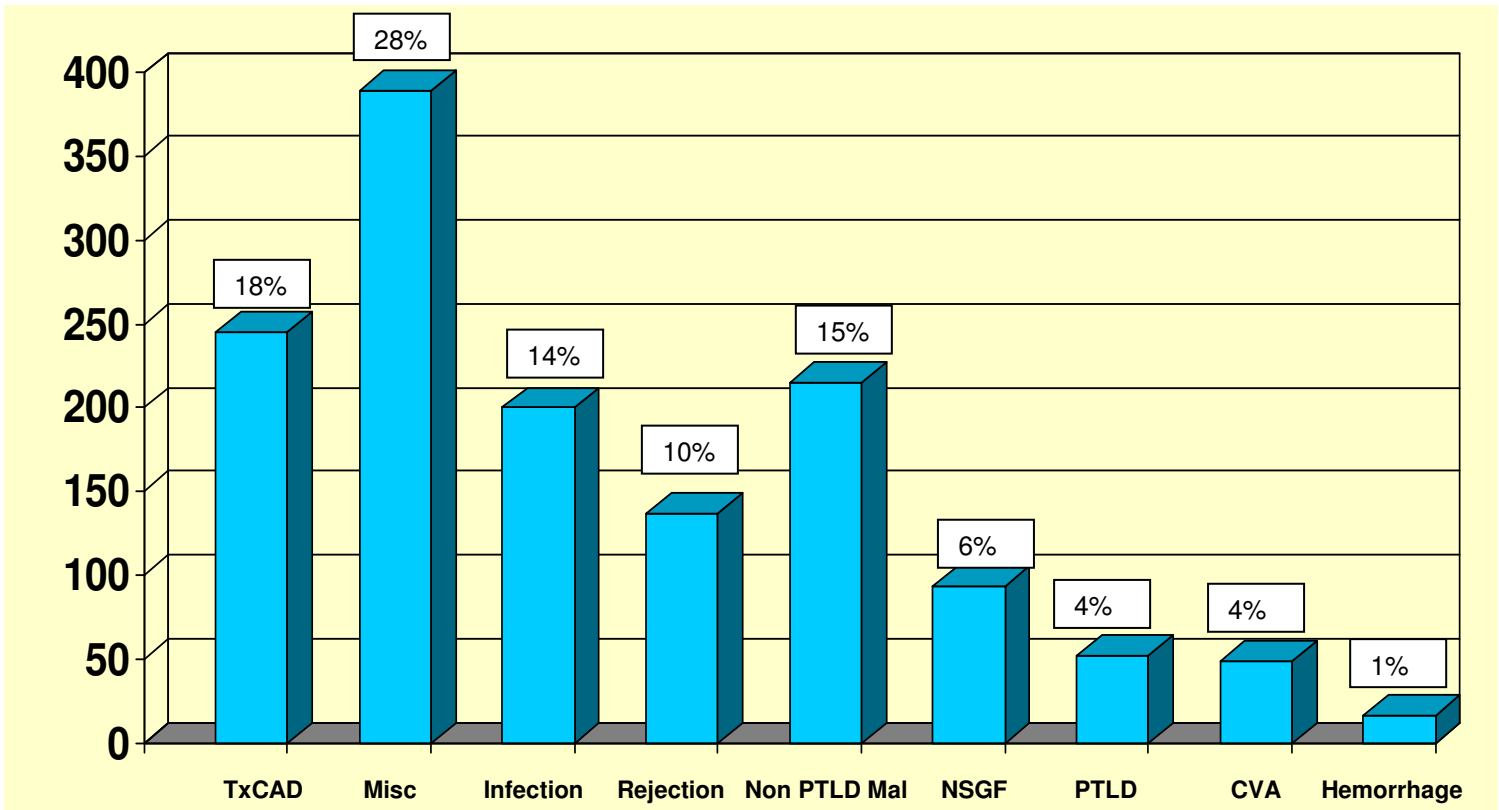
* Survival of patients who were diagnosed post transplant with any form of cancer, invasive or otherwise i.e. all types of skin cancers included with only first occurrence counted. Only SCC, melanoma and Kaposi Sarcoma counted as skin cancer for the purpose of survival curves

ALL MALIGNANCIES* - HEART n = 721 1984 - 2017



| | | | |
|--------------|----------------------|-----|---------------------|
| PTLD | | 110 | 110/2833=4% |
| Skin | | | |
| | SCC | 296 | 424/2833=15% |
| | BCC | 81 | |
| | Melanoma | 37 | |
| | Spindle Cell | 3 | |
| | Merkle Cell | 5 | |
| | Dermatofibrosarcoma | 2 | |
| | | 424 | |
| Other | | | 187/2833=7% |
| | Lung | 41 | |
| | Bowel | 24 | |
| | Prostate | 17 | |
| | Liver | 13 | |
| | Bladder | 12 | |
| | Renal | 8 | |
| | Pancreas | 8 | |
| | Oesophagus | 6 | |
| | Bone/myeloma | 6 | |
| | Breast | 6 | |
| | Tonsil/throat/tongue | 5 | |
| | Parotid | 4 | |
| | Mesothelioma | 4 | |
| | Caecum | 4 | |
| | Cervix | 3 | |
| | Thyroid/Parathyroid | 3 | |
| | Larynx | 2 | |
| | Testicle | 2 | |
| | Brain | 2 | |
| | Carcinoid Tumour | 1 | |
| | Ear/Face/Neck | 1 | |
| | Uterus | 1 | |
| | Endometrium | 1 | |
| | Leiomyosarcoma | 1 | |
| | Leukaemia | 1 | |
| | Liposarcoma | 1 | |
| | Mediastinum | 1 | |
| | Neuroblastoma | 1 | |
| | Pituitary | 1 | |
| | Seminoma | 1 | |
| | Sclera | 1 | |
| | Unspecified | 5 | |

RECIPIENT CAUSE OF DEATH – ALL HEARTS 1984 - 2017 n = 1396



| | |
|---|------------|
| Transplant Coronary Artery Disease (TxCAD) | 245 |
| Other Malignancy (non PTLD) | 215 |
| Infection | 200 |
| Acute Rejection | 137 |
| Non-specific Graft Failure (NSGF) | 93 |
| PTLD | 52 |
| CVA | 49 |
| Hemorrhage | 16 |
| OTHER TOTAL (incl unspecified) | 389 |
| Renal Failure | 87 |
| Multi-organ Failure | 44 |
| Cardiac Arrest/MI | 38 |
| Sudden Death | 35 |
| Heart Failure | 33 |
| TxCAD + Rejection | 19 |
| Pulmonary/Resp Failure | 12 |
| Non-compliance | 9 |
| Suicide | 8 |
| Pancreatitis | 7 |
| Motor Vehicle Accident | 6 |
| Bowel Ischaemia | 6 |
| Liver Failure | 5 |
| Post Surgical Complication | 5 |
| Right Ventricular Failure | 5 |
| Primary Graft Failure | 5 |
| Pulmonary Hypertension | 3 |
| Pulmonary Embolism | 3 |
| Aortic Dissection (Marfan's) | 2 |
| OTHER PRIMARY CAUSES (13) plus specific COD (28) | |
| congenital bronchomalacia(1), pericarditis(1), peripheral vascular disease(4), anoxic brain/head inj(2), acute abdomen(2), myelodysplasia(1), esophageal perforation(1), drug induced lung damage(1), esophageal diverticulum(1) COPD(3) Hepatic Encephalopathy(2) general deterioration(5), amyloidosis(1), Parkinson's(1), mesenteric ischemia(1), died on table(2), aortic aneurysm(2), DAD(1), Brain stem bleed(2), myopathy(1), stroke(2), Motor Neuron Disease(1), OB(1), Drug Overdose(2). | |
| Unspecified (data pending) | 51 |
| Total all Deaths = 1396 | |

**CAUSE OF DEATH ALL HEARTS <5 YEARS
POST Tx 1984 - 2017**

| | <u>No</u> | <u>%</u> |
|------------------------------------|-----------|----------|
| Infection | 125 | 22 |
| Rejection | 102 | 17 |
| Misc | 92 | 18 |
| Non Specific Graft Failure | 71 | 13 |
| TxCAD | 64 | 12 |
| Non PTLD Malignancy | 32 | 6 |
| Lymphoproliferative Disease (PTLD) | 12 | 2 |
| CVA | 22 | 4 |
| Hemorrhage | 13 | 2 |
| TxCAD and Rejection | 10 | 1.5 |
| Pulmonary Failure | 5 | 1 |
| Pulmonary Hypertension | 2 | 0.5 |
| No Data | 6 | 1 |
| TOTALS | 556 | 100 |

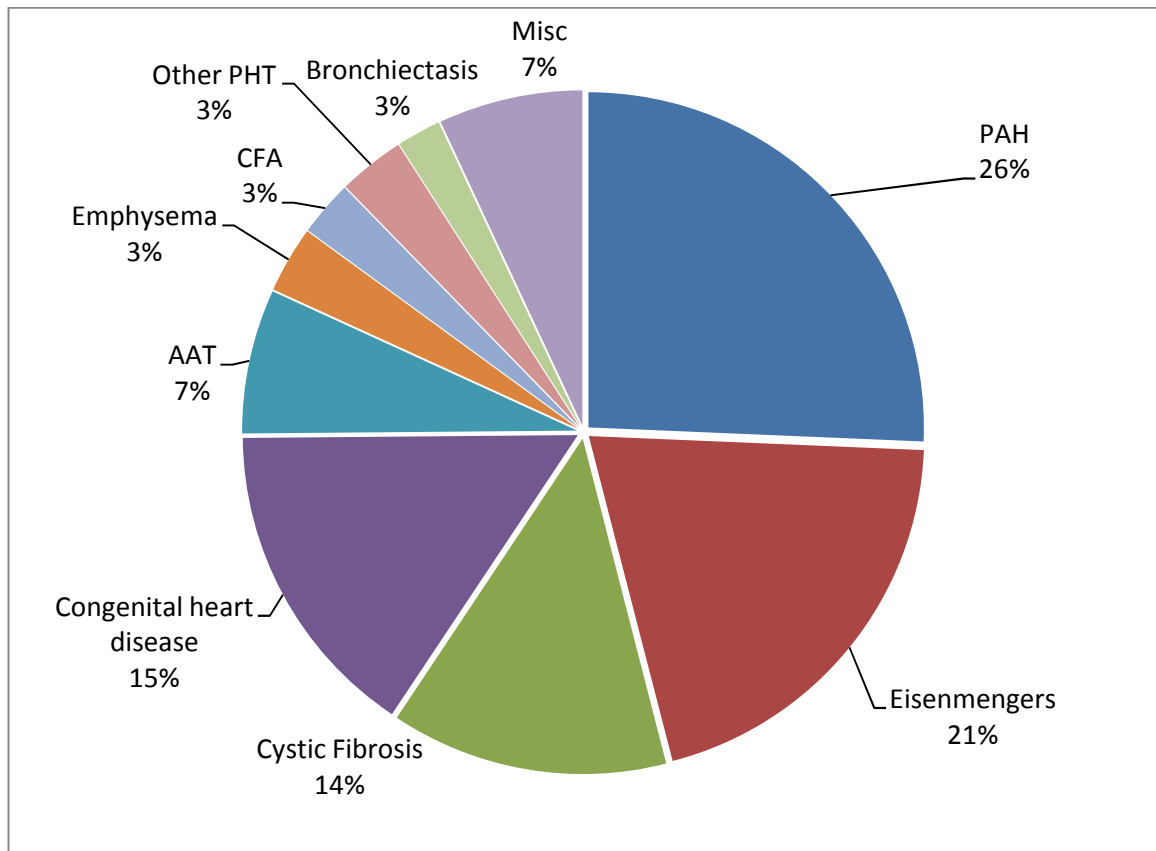
**CAUSE OF DEATH ALL HEARTS ≥5 YEARS
POST Tx 1984 - 2017**

| | <u>No</u> | <u>%</u> |
|------------------------------------|-----------|----------|
| Misc | 211 | 25 |
| TxCAD | 181 | 22 |
| Non PTLD Malignancy | 183 | 22 |
| Infection | 76 | 9 |
| Lymphoproliferative Disease (PTLD) | 40 | 5 |
| Rejection | 35 | 4 |
| CVA | 27 | 3 |
| Non Specific Graft Failure | 22 | 3 |
| Hemorrhage | 3 | 0.5 |
| Pulmonary Failure | 7 | 1 |
| TxCAD and Rejection | 9 | 1 |
| Pulmonary Hypertension | 1 | 0.5 |
| No Data | 45 | 5 |
| TOTALS | 840 | 100 |

LUNG TRANSPLANTATION

1986 - 2017

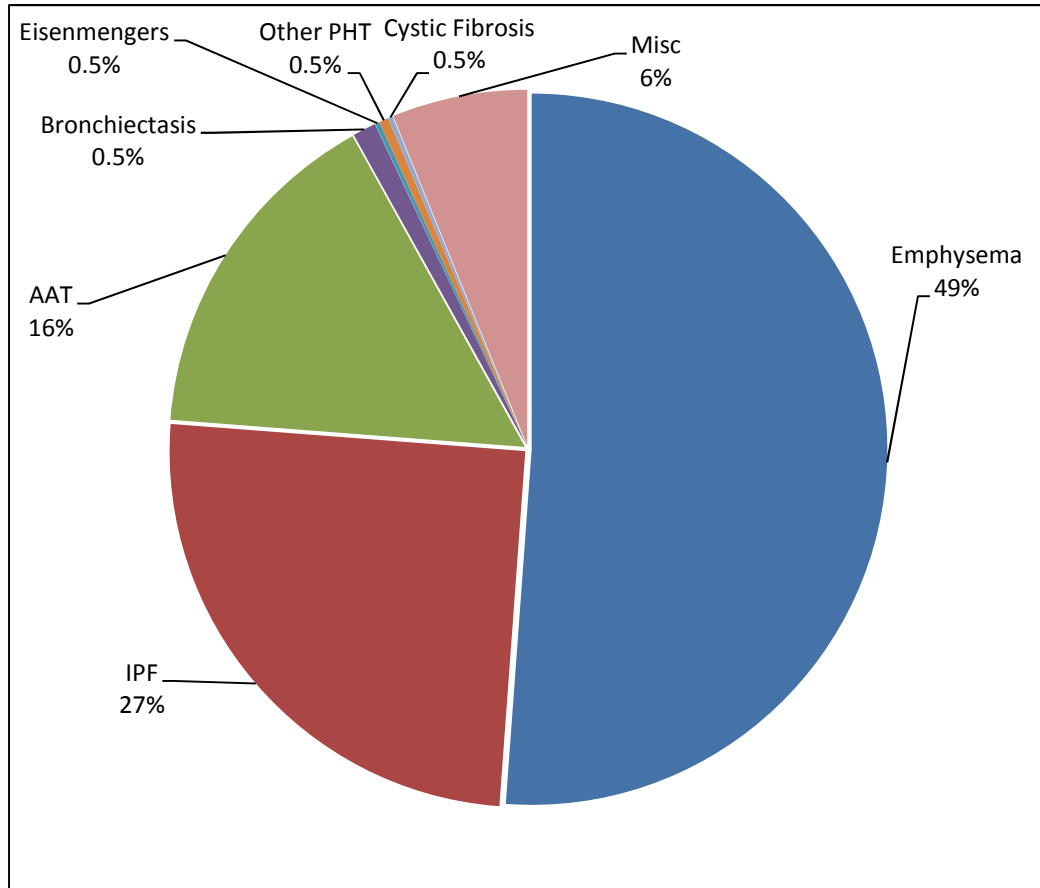
PRE TRANSPLANT DIAGNOSIS HEART LUNG 1986 – 2017 N = 201



| | |
|--------------------------------|------------|
| Primary Pulmonary Hypertension | 51 |
| Eisenmenger's Syndrome | 41 |
| Cystic Fibrosis | 27 |
| Congenital Heart Disease | 33 |
| COPD (AAT=13, Emphysema=6) | 19 |
| Other Pulmonary Hypertension | 6 |
| Idiopathic Pulmonary Fibrosis | 5 |
| Bronchiectasis | 4 |
| Miscellaneous | 15 |
| Total = | 201 |

Sarcoidosis(1), Asbestosis(1), Histiocytosis(1), Silicosis(1), Restrictive CM(1), Bilateral Anastomotic Stenosis(1)
 Prednisone induced CM(1), Asthma(1), Agammaglobulinemia(1), OB(1), Hypoplastic LH(1), asthma and DCM(1),
 Congenital cyanotic heart(1), Eosinophilic granulomatosis(1), restrictive valvular heart disease(2)

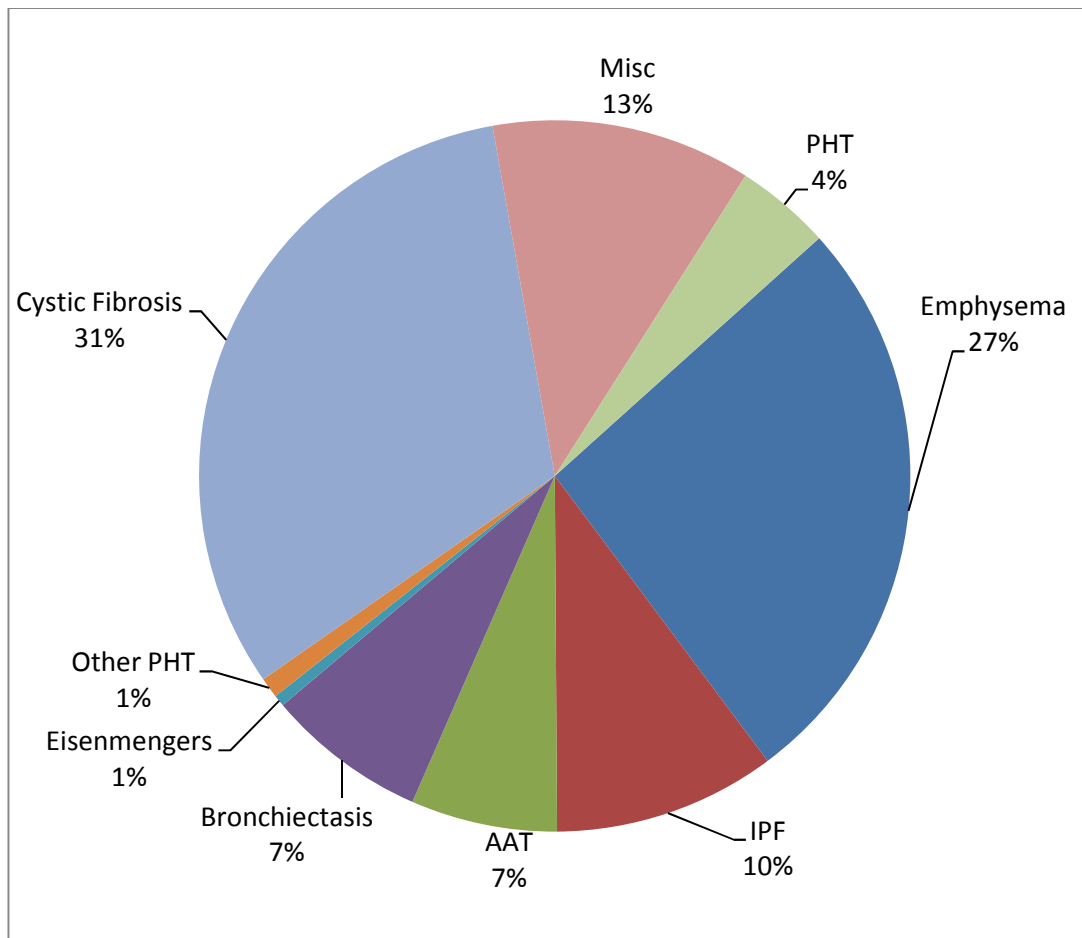
PRE TRANSPLANT DIAGNOSIS SINGLE LUNG 1990 – 2017 N = 524



| | |
|-------------------------------|------------|
| COPD (Emphysema=254, AAT= 74) | 328 |
| Idiopathic Pulmonary Fibrosis | 148 |
| Bronchiectasis | 5 |
| Other Pulmonary Hypertension | 3 |
| Cystic Fibrosis | 1 |
| Eisenmengers Syndrome | 1 |
| Miscellaneous | 38 |
| Total = | 524 |

Lymphangiioleiomyomatosis(5), OB(6), PLAM(5), sarcoidosis(4),
 pulmonary eosinophilic granulomatosis(2), allergic alveolitis(3), tuberous sclerosis(2),
 severe air flow obstruction(1), Histiocytosis X(2), alveolar cell sarcoma(1), asthma(1),
 Agammaglobulinaemia(1), hypersensitive pneumonitis(1), UIP(1), Graft v Host(1) Scleroderma(1)

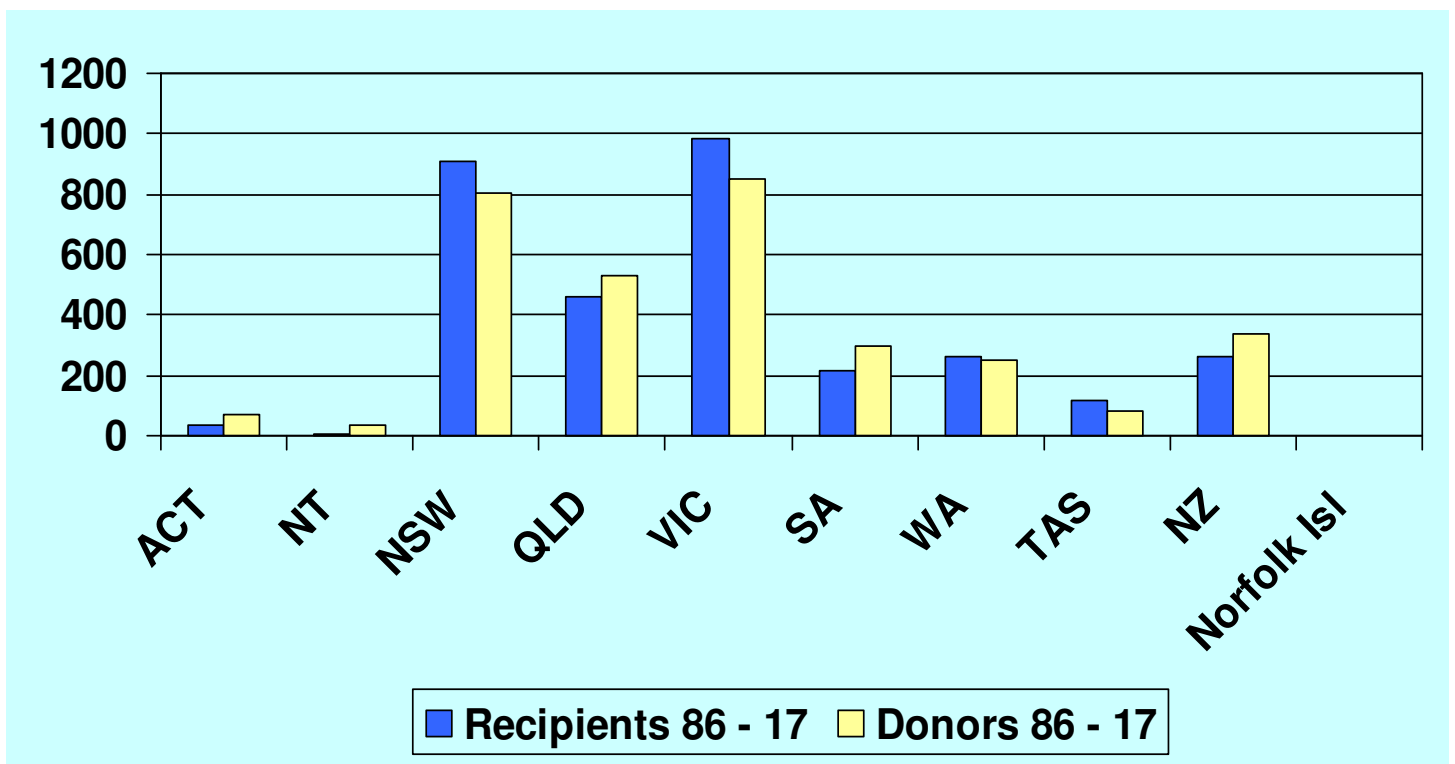
PRE TRANSPLANT DIAGNOSIS BILATERAL LUNG 1992 – 2017 N= 2533



| | |
|--------------------------------|-----|
| COPD (Emphysema=732, AAT=151) | 883 |
| Cystic Fibrosis | 741 |
| Idiopathic Pulmonary Fibrosis | 283 |
| Bronchiectasis | 165 |
| Primary Pulmonary Hypertension | 108 |
| Other Pulmonary Hypertension | 16 |
| Eisenmengers Syndrome | 10 |
| Miscellaneous | 327 |

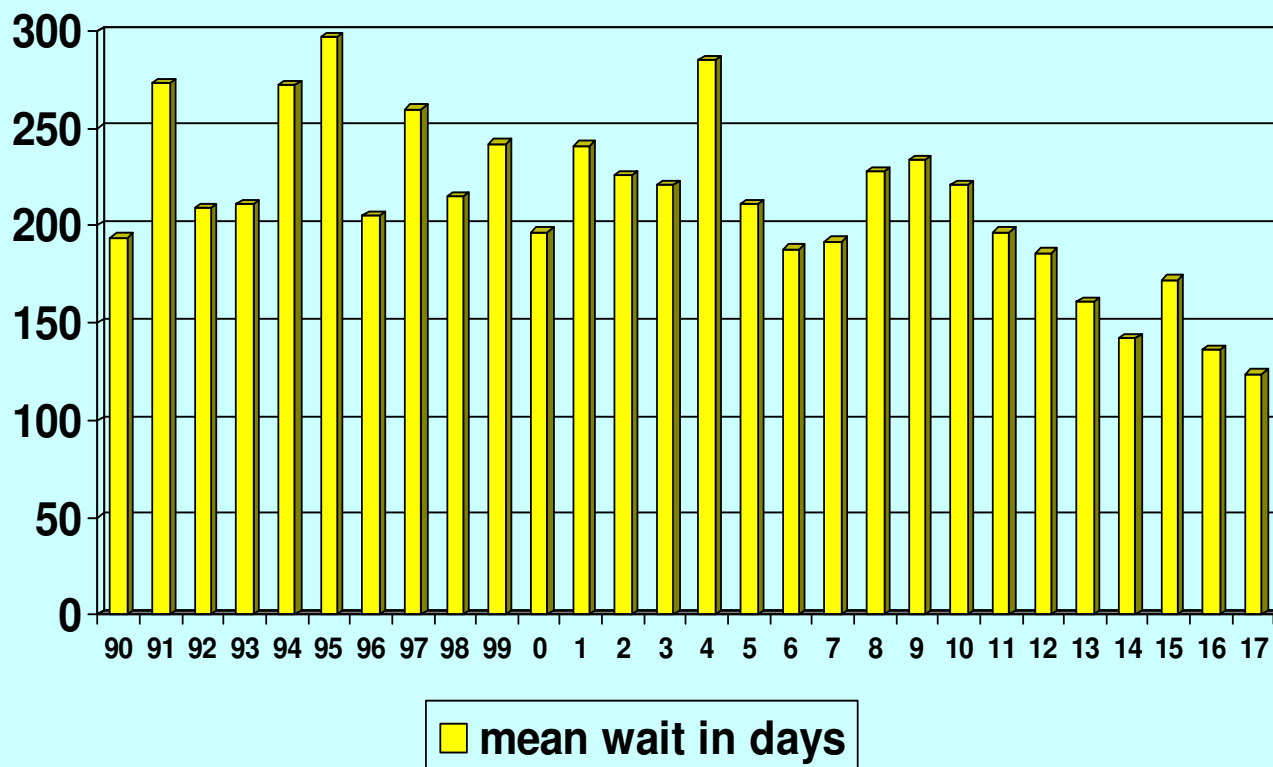
ILD(94), Retx (92), OB(27), sarcoidosis(30), PLAM (24), histiocytosis X(9), asthma (8) **TOTAL = 2533**
 alveolitis (8), eosinophilic granulomatosis (3), ARDS(3), silicosis(2), diffuse alveolar damage(2),
 cystic lung disease (2), graft v host(1),
 viral pneumonia(1), Wegeners granulomatosis (1), surfacant c protein deficiency(1),
 alveolar proteinosis(1), microlithiasis (1), pulmonary venoocclusive disease(1),
 pulmonary capillary hemangiomas (1), hypersensitivity pneumonitis(7), connective tissue disease(1)

DONOR/RECIPIENT STATE OF ORIGIN ALL LUNGS 1986 - 2017



| Location | Recipients 86-17 | % | Donors 86-17 | % | Recipients 2017 | % | Donors 2017 | % |
|--------------|------------------|--------------|--------------|--------------|-----------------|--------------|-------------|--------------|
| ACT | 36 | 1.1 | 70 | 2.1 | 3 | 1.3 | 3 | 1.3 |
| NT | 3 | 0.1 | 37 | 1.1 | 0 | 0.0 | 0 | 0.0 |
| NSW | 911 | 28.0 | 806 | 24.7 | 48 | 20.9 | 45 | 19.6 |
| QLD | 462 | 14.2 | 529 | 16.2 | 44 | 19.1 | 44 | 19.1 |
| VIC | 982 | 30.2 | 849 | 26.1 | 75 | 32.6 | 71 | 30.9 |
| SA | 216 | 6.6 | 299 | 9.2 | 17 | 7.4 | 13 | 5.7 |
| WA | 263 | 8.1 | 251 | 7.7 | 16 | 7.0 | 22 | 9.6 |
| TAS | 114 | 3.5 | 80 | 2.5 | 7 | 3.0 | 8 | 3.5 |
| NZ | 263 | 8.1 | 336 | 10.3 | 20 | 8.7 | 24 | 10.4 |
| Norfolk Isl | 1 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 |
| Total | 3251 | 100.0 | 3257 | 100.0 | 230 | 100.0 | 230 | 100.0 |

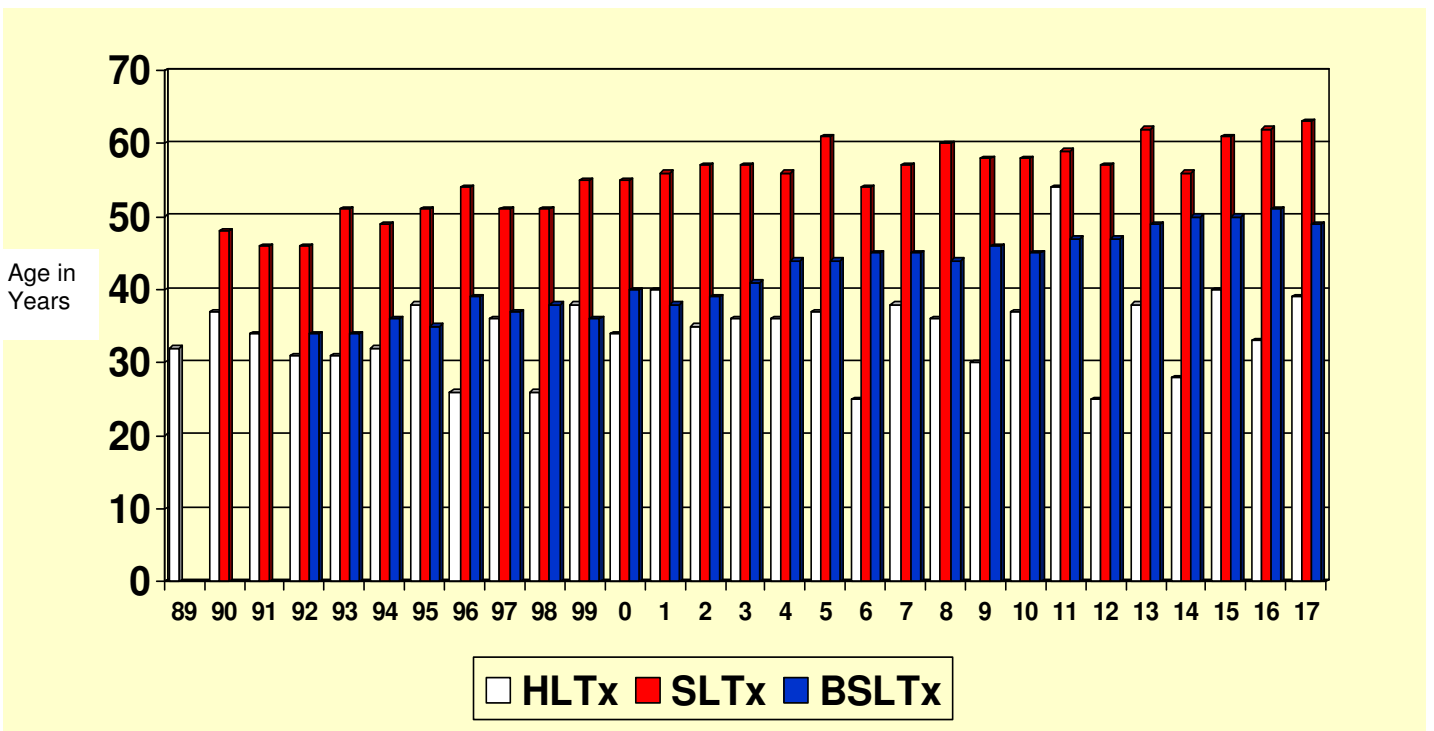
MEAN WAIT TO TRANSPLANT ALL LUNGS 1990 - 2017



| Year | n= | mean | std dev | median | min-max |
|------|-----|------|---------|--------|---------|
| 1990 | 17 | 194 | 168 | 136 | 2-500 |
| 1991 | 37 | 273 | 234 | 202 | 5-999* |
| 1992 | 48 | 209 | 217 | 148 | 1-999* |
| 1993 | 70 | 211 | 259 | 119 | 7-999* |
| 1994 | 83 | 272 | 239 | 201 | 8-999* |
| 1995 | 84 | 297 | 295 | 165 | 8-999* |
| 1996 | 81 | 205 | 205 | 132 | 7-999* |
| 1997 | 90 | 260 | 251 | 166 | 6-999* |
| 1998 | 92 | 215 | 178 | 186 | 1-999* |
| 1999 | 76 | 242 | 204 | 195 | 7-939 |
| 2000 | 103 | 197 | 199 | 135 | 1-900 |
| 2001 | 85 | 241 | 231 | 169 | 1-999* |
| 2002 | 108 | 226 | 215 | 161 | 7-999* |
| 2003 | 91 | 221 | 217 | 163 | 3-999* |
| 2004 | 109 | 285 | 256 | 197 | 4-999* |
| 2005 | 92 | 211 | 239 | 130 | 5-999* |
| 2006 | 108 | 188 | 221 | 119 | 0-999* |
| 2007 | 87 | 192 | 195 | 130 | 6-999* |
| 2008 | 120 | 228 | 244 | 130 | 1-999* |
| 2009 | 125 | 234 | 261 | 125 | 1-999* |
| 2010 | 130 | 221 | 216 | 149 | 0-999* |
| 2011 | 166 | 197 | 225 | 108 | 1-999* |
| 2012 | 156 | 186 | 216 | 120 | 0-1195 |
| 2013 | 180 | 161 | 202 | 91 | 0-1302 |
| 2014 | 177 | 142 | 170 | 79 | 1-880 |
| 2015 | 206 | 172 | 190 | 116 | 1-1291 |
| 2016 | 195 | 136 | 190 | 62 | 1-1156 |
| 2017 | 230 | 124 | 172 | 75 | 0-1382 |

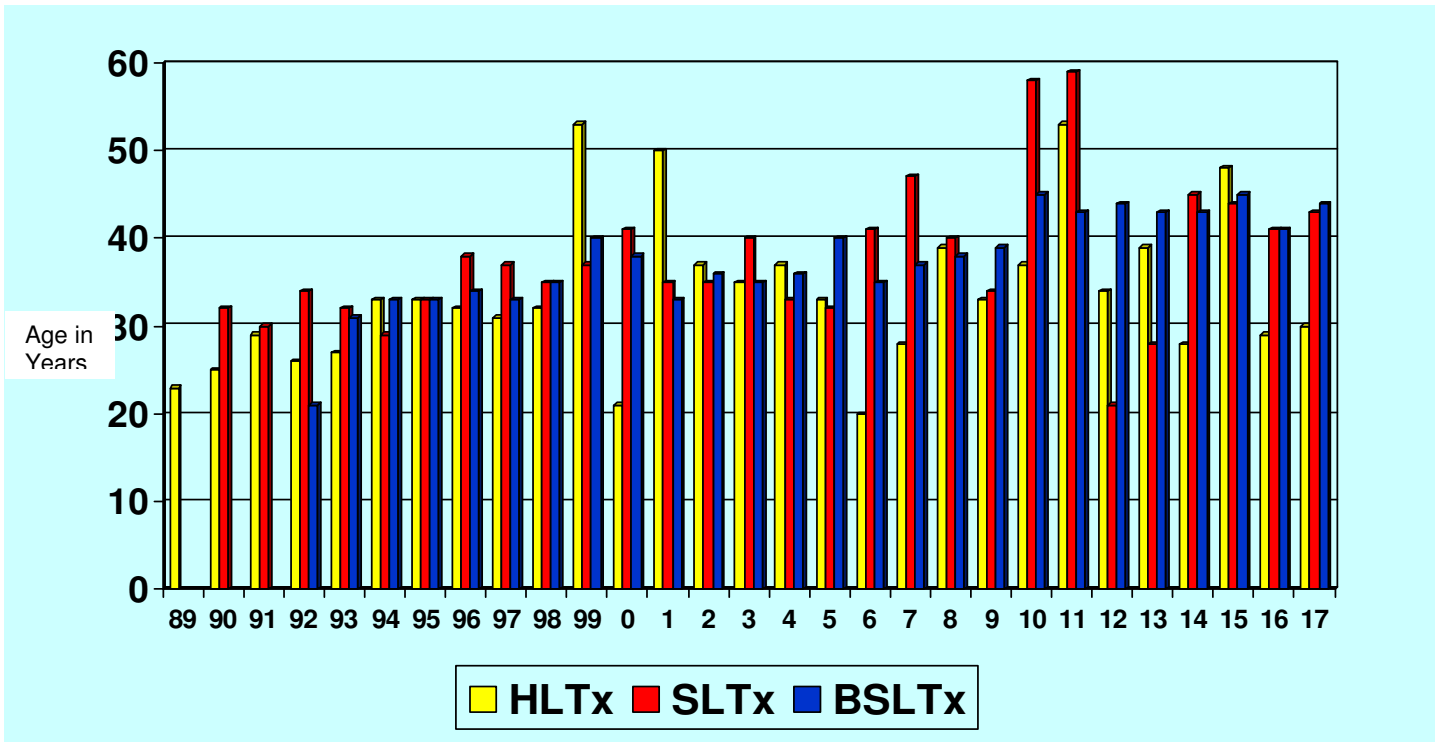
*Due to limitations in the software, values over 1000 are represented as 999

MEAN RECIPIENT AGE AT TRANSPLANT ALL LUNGS 1989 - 2017



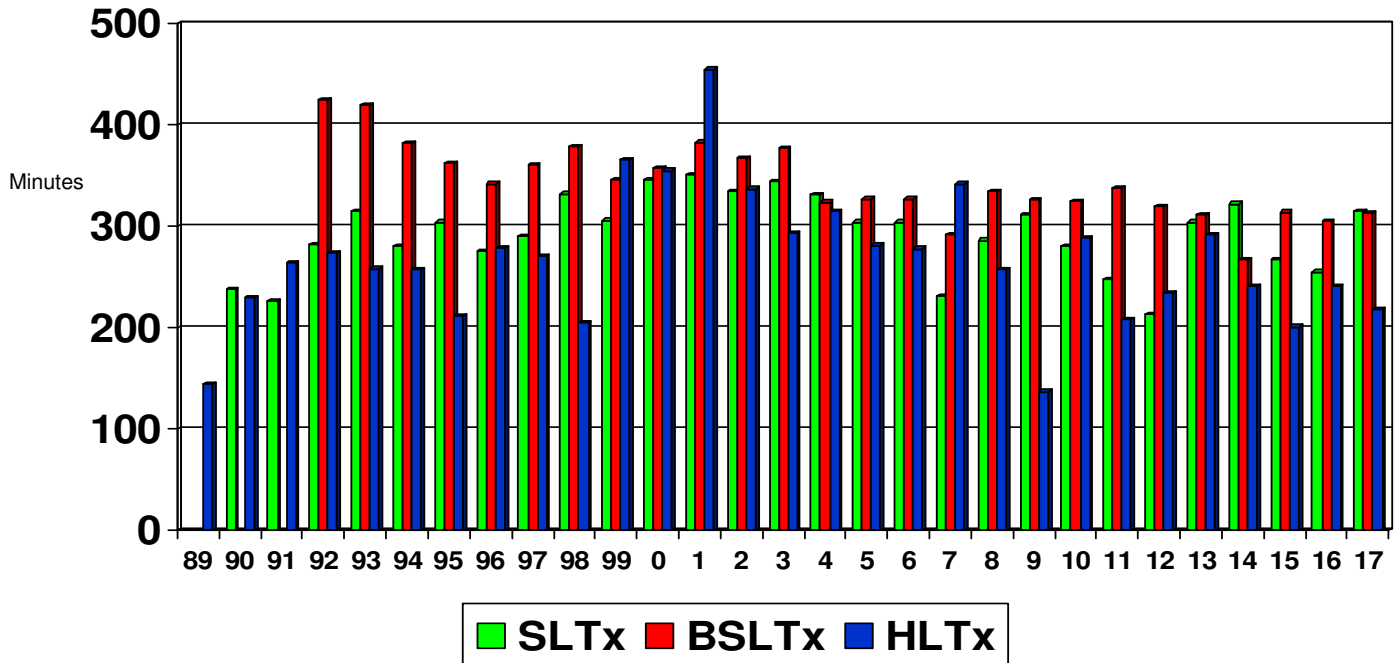
| HLTx | | | | | SLTx | | | | | BSLTx | | | | |
|------|----|------|---------|---------|------|----|------|---------|---------|-------|-----|------|---------|---------|
| year | n= | mean | std dev | min-max | year | n= | mean | std dev | min-max | year | n= | mean | std dev | min-max |
| 1989 | 11 | 32 | 12 | 11-46 | 1989 | 3 | 48 | 5 | 42-55 | 1989 | | | | |
| 1990 | 6 | 37 | 10 | 20-51 | 1990 | 14 | 46 | 8 | 32-57 | 1990 | | | | |
| 1991 | 5 | 34 | 11 | 19-46 | 1991 | 19 | 46 | 7 | 26-57 | 1991 | 3 | 34 | 17 | 19-52 |
| 1992 | 8 | 31 | 12 | 15-49 | 1992 | 14 | 51 | 3 | 46-57 | 1992 | 33 | 34 | 13 | 19-56 |
| 1993 | 6 | 31 | 13 | 12-48 | 1993 | 10 | 49 | 6 | 30-57 | 1993 | 44 | 36 | 10 | 19-54 |
| 1994 | 6 | 32 | 10 | 14-46 | 1994 | 9 | 51 | 7 | 22-59 | 1994 | 43 | 35 | 13 | 16-60 |
| 1995 | 9 | 38 | 11 | 24-52 | 1995 | 16 | 54 | 6 | 30-60 | 1995 | 42 | 39 | 14 | 13-60 |
| 1996 | 4 | 26 | 6 | 18-37 | 1996 | 10 | 51 | 6 | 35-62 | 1996 | 43 | 37 | 14 | 14-61 |
| 1997 | 3 | 36 | 9 | 23-42 | 1997 | 38 | 51 | 9 | 30-65 | 1997 | 50 | 38 | 14 | 14-60 |
| 1998 | 4 | 26 | 14 | 13-43 | 1998 | 27 | 55 | 7 | 37-64 | 1998 | 47 | 36 | 13 | 15-62 |
| 1999 | 2 | 38 | na | 22-53 | 1999 | 28 | 55 | 6 | 39-65 | 1999 | 73 | 40 | 13 | 14-63 |
| 2000 | 2 | 34 | na | 22-46 | 2000 | 29 | 56 | 9 | 32-69 | 2000 | 55 | 38 | 14 | 13-60 |
| 2001 | 1 | 40 | na | 40 | 2001 | 29 | 57 | 5 | 43-66 | 2001 | 70 | 39 | 14 | 14-65 |
| 2002 | 9 | 35 | 10 | 22-49 | 2002 | 21 | 57 | 7 | 42-66 | 2002 | 65 | 41 | 15 | 17-64 |
| 2003 | 5 | 36 | 18 | 13-55 | 2003 | 13 | 56 | 6 | 48-64 | 2003 | 90 | 44 | 14 | 15-65 |
| 2004 | 6 | 36 | 10 | 21-47 | 2004 | 10 | 61 | 3 | 57-66 | 2004 | 77 | 44 | 14 | 16-64 |
| 2005 | 5 | 37 | 8 | 25-46 | 2005 | 17 | 54 | 7 | 34-60 | 2005 | 85 | 45 | 16 | 15-66 |
| 2006 | 6 | 25 | 14 | 9-45 | 2006 | 8 | 57 | 5 | 50-64 | 2006 | 73 | 45 | 15 | 9-63 |
| 2007 | 6 | 38 | 12 | 15-48 | 2007 | 11 | 60 | 4 | 54-68 | 2007 | 106 | 44 | 15 | 15-69 |
| 2008 | 5 | 36 | 9 | 25-45 | 2008 | 12 | 58 | 14 | 14-67 | 2008 | 111 | 46 | 15 | 11-64 |
| 2009 | 2 | 30 | na | 29-31 | 2009 | 10 | 58 | 6 | 42-64 | 2009 | 117 | 45 | 16 | 11-69 |
| 2010 | 3 | 37 | 18 | 17-51 | 2010 | 12 | 59 | 5 | 53-68 | 2010 | 152 | 47 | 16 | 7-69 |
| 2011 | 2 | 54 | na | 50-57 | 2011 | 3 | 57 | 9 | 47-63 | 2011 | 149 | 47 | 15 | 12-69 |
| 2012 | 4 | 25 | 9 | 18-37 | 2012 | 5 | 62 | 5 | 56-67 | 2012 | 173 | 49 | 14 | 14-67 |
| 2013 | 2 | 38 | na | 27-49 | 2013 | 8 | 56 | 11 | 29-65 | 2013 | 164 | 50 | 15 | 15-70 |
| 2014 | 5 | 28 | 15 | 5-44 | 2014 | 11 | 61 | 4 | 50-66 | 2014 | 193 | 50 | 15 | 9-70 |
| 2015 | 2 | 40 | na | 28-51 | 2015 | 6 | 62 | 5 | 54-69 | 2015 | 184 | 51 | 13 | 12-70 |
| 2016 | 3 | 33 | 15 | 5-47 | 2016 | 20 | 63 | 7 | 46-72 | 2016 | 205 | 49 | 16 | 6-72 |
| 2017 | 5 | 39 | 3 | 36-44 | | | | | | | | | | |

MEAN DONOR AGE AT TRANSPLANT ALL LUNGS 1989 - 2017



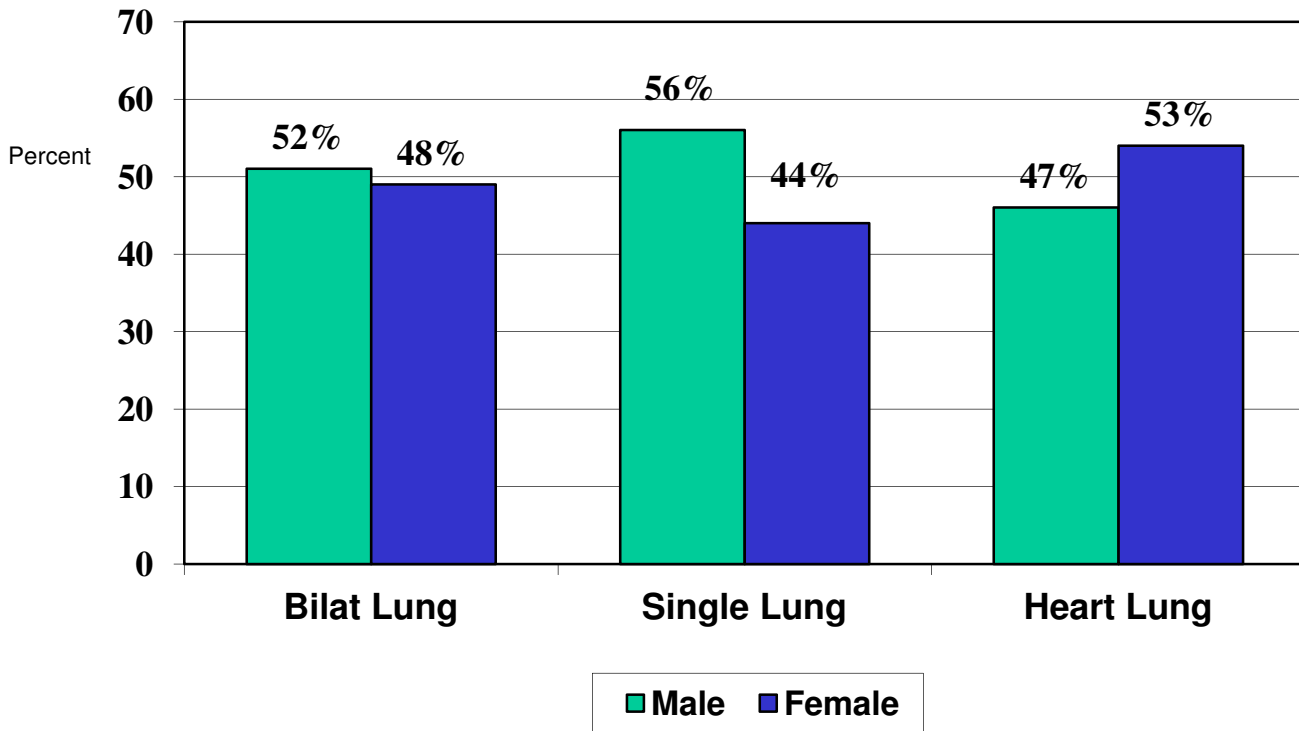
| HLTx year | n= | mean | std dev | min-max | SLTx year | n= | mean | std dev | min-max | BSLTx year | n= | mean | std dev | min-max |
|-----------|----|------|---------|---------|-----------|----|------|---------|---------|------------|-----|------|---------|---------|
| 1989 | 14 | 23 | 11 | 11-43 | 1989 | 5 | 32 | 12 | 18-49 | 1989 | | | | |
| 1990 | 12 | 25 | 10 | 12-47 | 1990 | 18 | 30 | 11 | 15-53 | 1990 | | | | |
| 1991 | 19 | 29 | 7 | 17-43 | 1991 | 27 | 34 | 9 | 18-50 | 1991 | 3 | 21 | 3 | 18-24 |
| 1992 | 18 | 26 | 11 | 11-44 | 1992 | 24 | 32 | 12 | 14-55 | 1992 | 33 | 31 | 13 | 15-55 |
| 1993 | 13 | 27 | 14 | 10-55 | 1993 | 26 | 29 | 9 | 17-50 | 1993 | 44 | 33 | 13 | 12-55 |
| 1994 | 13 | 33 | 13 | 15-53 | 1994 | 28 | 33 | 12 | 18-56 | 1994 | 43 | 33 | 12 | 9-58 |
| 1995 | 13 | 33 | 13 | 10-50 | 1995 | 32 | 38 | 12 | 14-54 | 1995 | 42 | 34 | 12 | 10-60 |
| 1996 | 7 | 32 | 16 | 14-49 | 1996 | 43 | 37 | 13 | 12-56 | 1996 | 43 | 33 | 14 | 12-55 |
| 1997 | 4 | 31 | 13 | 17-45 | 1997 | 38 | 35 | 13 | 16-58 | 1997 | 50 | 35 | 13 | 10-62 |
| 1998 | 4 | 32 | 15 | 16-51 | 1998 | 27 | 37 | 17 | 15-62 | 1998 | 47 | 40 | 14 | 14-59 |
| 1999 | 2 | 53 | na | 51-55 | 1999 | 28 | 41 | 17 | 17-66 | 1999 | 73 | 38 | 13 | 11-61 |
| 2000 | 2 | 21 | na | 15-26 | 2000 | 29 | 35 | 13 | 16-53 | 2000 | 55 | 33 | 15 | 10-59 |
| 2001 | 1 | 50 | na | 50-50 | 2001 | 29 | 35 | 13 | 12-62 | 2001 | 70 | 36 | 16 | 7-64 |
| 2002 | 9 | 37 | 12 | 18-50 | 2002 | 21 | 40 | 15 | 18-61 | 2002 | 65 | 35 | 14 | 8-62 |
| 2003 | 5 | 35 | 16 | 8-49 | 2003 | 13 | 33 | 13 | 19-56 | 2003 | 88 | 36 | 15 | 7-64 |
| 2004 | 6 | 37 | 16 | 12-52 | 2004 | 10 | 32 | 14 | 13-47 | 2004 | 77 | 40 | 13 | 9-64 |
| 2005 | 5 | 33 | 18 | 11-58 | 2005 | 17 | 41 | 18 | 13-64 | 2005 | 85 | 35 | 15 | 11-62 |
| 2006 | 6 | 20 | 16 | 7-48 | 2006 | 8 | 47 | 19 | 17-61 | 2006 | 73 | 37 | 15 | 10-62 |
| 2007 | 6 | 28 | 16 | 13-50 | 2007 | 11 | 40 | 12 | 19-56 | 2007 | 106 | 38 | 15 | 9-67 |
| 2008 | 5 | 39 | 18 | 17-58 | 2008 | 12 | 34 | 19 | 16-62 | 2008 | 111 | 39 | 16 | 15-65 |
| 2009 | 2 | 33 | na | 15-50 | 2009 | 10 | 58 | 6 | 42-64 | 2009 | 117 | 42 | 15 | 5-70 |
| 2010 | 3 | 37 | 18 | 17-51 | 2010 | 12 | 59 | 5 | 53-68 | 2010 | 149 | 43 | 17 | 8-72 |
| 2011 | 2 | 53 | na | 46-60 | 2011 | 3 | 21 | 3 | 18-23 | 2011 | 150 | 44 | 16 | 11-73 |
| 2012 | 4 | 34 | 11 | 23-43 | 2012 | 5 | 28 | 10 | 18-41 | 2012 | 173 | 43 | 17 | 9-74 |
| 2013 | 2 | 39 | na | 30-47 | 2013 | 8 | 45 | 14 | 28-62 | 2013 | 164 | 43 | 15 | 8-70 |
| 2014 | 5 | 28 | 16 | 4-44 | 2014 | 11 | 44 | 15 | 22-66 | 2014 | 193 | 45 | 16 | 8-75 |
| 2015 | 2 | 48 | na | 37-58 | 2015 | 6 | 41 | 23 | 16-69 | 2015 | 184 | 41 | 17 | 10-74 |
| 2016 | 6 | 29 | 15 | 8-51 | 2016 | 20 | 43 | 13 | 21-67 | 2016 | 205 | 44 | 17 | 3-74 |
| 2017 | 5 | 30 | 5 | 23-35 | | | | | | | | | | |

ALL LUNGS MEAN COLD ISCHEMIC TIME 1989 - 2017



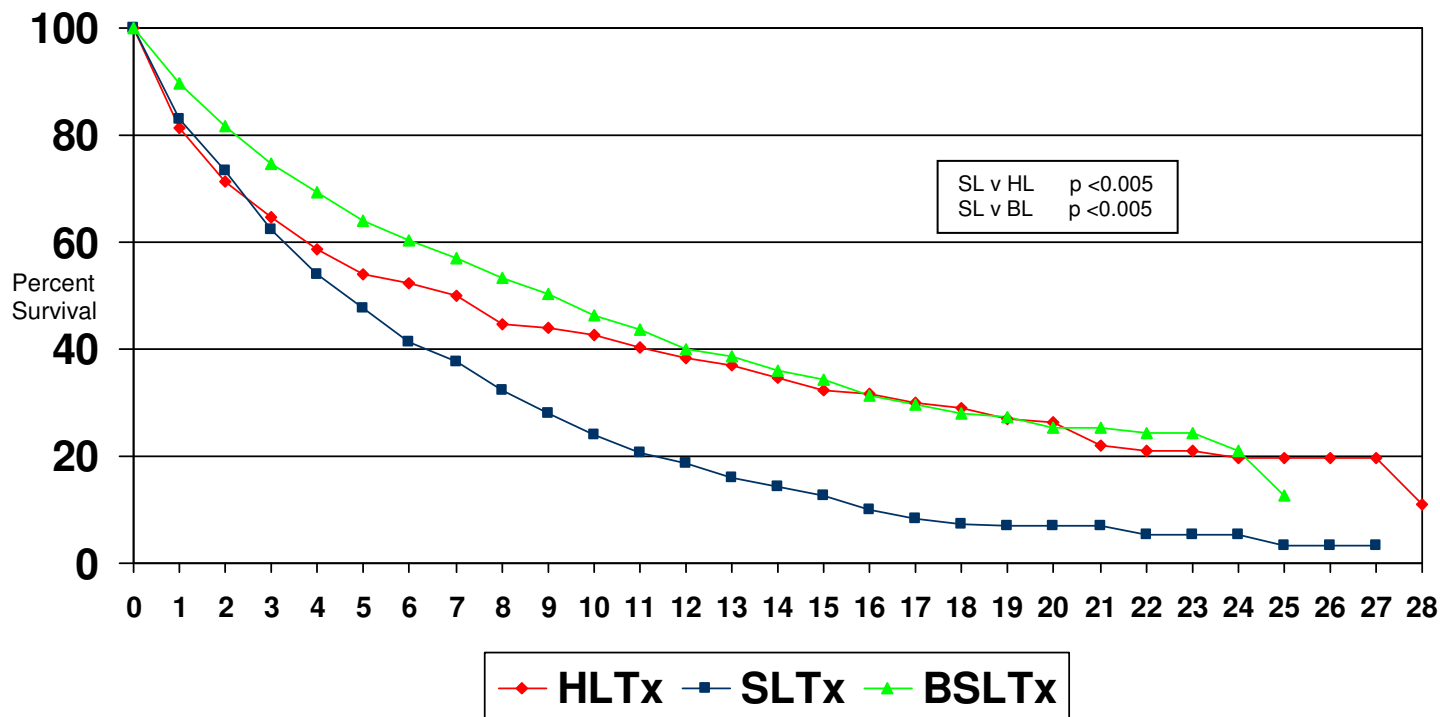
| Year | HLTx mean | std dev | min-max | SLTx mean | std dev | min-max | BSLTx mean | std dev | min-max |
|------|--------------|---------|---------|--------------|---------|---------|---------------|---------|---------|
| 1989 | 144 | 40 | 99-207 | | | | | | |
| 1990 | 230 | 103 | 103-408 | 238 | 47 | 180-310 | | | |
| 1991 | 264 | 144 | 98-705 | 226 | 108 | 18-450 | | | |
| 1992 | 274 | 100 | 107-419 | 282 | 107 | 103-455 | 425 | 52 | 390-485 |
| 1993 | 258 | 89 | 167-413 | 315 | 124 | 155-543 | 420 | 85 | 221-568 |
| 1994 | 257 | 99 | 137-500 | 280 | 109 | 110-465 | 382 | 127 | 195-655 |
| 1995 | 211 | 61 | 130-310 | 304 | 94 | 144-485 | 362 | 117 | 180-600 |
| 1996 | 279 | 116 | 188-496 | 276 | 123 | 105-515 | 342 | 127 | 157-656 |
| 1997 | 270 | 146 | 144-472 | 290 | 117 | 110-525 | 361 | 135 | 100-675 |
| 1998 | 205 | 50 | 144-251 | 332 | 141 | 97-740 | 379 | 123 | 160-623 |
| 1999 | 366 | na | 350-381 | 306 | 111 | 138-560 | 346 | 108 | 121-579 |
| 2000 | 355 | na | 199-510 | 346 | 153 | 93-612 | 357 | 123 | 144-655 |
| 2001 | 455 | na | 455 | 351 | 133 | 117-623 | 383 | 122 | 198-815 |
| 2002 | 337 | 108 | 186-456 | 335 | 128 | 99-564 | 367 | 125 | 156-850 |
| 2003 | 293 | 146 | 118-460 | 344 | 123 | 122-510 | 377 | 112 | 185-635 |
| 2004 | 315 | 115 | 168-448 | 331 | 193 | 155-735 | 324 | 109 | 150-735 |
| 2005 | 281 | 174 | 112-509 | 304 | 111 | 141-452 | 327 | 84 | 131-540 |
| 2006 | 278 | 105 | 161-402 | 304 | 146 | 120-532 | 327 | 104 | 95-625 |
| 2007 | 231 | 49 | 176-308 | 292 | 146 | 140-570 | 342 | 121 | 127-609 |
| 2008 | 257 | 104 | 140-402 | 286 | 91 | 185-423 | 335 | 115 | 129-880 |
| 2009 | 137 | na | 109-164 | 311 | 116 | 145-535 | 326 | 114 | 119-635 |
| 2010 | 289 | 115 | 207-420 | 280 | 111 | 150-450 | 325 | 91 | 160-577 |
| 2011 | 208 | na | 177-238 | 247 | 85 | 144-385 | 338 | 97 | 128-657 |
| 2012 | 234 | 76 | 125-289 | 213 | 77 | 134-287 | 320 | 108 | 124-622 |
| 2013 | 292 | na | 283-300 | 304 | 151 | 119-486 | 311 | 107 | 125-639 |
| 2014 | 241 | 94 | 122-344 | 322 | 129 | 178-534 | 267 | 98 | 100-645 |
| 2015 | 201 | na | 78-324 | 267 | 98 | 132-415 | 314 | 96 | 105-653 |
| 2016 | 241 | 60 | 168-339 | 255 | 103 | 114-428 | 305 | 99 | 96-593 |
| 2017 | 218 | 90 | 149-375 | 315 | 137 | 114-629 | 313 | 94 | 99-597 |

RECIPIENT GENDER ALL LUNG TRANSPLANTS 1986 - 2017



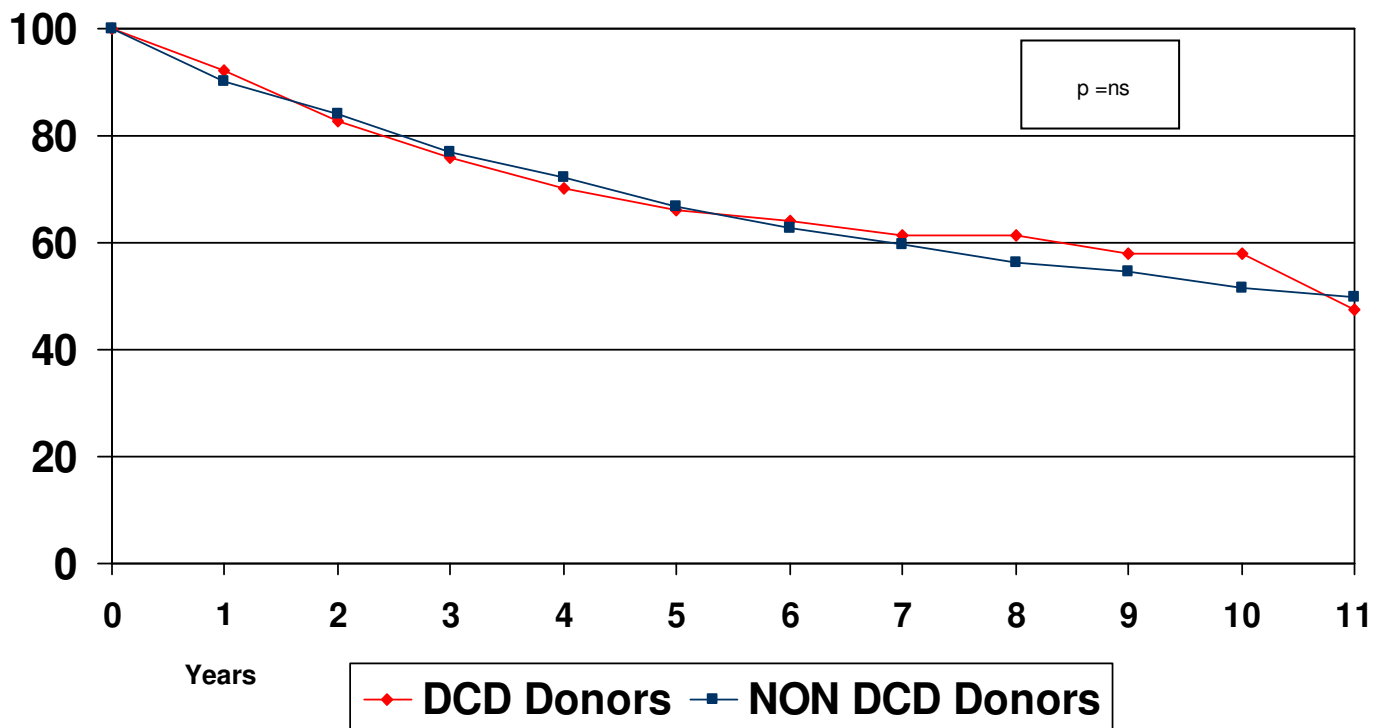
| Transplant Type | Male n= | % | Female n= | % |
|-----------------|---------|----|-----------|----|
| Bilateral Lung | 1328 | 52 | 1205 | 49 |
| Single Lung | 295 | 56 | 231 | 44 |
| Heart Lung | 94 | 47 | 107 | 53 |

CUTLER-EDERER SURVIVAL ALL LUNG TRANSPLANTS 1986 – 2017



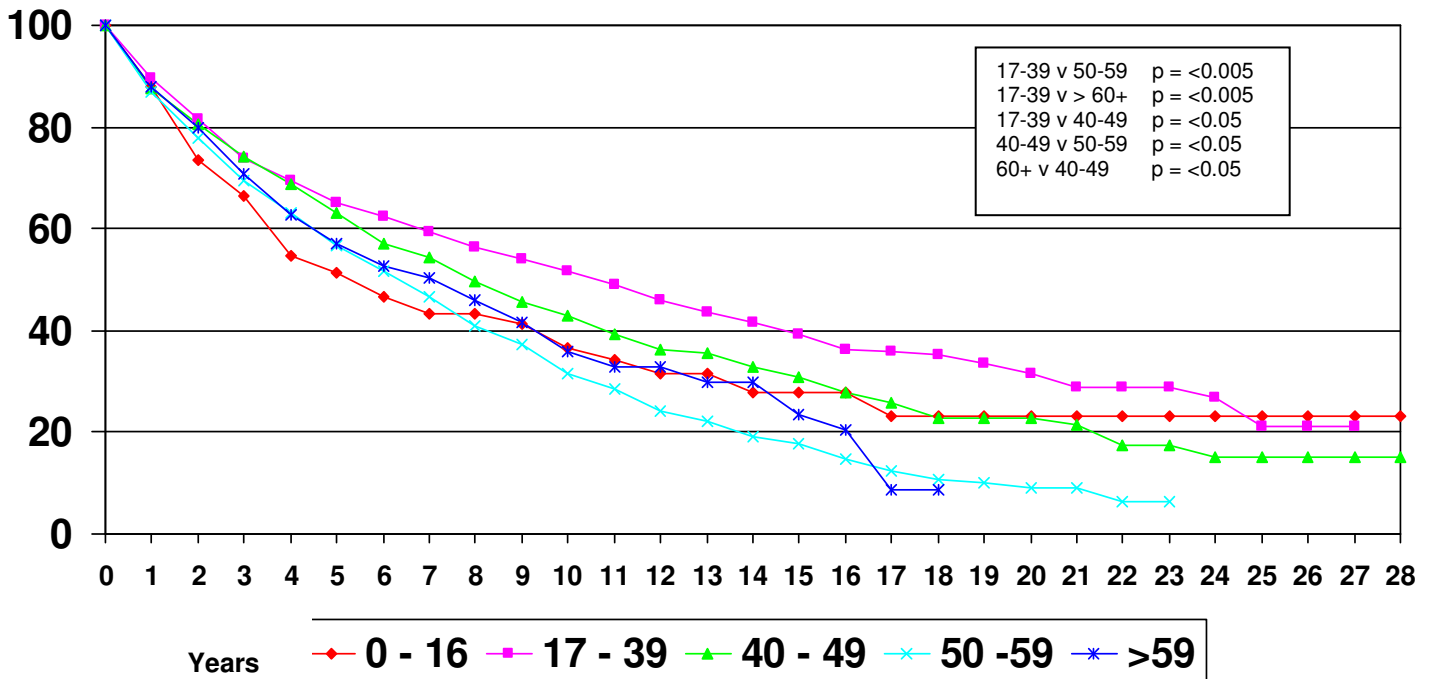
| Year | HLTx | | SLTx | | BSLTx | |
|------|------|-------|------|-------|-------|-------|
| | n= | % | n= | % | n= | % |
| 0 | 201 | 100.0 | 526 | 100.0 | 2533 | 100.0 |
| 1 | 159 | 81.4 | 428 | 82.9 | 2131 | 89.6 |
| 2 | 136 | 71.5 | 368 | 73.5 | 1772 | 81.7 |
| 3 | 120 | 64.6 | 302 | 62.3 | 1454 | 74.6 |
| 4 | 106 | 58.6 | 256 | 54.0 | 1216 | 69.4 |
| 5 | 93 | 54.1 | 222 | 47.8 | 996 | 64.1 |
| 6 | 89 | 52.3 | 191 | 41.4 | 831 | 60.2 |
| 7 | 84 | 50.0 | 168 | 37.6 | 694 | 56.9 |
| 8 | 75 | 44.6 | 142 | 32.2 | 568 | 53.3 |
| 9 | 73 | 44.0 | 121 | 28.1 | 479 | 50.2 |
| 10 | 70 | 42.8 | 100 | 23.9 | 388 | 46.3 |
| 11 | 64 | 40.3 | 86 | 20.7 | 329 | 43.7 |
| 12 | 57 | 38.4 | 73 | 18.7 | 263 | 39.9 |
| 13 | 51 | 37.0 | 59 | 16.1 | 227 | 38.6 |
| 14 | 46 | 34.7 | 50 | 14.4 | 188 | 36.1 |
| 15 | 41 | 32.4 | 41 | 12.6 | 142 | 34.2 |
| 16 | 37 | 31.6 | 26 | 9.9 | 104 | 31.2 |
| 17 | 33 | 29.9 | 20 | 8.4 | 79 | 29.6 |
| 18 | 32 | 28.9 | 15 | 7.5 | 63 | 28.0 |
| 19 | 29 | 27.1 | 11 | 6.9 | 49 | 27.5 |
| 20 | 27 | 26.2 | 11 | 6.9 | 32 | 25.5 |
| 21 | 21 | 22.1 | 10 | 6.9 | 21 | 25.5 |
| 22 | 18 | 21.0 | 6 | 5.4 | 16 | 24.2 |
| 23 | 17 | 21.0 | 3 | 5.4 | 10 | 24.2 |
| 24 | 14 | 19.7 | 3 | 5.4 | 4 | 20.9 |
| 25 | 11 | 19.7 | 1 | 3.2 | 3 | 12.6 |
| 26 | 6 | 19.7 | 1 | 3.2 | | |
| 27 | 5 | 19.7 | | | | |
| 28 | 2 | 11.0 | | | | |

CUTLER-EDERER SURVIVAL DCD BSLTX DONORS v NON DCD BSLTX DONORS 2006 – 2017



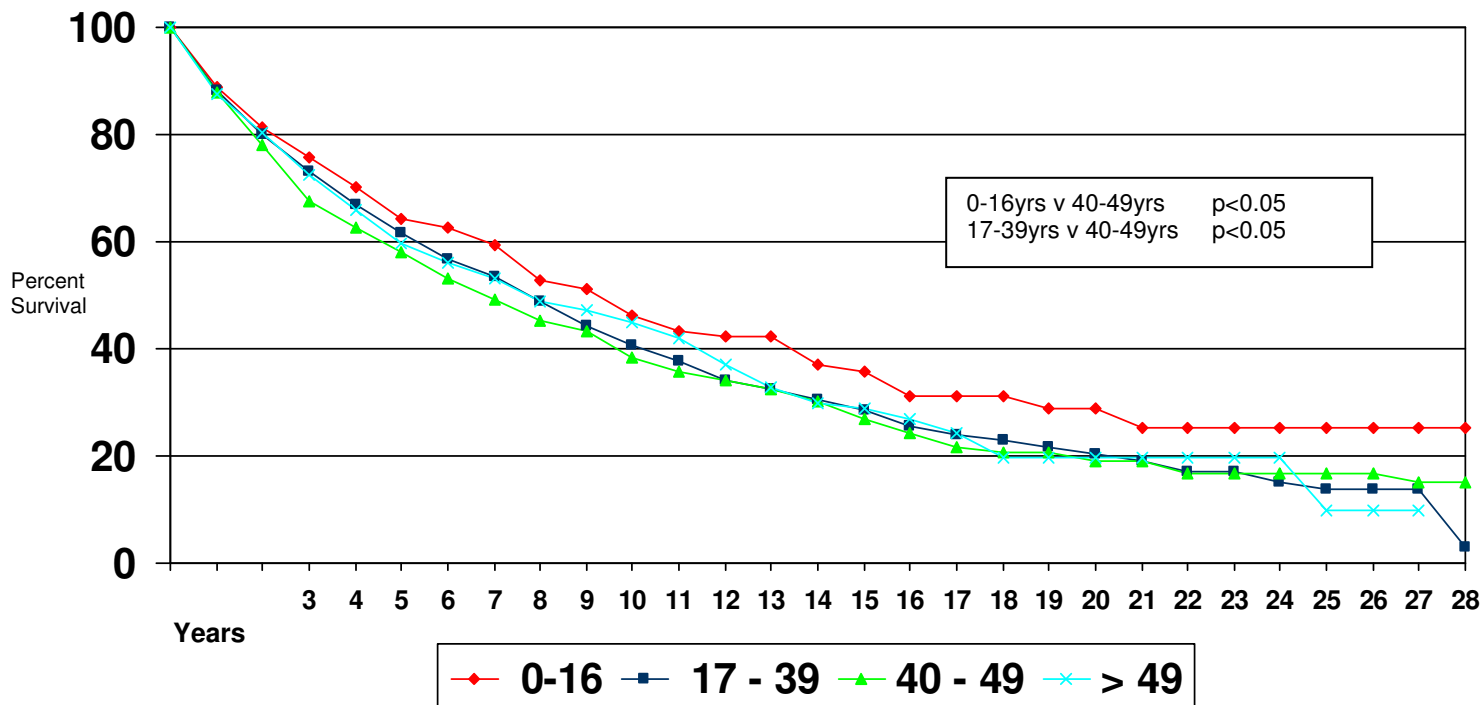
| Year | DCD ONLY | | NON DCD | |
|------|----------|-------|---------|-------|
| | n= | % | n= | % |
| 0 | 316 | 100.0 | 1462 | 100.0 |
| 1 | 253 | 92.2 | 1219 | 90.3 |
| 2 | 192 | 82.8 | 996 | 84.0 |
| 3 | 137 | 76.0 | 789 | 77.0 |
| 4 | 94 | 70.3 | 638 | 72.3 |
| 5 | 72 | 66.2 | 480 | 66.8 |
| 6 | 52 | 64.1 | 363 | 62.7 |
| 7 | 35 | 61.2 | 271 | 59.8 |
| 8 | 24 | 61.2 | 186 | 56.2 |
| 9 | 11 | 57.8 | 135 | 54.5 |
| 10 | 9 | 57.8 | 77 | 51.5 |
| 11 | 1 | 47.3 | 44 | 49.8 |

CUTLER-EDERER SURVIVAL RECIPIENT AGE ALL LUNGS 1986 – 2017



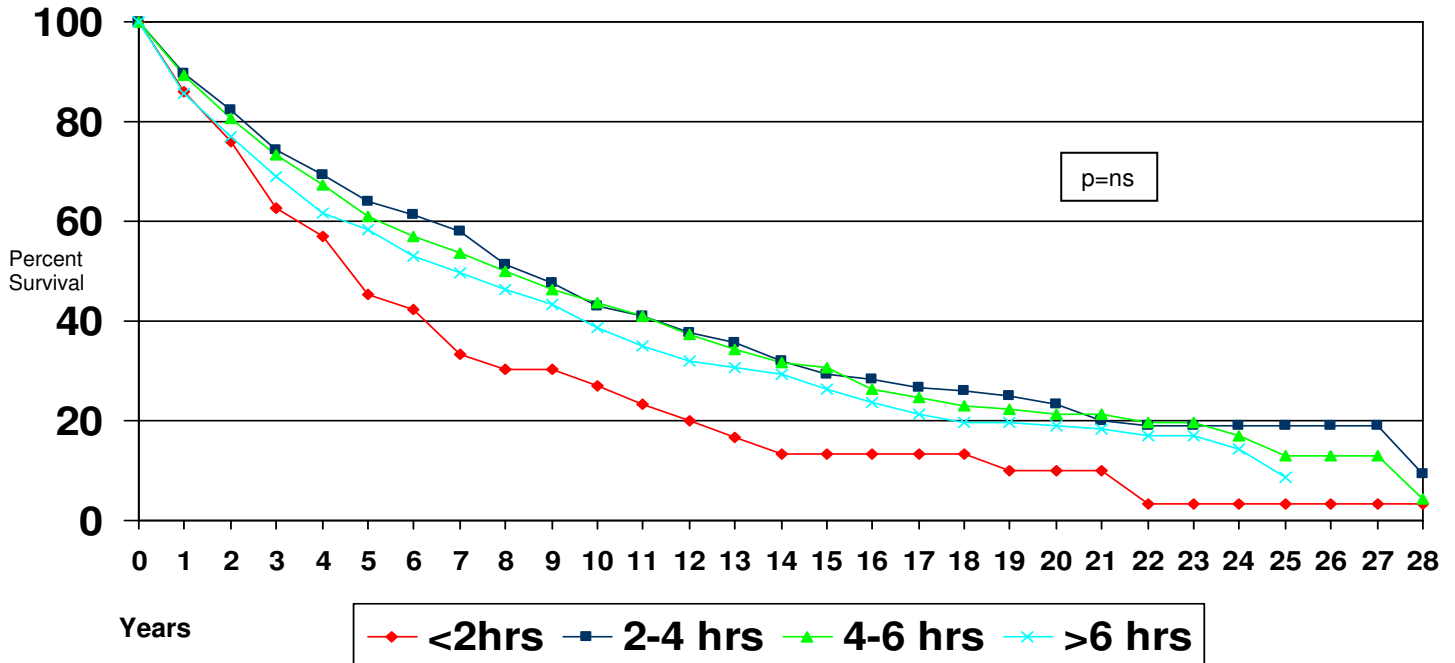
| Year | 0 - 16 | | 17 - 39 | | 40 - 49 | | 50 - 59 | | >59 | |
|------|--------|-------|---------|-------|---------|-------|---------|-------|-----|-------|
| | n= | % | n= | % | n= | % | n= | % | n= | % |
| 0 | 85 | 100.0 | 992 | 100.0 | 558 | 100.0 | 1024 | 100.0 | 601 | 100.0 |
| 1 | 69 | 87.8 | 854 | 89.5 | 476 | 87.7 | 850 | 86.8 | 469 | 87.9 |
| 2 | 55 | 73.5 | 734 | 81.5 | 410 | 80.4 | 710 | 78.0 | 367 | 80.0 |
| 3 | 46 | 66.6 | 630 | 73.9 | 351 | 74.3 | 581 | 69.4 | 268 | 70.8 |
| 4 | 35 | 54.6 | 556 | 69.5 | 306 | 68.9 | 488 | 63.2 | 193 | 62.7 |
| 5 | 33 | 51.5 | 486 | 65.2 | 258 | 63.0 | 393 | 56.7 | 141 | 56.9 |
| 6 | 29 | 46.7 | 425 | 62.3 | 217 | 57.0 | 327 | 51.8 | 113 | 52.6 |
| 7 | 23 | 43.3 | 379 | 59.5 | 190 | 54.2 | 260 | 46.8 | 94 | 50.2 |
| 8 | 21 | 43.3 | 327 | 56.3 | 156 | 49.7 | 213 | 40.9 | 68 | 46.0 |
| 9 | 19 | 41.2 | 292 | 54.1 | 134 | 45.5 | 174 | 37.2 | 54 | 41.7 |
| 10 | 16 | 36.7 | 256 | 51.6 | 112 | 43.0 | 136 | 31.5 | 38 | 35.8 |
| 11 | 13 | 34.3 | 225 | 49.1 | 96 | 39.4 | 115 | 28.4 | 30 | 32.8 |
| 12 | 10 | 31.4 | 189 | 45.9 | 82 | 36.4 | 87 | 24.2 | 25 | 32.8 |
| 13 | 9 | 31.4 | 160 | 43.6 | 75 | 35.5 | 75 | 22.2 | 18 | 29.9 |
| 14 | 7 | 27.7 | 140 | 41.6 | 64 | 33.0 | 59 | 19.1 | 14 | 29.9 |
| 15 | 7 | 27.7 | 109 | 39.3 | 53 | 30.8 | 44 | 17.7 | 11 | 23.5 |
| 16 | 6 | 27.7 | 87 | 36.2 | 44 | 27.8 | 26 | 14.9 | 4 | 20.5 |
| 17 | 5 | 23.1 | 72 | 35.8 | 36 | 25.8 | 18 | 12.4 | 1 | 8.8 |
| 18 | 4 | 23.1 | 67 | 35.3 | 26 | 22.7 | 13 | 10.9 | | |
| 19 | 4 | 23.1 | 54 | 33.6 | 21 | 22.7 | 10 | 10.0 | | |
| 20 | 3 | 23.1 | 41 | 31.5 | 19 | 22.7 | 7 | 8.9 | | |
| 21 | 3 | 23.1 | 29 | 28.9 | 16 | 21.4 | 4 | 8.9 | | |
| 22 | 3 | 23.1 | 23 | 28.9 | 12 | 17.3 | 2 | 6.4 | | |
| 23 | 3 | 23.1 | 18 | 28.9 | 9 | 17.3 | | | | |
| 24 | 3 | 23.1 | 11 | 27.0 | 7 | 15.2 | | | | |
| 25 | 2 | 23.1 | 5 | 21.0 | 5 | 15.2 | | | | |
| 26 | 1 | 23.1 | 3 | 21.0 | 3 | 15.2 | | | | |
| 27 | 1 | 23.1 | 2 | 21.0 | 2 | 15.2 | | | | |
| 28 | 1 | 23.1 | | | 2 | 15.2 | | | | |

CUTLER-EDERER SURVIVAL DONOR AGE ALL LUNGS 1986 - 2017



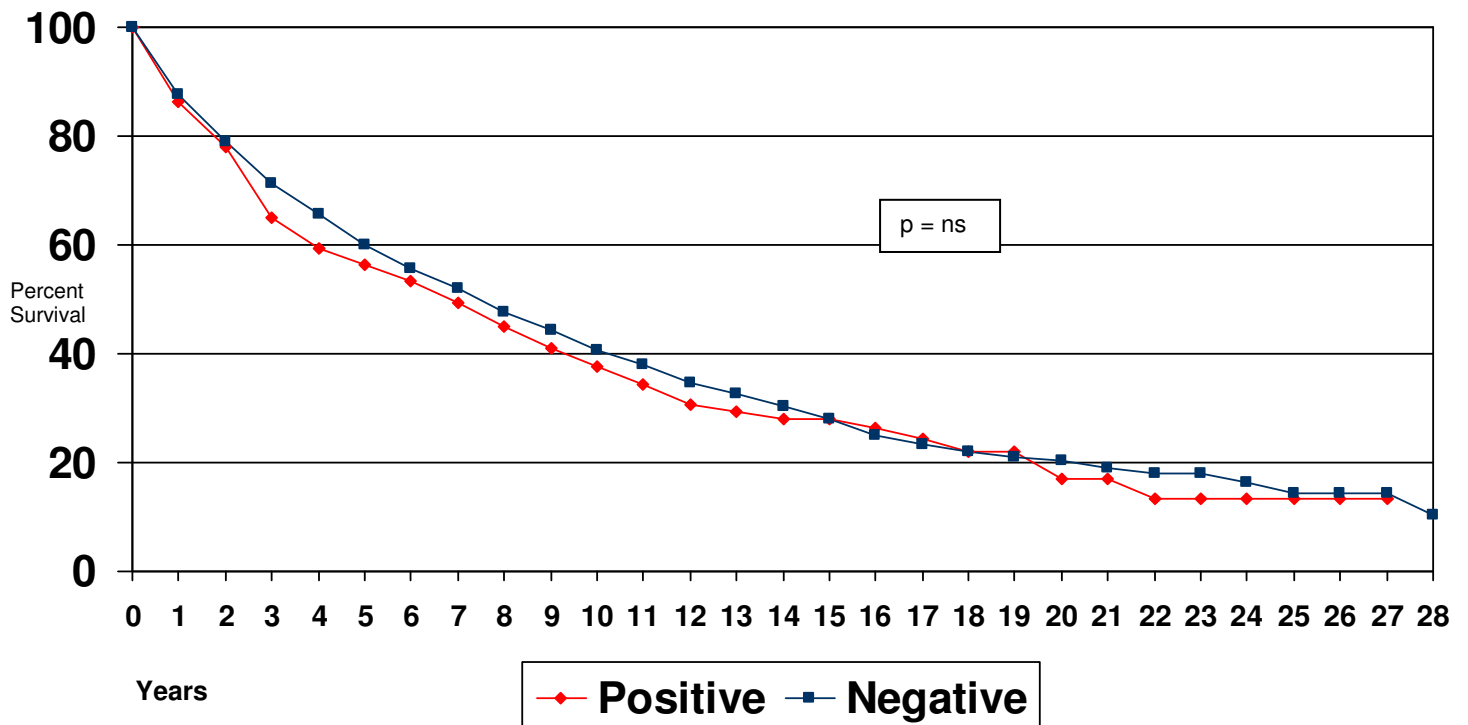
| Year | 0-16 | | 17 - 39 | | 40 - 49 | | 50+ | |
|------|------|-------|---------|-------|---------|-------|-----|-------|
| | n= | % | n= | % | n= | % | n= | % |
| 0 | 216 | 100.0 | 1399 | 100.0 | 701 | 100.0 | 943 | 100.0 |
| 1 | 185 | 88.7 | 1172 | 88.3 | 594 | 87.8 | 766 | 87.6 |
| 2 | 159 | 81.3 | 991 | 80.0 | 490 | 78.0 | 635 | 80.3 |
| 3 | 143 | 75.6 | 836 | 73.2 | 391 | 67.6 | 505 | 72.3 |
| 4 | 124 | 70.1 | 719 | 67.0 | 333 | 62.7 | 401 | 65.9 |
| 5 | 109 | 64.4 | 617 | 61.7 | 276 | 58.0 | 308 | 59.7 |
| 6 | 99 | 62.5 | 530 | 56.7 | 230 | 53.2 | 251 | 56.1 |
| 7 | 86 | 59.2 | 471 | 53.3 | 196 | 49.1 | 192 | 53.2 |
| 8 | 69 | 52.7 | 399 | 49.0 | 162 | 45.4 | 154 | 49.0 |
| 9 | 63 | 51.2 | 336 | 44.4 | 142 | 43.3 | 131 | 47.3 |
| 10 | 52 | 46.1 | 286 | 40.7 | 112 | 38.2 | 107 | 45.0 |
| 11 | 44 | 43.3 | 247 | 37.6 | 98 | 35.7 | 89 | 41.9 |
| 12 | 38 | 42.2 | 204 | 34.0 | 82 | 34.2 | 68 | 36.9 |
| 13 | 33 | 42.2 | 183 | 32.4 | 65 | 32.4 | 55 | 32.9 |
| 14 | 28 | 37.0 | 157 | 30.6 | 56 | 30.3 | 42 | 29.7 |
| 15 | 26 | 35.7 | 121 | 28.4 | 42 | 26.8 | 34 | 28.9 |
| 16 | 20 | 31.3 | 92 | 25.6 | 34 | 24.1 | 20 | 26.9 |
| 17 | 16 | 31.3 | 75 | 23.9 | 23 | 21.7 | 17 | 24.1 |
| 18 | 15 | 31.3 | 63 | 22.8 | 19 | 20.7 | 12 | 19.6 |
| 19 | 11 | 29.0 | 54 | 21.7 | 15 | 20.7 | 8 | 19.6 |
| 20 | 9 | 29.0 | 44 | 20.4 | 10 | 19.1 | 7 | 19.6 |
| 21 | 5 | 25.1 | 33 | 18.9 | 9 | 19.1 | 5 | 19.6 |
| 22 | 4 | 25.1 | 26 | 17.1 | 5 | 16.6 | 5 | 19.6 |
| 23 | 4 | 25.1 | 21 | 17.1 | 3 | 16.6 | 2 | 19.6 |
| 24 | 3 | 25.1 | 14 | 15.2 | 2 | 16.6 | 2 | 19.6 |
| 25 | 2 | 25.1 | 8 | 13.9 | 1 | 16.6 | 1 | 9.8 |
| 26 | 2 | 25.1 | 4 | 13.9 | 3 | 16.6 | 1 | 9.8 |
| 27 | 2 | 25.1 | 3 | 13.9 | 2 | 15.2 | 1 | 9.8 |
| 28 | 2 | 25.1 | 3 | 2.8 | 2 | 15.2 | | |

CUTLER-EDERER SURVIVAL ISCHEMIC TIME ALL LUNGS 1986 – 2017



| Year | <2hrs | | 2-4 hrs | | 4-6 hrs | | >6 hrs | |
|------|-------|-------|---------|-------|---------|-------|--------|-------|
| | n= | % | n= | % | n= | % | n= | % |
| 0 | 43 | 100.0 | 737 | 100.0 | 1389 | 100.0 | 1035 | 100.0 |
| 1 | 36 | 85.9 | 635 | 89.8 | 1161 | 89.5 | 842 | 85.6 |
| 2 | 30 | 76.1 | 532 | 82.4 | 958 | 80.7 | 715 | 77.1 |
| 3 | 22 | 62.7 | 442 | 74.3 | 786 | 73.2 | 595 | 68.9 |
| 4 | 20 | 57.0 | 379 | 69.4 | 653 | 67.3 | 501 | 61.8 |
| 5 | 15 | 45.3 | 313 | 64.0 | 536 | 61.1 | 435 | 58.2 |
| 6 | 14 | 42.3 | 268 | 61.2 | 452 | 57.1 | 375 | 53.1 |
| 7 | 11 | 33.2 | 235 | 57.9 | 383 | 53.8 | 318 | 49.7 |
| 8 | 10 | 30.2 | 187 | 51.4 | 313 | 49.9 | 274 | 46.2 |
| 9 | 9 | 30.2 | 161 | 47.7 | 262 | 46.2 | 239 | 43.4 |
| 10 | 8 | 26.9 | 132 | 43.1 | 216 | 43.8 | 199 | 38.7 |
| 11 | 7 | 23.5 | 118 | 41.1 | 185 | 41.0 | 166 | 35.1 |
| 12 | 6 | 20.1 | 94 | 37.7 | 146 | 37.3 | 140 | 32.0 |
| 13 | 5 | 16.8 | 83 | 35.6 | 119 | 34.5 | 124 | 30.6 |
| 14 | 4 | 13.4 | 66 | 32.0 | 101 | 31.8 | 113 | 29.3 |
| 15 | 4 | 13.4 | 55 | 29.5 | 84 | 30.8 | 86 | 26.2 |
| 16 | 4 | 13.4 | 40 | 28.3 | 62 | 26.5 | 65 | 23.6 |
| 17 | 4 | 13.4 | 35 | 26.8 | 46 | 24.6 | 47 | 21.2 |
| 18 | 4 | 13.4 | 31 | 26.0 | 39 | 22.9 | 35 | 19.7 |
| 19 | 3 | 10.1 | 28 | 25.1 | 26 | 22.2 | 33 | 19.7 |
| 20 | 3 | 10.1 | 23 | 23.2 | 19 | 21.3 | 29 | 19.1 |
| 21 | 3 | 10.1 | 18 | 20.1 | 14 | 21.3 | 18 | 18.3 |
| 22 | 1 | 3.4 | 16 | 18.9 | 12 | 19.7 | 11 | 17.1 |
| 23 | 1 | 3.4 | 14 | 18.9 | 8 | 19.7 | 8 | 17.1 |
| 24 | 1 | 3.4 | 12 | 18.9 | 5 | 16.9 | 4 | 14.4 |
| 25 | 1 | 3.4 | 8 | 18.9 | 3 | 13.1 | | |
| 26 | 1 | 3.4 | 4 | 18.9 | 2 | 13.1 | | |
| 27 | 1 | 3.4 | 2 | 18.9 | 2 | 13.1 | | |
| 28 | 1 | 3.4 | 2 | 9.5 | 2 | 4.4 | | |

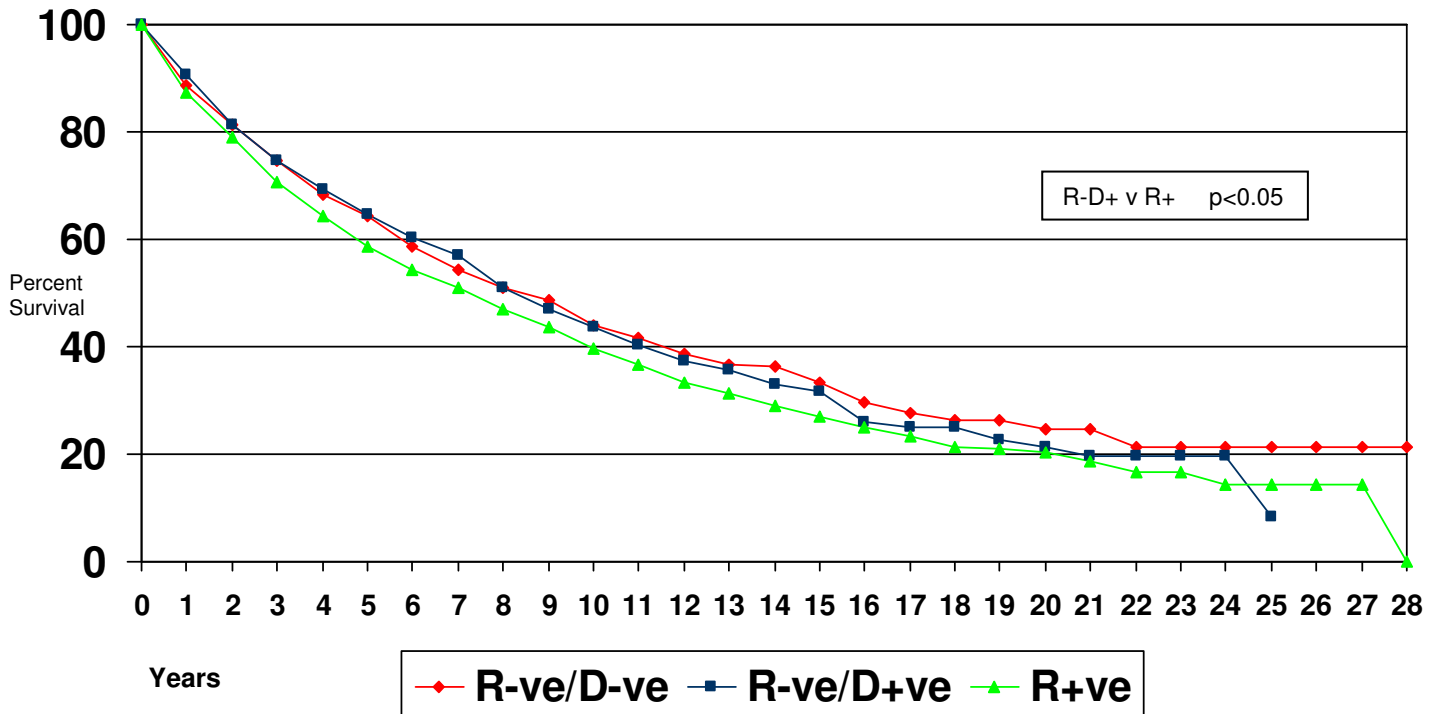
CUTLER-EDERER SURVIVAL CROSSMATCH* ALL LUNGS 1986 - 2017



| Year | Positive | | Negative | |
|------|----------|-------|----------|-------|
| | n= | % | n= | % |
| 0 | 146 | 100.0 | 2330 | 100.0 |
| 1 | 125 | 86.3 | 1993 | 87.8 |
| 2 | 113 | 78.0 | 1724 | 79.1 |
| 3 | 94 | 64.9 | 1492 | 71.4 |
| 4 | 82 | 59.2 | 1281 | 65.8 |
| 5 | 76 | 56.3 | 1060 | 60.1 |
| 6 | 70 | 53.3 | 901 | 55.6 |
| 7 | 59 | 49.3 | 775 | 51.9 |
| 8 | 47 | 44.9 | 656 | 47.6 |
| 9 | 40 | 40.9 | 569 | 44.5 |
| 10 | 33 | 37.7 | 477 | 40.7 |
| 11 | 29 | 34.2 | 415 | 38.0 |
| 12 | 25 | 30.6 | 350 | 34.6 |
| 13 | 23 | 29.4 | 301 | 32.7 |
| 14 | 20 | 28.0 | 254 | 30.3 |
| 15 | 17 | 28.0 | 197 | 28.0 |
| 16 | 13 | 26.2 | 145 | 25.0 |
| 17 | 12 | 24.2 | 116 | 23.2 |
| 18 | 9 | 22.0 | 99 | 21.9 |
| 19 | 9 | 22.0 | 78 | 21.0 |
| 20 | 7 | 17.1 | 62 | 20.4 |
| 21 | 5 | 17.1 | 46 | 18.9 |
| 22 | 3 | 13.3 | 37 | 18.0 |
| 23 | 3 | 13.3 | 27 | 18.0 |
| 24 | 3 | 13.3 | 18 | 16.5 |
| 25 | 2 | 13.3 | 10 | 14.3 |
| 26 | 1 | 13.3 | 6 | 14.3 |
| 27 | 1 | 13.3 | 4 | 14.3 |
| 28 | | | 2 | 10.2 |

*T-cell or B cell positive are combined

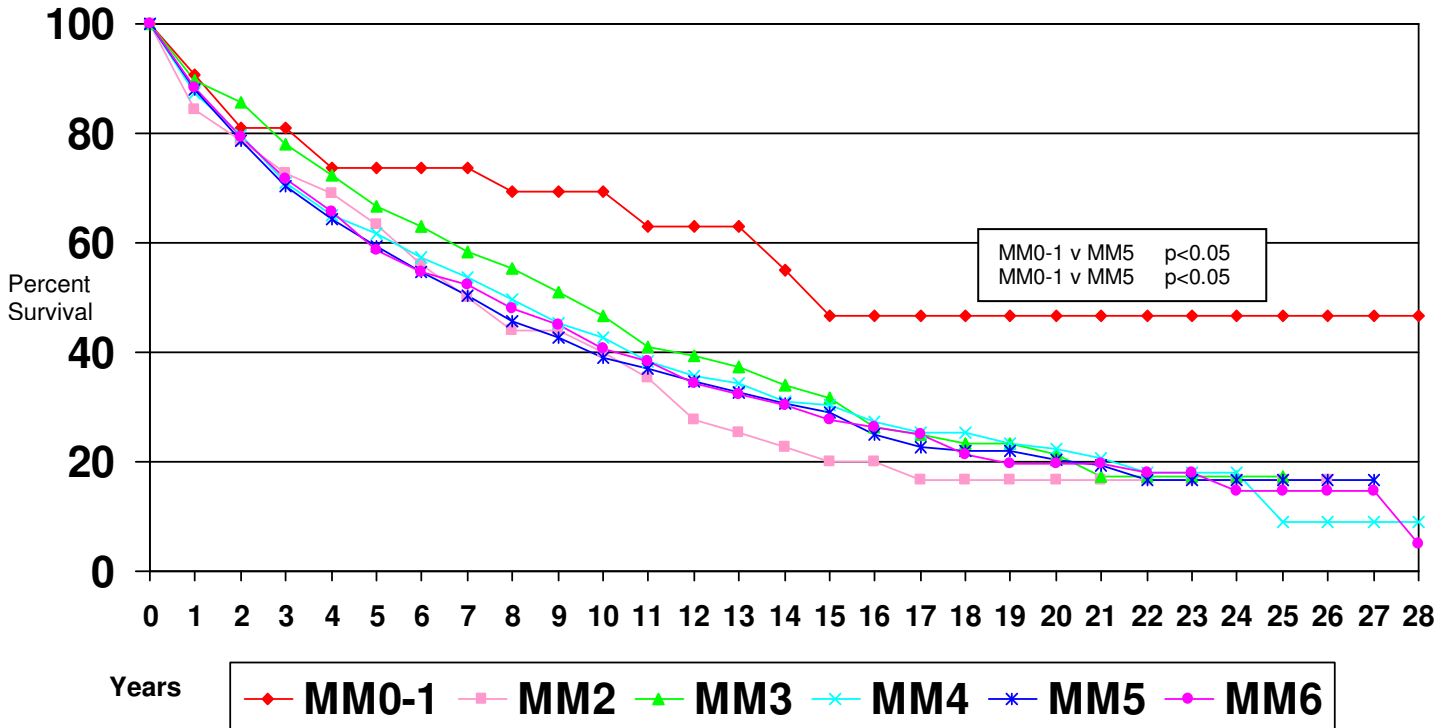
CUTLER-EDERER SURVIVAL CMV STATUS IgG SEROLOGICAL ALL LUNGS 1986 - 2017



| Year | Donor Neg Rec Neg | | Donor Pos Rec Neg | | Recipient Pos* | |
|------|-------------------|-------|-------------------|-------|----------------|-------|
| | n= | % | n= | % | n= | % |
| 0 | 489 | 100.0 | 615 | 100.0 | 2094 | 100.0 |
| 1 | 410 | 88.7 | 531 | 90.8 | 1726 | 87.2 |
| 2 | 353 | 81.5 | 448 | 81.2 | 1435 | 79.1 |
| 3 | 300 | 74.6 | 377 | 74.8 | 1167 | 70.6 |
| 4 | 249 | 68.3 | 323 | 69.4 | 976 | 64.5 |
| 5 | 214 | 64.3 | 266 | 64.8 | 806 | 58.6 |
| 6 | 183 | 58.8 | 230 | 60.5 | 677 | 54.4 |
| 7 | 162 | 54.5 | 194 | 56.9 | 569 | 51.1 |
| 8 | 141 | 51.0 | 154 | 51.0 | 472 | 47.0 |
| 9 | 120 | 48.7 | 134 | 47.0 | 402 | 43.7 |
| 10 | 96 | 44.0 | 114 | 43.7 | 334 | 39.7 |
| 11 | 80 | 41.6 | 100 | 40.5 | 287 | 36.7 |
| 12 | 64 | 38.8 | 83 | 37.5 | 235 | 33.3 |
| 13 | 54 | 36.8 | 71 | 35.6 | 202 | 31.5 |
| 14 | 53 | 36.2 | 60 | 33.0 | 162 | 28.9 |
| 15 | 42 | 33.2 | 47 | 31.8 | 130 | 27.0 |
| 16 | 32 | 29.8 | 31 | 25.9 | 99 | 25.1 |
| 17 | 24 | 27.8 | 24 | 25.0 | 80 | 23.2 |
| 18 | 19 | 26.5 | 22 | 25.0 | 65 | 21.4 |
| 19 | 15 | 26.5 | 18 | 22.6 | 53 | 21.0 |
| 20 | 11 | 24.6 | 15 | 21.3 | 42 | 20.2 |
| 21 | 8 | 24.6 | 10 | 19.6 | 32 | 18.6 |
| 22 | 7 | 21.5 | 7 | 19.6 | 24 | 16.7 |
| 23 | 6 | 21.5 | 6 | 19.6 | 16 | 16.7 |
| 24 | 4 | 21.5 | 5 | 19.6 | 10 | 14.3 |
| 25 | 3 | 21.5 | 1 | 8.4 | 7 | 14.3 |
| 26 | 2 | 21.5 | | | 3 | 14.3 |
| 27 | 2 | 21.5 | | | 1 | 14.3 |
| 28 | 2 | 21.5 | | | 1 | 0.0 |

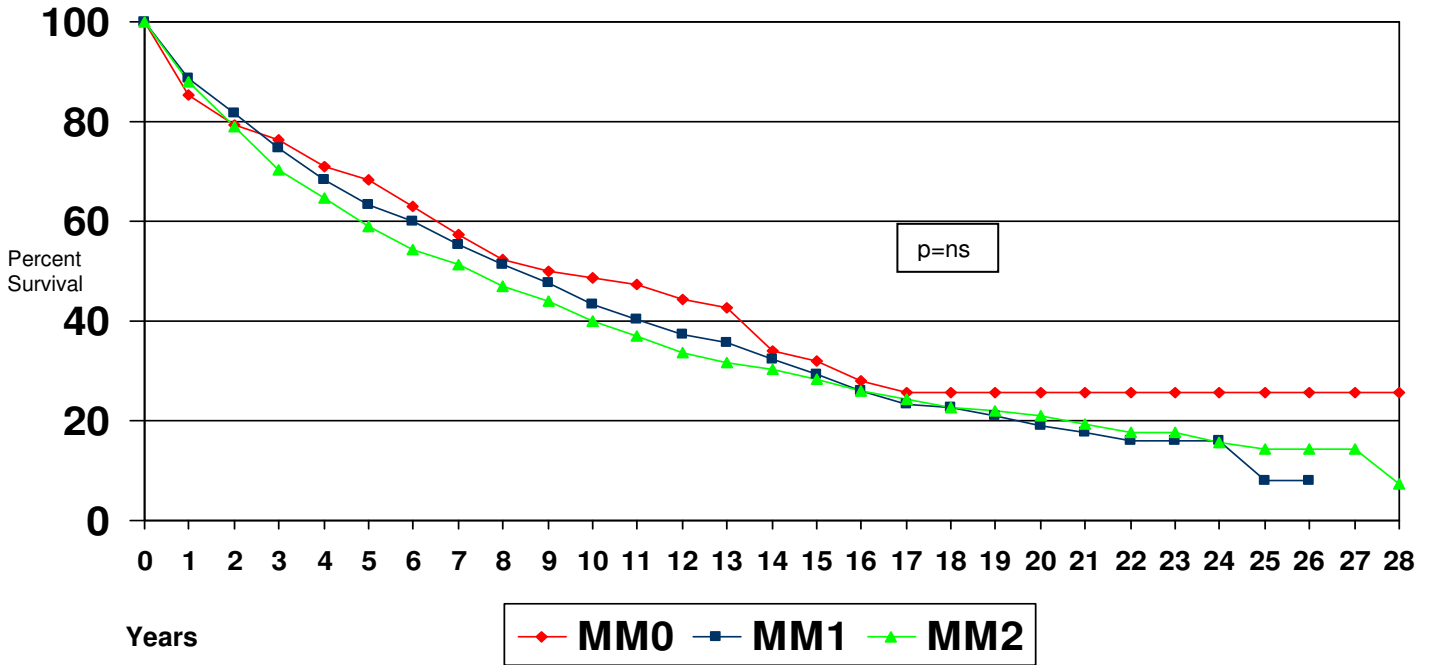
* R+ve = R+ve/D-ve or R+ve/D+ve

CUTLER-EDERER SURVIVAL ALL HLA MISMATCH ALL LUNGS 1986 - 2017



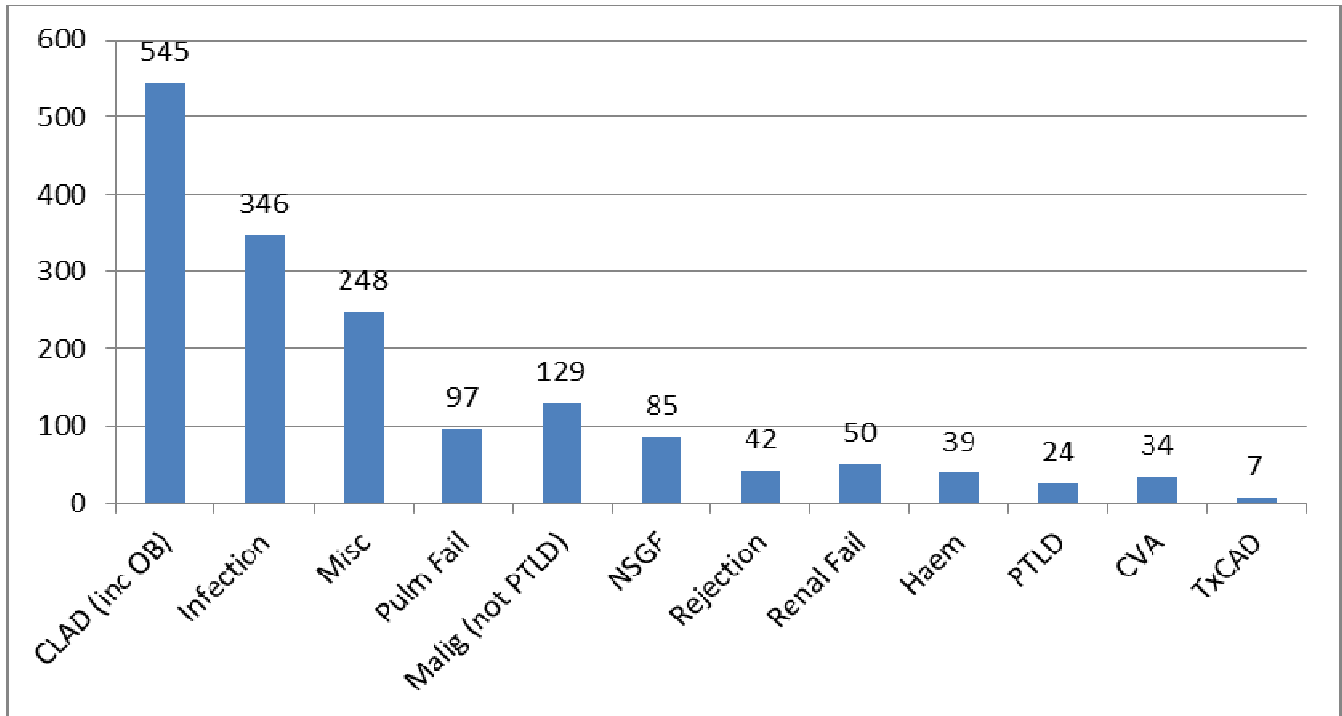
| Year | MM0-1 | | MM2 | | MM3 | | MM4 | | MM5 | | MM6 | |
|------|-------|-------|-----|-------|-----|-------|-----|-------|------|-------|------|-------|
| | n= | % | n= | % | n= | % | n= | % | n= | % | n= | % |
| 0 | 33 | 100.0 | 97 | 100.0 | 297 | 100.0 | 655 | 100.0 | 1021 | 100.0 | 1157 | 100.0 |
| 1 | 29 | 90.8 | 78 | 84.2 | 252 | 89.6 | 540 | 87.5 | 846 | 87.9 | 973 | 88.2 |
| 2 | 24 | 81.0 | 70 | 78.7 | 222 | 85.6 | 443 | 79.6 | 699 | 78.6 | 819 | 79.3 |
| 3 | 22 | 81.0 | 58 | 72.8 | 185 | 77.9 | 372 | 71.1 | 577 | 70.2 | 663 | 71.8 |
| 4 | 20 | 73.7 | 52 | 68.9 | 163 | 72.3 | 300 | 65.0 | 486 | 64.4 | 558 | 65.7 |
| 5 | 19 | 73.7 | 44 | 63.4 | 142 | 66.8 | 257 | 61.6 | 404 | 59.3 | 446 | 58.8 |
| 6 | 19 | 73.7 | 38 | 56.1 | 118 | 62.9 | 224 | 57.4 | 329 | 54.6 | 383 | 54.7 |
| 7 | 18 | 73.7 | 33 | 50.1 | 99 | 58.4 | 183 | 53.6 | 267 | 50.4 | 346 | 52.5 |
| 8 | 14 | 69.2 | 28 | 44.0 | 83 | 55.3 | 151 | 49.6 | 214 | 45.8 | 295 | 48.1 |
| 9 | 12 | 69.2 | 24 | 44.0 | 72 | 51.1 | 129 | 45.5 | 182 | 42.7 | 255 | 45.0 |
| 10 | 11 | 69.2 | 18 | 40.0 | 61 | 46.7 | 109 | 42.6 | 150 | 39.0 | 209 | 40.6 |
| 11 | 10 | 62.9 | 14 | 35.3 | 48 | 41.1 | 92 | 38.5 | 129 | 37.1 | 186 | 38.4 |
| 12 | 9 | 62.9 | 11 | 27.7 | 39 | 39.2 | 74 | 35.8 | 106 | 34.6 | 154 | 34.3 |
| 13 | 8 | 62.9 | 10 | 25.2 | 35 | 37.2 | 66 | 34.3 | 91 | 32.6 | 127 | 32.4 |
| 14 | 7 | 55.1 | 9 | 22.7 | 31 | 33.9 | 56 | 31.1 | 85 | 30.8 | 97 | 30.5 |
| 15 | 5 | 46.6 | 7 | 20.0 | 26 | 31.6 | 51 | 30.5 | 70 | 28.9 | 65 | 27.6 |
| 16 | 5 | 46.6 | 6 | 20.0 | 19 | 26.5 | 42 | 27.4 | 46 | 25.1 | 49 | 26.2 |
| 17 | 5 | 46.6 | 5 | 16.7 | 16 | 25.0 | 33 | 25.3 | 36 | 22.8 | 37 | 25.0 |
| 18 | 5 | 46.6 | 5 | 16.7 | 14 | 23.4 | 30 | 25.3 | 30 | 22.1 | 26 | 21.3 |
| 19 | 2 | 46.6 | 5 | 16.7 | 13 | 23.4 | 22 | 23.4 | 26 | 22.1 | 21 | 19.6 |
| 20 | 2 | 46.6 | 4 | 16.7 | 11 | 21.5 | 17 | 22.3 | 20 | 20.3 | 16 | 19.6 |
| 21 | 2 | 46.6 | 4 | 16.7 | 7 | 17.2 | 9 | 20.6 | 17 | 19.2 | 13 | 19.6 |
| 22 | 2 | 46.6 | 3 | 16.7 | 5 | 17.2 | 6 | 18.0 | 12 | 16.7 | 12 | 18.1 |
| 23 | 2 | 46.6 | 1 | 16.7 | 2 | 17.2 | 5 | 18.0 | 9 | 16.7 | 11 | 18.1 |
| 24 | 1 | 46.6 | 1 | 16.7 | 2 | 17.2 | 4 | 18.0 | 5 | 16.7 | 8 | 14.6 |
| 25 | 1 | 46.6 | 1 | 16.7 | 2 | 17.2 | 2 | 9.0 | 2 | 16.7 | 6 | 14.6 |
| 26 | 1 | 46.6 | 1 | 16.7 | | | 1 | 9.0 | 1 | 16.7 | 4 | 14.6 |
| 27 | 1 | 46.6 | | | | | 1 | 9.0 | | | 3 | 14.6 |
| 28 | 1 | 46.6 | | | | | 1 | 9.0 | | | 1 | 4.9 |

CUTLER-EDERER SURVIVAL HLA DR LOCUS MISMATCH ALL LUNGS 1986 -2017



| Year | MM0 | | MM1 | | MM2 | |
|------|-----|-------|-----|-------|------|-------|
| | n= | % | n= | % | n= | % |
| 0 | 168 | 100.0 | 871 | 100.0 | 2221 | 100.0 |
| 1 | 135 | 85.3 | 733 | 88.8 | 1850 | 87.9 |
| 2 | 115 | 79.4 | 624 | 81.7 | 1538 | 79.0 |
| 3 | 100 | 76.5 | 527 | 74.7 | 1250 | 70.4 |
| 4 | 87 | 71.0 | 437 | 68.2 | 1055 | 64.7 |
| 5 | 77 | 68.4 | 367 | 63.3 | 868 | 58.9 |
| 6 | 69 | 63.0 | 315 | 60.0 | 727 | 54.2 |
| 7 | 59 | 57.4 | 255 | 55.2 | 632 | 51.5 |
| 8 | 48 | 52.3 | 206 | 51.3 | 531 | 47.1 |
| 9 | 40 | 49.9 | 180 | 47.7 | 454 | 43.9 |
| 10 | 37 | 48.7 | 145 | 43.5 | 376 | 40.0 |
| 11 | 33 | 47.3 | 120 | 40.3 | 326 | 37.0 |
| 12 | 28 | 44.3 | 94 | 37.4 | 271 | 33.7 |
| 13 | 25 | 42.6 | 83 | 35.7 | 229 | 31.7 |
| 14 | 19 | 33.9 | 73 | 32.3 | 193 | 30.3 |
| 15 | 16 | 32.1 | 57 | 29.4 | 151 | 28.4 |
| 16 | 13 | 27.9 | 43 | 26.1 | 111 | 25.9 |
| 17 | 11 | 25.7 | 34 | 23.5 | 87 | 24.4 |
| 18 | 11 | 25.7 | 31 | 22.8 | 68 | 22.6 |
| 19 | 8 | 25.7 | 22 | 21.1 | 59 | 21.9 |
| 20 | 7 | 25.7 | 16 | 19.0 | 47 | 21.1 |
| 21 | 7 | 25.7 | 12 | 17.7 | 33 | 19.5 |
| 22 | 6 | 25.7 | 8 | 16.0 | 26 | 17.6 |
| 23 | 4 | 25.7 | 7 | 16.0 | 19 | 17.6 |
| 24 | 4 | 25.7 | 2 | 16.0 | 15 | 15.7 |
| 25 | 2 | 25.7 | 1 | 8.0 | 9 | 14.4 |
| 26 | 1 | 25.7 | 1 | 8.0 | 6 | 14.4 |
| 27 | 1 | 25.7 | | | 4 | 14.4 |
| 28 | 1 | 25.7 | | | 2 | 7.2 |

CAUSE OF DEATH ALL LUNGS 1986 – 2017 n = 1646



| | | |
|--|-------------|-------------|
| CLAD (includes Bronchiolitis Obliterans) | 545 | 33% |
| Infection | 346 | 21% |
| OTHER (incl unspec) | 236 | 13% |
| Other Malignancy | 129 | 7% |
| Pulmonary Failure | 97 | 7% |
| NSGF | 85 | 5% |
| Renal Failure | 50 | 3% |
| Acute Rejection | 42 | 3% |
| Hemorrhage | 39 | 3% |
| CVA | 36 | 2% |
| PTLD | 34 | 2% |
| TxCAD | 7 | 1% |
| Totals | 1646 | 100% |
| Multi-organ Failure | 40 | |
| Cardiac Arrest (21) Heart Failure(7) IHD(5) | 33 | |
| Sudden Death (cause unknown) | 19 | |
| Post Surgical Complications | 13 | |
| Suicide(6) Non compliance(4) Withdrawal of treatment(2) Inanition(1) | 10 | |
| Liver Failure(6) Cirrhosis(1) | 7 | |
| Pancreatitis (4), DAD(3) | 7 | |
| Bowel Ischemia(4) Perforation(1) Rupture(1) | 6 | |
| Pulmonary Embolism (6) | 6 | |
| Necrotising Bronchiolitis(3) Bronchopneumonia(2) | 5 | |
| Aspergillosis (3) Aspiration (1) | 4 | |
| Parkinson's disease, Neuro Disorder | 3 | |
| Hypoxic brain (2) | 2 | |
| Pneumothorax(1) | 1 | |
| Aortic Dissection | 1 | |
| Esophageal rupture | 1 | |
| Systemic vasculitis | 1 | |
| Metabolic problem | 1 | |
| Reperfusion Injury | 1 | |
| Dissecting Abdominal Aortic Aneurysm | 1 | |
| Cyclosporin Neurotoxicity | 1 | |
| Unspecified (no data) | 44 | |

**CAUSE OF DEATH ALL LUNGS < 5 YEARS
POST TX 1986 - 2017**

| | No | % |
|---|-------------|--------------|
| CLAD (includes Bronchiolitis Obliterans) | 330 | 30.7 |
| Infection | 258 | 24.0 |
| Misc | 132 | 12.3 |
| Non specific Graft Failure | 78 | 7.2 |
| Pulmonary Failure | 66 | 6.1 |
| Non Lymphoid Malignancy | 49 | 4.6 |
| Rejection | 36 | 3.3 |
| Hemorrhage | 32 | 3.0 |
| CVA | 31 | 2.9 |
| PTLD | 22 | 2.0 |
| Renal Failure | 19 | 1.8 |
| No Data | 18 | 1.7 |
| Graft Atherosclerosis (TxCAD) | 5 | 0.5 |
| Totals | 1076 | 100.0 |

**CAUSE OF DEATH ALL LUNGS ≥ 5 YEARS
POST TX 1986 - 2017**

| | No | % |
|---|------------|--------------|
| CLAD (includes Bronchiolitis Obliterans) | 215 | 37.7 |
| Infection | 88 | 15.4 |
| Non Lymphoid Malignancy | 80 | 14.0 |
| Misc | 61 | 10.7 |
| Pulmonary Failure | 31 | 5.4 |
| Renal Failure | 31 | 5.4 |
| No Data | 25 | 4.4 |
| PTLD | 12 | 2.1 |
| Hemorrhage | 7 | 1.2 |
| NonSpecific Graft Failure | 7 | 1.2 |
| Rejection | 6 | 1.1 |
| CVA | 5 | 0.9 |
| Graft Atherosclerosis (TxCAD) | 2 | 0.4 |
| Totals | 570 | 100.0 |