

Australia and New Zealand Cardiothoracic Organ Transplant Registry



2018 REPORT

(Transplant data collected from February 1984 to December 2018)

Edited By

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The Australia and New Zealand Cardiothoracic Organ Transplant Registry

TWENTY THIRD ANNUAL REPORT 1984 - 2018

This is the twenty third 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 2018.

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 2018

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Fiona Stanley Hospital, Perth

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The Royal Children's Hospital, Melbourne

Anne Shipp

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Data Requests

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

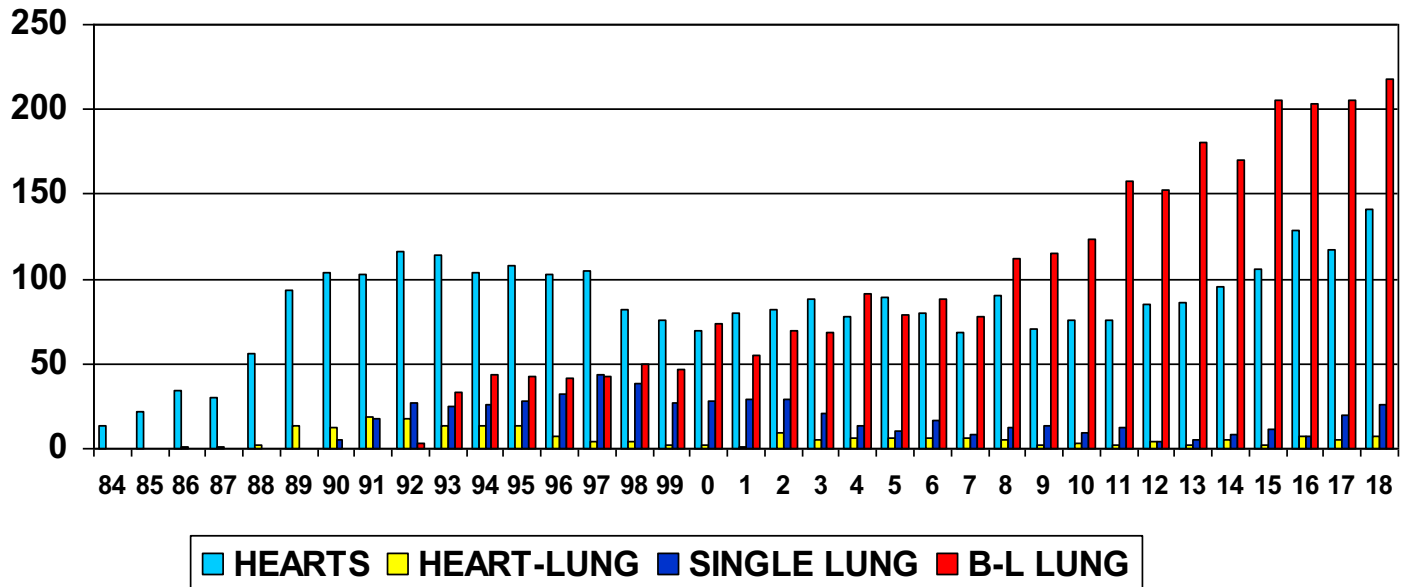
Statistical Methods

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 2018

NUMBER OF ALL TRANSPLANTS BY YEAR 1984 -2018



| 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 | 202 | |
| 2017 | 117 | 5 | 20 | 205 | |
| 2018 | 141 | 7 | 26 | 217 | |
| Totals | 2974 | 208 | 552 | 2749 | 6483 |

ALL HEART TRANSPLANTS* BY YEAR BY HOSPITAL 1984 - 2018

| | 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 |
| 2018 | 48 | 31 | 10 | 20 | 21 | 11 | 141 |
| Totals | 1063 | 767 | 192 | 347 | 430 | 175 | 2974 |

* Includes

Heart - Kidney Transplants (41) St Vincent's 21, Prince Charles 8, Auckland City 6, The Alfred 6

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

Retransplants (42) St Vincent's 15, Prince Charles 7, Auckland City 2, The Alfred 11, Royal Children's 4, Perth 3

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

DCD Donors (28) St Vincent's 28

HEART LUNG TRANSPLANTS BY YEAR BY HOSPITAL 1986 - 2018

| | 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 |
| 2018 | 0 | 1 | 3 | 0 | 3 | 0 | 7 |
| Totals | 91 | 69 | 9 | 0 | 31 | 8 | 208 |

Retransplants (2) Prince Charles 1 repeat Heart Lung plus 1 Bilateral with 2nd transplant a Heart Lung.)

SINGLE LUNG TRANSPLANTS BY YEAR BY HOSPITAL 1990 – 2018

| | 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 |
| 2018 | 7 | 14 | 0 | 1 | 4 | 0 | 26 |
| Totals | 165 | 305 | 22 | 32 | 28 | 0 | 552 |

Retransplants (9) Alfred 8 (6 BL to SL, 1 HL to SL, 1 SL to SL) Auckland 1 (1 BL to SL)

BILATERAL LUNG TRANSPLANTS BY YEAR BY HOSPITAL 1992 - 2018

| | 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 | 87 | 14 | 17 | 36 | 0 | 202 |
| 2017 | 45 | 84 | 14 | 18 | 44 | 0 | 205 |
| 2018 | 50 | 90 | 16 | 27 | 34 | 0 | 217 |
| Total | 842 | 1103 | 137 | 255 | 406 | 6 | 2749 |

Retransplants 107 Alfred (56) St Vincent's (29) Prince Charles (11) Auckland (5) Royal Children's (1) Perth (5)

WAITING LIST ACTIVITY 2018

Waiting List

| | HEARTS | LUNGS |
|---|------------|------------|
| | HEARTS | LUNGS |
| Active as at 1 January 2018 | 72 | 95 |
| New Additions during 2018 | 173 | 287 |
| from on hold to active from 2017 | 9 | 4 |
| Removals from Waiting List (Permanent) | | |
| W1 - Transplant Performed | 141 | 250 |
| W2 - Patients condition Improved | 2 | 0 |
| W3 - Too ill, New develop of contraindications etc | 11 | 11 |
| W4 - Patient declined | 4 | 1 |
| W5 - Transferred to an interstate list | 1 | 0 |
| W6 - Died waiting | 9 | 15 |
| W7 - Removed - unspecified | 2 | 0 |
| TOTAL at Year end - (Active) 31 December 2018 | 80 | 103 |
| Total at year end inactive - (On Hold) | 4 | 6 |

WAIT TIME IN DAYS TO TRANSPLANT BY BLOOD GROUP 2018* v ALL

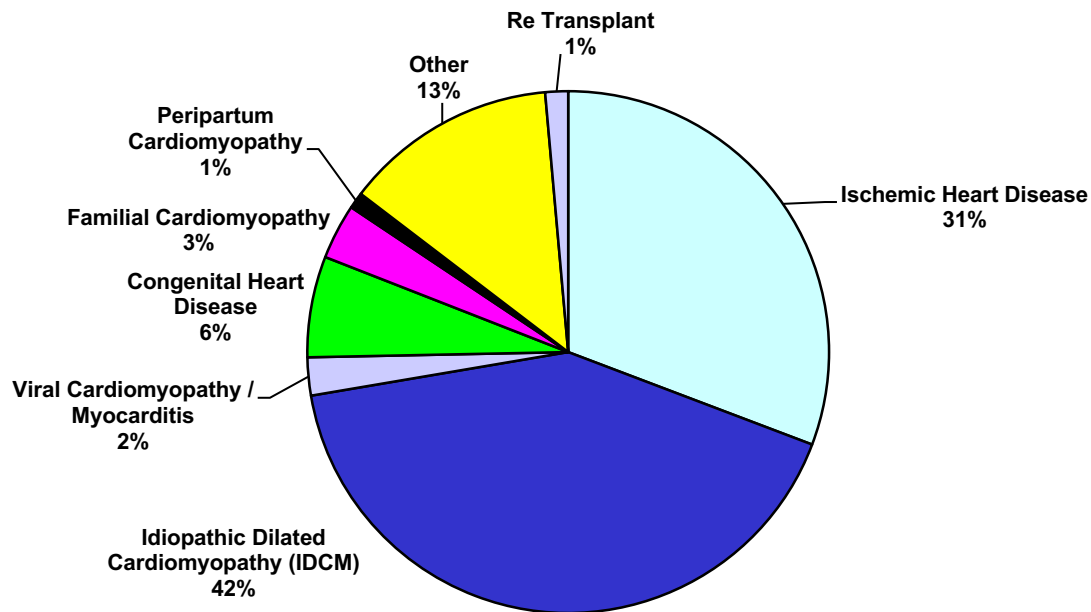
| | ABO | A | | B | | AB | | O | |
|------------------|-----------|------|--------|------|--------|----------|--------|------|--------|
| | Year/s | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| ORTHOTOPIC HEART | 2018 | 102 | 57 | 103 | 79 | 68 | 77 | 208 | 163 |
| | 1984-2018 | 113 | 61 | 152 | 87 | 112 | 64 | 225 | 131 |
| BILATERAL LUNG | 2018 | 92 | 57 | 129 | 56 | 22 | 16 | 148 | 84 |
| | 1992-2018 | 148 | 84 | 217 | 146 | 105 | 70 | 230 | 146 |
| SINGLE LUNG | 2018 | 71 | 67 | 389 | 389 | no cases | | 143 | 70 |
| | 1990-2018 | 170 | 100 | 308 | 219 | 194 | 140 | 253 | 159 |
| HEART LUNG | 2018 | 114 | 113 | 68 | 68 | no cases | | 162 | 162 |
| | 1986-2018 | 343 | 232 | 350 | 151 | 113 | 75 | 380 | 301 |

HEART TRANSPLANTATION

1984 – 2018

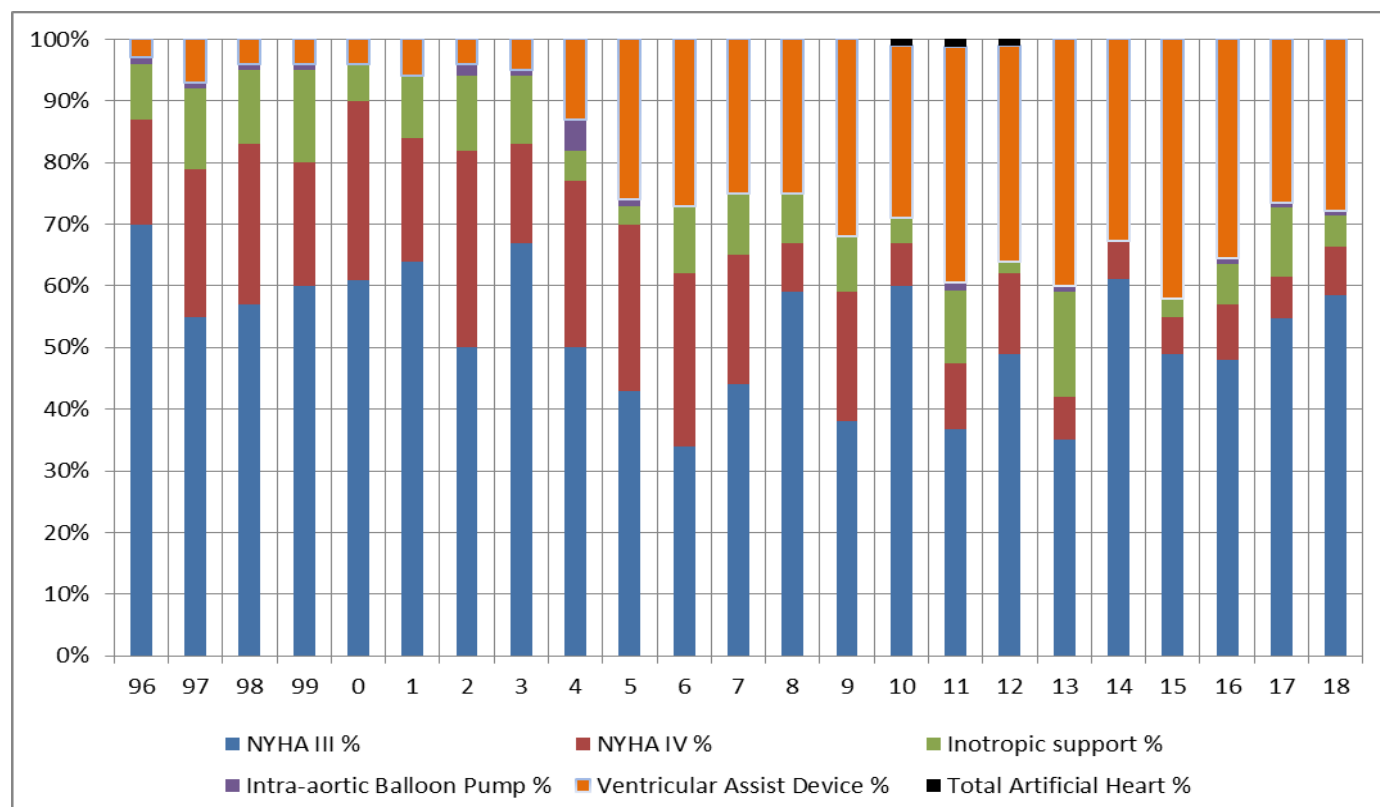
PRE TRANSPLANT DIAGNOSIS

ALL HEARTS 1984 – 2018 n = 2974



| Pre Transplant Diagnosis | Number | % |
|--|-------------|-------------|
| Idiopathic Dilated Cardiomyopathy (IDCM) | 1236 | 42% |
| Ischemic Heart Disease (IHD) | 915 | 31% |
| Other (eg. Valve disease, adriamycin toxicity) | 393 | 13% |
| Congenital Heart Disease | 186 | 6% |
| Familial Cardiomyopathy | 102 | 3% |
| Viral Cardiomyopathy/Myocarditis | 70 | 2% |
| Retransplantation | 42 | 1% |
| Peripartum Cardiomyopathy | 30 | 1% |
| Total | 2974 | 100% |

PRE-TRANSPLANT STATUS* ALL HEARTS 1984 – 2018

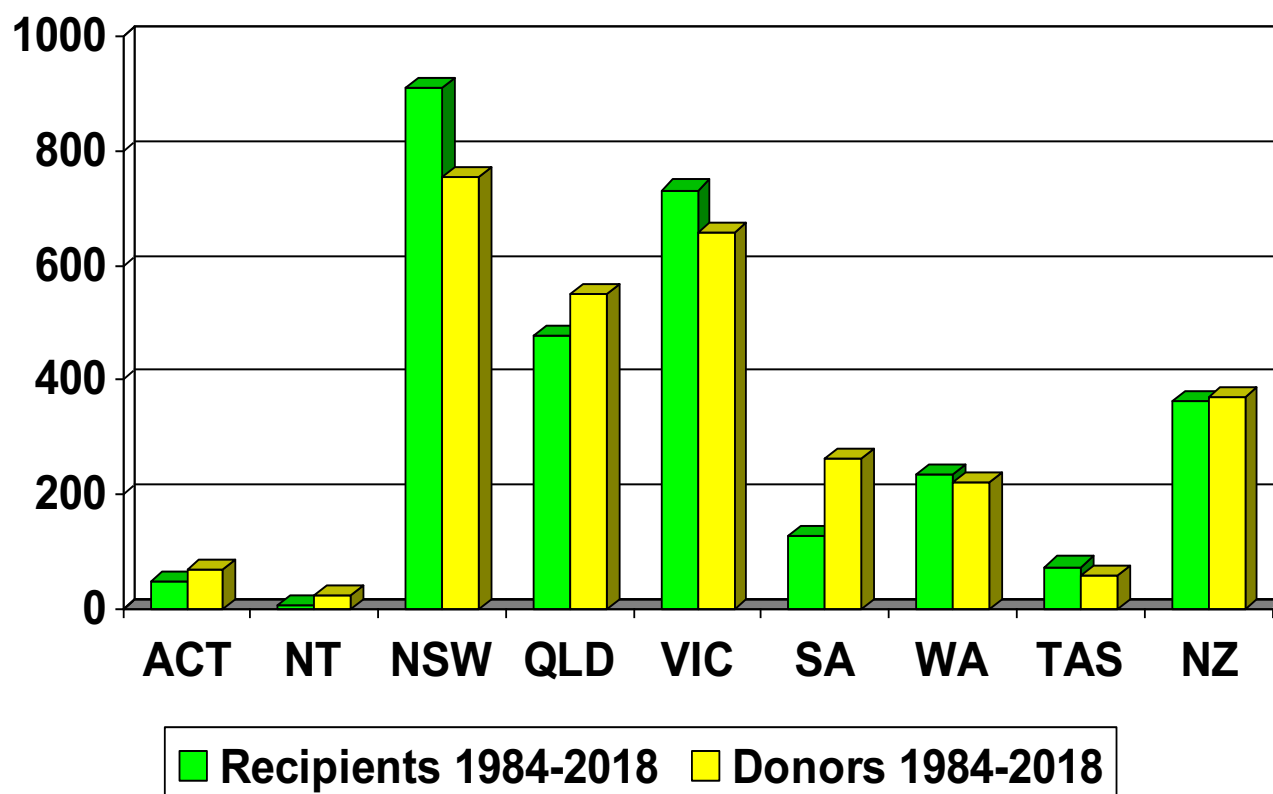


| STATUS | Year | 96 | 97 | 98 | 99 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|-----------------------------|------|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| | n= | 103 | 105 | 82 | 75 | 70 | 80 | 82 | 88 | 76 | 89 | 79 | 68 | 90 | 71 | 76 | 76 | 84 | 86 | 95 | 102 | 124 | 117 | 141 |
| NYHA III % | | 70 | 55 | 57 | 60 | 61 | 64 | 50 | 67 | 50 | 43 | 34 | 44 | 59 | 38 | 60 | 28 | 49 | 35 | 58 | 50 | 58 | 64 | 82 |
| NYHA IV % | | 17 | 24 | 26 | 20 | 29 | 20 | 32 | 16 | 27 | 27 | 28 | 21 | 8 | 21 | 7 | 8 | 13 | 7 | 6 | 6 | 11 | 8 | 11 |
| Inotropic support % | | 9 | 13 | 12 | 15 | 6 | 10 | 12 | 11 | 5 | 3 | 11 | 10 | 8 | 9 | 4 | 9 | 2 | 17 | 0 | 3 | 8 | 13 | 7 |
| 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 | 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 | 39 |
| 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 | 1 |

*Classified by Highest Level of Support

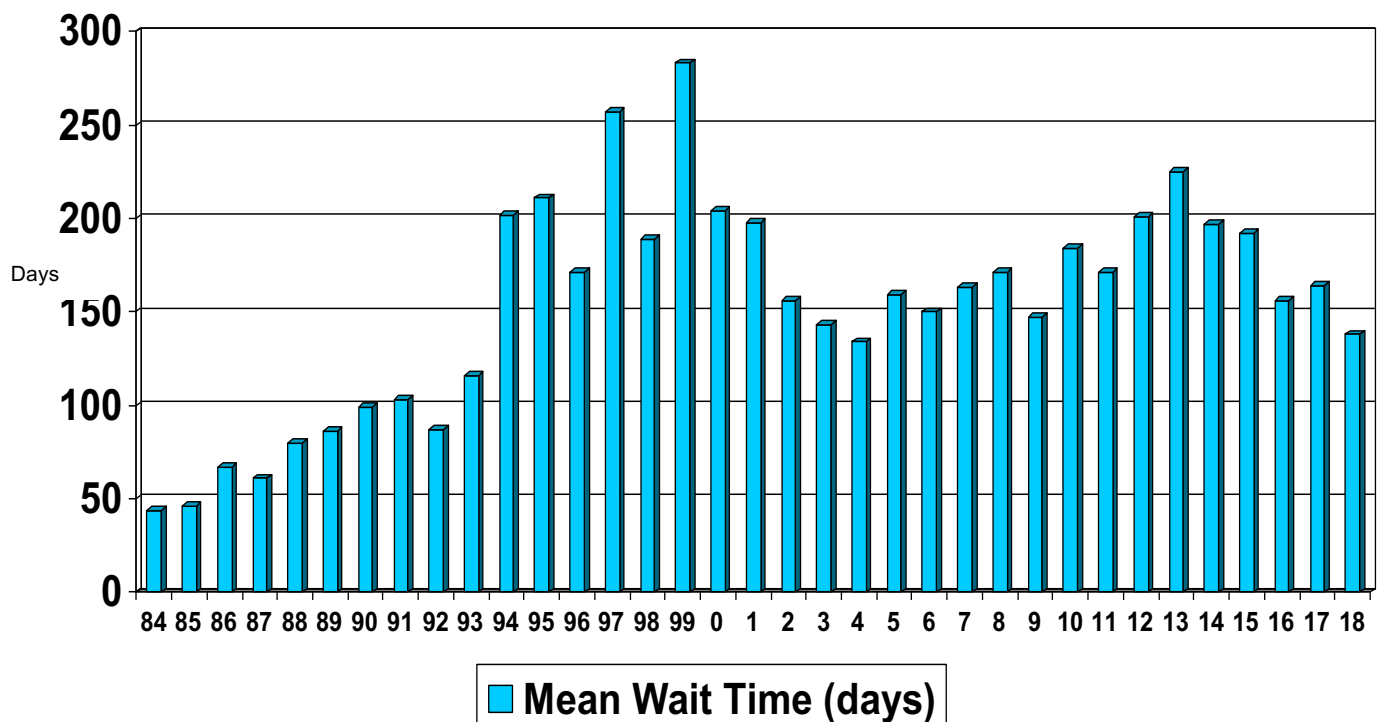
DONOR / RECIPIENT STATE OF ORIGIN

ALL HEARTS 1984 - 2018



| Location | Recipients 84-18 | % | Donors 84-18 | % | Recipients 2018 | % | Donors 2018 | % |
|----------|------------------|-------|--------------|-------|-----------------|-----|-------------|-------|
| ACT | 48 | 1.6 | 70 | 2.4 | 0 | 0 | 6 | 4.3 |
| NT | 6 | 0.2 | 24 | 0.8 | 0 | 0 | 0 | 0.0 |
| NSW | 910 | 30.6 | 755 | 25.4 | 48 | 34 | 32 | 22.7 |
| QLD | 477 | 16.0 | 550 | 18.5 | 23 | 16 | 25 | 17.7 |
| VIC | 732 | 24.6 | 657 | 22.1 | 28 | 20 | 42 | 29.8 |
| SA | 128 | 4.3 | 263 | 8.9 | 8 | 6 | 5 | 3.5 |
| WA | 234 | 7.9 | 220 | 7.4 | 10 | 7 | 10 | 7.1 |
| TAS | 74 | 2.5 | 59 | 2.0 | 4 | 3 | 2 | 1.4 |
| NZ | 363 | 12.2 | 371 | 12.5 | 20 | 14 | 19 | 13.5 |
| TOTALS | 2972 | 100.0 | 2969 | 100.0 | 141 | 100 | 141 | 100.0 |

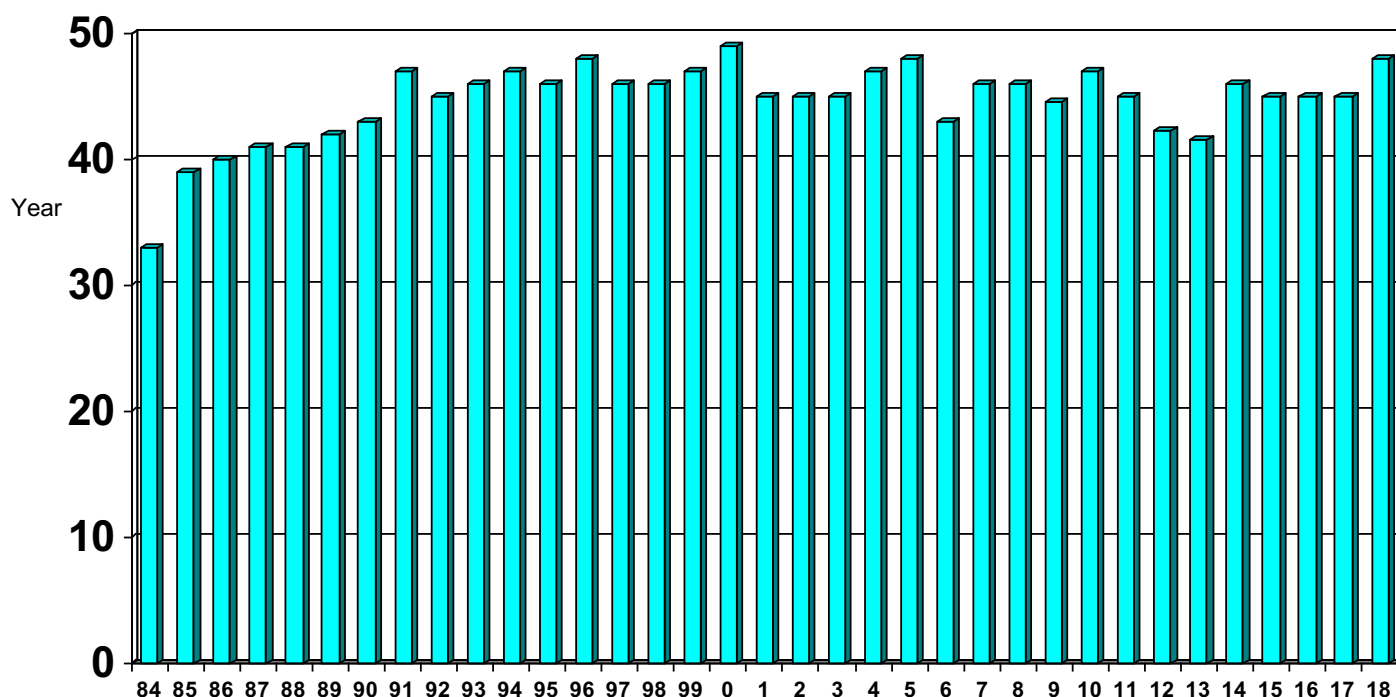
MEAN WAITING TIME TO TRANSPLANT ALL HEARTS 1984 - 2018



| 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 | 0-1392 |
| 1995 | 108 | 203 | 236 | | 107 | 0-1682 |
| 1996 | 103 | 171 | 200 | | 92 | 0-1144 |
| 1997 | 105 | 228 | 265 | | 127 | 1-2577 |
| 1998 | 82 | 185 | 219 | | 117 | 1-1260 |
| 1999 | 75 | 236 | 260 | | 133 | 1-2411 |
| 2000 | 70 | 196 | 227 | | 120 | 1-1431 |
| 2001 | 80 | 177 | 212 | | 88 | 0-2048 |
| 2002 | 82 | 148 | 219 | | 64 | 0-1502 |
| 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 | 0-1189 |
| 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 |
| 2018 | 141 | 138 | 160 | | 81 | 0-1039 |

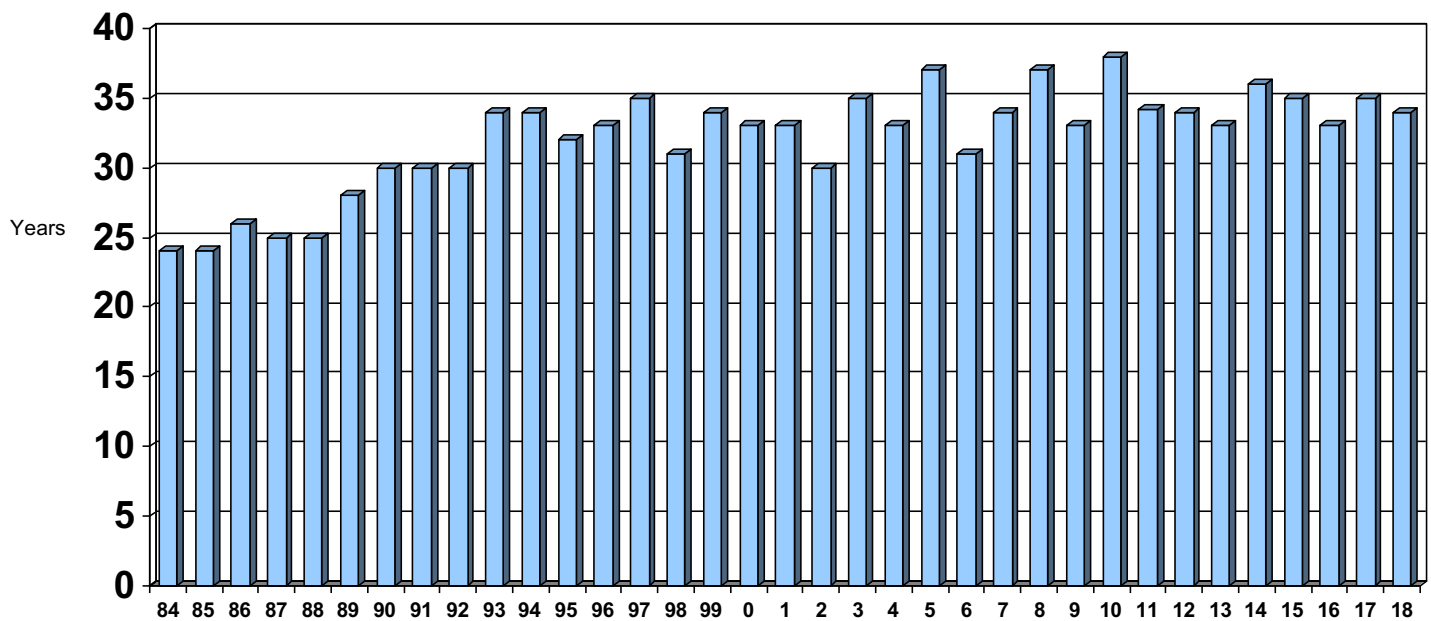
MEAN RECIPIENT AGE AT TRANSPLANT

ALL HEARTS 1984 - 2018



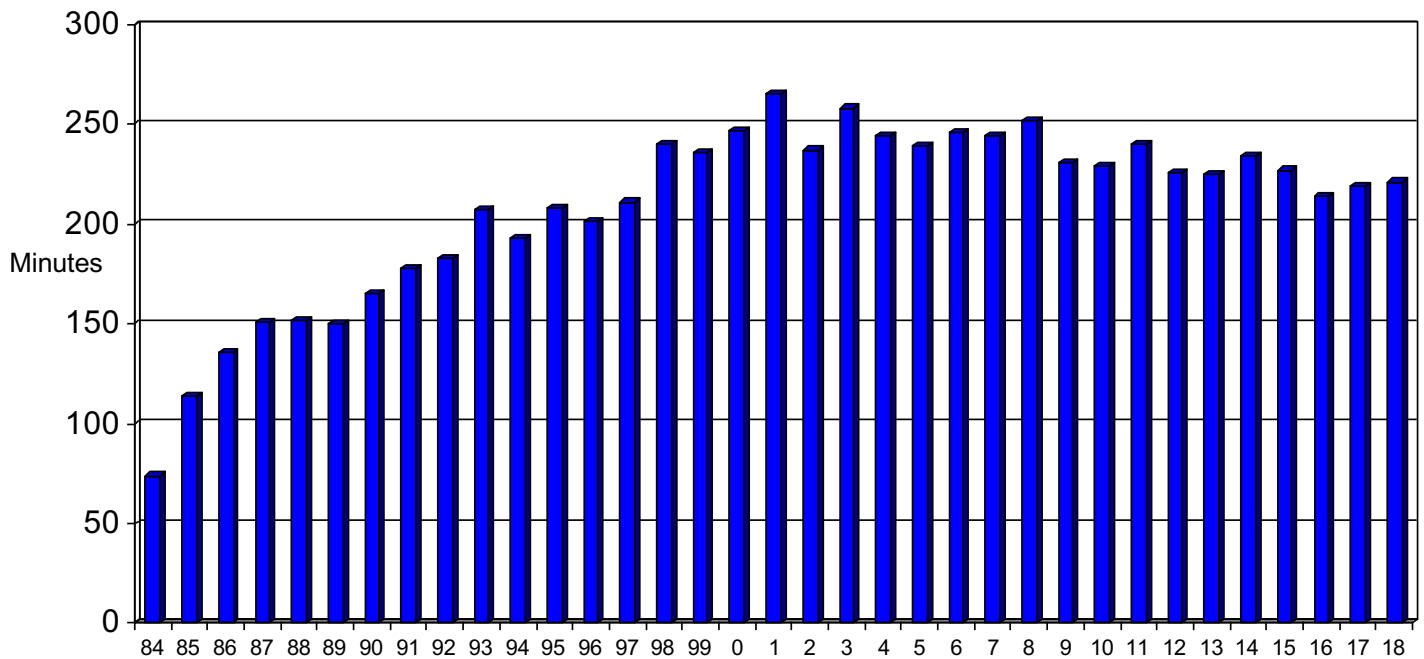
| Year | n= | mean | std dev + - | median | min-max |
|------|-----|------|-------------|--------|---------|
| 1984 | 14 | 33 | 15 | 39 | 11-51 |
| 1985 | 19 | 39 | 13 | 38 | 10-54 |
| 1986 | 32 | 40 | 13 | 43 | 11-57 |
| 1987 | 30 | 41 | 12 | 46 | 13-56 |
| 1988 | 56 | 41 | 14 | 45 | 4-63 |
| 1989 | 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 |
| 2018 | 141 | 48 | 17 | 52 | 1-70 |

MEAN DONOR AGE ALL HEARTS 1984 - 2018



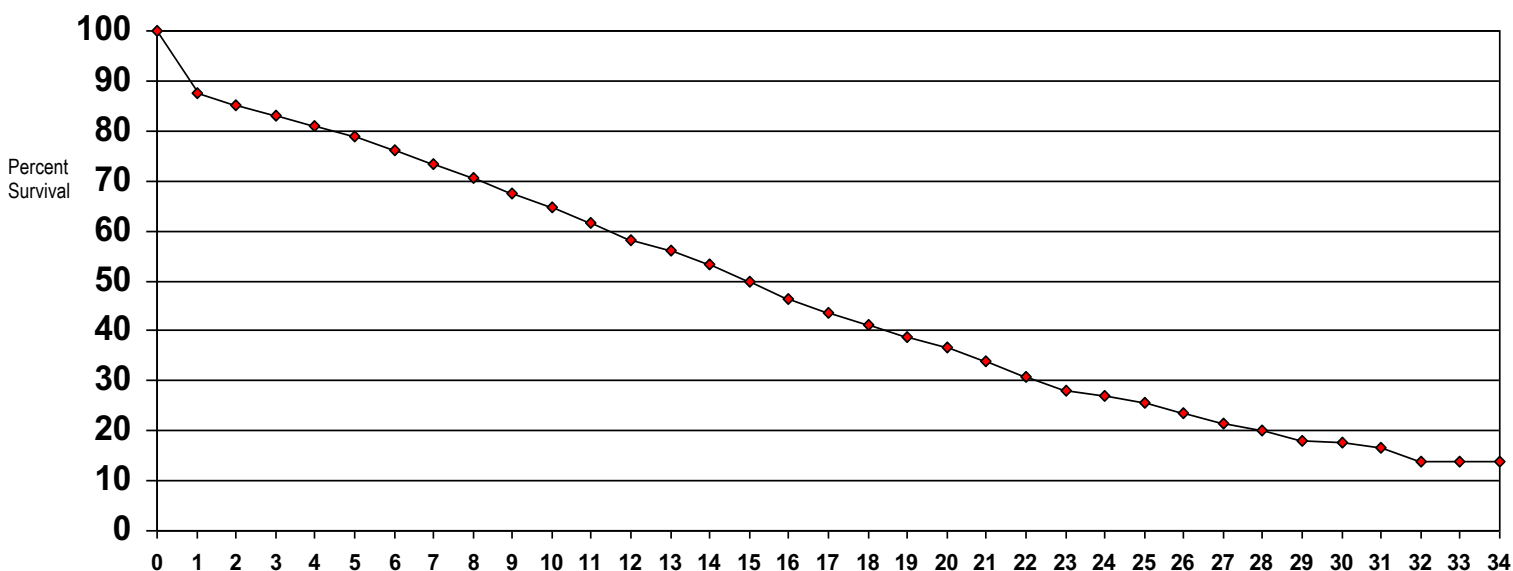
| Year | n= | mean | std dev + - | median | min-max |
|------|-----|------|-------------|--------|---------|
| 1984 | 14 | 24 | 8 | 23 | 13-41 |
| 1985 | 19 | 24 | 7 | 21 | 15-43 |
| 1986 | 32 | 26 | 7 | 25 | 16-39 |
| 1987 | 30 | 25 | 7 | 24 | 14-41 |
| 1988 | 56 | 25 | 8 | 23 | 12-44 |
| 1989 | 93 | 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 |
| 2018 | 141 | 34 | 14 | 35 | 2-62 |

ALL HEARTS - MEAN COLD ISCHEMIC TIME 1984 - 2018



| 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 |
| 2018 | 124 | 221 | 76 | 215 | 79-405 |

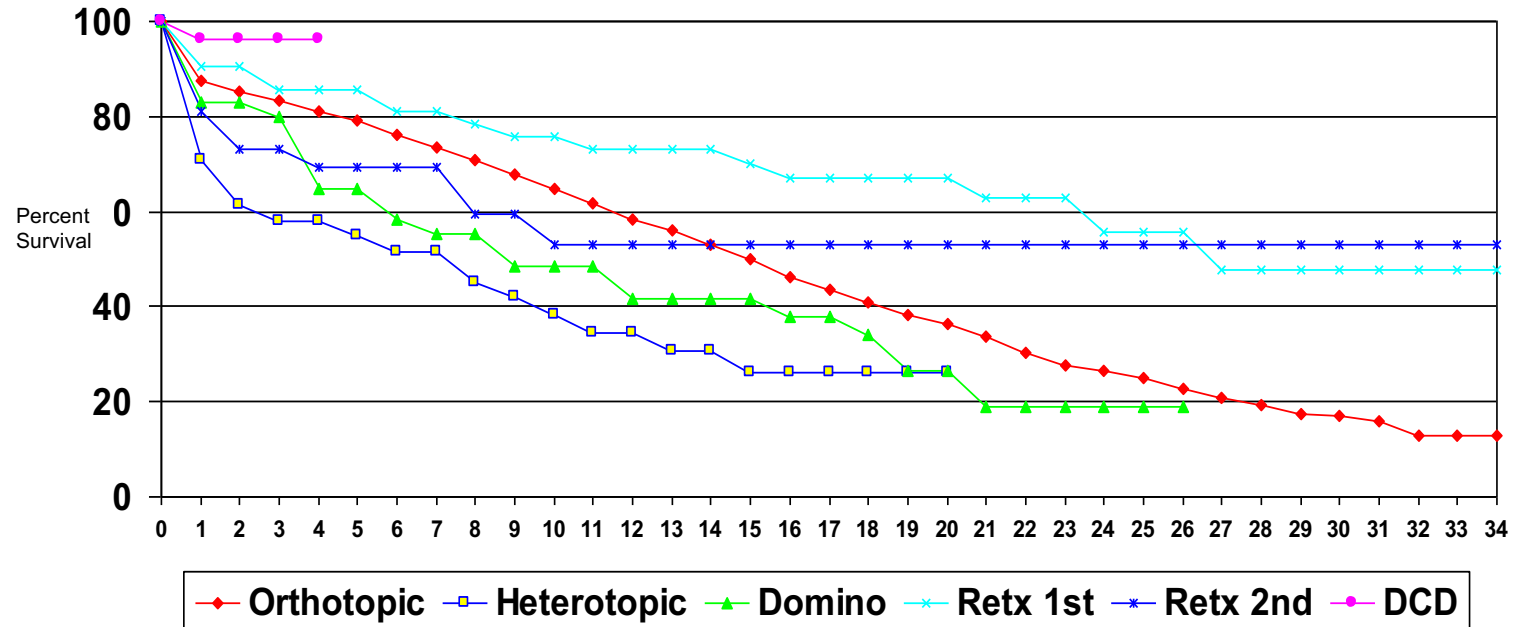
CUTLER-EDERER SURVIVAL – ALL* HEART TRANSPLANTS 1984 - 2018



| YEAR | n= | % |
|------|------|-------|
| 0 | 2974 | 100.0 |
| 1 | 2517 | 87.4 |
| 2 | 2339 | 85.2 |
| 3 | 2165 | 83.0 |
| 4 | 2012 | 80.8 |
| 5 | 1892 | 78.9 |
| 6 | 1750 | 76.0 |
| 7 | 1618 | 73.4 |
| 8 | 1501 | 70.6 |
| 9 | 1378 | 67.5 |
| 10 | 1266 | 64.7 |
| 11 | 1151 | 61.7 |
| 12 | 1042 | 58.3 |
| 13 | 948 | 56.2 |
| 14 | 849 | 53.2 |
| 15 | 752 | 50.0 |
| 16 | 652 | 46.3 |
| 17 | 574 | 43.7 |
| 18 | 493 | 41.1 |
| 19 | 434 | 38.7 |
| 20 | 383 | 36.6 |
| 21 | 328 | 34.0 |
| 22 | 266 | 30.8 |
| 23 | 219 | 28.1 |
| 24 | 192 | 26.9 |
| 25 | 150 | 25.5 |
| 26 | 111 | 23.4 |
| 27 | 81 | 21.3 |
| 28 | 63 | 19.9 |
| 29 | 39 | 18.1 |
| 30 | 22 | 17.5 |
| 31 | 15 | 16.6 |
| 32 | 9 | 14.0 |
| 33 | 4 | 14.0 |
| 34 | 2 | 14.0 |

*All Hearts includes Orthotopic(2943), Heterotopic(31), Domino(36), Retransplant(42) DCD(28)

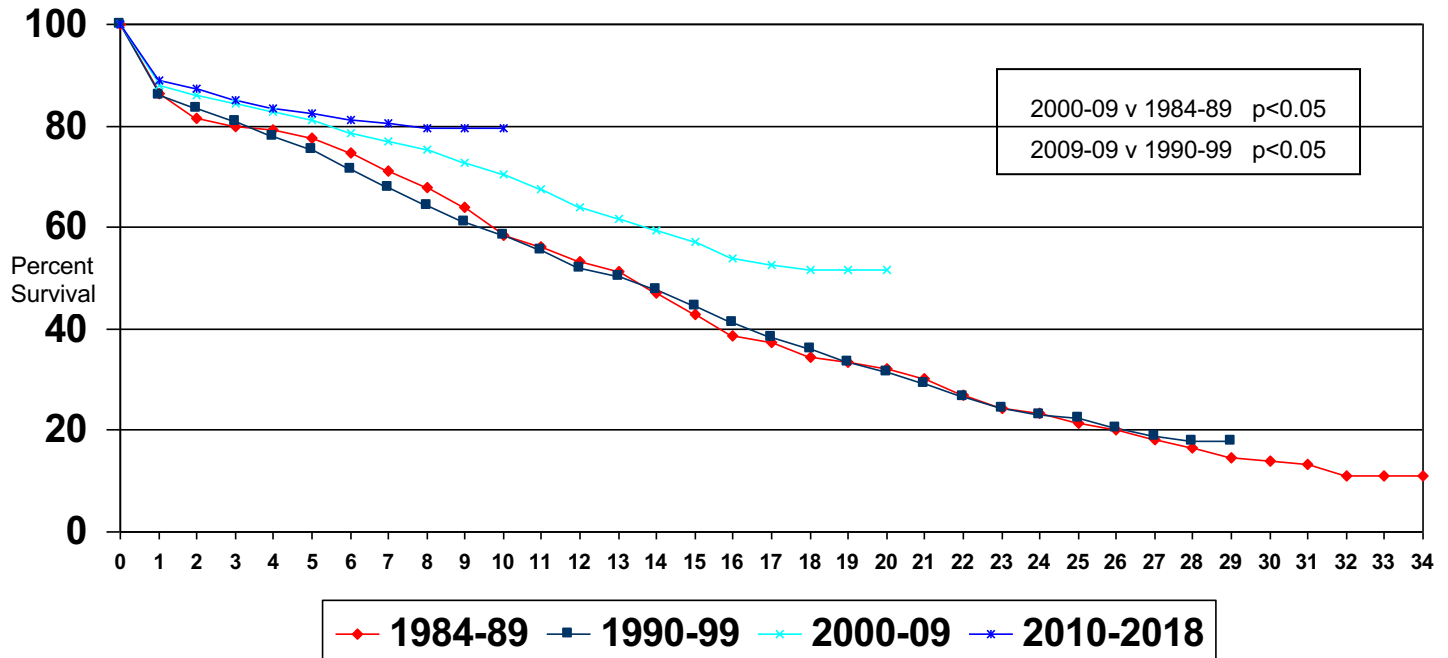
CUTLER-EDERER SURVIVAL ORTHOTOPIC v HETEROTOPIC v DOMINO v RETRANSPLANT HEART v DCD TRANSPLANTS 1984 - 2018



| YEAR | Orthotopic | | Heterotopic | | Domino | | Retx (1st Tx) | | Retx (2nd Tx) | | DCD | |
|------|------------|-------|-------------|-------|--------|-------|---------------|-------|----------------|-------|-----|------|
| | n | % | n | % | n | % | n | % | n | % | n | % |
| 0 | 2901 | 100.0 | 31 | 100.0 | 36 | 100.0 | 42 | 100.0 | 42 | 100.0 | 28 | 100 |
| 1 | 2457 | 87.6 | 22 | 71.0 | 30 | 83.3 | 38 | 90.5 | 34 | 81.0 | 23 | 96.2 |
| 2 | 2282 | 85.3 | 19 | 61.3 | 29 | 83.3 | 38 | 90.5 | 25 | 73.1 | 14 | 96.2 |
| 3 | 2111 | 83.2 | 18 | 58.1 | 28 | 80.5 | 36 | 85.7 | 20 | 73.1 | 9 | 96.2 |
| 4 | 1958 | 81.0 | 18 | 58.1 | 21 | 65.6 | 36 | 85.7 | 18 | 69.4 | 6 | 96.2 |
| 5 | 1840 | 79.1 | 17 | 54.8 | 21 | 65.6 | 36 | 85.7 | 15 | 69.4 | | |
| 6 | 1701 | 76.2 | 16 | 51.6 | 19 | 59.3 | 33 | 80.9 | 14 | 69.4 | | |
| 7 | 1570 | 73.5 | 16 | 51.6 | 17 | 56.1 | 32 | 80.9 | 14 | 69.4 | | |
| 8 | 1456 | 70.8 | 14 | 45.2 | 17 | 56.1 | 31 | 78.4 | 12 | 59.5 | | |
| 9 | 1336 | 67.7 | 13 | 41.9 | 15 | 49.5 | 29 | 75.8 | 11 | 59.5 | | |
| 10 | 1225 | 64.8 | 12 | 38.7 | 14 | 49.5 | 29 | 75.8 | 7 | 53.2 | | |
| 11 | 1116 | 61.9 | 9 | 35.2 | 14 | 49.5 | 26 | 73.1 | 6 | 53.2 | | |
| 12 | 1008 | 58.3 | 9 | 35.2 | 12 | 42.4 | 25 | 73.1 | 5 | 53.2 | | |
| 13 | 915 | 56.2 | 8 | 31.3 | 12 | 42.4 | 25 | 73.1 | 4 | 53.2 | | |
| 14 | 816 | 53.1 | 8 | 31.3 | 11 | 42.4 | 25 | 73.1 | 4 | 53.2 | | |
| 15 | 724 | 49.9 | 5 | 22.9 | 11 | 42.4 | 23 | 70.1 | 4 | 53.2 | | |
| 16 | 626 | 46.1 | 5 | 22.9 | 10 | 38.6 | 21 | 67.0 | 2 | 53.2 | | |
| 17 | 551 | 43.6 | 4 | 18.4 | 10 | 38.6 | 19 | 67.0 | 2 | 53.2 | | |
| 18 | 472 | 40.8 | 3 | 18.4 | 9 | 34.7 | 18 | 67.0 | 1 | 53.2 | | |
| 19 | 417 | 38.4 | 1 | 18.4 | 7 | 27.0 | 17 | 67.0 | 1 | 53.2 | | |
| 20 | 366 | 36.2 | 1 | 18.4 | 7 | 27.0 | 16 | 67.0 | 1 | 53.2 | | |
| 21 | 315 | 33.7 | 1 | 18.4 | 5 | 19.3 | 14 | 62.7 | 1 | 53.2 | | |
| 22 | 254 | 30.3 | | | 5 | 19.3 | 12 | 62.7 | 1 | 53.2 | | |
| 23 | 209 | 27.5 | | | 5 | 19.3 | 10 | 62.7 | 1 | 53.2 | | |
| 24 | 185 | 26.5 | | | 5 | 19.3 | 7 | 55.7 | 1 | 53.2 | | |
| 25 | 143 | 25.0 | | | 4 | 19.3 | 7 | 55.7 | 1 | 53.2 | | |
| 26 | 104 | 22.9 | | | 4 | 19.3 | 7 | 55.7 | 1 | 53.2 | | |
| 27 | 75 | 20.9 | | | 3 | 14.5 | 6 | 47.7 | 1 | 53.2 | | |
| 28 | 58 | 19.4 | | | | | 5 | 47.7 | 1 | 53.2 | | |
| 29 | 36 | 17.5 | | | | | 3 | 47.7 | 1 | 53.2 | | |
| 30 | 20 | 16.9 | | | | | 2 | 47.7 | 1 | 53.2 | | |
| 31 | 13 | 15.9 | | | | | 2 | 47.7 | 1 | 53.2 | | |
| 32 | 7 | 13.0 | | | | | 2 | 47.7 | 1 | 53.2 | | |
| 33 | 3 | 13.0 | | | | | 1 | 47.7 | 1 | 53.2 | | |
| 34 | 1 | 13.0 | | | | | 1 | 47.7 | 1 | 53.2 | | |

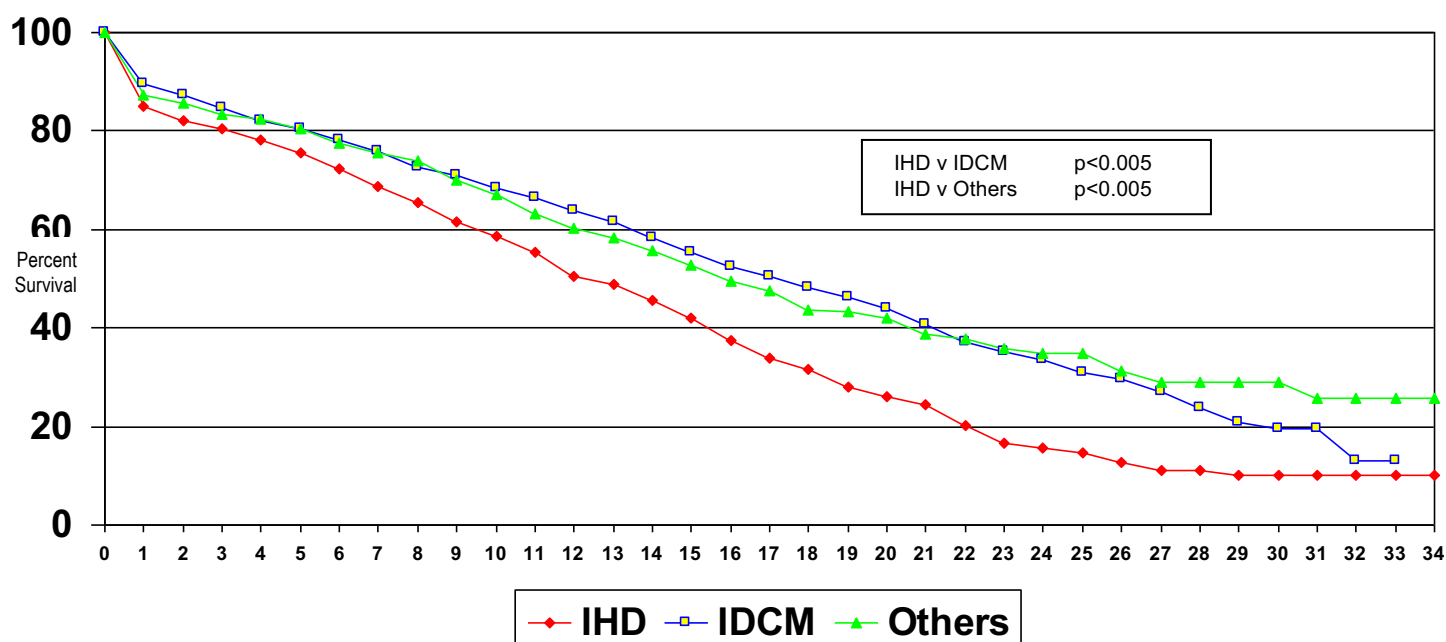
CUTLER-EDERER SURVIVAL ALL HEARTS

PERIOD COMPARISON 1984 – 2018



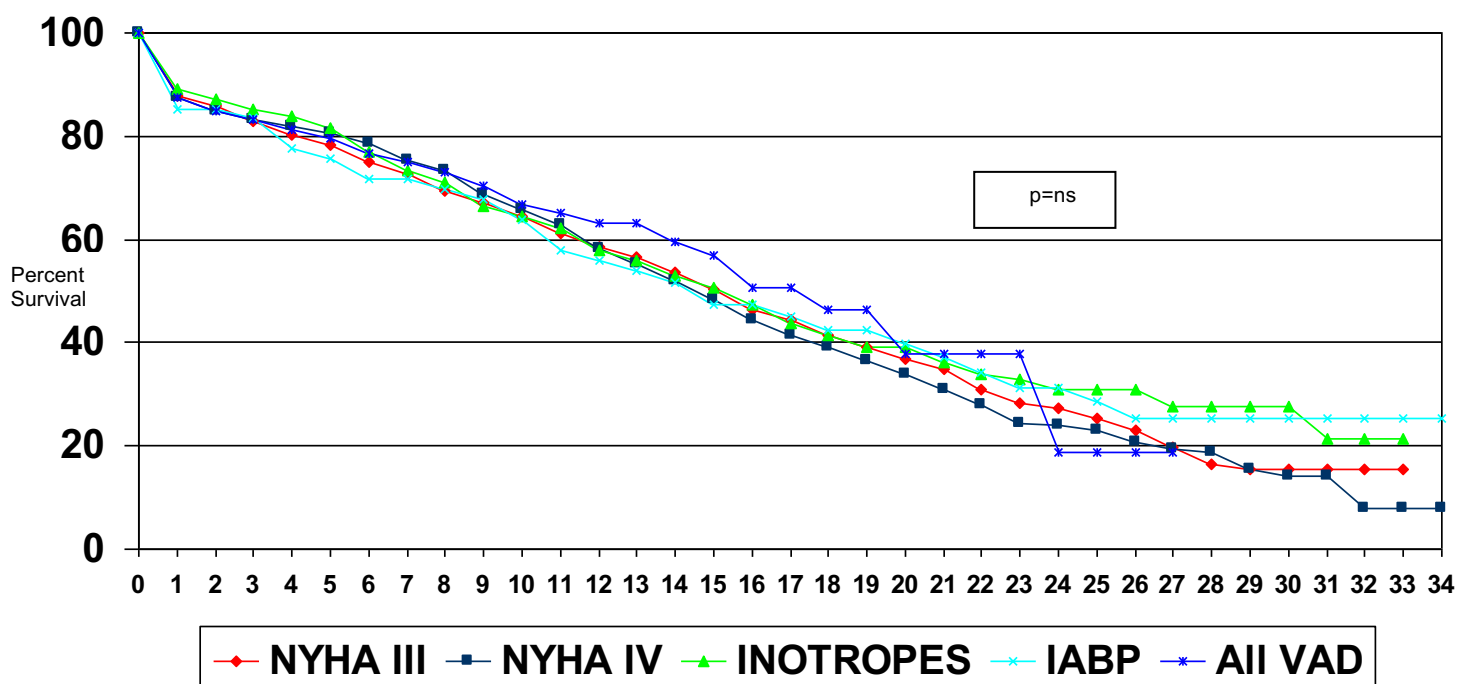
| | 1984-1989 | | 1990-1999 | | 2000-2009 | | 2010-2018 | |
|------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| Year | n= | % | n= | % | n= | % | n= | % |
| 0 | 249 | 100.0 | 1015 | 100.0 | 799 | 100.0 | 911 | 100.0 |
| 1 | 215 | 86.3 | 873 | 86.0 | 704 | 88.1 | 725 | 88.8 |
| 2 | 203 | 81.5 | 848 | 83.5 | 687 | 86.0 | 601 | 87.5 |
| 3 | 199 | 79.9 | 820 | 80.8 | 674 | 84.4 | 472 | 85.2 |
| 4 | 197 | 79.1 | 790 | 77.8 | 661 | 82.7 | 364 | 83.4 |
| 5 | 193 | 77.5 | 763 | 75.2 | 648 | 81.1 | 288 | 82.6 |
| 6 | 186 | 74.7 | 726 | 71.5 | 628 | 78.6 | 210 | 81.3 |
| 7 | 177 | 71.1 | 689 | 67.9 | 616 | 77.1 | 136 | 80.4 |
| 8 | 169 | 67.9 | 653 | 64.3 | 602 | 75.3 | 77 | 79.6 |
| 9 | 159 | 63.9 | 620 | 61.1 | 580 | 72.6 | 19 | 79.6 |
| 10 | 146 | 58.6 | 594 | 58.5 | 526 | 70.3 | | |
| 11 | 140 | 56.2 | 564 | 55.6 | 447 | 67.4 | | |
| 12 | 133 | 53.4 | 529 | 52.1 | 380 | 64.1 | | |
| 13 | 128 | 51.4 | 511 | 50.3 | 309 | 61.7 | | |
| 14 | 117 | 47.0 | 483 | 47.6 | 249 | 59.3 | | |
| 15 | 107 | 43.0 | 451 | 44.4 | 194 | 57.2 | | |
| 16 | 96 | 38.6 | 418 | 41.2 | 138 | 53.9 | | |
| 17 | 93 | 37.3 | 389 | 38.3 | 92 | 52.5 | | |
| 18 | 86 | 34.5 | 364 | 35.9 | 43 | 51.7 | | |
| 19 | 83 | 33.3 | 340 | 33.5 | 11 | 51.7 | | |
| 20 | 80 | 32.1 | 303 | 31.5 | | | | |
| 21 | 75 | 30.1 | 253 | 29.2 | | | | |
| 22 | 67 | 26.9 | 199 | 26.5 | | | | |
| 23 | 61 | 24.5 | 158 | 24.2 | | | | |
| 24 | 58 | 23.3 | 134 | 23.2 | | | | |
| 25 | 53 | 21.3 | 97 | 22.4 | | | | |
| 26 | 50 | 20.1 | 61 | 20.3 | | | | |
| 27 | 45 | 18.1 | 36 | 18.7 | | | | |
| 28 | 41 | 16.5 | 22 | 18.0 | | | | |
| 29 | 36 | 14.5 | 3 | 18.0 | | | | |
| 30 | 22 | 14.0 | | | | | | |
| 31 | 15 | 13.2 | | | | | | |
| 32 | 9 | 11.2 | | | | | | |
| 33 | 4 | 11.2 | | | | | | |
| 34 | 2 | 11.2 | | | | | | |

CUTLER-EDERER SURVIVAL ALL HEARTS PRE- TRANSPLANT DIAGNOSIS 1984 - 2018



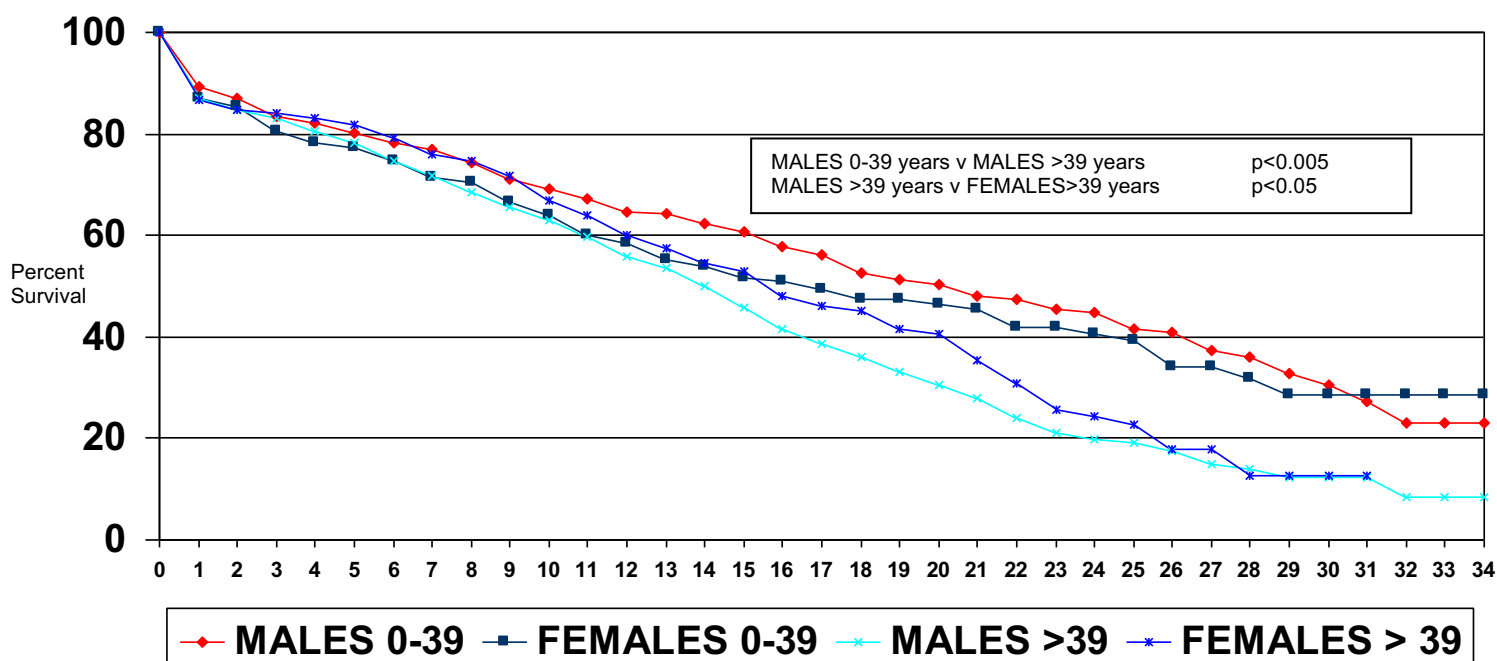
| Year | IHD n | % | IDCM n | % | Others n | % |
|------|----------|-------|-----------|-------|-------------|-------|
| 0 | 915 | 100.0 | 1103 | 100.0 | 845 | 100.0 |
| 1 | 761 | 85.0 | 1044 | 89.5 | 701 | 87.4 |
| 2 | 711 | 82.0 | 972 | 87.2 | 640 | 85.8 |
| 3 | 675 | 80.4 | 889 | 84.7 | 582 | 83.5 |
| 4 | 639 | 78.2 | 826 | 82.0 | 536 | 82.4 |
| 5 | 605 | 75.7 | 763 | 80.5 | 503 | 80.6 |
| 6 | 566 | 72.3 | 703 | 78.1 | 463 | 77.6 |
| 7 | 526 | 68.6 | 642 | 76.0 | 422 | 75.5 |
| 8 | 492 | 65.6 | 598 | 72.7 | 397 | 74.1 |
| 9 | 451 | 61.5 | 553 | 71.0 | 354 | 70.1 |
| 10 | 418 | 58.5 | 516 | 68.5 | 315 | 67.0 |
| 11 | 381 | 55.3 | 475 | 66.3 | 276 | 63.2 |
| 12 | 340 | 50.6 | 438 | 63.7 | 250 | 60.4 |
| 13 | 312 | 48.7 | 393 | 61.6 | 222 | 58.2 |
| 14 | 281 | 45.5 | 349 | 58.4 | 200 | 55.7 |
| 15 | 248 | 42.0 | 311 | 55.3 | 177 | 52.8 |
| 16 | 214 | 37.4 | 279 | 52.5 | 148 | 49.4 |
| 17 | 181 | 33.9 | 252 | 50.5 | 130 | 47.6 |
| 18 | 156 | 31.6 | 223 | 48.3 | 105 | 43.7 |
| 19 | 124 | 28.0 | 204 | 46.4 | 95 | 43.3 |
| 20 | 106 | 25.9 | 177 | 43.9 | 86 | 41.9 |
| 21 | 94 | 24.4 | 148 | 40.6 | 73 | 38.9 |
| 22 | 71 | 20.3 | 129 | 37.1 | 59 | 37.7 |
| 23 | 51 | 16.7 | 111 | 35.1 | 52 | 35.7 |
| 24 | 42 | 15.6 | 94 | 33.6 | 49 | 35.0 |
| 25 | 33 | 14.8 | 72 | 31.0 | 42 | 35.0 |
| 26 | 19 | 12.7 | 55 | 29.6 | 32 | 31.4 |
| 27 | 13 | 11.2 | 42 | 27.0 | 21 | 29.1 |
| 28 | 12 | 11.2 | 31 | 23.9 | 16 | 29.1 |
| 29 | 8 | 10.1 | 20 | 20.7 | 10 | 29.1 |
| 30 | 2 | 10.1 | 11 | 19.5 | 9 | 29.1 |
| 31 | 1 | 10.1 | 5 | 19.5 | 7 | 25.7 |
| 32 | 1 | 10.1 | 3 | 13.0 | 5 | 25.7 |
| 33 | 1 | 10.1 | | 13.0 | 3 | 25.7 |
| 34 | 1 | 10.1 | | | 2 | 25.7 |

CUTLER-EDERER SURVIVAL PRE-TRANSPLANT STATUS ALL HEARTS 1984 - 2018



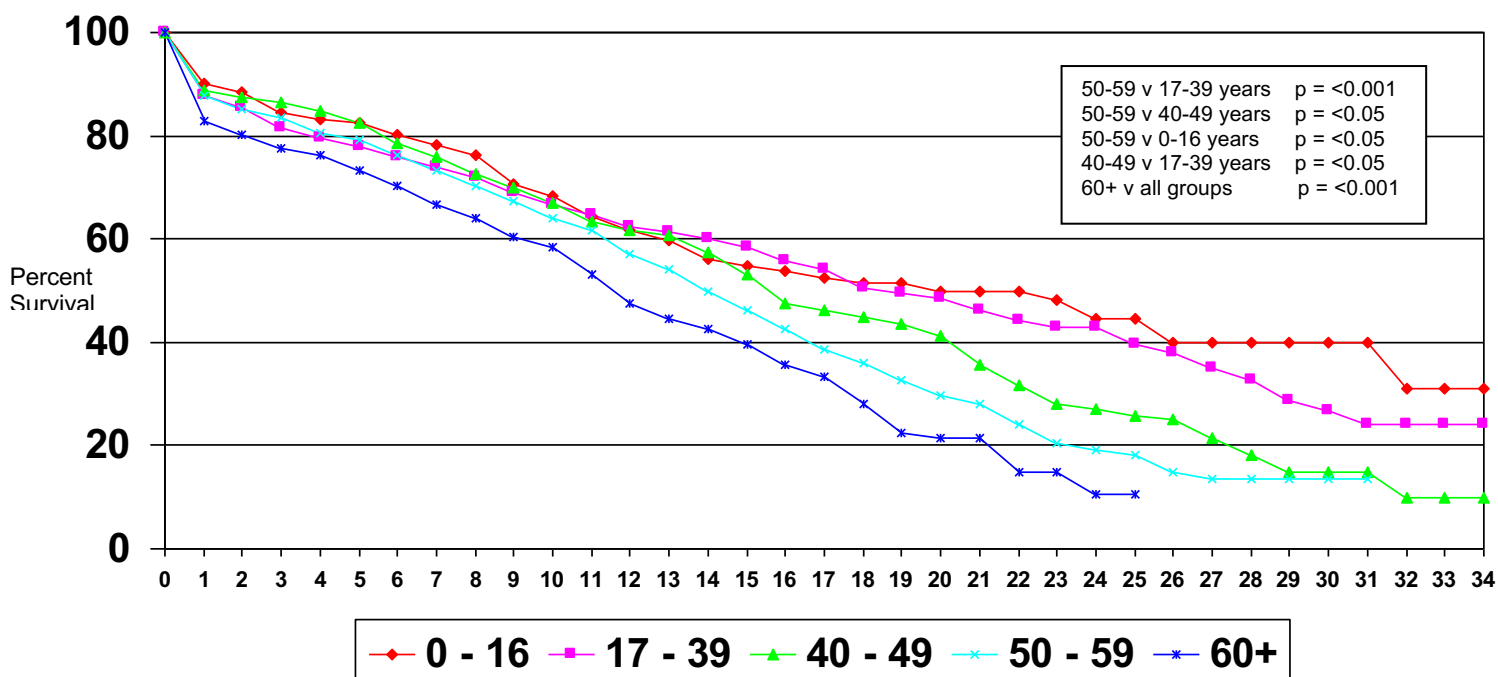
| Year | NYHA III n= | % | NYHA IV n= | % | INOTROPES n= | % | IABP n= | % | All VAD n= | % |
|------|----------------|-------|---------------|-------|-----------------|-------|------------|-------|---------------|-------|
| 0 | 1268 | 100.0 | 648 | 100.0 | 305 | 100.0 | 55 | 100.0 | 471 | 100.0 |
| 1 | 1095 | 87.8 | 563 | 87.6 | 268 | 89.1 | 46 | 85.3 | 395 | 87.6 |
| 2 | 1048 | 85.7 | 532 | 84.8 | 251 | 87.1 | 46 | 85.3 | 346 | 84.9 |
| 3 | 995 | 83.0 | 504 | 83.2 | 236 | 85.3 | 43 | 83.4 | 306 | 83.3 |
| 4 | 958 | 80.4 | 491 | 82.0 | 227 | 83.8 | 40 | 77.6 | 248 | 81.2 |
| 5 | 916 | 78.2 | 473 | 80.5 | 219 | 81.6 | 39 | 75.7 | 223 | 79.5 |
| 6 | 863 | 75.1 | 455 | 78.6 | 202 | 77.1 | 37 | 71.8 | 185 | 76.8 |
| 7 | 817 | 72.7 | 424 | 75.3 | 183 | 73.2 | 37 | 71.8 | 154 | 75.0 |
| 8 | 760 | 69.4 | 408 | 73.3 | 175 | 71.2 | 35 | 69.8 | 128 | 72.9 |
| 9 | 709 | 67.0 | 376 | 68.9 | 159 | 66.6 | 34 | 67.8 | 103 | 70.5 |
| 10 | 655 | 64.4 | 349 | 65.8 | 150 | 64.5 | 32 | 63.8 | 83 | 66.8 |
| 11 | 588 | 61.3 | 326 | 62.7 | 141 | 62.3 | 29 | 57.8 | 69 | 65.0 |
| 12 | 537 | 58.4 | 297 | 58.1 | 127 | 57.8 | 28 | 55.9 | 55 | 63.0 |
| 13 | 497 | 56.5 | 265 | 55.3 | 117 | 56.0 | 26 | 53.8 | 44 | 63.0 |
| 14 | 451 | 53.5 | 239 | 52.1 | 108 | 53.1 | 25 | 51.8 | 27 | 59.5 |
| 15 | 406 | 50.2 | 209 | 48.5 | 97 | 50.5 | 22 | 47.5 | 20 | 57.0 |
| 16 | 352 | 46.5 | 181 | 44.4 | 85 | 47.3 | 20 | 47.5 | 14 | 50.7 |
| 17 | 308 | 44.3 | 161 | 41.4 | 72 | 43.8 | 18 | 45.1 | 13 | 50.7 |
| 18 | 262 | 41.4 | 144 | 39.3 | 61 | 41.3 | 16 | 42.5 | 9 | 46.3 |
| 19 | 226 | 39.1 | 127 | 36.5 | 57 | 39.2 | 16 | 42.5 | 6 | 46.3 |
| 20 | 195 | 37.0 | 113 | 33.9 | 54 | 39.2 | 15 | 39.9 | 4 | 37.9 |
| 21 | 168 | 34.8 | 95 | 30.8 | 47 | 36.2 | 13 | 37.1 | 4 | 37.9 |
| 22 | 130 | 30.8 | 79 | 28.1 | 39 | 33.8 | 12 | 34.3 | 4 | 37.9 |
| 23 | 109 | 28.4 | 62 | 24.3 | 33 | 32.9 | 11 | 31.4 | 2 | 37.9 |
| 24 | 94 | 27.3 | 57 | 23.9 | 28 | 30.8 | 11 | 31.4 | 1 | 18.9 |
| 25 | 61 | 25.2 | 52 | 23.1 | 26 | 30.8 | 10 | 28.5 | 1 | 18.9 |
| 26 | 43 | 22.9 | 38 | 20.6 | 22 | 30.8 | 6 | 25.2 | 1 | 18.9 |
| 27 | 27 | 19.9 | 33 | 19.5 | 16 | 27.7 | 4 | 25.2 | | |
| 28 | 18 | 16.6 | 25 | 18.8 | 14 | 27.7 | 4 | 25.2 | | |
| 29 | 7 | 15.3 | 16 | 15.5 | 12 | 27.7 | 3 | 25.2 | | |
| 30 | 5 | 15.3 | 9 | 14.3 | 5 | 27.7 | 2 | 25.2 | | |
| 31 | 3 | 15.3 | 6 | 14.3 | 3 | 21.5 | 2 | 25.2 | | |
| 32 | 3 | 15.3 | 1 | 7.9 | 2 | 21.5 | 2 | 25.2 | | |
| 33 | 3 | 15.3 | 1 | 7.9 | 2 | 21.5 | 2 | 25.2 | | |
| 34 | | | 1 | 7.9 | | | 1 | 25.2 | | |

CUTLER-EDERER SURVIVAL BY RECIPIENT AGE AND GENDER HEARTS 1984 - 2018



| Year | MALES 0-39 | | FEMALES 0 - 39 | | MALES >39 | | FEMALES > 39 | |
|------|------------|-------|----------------|-------|-----------|-------|--------------|-------|
| | n= | % | n= | % | n= | % | n= | % |
| 0 | 561 | 100.0 | 306 | 100.0 | 1695 | 100.0 | 414 | 100.0 |
| 1 | 490 | 89.4 | 255 | 87.0 | 1429 | 87.1 | 343 | 86.7 |
| 2 | 457 | 86.9 | 238 | 85.3 | 1331 | 84.7 | 313 | 84.6 |
| 3 | 418 | 83.4 | 213 | 80.5 | 1247 | 83.0 | 288 | 84.0 |
| 4 | 390 | 82.0 | 190 | 78.1 | 1164 | 80.4 | 268 | 83.1 |
| 5 | 367 | 80.1 | 182 | 77.3 | 1092 | 78.2 | 251 | 81.9 |
| 6 | 345 | 78.3 | 166 | 74.7 | 1010 | 74.8 | 229 | 79.2 |
| 7 | 321 | 77.1 | 154 | 71.5 | 935 | 71.9 | 208 | 76.0 |
| 8 | 299 | 74.4 | 147 | 70.5 | 863 | 68.5 | 192 | 74.8 |
| 9 | 273 | 71.1 | 133 | 66.6 | 800 | 65.6 | 172 | 71.6 |
| 10 | 256 | 69.0 | 120 | 64.0 | 740 | 62.9 | 150 | 66.9 |
| 11 | 238 | 67.1 | 104 | 60.1 | 676 | 59.8 | 133 | 64.1 |
| 12 | 216 | 64.5 | 97 | 58.4 | 611 | 55.9 | 118 | 60.2 |
| 13 | 202 | 64.2 | 83 | 55.2 | 558 | 53.6 | 105 | 57.5 |
| 14 | 183 | 62.2 | 75 | 53.8 | 497 | 49.9 | 94 | 54.7 |
| 15 | 167 | 60.8 | 71 | 51.7 | 433 | 45.8 | 82 | 52.9 |
| 16 | 146 | 57.8 | 64 | 50.9 | 372 | 41.7 | 70 | 48.2 |
| 17 | 133 | 56.1 | 59 | 49.3 | 322 | 38.7 | 60 | 46.0 |
| 18 | 115 | 52.6 | 52 | 47.5 | 275 | 35.9 | 52 | 45.2 |
| 19 | 108 | 51.2 | 49 | 47.5 | 232 | 33.2 | 45 | 41.6 |
| 20 | 99 | 50.2 | 46 | 46.5 | 197 | 30.4 | 41 | 40.7 |
| 21 | 86 | 48.1 | 42 | 45.5 | 167 | 27.8 | 33 | 35.5 |
| 22 | 74 | 47.5 | 34 | 42.0 | 133 | 24.0 | 25 | 30.9 |
| 23 | 66 | 45.5 | 31 | 42.0 | 103 | 21.1 | 19 | 25.8 |
| 24 | 62 | 44.8 | 29 | 40.7 | 86 | 19.8 | 15 | 24.3 |
| 25 | 50 | 41.7 | 24 | 39.2 | 64 | 19.1 | 12 | 22.6 |
| 26 | 41 | 40.8 | 19 | 34.1 | 46 | 17.4 | 5 | 17.8 |
| 27 | 29 | 37.5 | 15 | 34.1 | 32 | 14.9 | 5 | 17.8 |
| 28 | 25 | 36.1 | 13 | 31.7 | 24 | 13.9 | 1 | 12.7 |
| 29 | 17 | 32.8 | 7 | 28.7 | 14 | 12.5 | 1 | 12.7 |
| 30 | 10 | 30.5 | 6 | 28.7 | 5 | 12.5 | 1 | 12.7 |
| 31 | 8 | 27.3 | 4 | 28.7 | 3 | 12.5 | | |
| 32 | 4 | 23.1 | 3 | 28.7 | 2 | 8.3 | | |
| 33 | 1 | 23.1 | 2 | 28.7 | 1 | 8.3 | | |
| 34 | 1 | 23.1 | 1 | 28.7 | 1 | 8.3 | | |

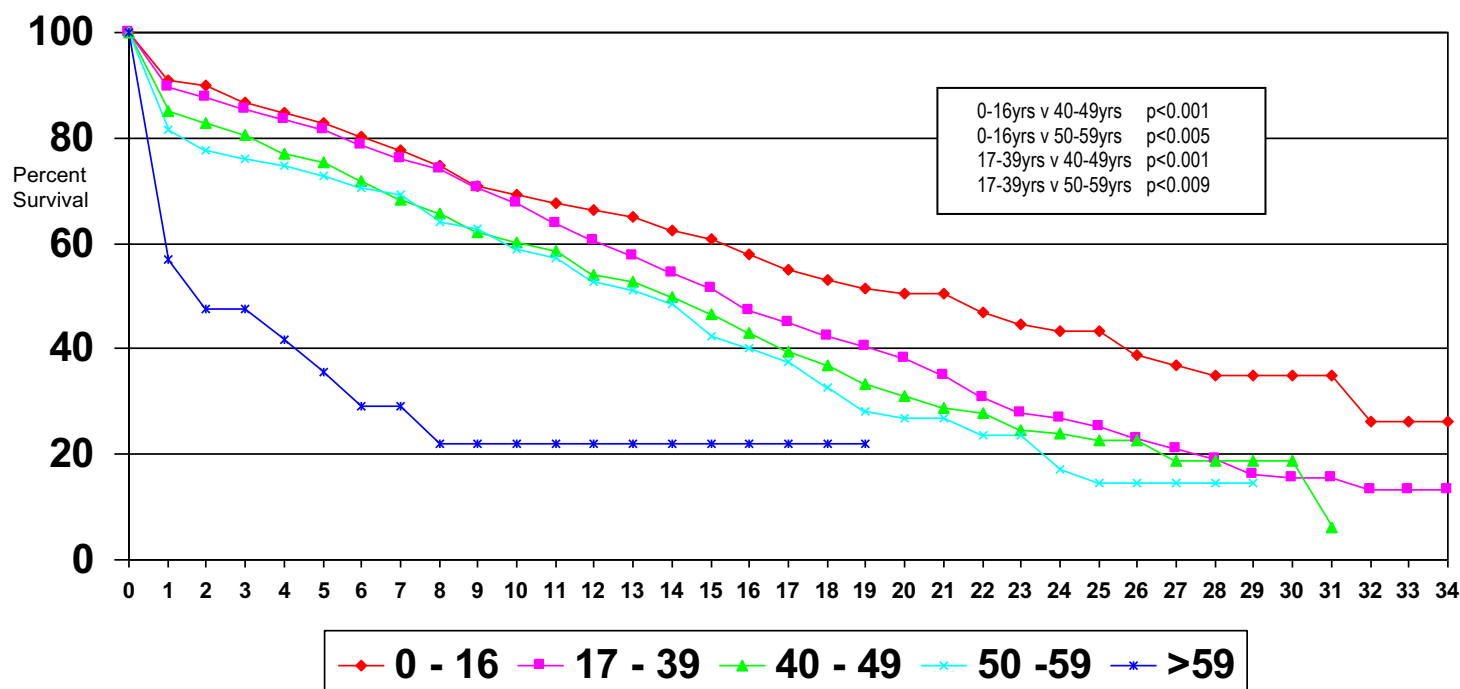
CUTLER-EDERER SURVIVAL RECIPIENT AGE ALL HEARTS 1984 - 2018



| Year | 0 - 16 | | 17 - 39 | | 40 - 49 | | 50 - 59 | | 60+ | |
|------|--------|-------|---------|-------|---------|-------|---------|-------|-----|-------|
| | n= | % | n= | % | n= | % | n= | % | n= | % |
| 0 | 247 | 100.0 | 618 | 100.0 | 622 | 100.0 | 1021 | 100.0 | 466 | 100.0 |
| 1 | 216 | 90.1 | 529 | 87.9 | 540 | 88.9 | 868 | 87.7 | 368 | 82.9 |
| 2 | 195 | 88.4 | 500 | 85.5 | 513 | 87.3 | 809 | 85.2 | 323 | 80.1 |
| 3 | 173 | 84.6 | 458 | 81.5 | 485 | 86.6 | 768 | 83.6 | 286 | 77.7 |
| 4 | 154 | 83.1 | 426 | 79.7 | 459 | 84.9 | 714 | 80.6 | 260 | 76.3 |
| 5 | 144 | 82.5 | 405 | 77.8 | 432 | 82.5 | 683 | 79.1 | 231 | 73.3 |
| 6 | 132 | 80.2 | 379 | 75.8 | 396 | 78.6 | 634 | 76.2 | 210 | 70.3 |
| 7 | 119 | 78.3 | 356 | 74.0 | 371 | 76.0 | 584 | 73.2 | 191 | 66.6 |
| 8 | 111 | 76.3 | 335 | 71.9 | 343 | 72.7 | 542 | 70.3 | 176 | 64.1 |
| 9 | 98 | 70.7 | 308 | 69.0 | 316 | 70.1 | 504 | 67.4 | 154 | 60.3 |
| 10 | 87 | 68.4 | 289 | 66.8 | 287 | 66.9 | 469 | 64.0 | 136 | 58.3 |
| 11 | 76 | 64.3 | 266 | 64.6 | 263 | 63.3 | 435 | 61.8 | 113 | 53.3 |
| 12 | 69 | 61.7 | 244 | 62.4 | 241 | 61.6 | 392 | 57.2 | 97 | 47.6 |
| 13 | 64 | 59.9 | 221 | 61.3 | 232 | 60.6 | 352 | 54.2 | 80 | 44.5 |
| 14 | 55 | 56.0 | 203 | 60.2 | 212 | 57.4 | 308 | 49.9 | 72 | 42.7 |
| 15 | 50 | 54.9 | 188 | 58.4 | 187 | 53.2 | 268 | 46.1 | 62 | 39.7 |
| 16 | 47 | 53.8 | 163 | 55.8 | 155 | 47.6 | 238 | 42.6 | 52 | 35.7 |
| 17 | 43 | 52.6 | 149 | 54.0 | 142 | 46.3 | 201 | 38.5 | 40 | 33.4 |
| 18 | 38 | 51.4 | 129 | 50.6 | 125 | 45.0 | 175 | 36.0 | 28 | 28.0 |
| 19 | 38 | 51.4 | 119 | 49.4 | 114 | 43.5 | 147 | 32.8 | 19 | 22.6 |
| 20 | 36 | 50.0 | 109 | 48.5 | 103 | 41.2 | 119 | 29.7 | 16 | 21.4 |
| 21 | 32 | 50.0 | 96 | 46.2 | 85 | 35.5 | 101 | 27.9 | 16 | 21.4 |
| 22 | 27 | 50.0 | 81 | 44.2 | 71 | 31.6 | 80 | 24.1 | 7 | 15.0 |
| 23 | 26 | 48.1 | 71 | 43.0 | 60 | 27.9 | 59 | 20.6 | 5 | 15.0 |
| 24 | 23 | 44.4 | 68 | 43.0 | 54 | 27.0 | 47 | 19.1 | 1 | 10.7 |
| 25 | 21 | 44.4 | 53 | 39.6 | 42 | 25.9 | 36 | 18.2 | | |
| 26 | 17 | 39.9 | 43 | 38.0 | 28 | 25.2 | 24 | 14.9 | | |
| 27 | 12 | 39.9 | 32 | 35.1 | 21 | 21.4 | 16 | 13.5 | | |
| 28 | 11 | 39.9 | 27 | 32.8 | 14 | 18.0 | 11 | 13.5 | | |
| 29 | 6 | 39.9 | 18 | 28.7 | 8 | 15.0 | 8 | 13.5 | | |
| 30 | 5 | 39.9 | 11 | 26.8 | 5 | 15.0 | 1 | 13.5 | | |
| 31 | 5 | 39.9 | 7 | 24.0 | 3 | 15.0 | | | | |
| 32 | 3 | 31.0 | 4 | 24.0 | 2 | 10.0 | | | | |
| 33 | 2 | 31.0 | 1 | 24.0 | 1 | 10.0 | | | | |
| 34 | 1 | 31.0 | 1 | 24.0 | 1 | 10.0 | | | | |

CUTLER-EDERER SURVIVAL DONOR AGE

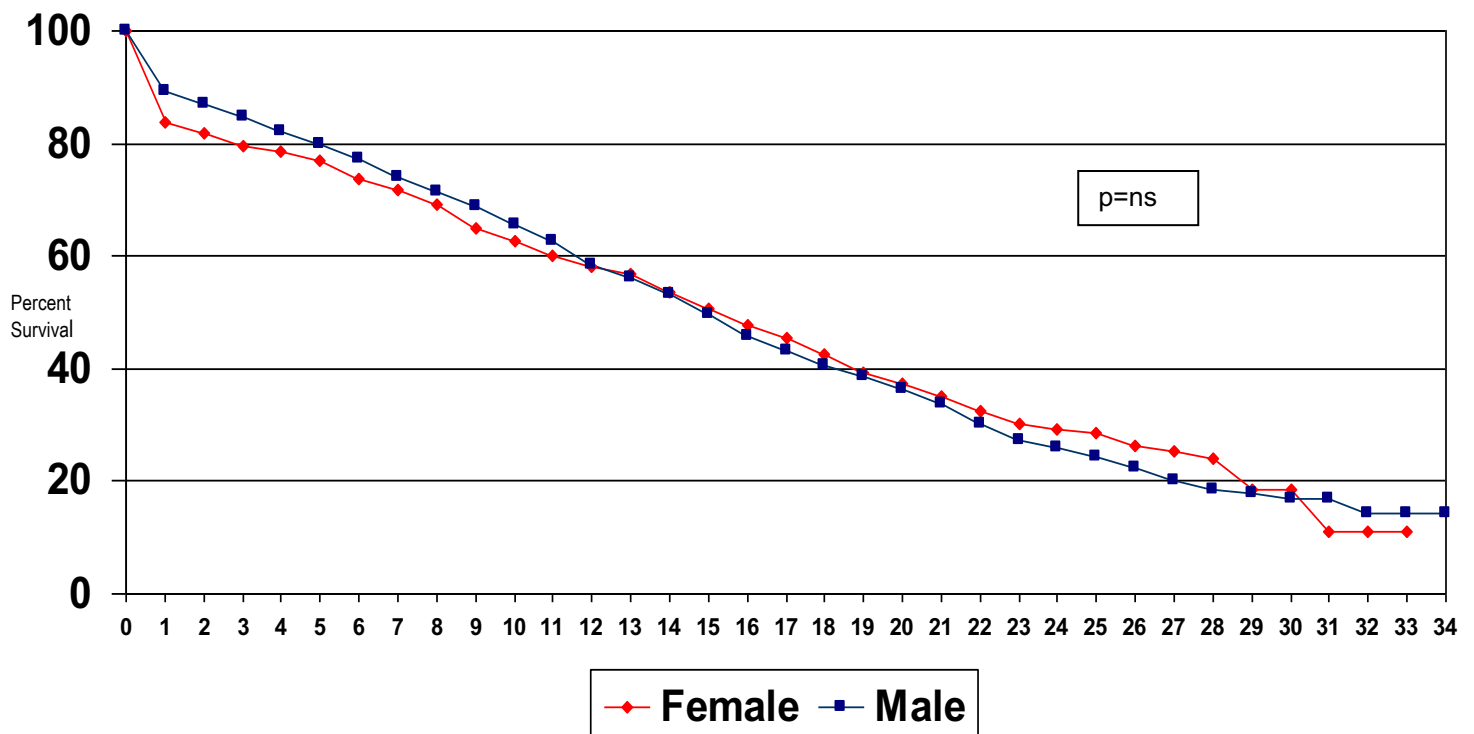
ALL HEARTS 1984 - 2018



| Year | 0 - 16 n= % | 17 - 39 n= % | 40 - 49 n= % | 50 - 59 n= % | >59 n= % |
|------|----------------|-----------------|-----------------|-----------------|-------------|
| 0 | 274 100.0 | 1657 100.0 | 650 100.0 | 369 100.0 | 21 100.0 |
| 1 | 241 91.1 | 1436 89.5 | 538 85.2 | 291 81.6 | 12 57.1 |
| 2 | 227 89.9 | 1349 87.6 | 494 82.7 | 258 77.8 | 10 47.6 |
| 3 | 203 86.6 | 1261 85.4 | 457 80.5 | 237 75.9 | 8 47.6 |
| 4 | 187 84.9 | 1179 83.6 | 415 77.1 | 224 74.6 | 7 41.7 |
| 5 | 178 83.0 | 1115 81.6 | 388 75.4 | 205 72.9 | 6 35.7 |
| 6 | 166 80.2 | 1041 78.8 | 356 72.0 | 182 70.7 | 4 29.2 |
| 7 | 152 77.7 | 971 76.2 | 319 68.3 | 171 69.1 | 4 29.2 |
| 8 | 141 74.6 | 917 74.0 | 295 65.6 | 144 64.0 | 3 21.9 |
| 9 | 131 70.9 | 844 70.7 | 265 62.2 | 135 62.7 | 3 21.9 |
| 10 | 123 69.2 | 778 67.5 | 245 60.3 | 117 58.8 | 2 21.9 |
| 11 | 118 67.5 | 701 63.7 | 223 58.5 | 106 57.2 | 2 21.9 |
| 12 | 113 66.3 | 642 60.4 | 193 53.9 | 91 52.8 | 2 21.9 |
| 13 | 105 65.1 | 580 57.7 | 178 52.8 | 83 51.0 | 2 21.9 |
| 14 | 99 62.6 | 518 54.5 | 160 49.7 | 70 48.4 | 1 21.9 |
| 15 | 92 60.7 | 464 51.3 | 141 46.5 | 54 42.5 | 1 21.9 |
| 16 | 81 57.9 | 399 47.1 | 121 43.1 | 49 40.1 | 1 21.9 |
| 17 | 67 54.9 | 364 45.0 | 100 39.4 | 41 37.5 | 1 21.9 |
| 18 | 59 53.2 | 319 42.4 | 84 36.9 | 30 32.6 | 1 21.9 |
| 19 | 56 51.4 | 286 40.6 | 67 33.2 | 23 28.0 | 1 21.9 |
| 20 | 53 50.4 | 250 38.3 | 59 31.1 | 20 26.7 | |
| 21 | 46 50.4 | 213 34.8 | 50 28.9 | 18 26.7 | |
| 22 | 40 47.0 | 170 30.8 | 42 27.7 | 14 23.6 | |
| 23 | 36 44.6 | 143 27.8 | 28 24.7 | 11 23.6 | |
| 24 | 33 43.3 | 126 27.0 | 24 23.8 | 8 17.2 | |
| 25 | 30 43.3 | 98 25.4 | 17 22.6 | 4 14.5 | |
| 26 | 24 38.8 | 71 23.1 | 13 22.6 | 2 14.5 | |
| 27 | 19 37.0 | 51 20.9 | 9 18.9 | 1 14.5 | |
| 28 | 17 35.0 | 37 19.1 | 7 18.9 | 1 14.5 | |
| 29 | 10 35.0 | 24 16.2 | 4 18.9 | | |
| 30 | 6 35.0 | 13 15.4 | 2 18.9 | | |
| 31 | 5 35.0 | 9 15.4 | | | |
| 32 | 2 26.3 | 6 13.4 | | | |
| 33 | 2 26.3 | 2 13.4 | | | |
| 34 | 1 26.3 | 1 13.4 | | | |

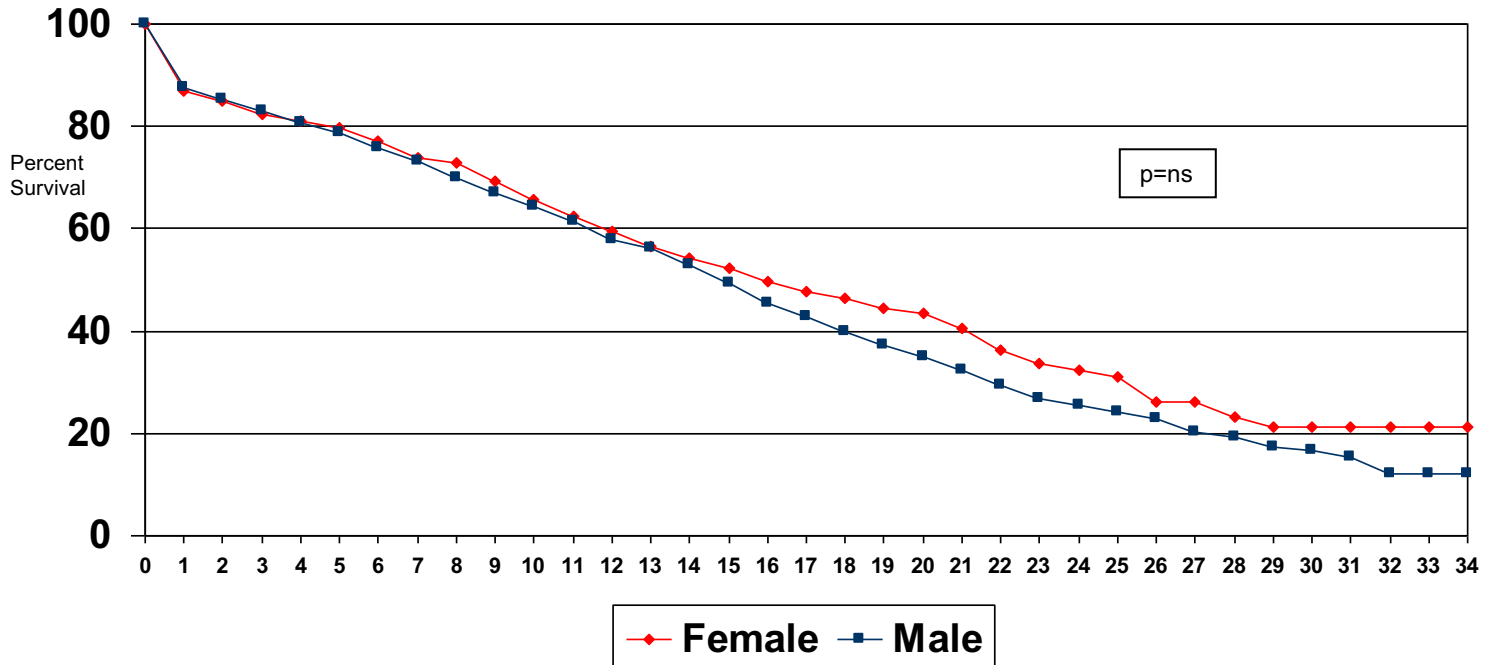
* 2 of the 10 cases in the >59 years category are Heterotopic Heart Transplants

CUTLER-EDERER SURVIVAL DONOR GENDER ALL HEARTS 1984 - 2018



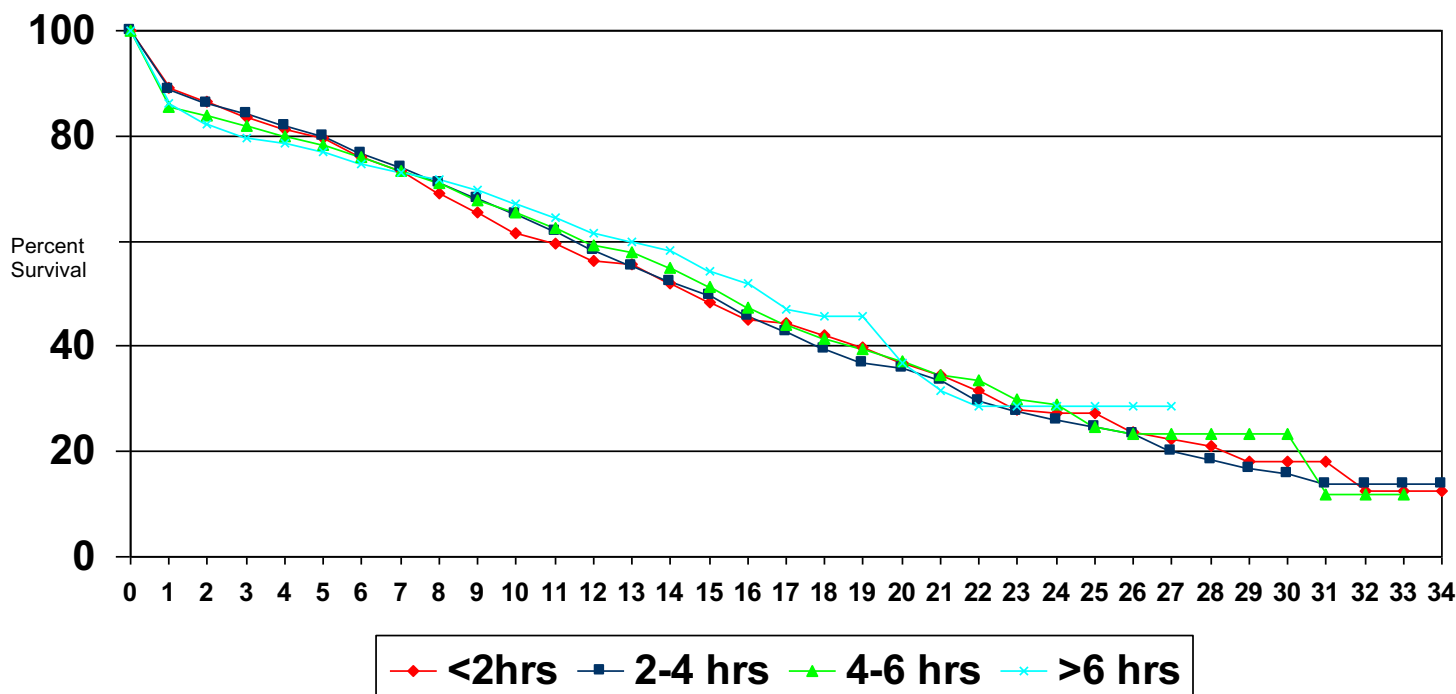
| Year | Female n= | % | Male n= | % |
|------|--------------|-------|------------|-------|
| 0 | 968 | 100.0 | 2003 | 100.0 |
| 1 | 785 | 83.9 | 1733 | 89.2 |
| 2 | 728 | 81.8 | 1610 | 86.9 |
| 3 | 676 | 79.7 | 1490 | 84.6 |
| 4 | 634 | 78.6 | 1378 | 82.0 |
| 5 | 595 | 77.1 | 1297 | 79.9 |
| 6 | 540 | 73.8 | 1209 | 77.2 |
| 7 | 500 | 71.9 | 1117 | 74.1 |
| 8 | 459 | 69.1 | 1041 | 71.4 |
| 9 | 411 | 64.8 | 967 | 68.9 |
| 10 | 379 | 62.6 | 886 | 65.7 |
| 11 | 341 | 60.2 | 810 | 62.6 |
| 12 | 312 | 58.0 | 730 | 58.5 |
| 13 | 279 | 56.7 | 670 | 56.2 |
| 14 | 245 | 53.7 | 604 | 53.1 |
| 15 | 218 | 50.8 | 535 | 49.7 |
| 16 | 192 | 47.7 | 460 | 45.8 |
| 17 | 169 | 45.3 | 405 | 43.1 |
| 18 | 147 | 42.6 | 347 | 40.6 |
| 19 | 125 | 39.2 | 309 | 38.6 |
| 20 | 111 | 37.3 | 272 | 36.4 |
| 21 | 94 | 35.2 | 234 | 33.7 |
| 22 | 76 | 32.4 | 191 | 30.2 |
| 23 | 61 | 30.1 | 158 | 27.4 |
| 24 | 53 | 29.1 | 139 | 26.1 |
| 25 | 44 | 28.5 | 106 | 24.5 |
| 26 | 29 | 26.2 | 82 | 22.5 |
| 27 | 22 | 25.2 | 59 | 20.1 |
| 28 | 17 | 24.0 | 46 | 18.6 |
| 29 | 7 | 18.6 | 32 | 17.7 |
| 30 | 3 | 18.6 | 19 | 17.0 |
| 31 | 1 | 11.2 | 14 | 17.0 |
| 32 | 1 | 11.2 | 8 | 14.2 |
| 33 | | | 5 | 14.2 |
| 34 | | | 2 | 14.2 |

CUTLER-EDERER SURVIVAL RECIPIENT GENDER ALL HEARTS 1984 - 2018



| Year | Female n= | % | Male n= | % |
|------|--------------|-------|------------|-------|
| 0 | 720 | 100.0 | 2254 | 100.0 |
| 1 | 599 | 86.8 | 1921 | 87.6 |
| 2 | 551 | 84.9 | 1788 | 85.3 |
| 3 | 501 | 82.5 | 1666 | 83.1 |
| 4 | 459 | 81.0 | 1554 | 80.8 |
| 5 | 433 | 79.9 | 1460 | 78.7 |
| 6 | 395 | 77.2 | 1355 | 75.7 |
| 7 | 362 | 74.0 | 1256 | 73.2 |
| 8 | 339 | 73.0 | 1162 | 70.0 |
| 9 | 305 | 69.4 | 1074 | 67.0 |
| 10 | 270 | 65.7 | 996 | 64.4 |
| 11 | 237 | 62.4 | 914 | 61.6 |
| 12 | 215 | 59.4 | 827 | 58.0 |
| 13 | 188 | 56.6 | 761 | 56.1 |
| 14 | 169 | 54.4 | 680 | 52.9 |
| 15 | 153 | 52.4 | 600 | 49.3 |
| 16 | 134 | 49.6 | 518 | 45.4 |
| 17 | 119 | 47.6 | 455 | 42.7 |
| 18 | 104 | 46.4 | 390 | 39.8 |
| 19 | 94 | 44.5 | 340 | 37.4 |
| 20 | 87 | 43.6 | 296 | 35.0 |
| 21 | 75 | 40.4 | 253 | 32.5 |
| 22 | 59 | 36.4 | 208 | 29.4 |
| 23 | 50 | 33.8 | 169 | 26.7 |
| 24 | 44 | 32.4 | 148 | 25.6 |
| 25 | 36 | 30.9 | 114 | 24.3 |
| 26 | 24 | 26.1 | 87 | 22.9 |
| 27 | 20 | 26.1 | 61 | 20.2 |
| 28 | 14 | 23.2 | 49 | 19.2 |
| 29 | 8 | 21.2 | 31 | 17.3 |
| 30 | 7 | 21.2 | 15 | 16.6 |
| 31 | 4 | 21.2 | 11 | 15.4 |
| 32 | 3 | 21.2 | 6 | 12.1 |
| 33 | 2 | 21.2 | 3 | 12.1 |
| 34 | 1 | 21.2 | 2 | 12.1 |

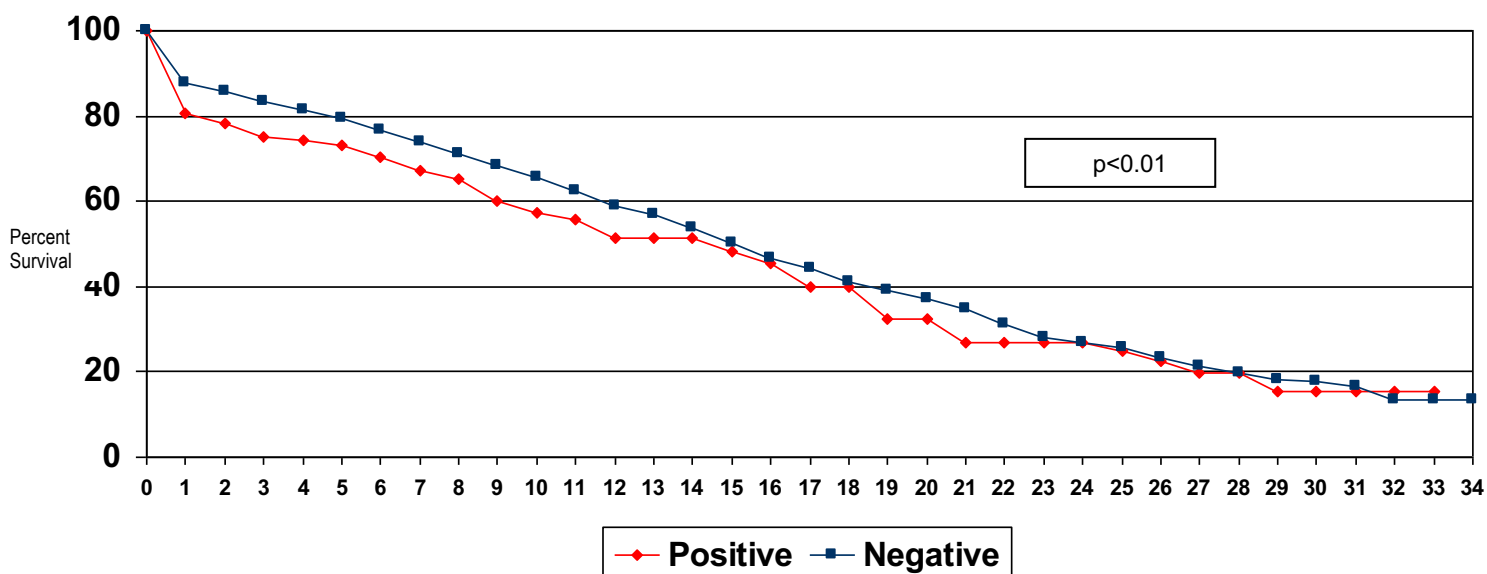
CUTLER-EDERER SURVIVAL COLD ISCHEMIC TIME ALL HEARTS 1984 - 2018



| Year | <2hrs | | 2-4 hrs | | 4-6 hrs | | >6 hrs | |
|------|-------|-------|---------|-------|---------|-------|--------|-------|
| | n= | % | n= | % | n= | % | n= | % |
| 0 | 428 | 100.0 | 1441 | 100.0 | 898 | 100.0 | 205 | 100.0 |
| 1 | 375 | 89.2 | 1243 | 88.7 | 737 | 85.4 | 175 | 86.3 |
| 2 | 347 | 86.5 | 1152 | 86.3 | 689 | 83.8 | 162 | 82.3 |
| 3 | 317 | 83.7 | 1070 | 84.3 | 638 | 81.8 | 154 | 79.7 |
| 4 | 290 | 81.2 | 1001 | 82.0 | 591 | 79.9 | 145 | 78.7 |
| 5 | 273 | 79.5 | 937 | 79.8 | 560 | 78.2 | 137 | 77.0 |
| 6 | 250 | 75.9 | 868 | 76.6 | 519 | 75.9 | 126 | 74.7 |
| 7 | 234 | 73.5 | 805 | 73.9 | 469 | 73.2 | 123 | 72.9 |
| 8 | 218 | 69.1 | 743 | 71.1 | 436 | 71.1 | 117 | 71.7 |
| 9 | 205 | 65.6 | 678 | 68.0 | 400 | 67.7 | 108 | 69.8 |
| 10 | 188 | 61.4 | 624 | 65.2 | 366 | 65.6 | 100 | 67.2 |
| 11 | 179 | 59.7 | 568 | 62.0 | 325 | 62.6 | 92 | 64.4 |
| 12 | 165 | 56.3 | 516 | 58.3 | 289 | 59.2 | 84 | 61.6 |
| 13 | 162 | 55.7 | 464 | 55.3 | 261 | 57.9 | 73 | 60.0 |
| 14 | 149 | 51.9 | 418 | 52.4 | 229 | 54.9 | 62 | 58.3 |
| 15 | 136 | 48.3 | 375 | 49.7 | 197 | 51.2 | 53 | 54.4 |
| 16 | 122 | 45.1 | 334 | 45.6 | 162 | 47.4 | 43 | 52.1 |
| 17 | 118 | 44.3 | 290 | 42.6 | 135 | 44.0 | 37 | 47.2 |
| 18 | 110 | 42.1 | 250 | 39.6 | 109 | 41.5 | 28 | 45.7 |
| 19 | 104 | 39.8 | 223 | 37.0 | 88 | 39.5 | 21 | 45.7 |
| 20 | 91 | 37.0 | 204 | 35.8 | 74 | 37.1 | 16 | 36.8 |
| 21 | 85 | 34.6 | 177 | 33.5 | 56 | 34.4 | 11 | 31.7 |
| 22 | 73 | 31.6 | 140 | 29.5 | 47 | 33.7 | 8 | 28.6 |
| 23 | 63 | 28.1 | 117 | 27.5 | 36 | 29.9 | 4 | 28.6 |
| 24 | 58 | 27.2 | 101 | 26.0 | 31 | 29.0 | 3 | 28.6 |
| 25 | 50 | 27.2 | 78 | 24.6 | 20 | 24.8 | 2 | 28.6 |
| 26 | 39 | 23.8 | 58 | 23.2 | 13 | 23.3 | 1 | 28.6 |
| 27 | 34 | 22.5 | 39 | 20.1 | 8 | 23.3 | | |
| 28 | 26 | 21.0 | 29 | 18.4 | 8 | 23.3 | | |
| 29 | 15 | 18.2 | 20 | 16.9 | 4 | 23.3 | | |
| 30 | 11 | 18.2 | 9 | 15.8 | 2 | 23.3 | | |
| 31 | 7 | 18.2 | 6 | 13.8 | 1 | 11.7 | | |
| 32 | 4 | 12.6 | 3 | 13.8 | 1 | 11.7 | | |
| 33 | 3 | 12.6 | 1 | 13.8 | | | | |
| 34 | 2 | 12.6 | | | | | | |

CUTLER-EDERER SURVIVAL CROSSMATCH*

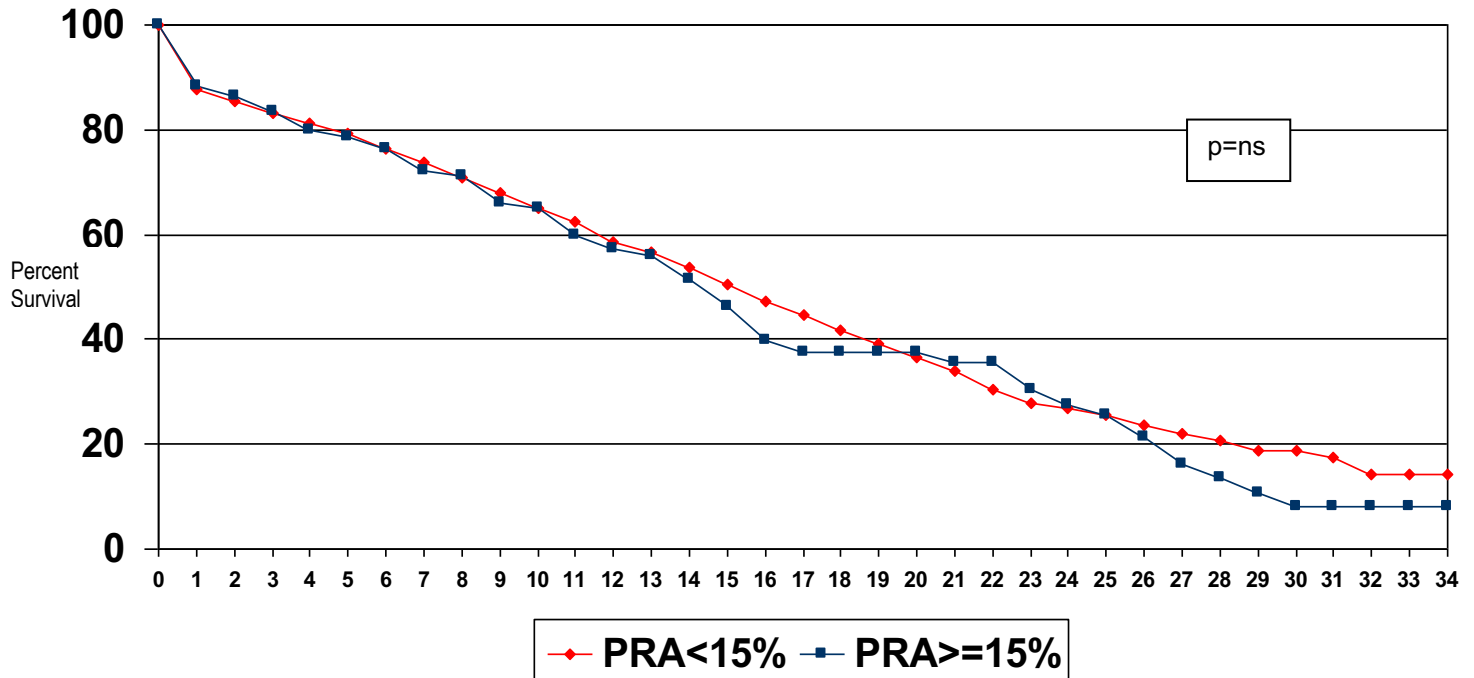
ALL HEARTS 1984 - 2018



| Year | Positive n= | % | Negative n= | % |
|------|----------------|-------|----------------|-------|
| 0 | 186 | 100.0 | 2315 | 100.0 |
| 1 | 149 | 80.6 | 2004 | 87.9 |
| 2 | 143 | 78.4 | 1899 | 85.6 |
| 3 | 132 | 75.1 | 1798 | 83.5 |
| 4 | 128 | 74.5 | 1707 | 81.5 |
| 5 | 123 | 73.3 | 1617 | 79.6 |
| 6 | 114 | 70.3 | 1511 | 76.7 |
| 7 | 104 | 67.1 | 1403 | 74.0 |
| 8 | 95 | 65.1 | 1311 | 71.1 |
| 9 | 83 | 60.2 | 1225 | 68.2 |
| 10 | 74 | 57.2 | 1142 | 65.5 |
| 11 | 65 | 55.6 | 1045 | 62.4 |
| 12 | 58 | 51.3 | 950 | 59.0 |
| 13 | 56 | 51.3 | 868 | 56.8 |
| 14 | 54 | 51.3 | 778 | 53.6 |
| 15 | 50 | 48.4 | 695 | 50.3 |
| 16 | 44 | 45.4 | 603 | 46.5 |
| 17 | 35 | 40.0 | 536 | 44.1 |
| 18 | 33 | 40.0 | 458 | 41.3 |
| 19 | 24 | 32.4 | 408 | 39.3 |
| 20 | 24 | 32.4 | 357 | 37.0 |
| 21 | 19 | 26.9 | 308 | 34.6 |
| 22 | 15 | 26.9 | 251 | 31.1 |
| 23 | 15 | 26.9 | 203 | 28.2 |
| 24 | 15 | 26.9 | 176 | 26.9 |
| 25 | 12 | 24.9 | 137 | 25.6 |
| 26 | 9 | 22.7 | 101 | 23.5 |
| 27 | 6 | 19.8 | 74 | 21.5 |
| 28 | 5 | 19.8 | 57 | 19.9 |
| 29 | 3 | 15.4 | 35 | 18.2 |
| 30 | 2 | 15.4 | 19 | 17.6 |
| 31 | 1 | 15.4 | 13 | 16.5 |
| 32 | 1 | 15.4 | 7 | 13.5 |
| 33 | 1 | 15.4 | 4 | 13.5 |
| 34 | | | 2 | 13.5 |

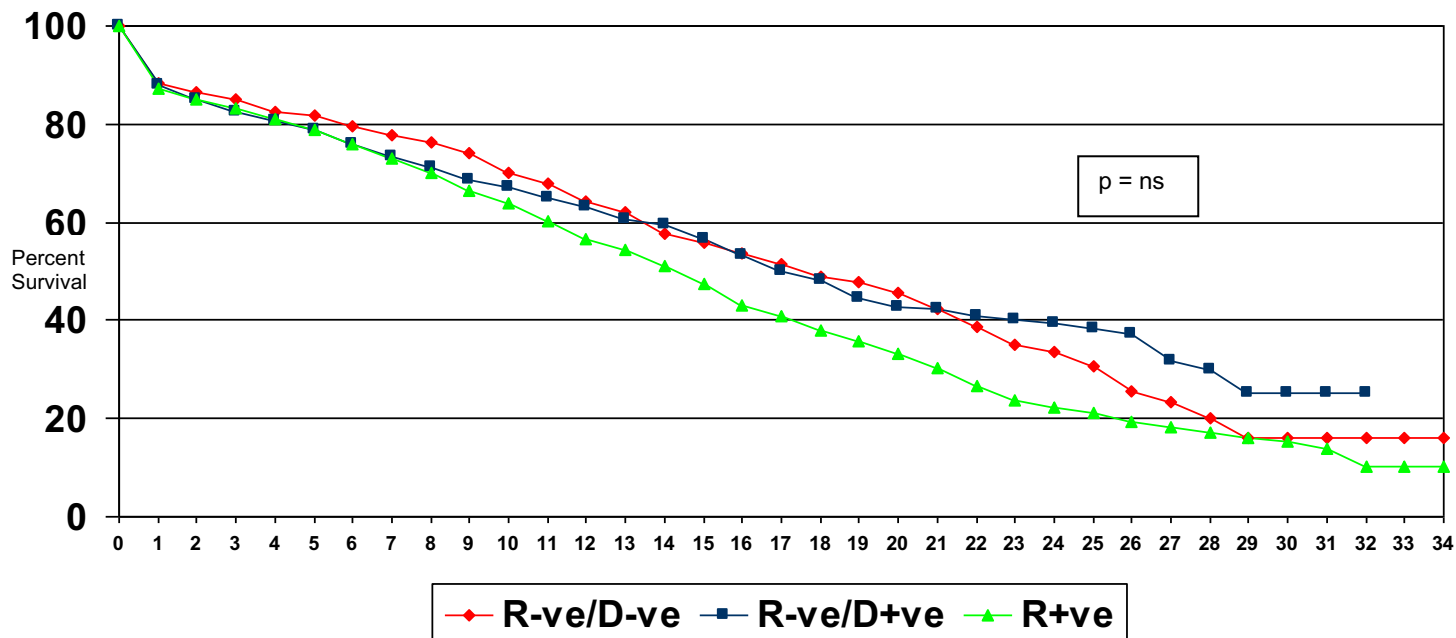
* B or T cell positive are combined

CUTLER-EDERER SURVIVAL PEAK PANEL REACTIVE ANTIBODIES PRE HEART TRANSPLANT 1984 – 2018



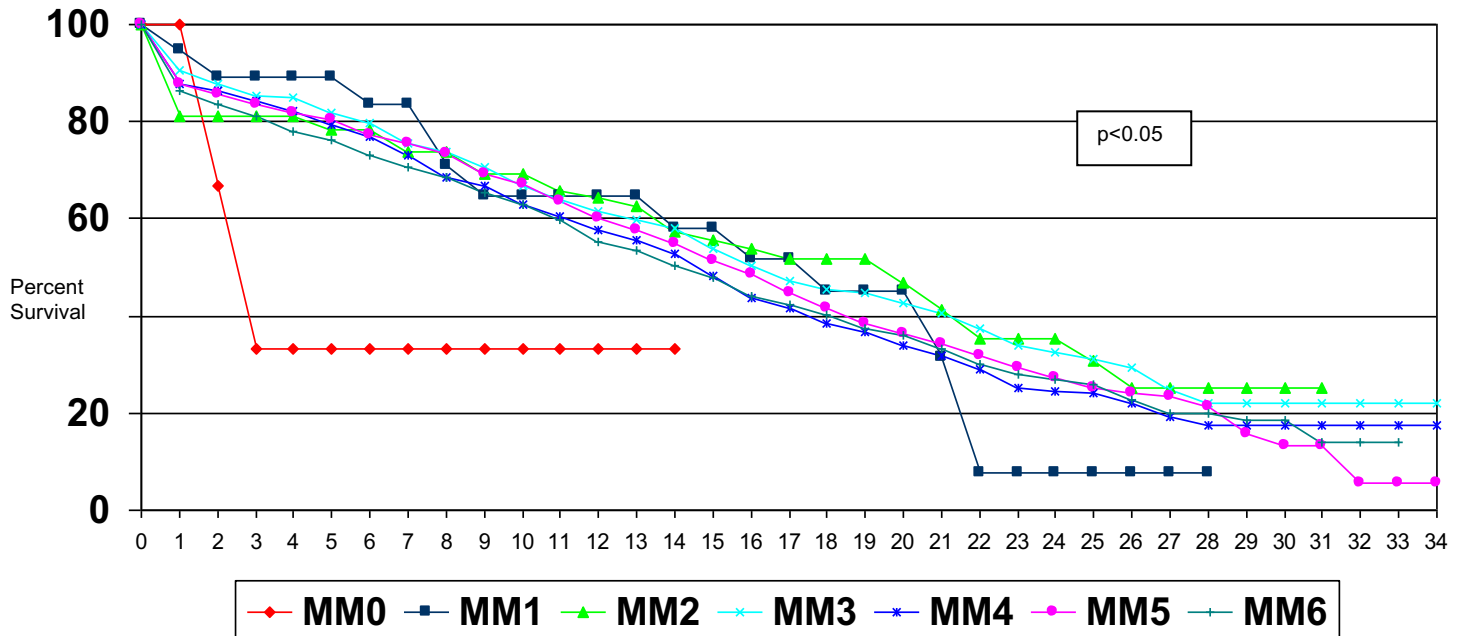
| Year | PRA<15% | | PRA≥15 | |
|------|---------|-------|--------|-------|
| | n= | % | n= | % |
| 0 | 2613 | 100.0 | 303 | 100.0 |
| 1 | 2223 | 87.6 | 255 | 88.2 |
| 2 | 2077 | 85.4 | 224 | 86.4 |
| 3 | 1932 | 83.3 | 206 | 83.6 |
| 4 | 1806 | 81.3 | 188 | 79.9 |
| 5 | 1706 | 79.4 | 178 | 78.6 |
| 6 | 1587 | 76.4 | 159 | 76.3 |
| 7 | 1476 | 73.8 | 138 | 72.3 |
| 8 | 1369 | 71.0 | 130 | 71.2 |
| 9 | 1265 | 68.0 | 112 | 66.1 |
| 10 | 1158 | 65.1 | 107 | 64.9 |
| 11 | 1054 | 62.3 | 96 | 60.0 |
| 12 | 952 | 58.7 | 89 | 57.4 |
| 13 | 864 | 56.6 | 84 | 56.1 |
| 14 | 775 | 53.7 | 73 | 51.3 |
| 15 | 688 | 50.6 | 64 | 46.3 |
| 16 | 598 | 47.2 | 54 | 39.8 |
| 17 | 525 | 44.6 | 48 | 37.5 |
| 18 | 447 | 41.7 | 46 | 37.5 |
| 19 | 389 | 39.0 | 44 | 37.5 |
| 20 | 342 | 36.7 | 40 | 37.5 |
| 21 | 292 | 34.0 | 35 | 35.6 |
| 22 | 235 | 30.3 | 31 | 35.6 |
| 23 | 197 | 27.9 | 21 | 30.5 |
| 24 | 175 | 26.9 | 16 | 27.4 |
| 25 | 136 | 25.5 | 13 | 25.5 |
| 26 | 102 | 23.7 | 9 | 21.3 |
| 27 | 74 | 21.9 | 6 | 16.3 |
| 28 | 57 | 20.6 | 5 | 13.6 |
| 29 | 34 | 18.8 | 4 | 10.8 |
| 30 | 18 | 18.8 | 3 | 8.1 |
| 31 | 12 | 17.6 | 2 | 8.1 |
| 32 | 6 | 14.1 | 2 | 8.1 |
| 33 | 3 | 14.1 | 1 | 8.1 |
| 34 | 1 | 14.1 | 1 | 8.1 |

CUTLER-EDERER SURVIVAL CMV STATUS HEARTS 1984 - 2018



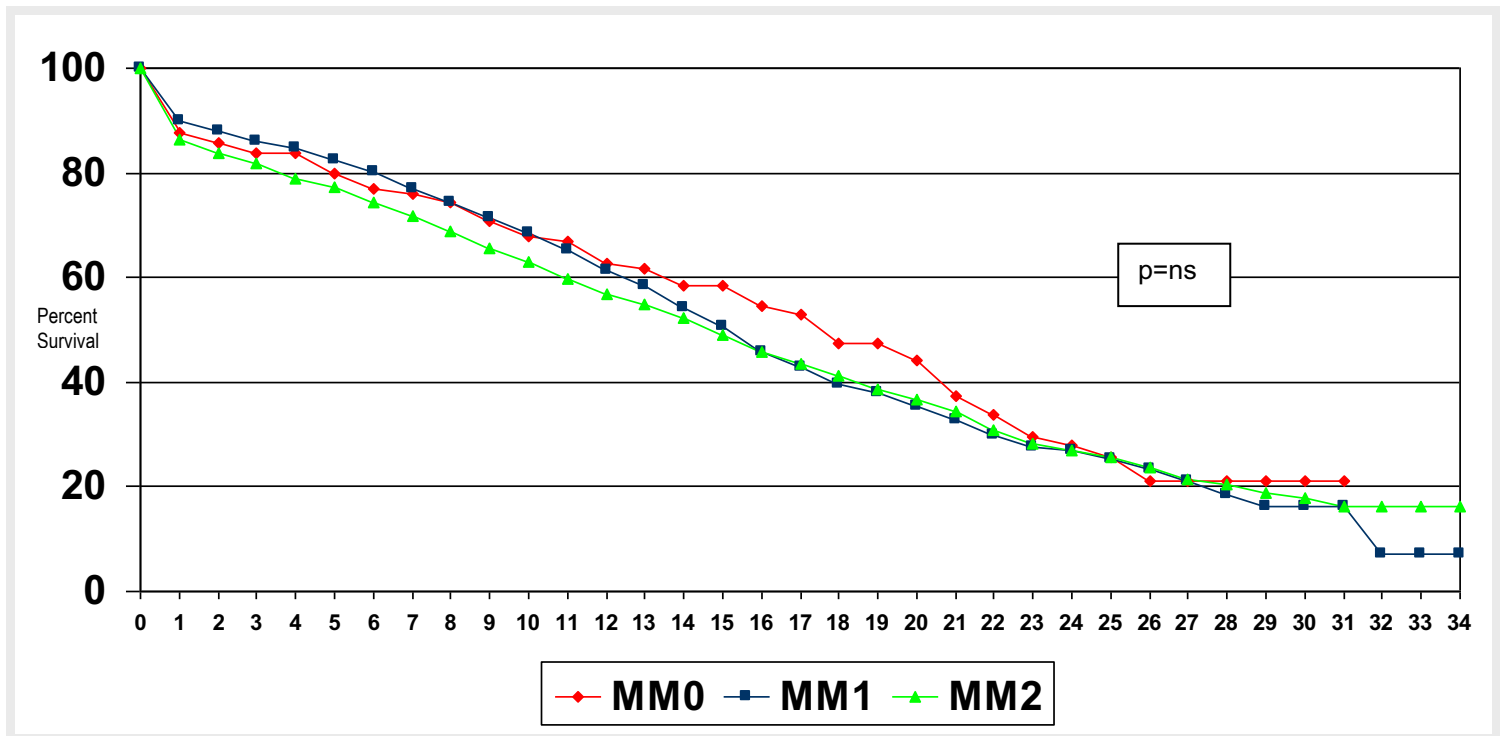
| Year | Donor Neg Rec Neg n= | % | Donor Pos Rec Neg n= | % | Recipient Pos n= | % |
|------|----------------------------|-------|----------------------------|-------|------------------------|-------|
| 0 | 467 | 100.0 | 533 | 100.0 | 1918 | 100.0 |
| 1 | 400 | 88.3 | 456 | 88.0 | 1622 | 87.4 |
| 2 | 374 | 86.5 | 422 | 85.1 | 1503 | 85.2 |
| 3 | 356 | 85.1 | 381 | 82.6 | 1397 | 83.2 |
| 4 | 327 | 82.4 | 347 | 80.8 | 1310 | 81.1 |
| 5 | 308 | 81.6 | 326 | 78.9 | 1232 | 79.0 |
| 6 | 283 | 79.7 | 303 | 75.9 | 1139 | 75.8 |
| 7 | 263 | 77.9 | 280 | 73.4 | 1054 | 73.0 |
| 8 | 250 | 76.4 | 260 | 71.2 | 974 | 70.0 |
| 9 | 236 | 74.0 | 239 | 68.7 | 889 | 66.6 |
| 10 | 216 | 70.1 | 229 | 67.2 | 809 | 63.7 |
| 11 | 199 | 67.8 | 214 | 64.9 | 727 | 60.4 |
| 12 | 179 | 64.3 | 198 | 63.0 | 657 | 56.5 |
| 13 | 161 | 62.1 | 184 | 60.7 | 597 | 54.4 |
| 14 | 141 | 57.7 | 169 | 59.4 | 532 | 51.2 |
| 15 | 131 | 56.0 | 150 | 56.5 | 465 | 47.4 |
| 16 | 118 | 53.8 | 131 | 53.3 | 398 | 43.2 |
| 17 | 102 | 51.4 | 112 | 49.9 | 354 | 40.8 |
| 18 | 90 | 48.8 | 96 | 48.0 | 302 | 37.9 |
| 19 | 78 | 47.7 | 83 | 44.4 | 269 | 35.6 |
| 20 | 70 | 45.8 | 75 | 42.8 | 234 | 33.2 |
| 21 | 60 | 42.4 | 68 | 42.2 | 197 | 30.3 |
| 22 | 53 | 38.8 | 58 | 40.9 | 153 | 26.6 |
| 23 | 46 | 35.1 | 49 | 40.1 | 121 | 23.6 |
| 24 | 42 | 33.5 | 45 | 39.3 | 102 | 22.4 |
| 25 | 27 | 30.7 | 38 | 38.3 | 82 | 21.2 |
| 26 | 16 | 25.5 | 28 | 37.2 | 65 | 19.5 |
| 27 | 8 | 23.5 | 21 | 31.6 | 49 | 18.2 |
| 28 | 5 | 20.1 | 16 | 29.9 | 39 | 17.0 |
| 29 | 4 | 16.1 | 7 | 25.1 | 25 | 16.0 |
| 30 | 1 | 16.1 | 4 | 25.1 | 14 | 15.2 |
| 31 | 1 | 16.1 | 2 | 25.1 | 9 | 13.9 |
| 32 | 1 | 16.1 | 2 | 25.1 | 5 | 10.4 |
| 33 | 1 | 16.1 | | | 1 | 10.4 |
| 34 | 1 | 16.1 | | | 1 | 10.4 |

CUTLER-EDERER SURVIVAL HLA MISMATCH HEARTS 1984 - 2018



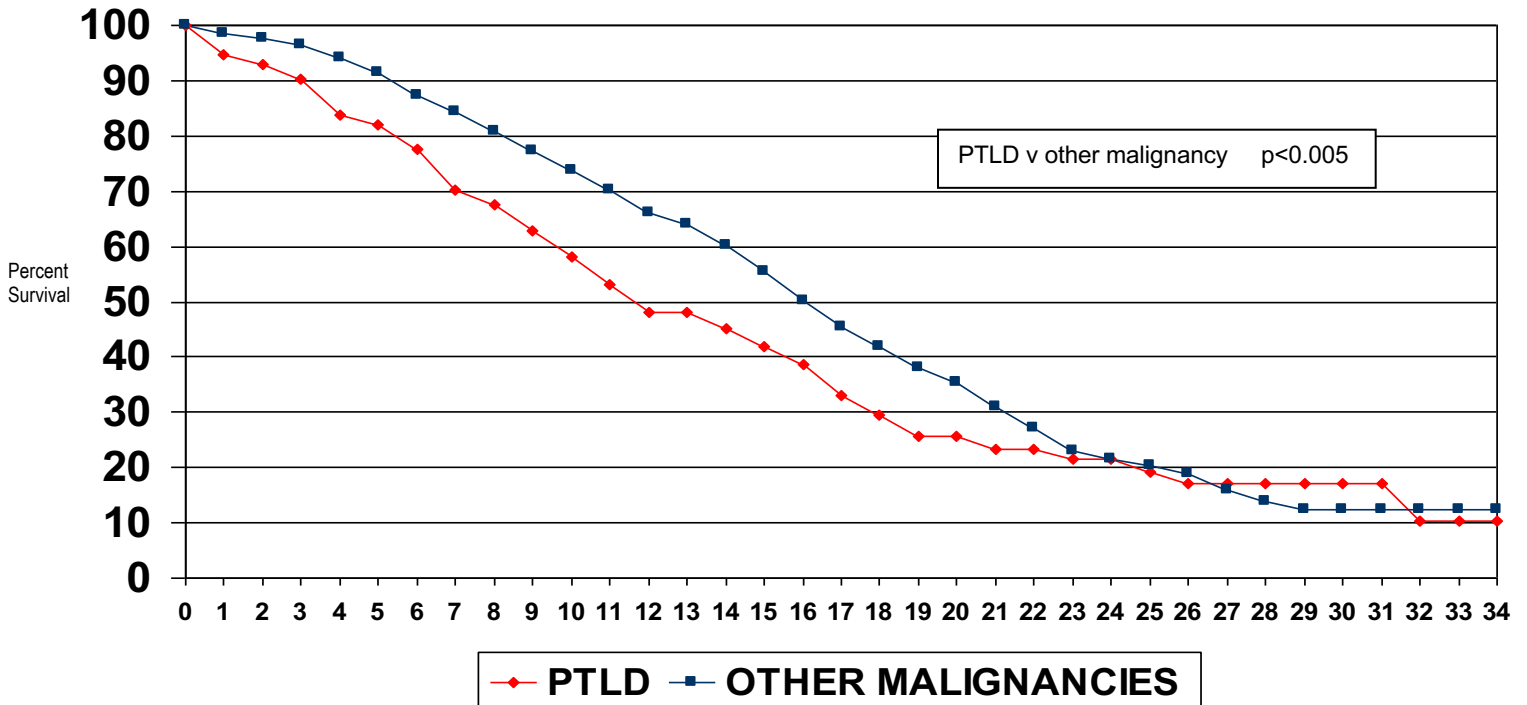
| Year | MM0 n= | % | MM1 n= | % | MM2 n= | % | MM3 n= | % | MM4 n= | % | MM5 n= | % | MM6 n= | % |
|------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| 0 | 3 | 100.0 | 19 | 100.0 | 85 | 100.0 | 279 | 100.0 | 628 | 100.0 | 978 | 100.0 | 982 | 100.0 |
| 1 | 3 | 100.0 | 17 | 94.6 | 68 | 81.1 | 241 | 90.5 | 538 | 87.8 | 829 | 87.7 | 824 | 86.5 |
| 2 | 2 | 66.7 | 16 | 89.0 | 63 | 81.1 | 222 | 87.8 | 510 | 86.4 | 769 | 85.5 | 757 | 83.7 |
| 3 | 1 | 33.3 | 16 | 89.0 | 62 | 81.1 | 209 | 85.4 | 471 | 84.3 | 712 | 83.5 | 696 | 81.1 |
| 4 | 1 | 33.3 | 16 | 89.0 | 59 | 81.1 | 200 | 85.0 | 442 | 82.0 | 661 | 81.7 | 634 | 78.1 |
| 5 | 1 | 33.3 | 16 | 89.0 | 55 | 78.3 | 187 | 81.9 | 417 | 79.5 | 626 | 80.5 | 591 | 76.2 |
| 6 | 1 | 33.3 | 15 | 83.5 | 54 | 78.3 | 181 | 79.7 | 384 | 76.8 | 578 | 77.3 | 538 | 73.0 |
| 7 | 1 | 33.3 | 14 | 83.5 | 49 | 73.8 | 160 | 75.6 | 353 | 73.1 | 537 | 75.5 | 504 | 70.7 |
| 8 | 1 | 33.3 | 11 | 71.1 | 48 | 73.8 | 151 | 73.7 | 312 | 68.5 | 505 | 73.4 | 473 | 68.4 |
| 9 | 1 | 33.3 | 10 | 64.6 | 45 | 69.2 | 142 | 70.8 | 288 | 66.9 | 461 | 69.3 | 432 | 65.4 |
| 10 | 1 | 33.3 | 10 | 64.6 | 42 | 69.2 | 128 | 66.7 | 259 | 62.8 | 433 | 67.0 | 393 | 62.8 |
| 11 | 1 | 33.3 | 10 | 64.6 | 40 | 65.9 | 117 | 64.0 | 237 | 60.4 | 385 | 63.6 | 361 | 59.9 |
| 12 | 1 | 33.3 | 10 | 64.6 | 38 | 64.3 | 103 | 61.7 | 220 | 57.8 | 347 | 60.1 | 323 | 55.3 |
| 13 | 1 | 33.3 | 10 | 64.6 | 37 | 62.6 | 94 | 59.9 | 199 | 55.6 | 314 | 57.6 | 294 | 53.6 |
| 14 | 1 | 0.0 | 9 | 58.2 | 34 | 57.5 | 89 | 57.9 | 181 | 52.8 | 288 | 54.8 | 248 | 50.3 |
| 15 | | | 9 | 58.2 | 30 | 55.7 | 76 | 53.9 | 163 | 48.3 | 263 | 51.5 | 212 | 47.9 |
| 16 | | | 8 | 51.7 | 27 | 53.8 | 66 | 50.2 | 137 | 43.7 | 236 | 48.5 | 179 | 44.0 |
| 17 | | | 8 | 51.7 | 25 | 51.8 | 60 | 47.1 | 120 | 41.7 | 202 | 44.9 | 159 | 42.2 |
| 18 | | | 7 | 45.2 | 25 | 51.8 | 54 | 45.5 | 105 | 38.5 | 169 | 41.6 | 134 | 40.2 |
| 19 | | | 7 | 45.2 | 22 | 51.8 | 50 | 44.6 | 94 | 36.6 | 143 | 38.5 | 118 | 37.4 |
| 20 | | | 7 | 45.2 | 18 | 46.8 | 44 | 42.8 | 85 | 33.9 | 124 | 36.3 | 105 | 36.1 |
| 21 | | | 4 | 31.3 | 14 | 41.3 | 38 | 40.7 | 78 | 31.9 | 107 | 34.1 | 87 | 33.2 |
| 22 | | | 1 | 7.8 | 11 | 35.2 | 32 | 37.4 | 63 | 28.9 | 91 | 31.8 | 69 | 30.0 |
| 23 | | | 1 | 7.8 | 10 | 35.2 | 27 | 33.8 | 53 | 25.1 | 74 | 29.2 | 54 | 28.1 |
| 24 | | | 1 | 7.8 | 9 | 35.2 | 25 | 32.5 | 48 | 24.6 | 62 | 27.2 | 47 | 27.0 |
| 25 | | | 1 | 7.8 | 6 | 30.8 | 19 | 31.1 | 36 | 24.1 | 50 | 25.3 | 38 | 25.8 |
| 26 | | | 1 | 7.8 | 4 | 25.2 | 14 | 29.2 | 28 | 21.9 | 37 | 24.1 | 28 | 22.8 |
| 27 | | | 1 | 7.8 | 4 | 25.2 | 10 | 24.7 | 22 | 19.4 | 24 | 23.4 | 20 | 20.1 |
| 28 | | | 1 | 7.8 | 2 | 25.2 | 8 | 22.1 | 18 | 17.6 | 18 | 21.2 | 16 | 20.1 |
| 29 | | | | | 1 | 25.2 | 6 | 22.1 | 14 | 17.6 | 8 | 15.6 | 10 | 18.6 |
| 30 | | | | | 1 | 25.2 | 6 | 22.1 | 7 | 17.6 | 4 | 13.2 | 4 | 18.6 |
| 31 | | | | | 1 | 25.2 | 3 | 22.1 | 5 | 17.6 | 4 | 13.2 | 3 | 14.0 |
| 32 | | | | | | | 1 | 22.1 | 5 | 17.6 | 1 | 5.6 | 2 | 14.0 |
| 33 | | | | | | | 1 | 22.1 | 3 | 17.6 | 1 | 5.6 | 2 | 14.0 |
| 34 | | | | | | | 1 | 22.1 | 1 | 17.6 | 1 | 5.6 | | |

CUTLER-EDERER SURVIVAL HLA DR LOCUS MISMATCH HEARTS 1984 - 2018



| Year | MM0 n= | % | MM1 n= | % | MM2 n= | % |
|------|-----------|-------|-----------|-------|-----------|-------|
| 0 | 157 | 100.0 | 816 | 100.0 | 2001 | 100.0 |
| 1 | 135 | 87.8 | 706 | 89.8 | 1679 | 86.5 |
| 2 | 126 | 85.8 | 661 | 88.1 | 1552 | 83.9 |
| 3 | 119 | 83.7 | 619 | 86.0 | 1429 | 81.7 |
| 4 | 114 | 83.7 | 580 | 84.8 | 1319 | 79.0 |
| 5 | 105 | 80.0 | 549 | 82.5 | 1239 | 77.4 |
| 6 | 98 | 76.9 | 517 | 80.2 | 1136 | 74.3 |
| 7 | 90 | 76.1 | 473 | 77.1 | 1055 | 71.7 |
| 8 | 84 | 74.3 | 438 | 74.2 | 979 | 68.9 |
| 9 | 78 | 70.8 | 405 | 71.5 | 896 | 65.7 |
| 10 | 72 | 68.0 | 371 | 68.4 | 823 | 62.9 |
| 11 | 66 | 67.0 | 339 | 65.2 | 746 | 59.9 |
| 12 | 58 | 62.8 | 305 | 61.3 | 679 | 56.7 |
| 13 | 56 | 61.7 | 271 | 58.6 | 622 | 54.8 |
| 14 | 50 | 58.3 | 244 | 54.2 | 555 | 52.4 |
| 15 | 46 | 58.3 | 222 | 50.6 | 485 | 49.1 |
| 16 | 40 | 54.4 | 186 | 45.9 | 427 | 45.8 |
| 17 | 38 | 53.0 | 164 | 42.8 | 372 | 43.4 |
| 18 | 33 | 47.4 | 142 | 39.6 | 319 | 41.3 |
| 19 | 32 | 47.4 | 126 | 37.9 | 276 | 38.5 |
| 20 | 27 | 44.3 | 111 | 35.4 | 245 | 36.6 |
| 21 | 21 | 37.4 | 97 | 32.8 | 210 | 34.4 |
| 22 | 17 | 33.7 | 82 | 30.0 | 168 | 31.0 |
| 23 | 15 | 29.7 | 69 | 27.7 | 135 | 28.2 |
| 24 | 14 | 27.8 | 62 | 26.8 | 116 | 26.9 |
| 25 | 12 | 25.7 | 45 | 25.4 | 93 | 25.7 |
| 26 | 8 | 21.0 | 34 | 23.5 | 70 | 23.8 |
| 27 | 7 | 21.0 | 25 | 21.2 | 49 | 21.5 |
| 28 | 6 | 21.0 | 19 | 18.5 | 38 | 20.6 |
| 29 | 4 | 21.0 | 11 | 16.2 | 24 | 18.7 |
| 30 | 3 | 21.0 | 6 | 16.2 | 13 | 17.7 |
| 31 | 3 | 21.0 | 4 | 16.2 | 11 | 16.3 |
| 32 | | | 1 | 7.0 | 8 | 16.3 |
| 33 | | | 1 | 7.0 | 4 | 16.3 |
| 34 | | | 1 | 7.0 | 2 | 16.3 |

CUTLER-EDERER SURVIVAL MALIGNANCIES HEARTS 1984 - 2018

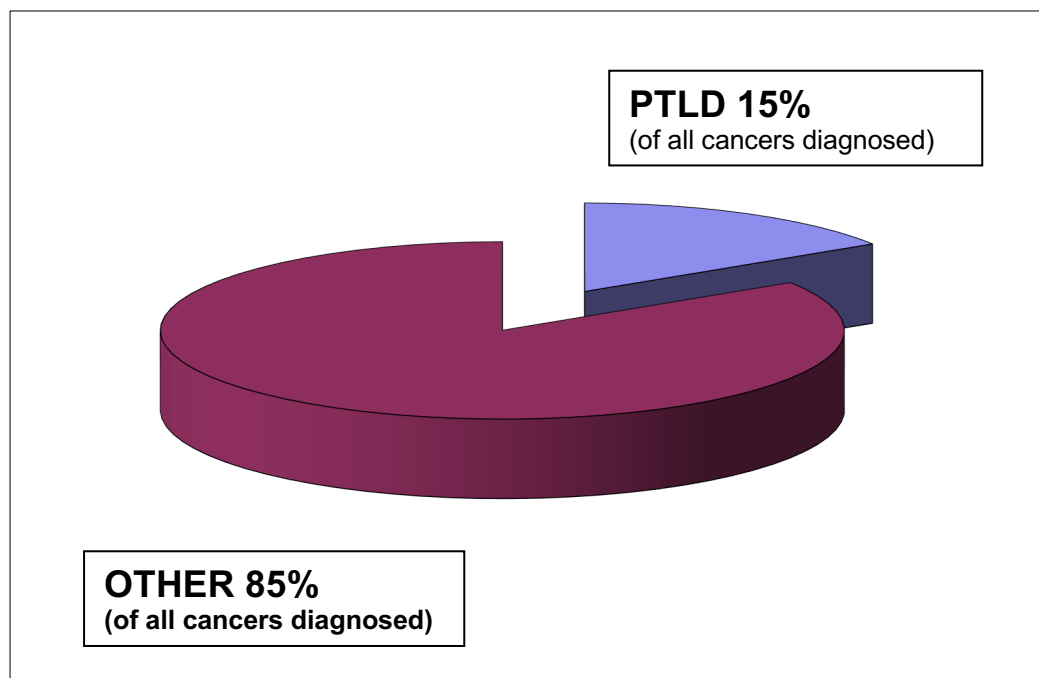


| Year | PTLD | | OTHER MALIGNANCIES (invasive skin/other) | |
|------|------|-------|---|-------|
| | n= | % | n= | % |
| 0 | 114 | 100.0 | 632 | 100.0 |
| 1 | 107 | 94.7 | 623 | 98.6 |
| 2 | 105 | 92.9 | 615 | 97.5 |
| 3 | 100 | 90.3 | 607 | 96.5 |
| 4 | 93 | 83.9 | 589 | 94.0 |
| 5 | 91 | 82.1 | 572 | 91.4 |
| 6 | 85 | 77.6 | 542 | 87.2 |
| 7 | 76 | 70.3 | 518 | 84.5 |
| 8 | 72 | 67.5 | 487 | 80.7 |
| 9 | 66 | 62.7 | 457 | 77.4 |
| 10 | 60 | 58.0 | 426 | 73.6 |
| 11 | 54 | 53.1 | 394 | 70.1 |
| 12 | 48 | 48.1 | 364 | 66.0 |
| 13 | 48 | 48.1 | 346 | 64.0 |
| 14 | 43 | 45.1 | 320 | 60.2 |
| 15 | 40 | 41.9 | 286 | 55.6 |
| 16 | 35 | 38.7 | 250 | 50.1 |
| 17 | 29 | 33.1 | 219 | 45.4 |
| 18 | 24 | 29.5 | 194 | 42.0 |
| 19 | 21 | 25.8 | 170 | 38.1 |
| 20 | 20 | 25.8 | 149 | 35.3 |
| 21 | 17 | 23.2 | 126 | 31.0 |
| 22 | 14 | 23.2 | 106 | 27.0 |
| 23 | 11 | 21.4 | 83 | 23.0 |
| 24 | 10 | 21.4 | 71 | 21.6 |
| 25 | 9 | 19.3 | 53 | 20.5 |
| 26 | 7 | 17.0 | 39 | 18.8 |
| 27 | 6 | 17.0 | 29 | 15.8 |
| 28 | 6 | 17.0 | 22 | 14.0 |
| 29 | 5 | 17.0 | 14 | 12.5 |
| 30 | 3 | 17.0 | 7 | 12.5 |
| 31 | 3 | 17.0 | 5 | 12.5 |
| 32 | 1 | 10.2 | 4 | 12.5 |
| 33 | 1 | 10.2 | 1 | 12.5 |
| 34 | 1 | 10.2 | 1 | 12.5 |

* 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

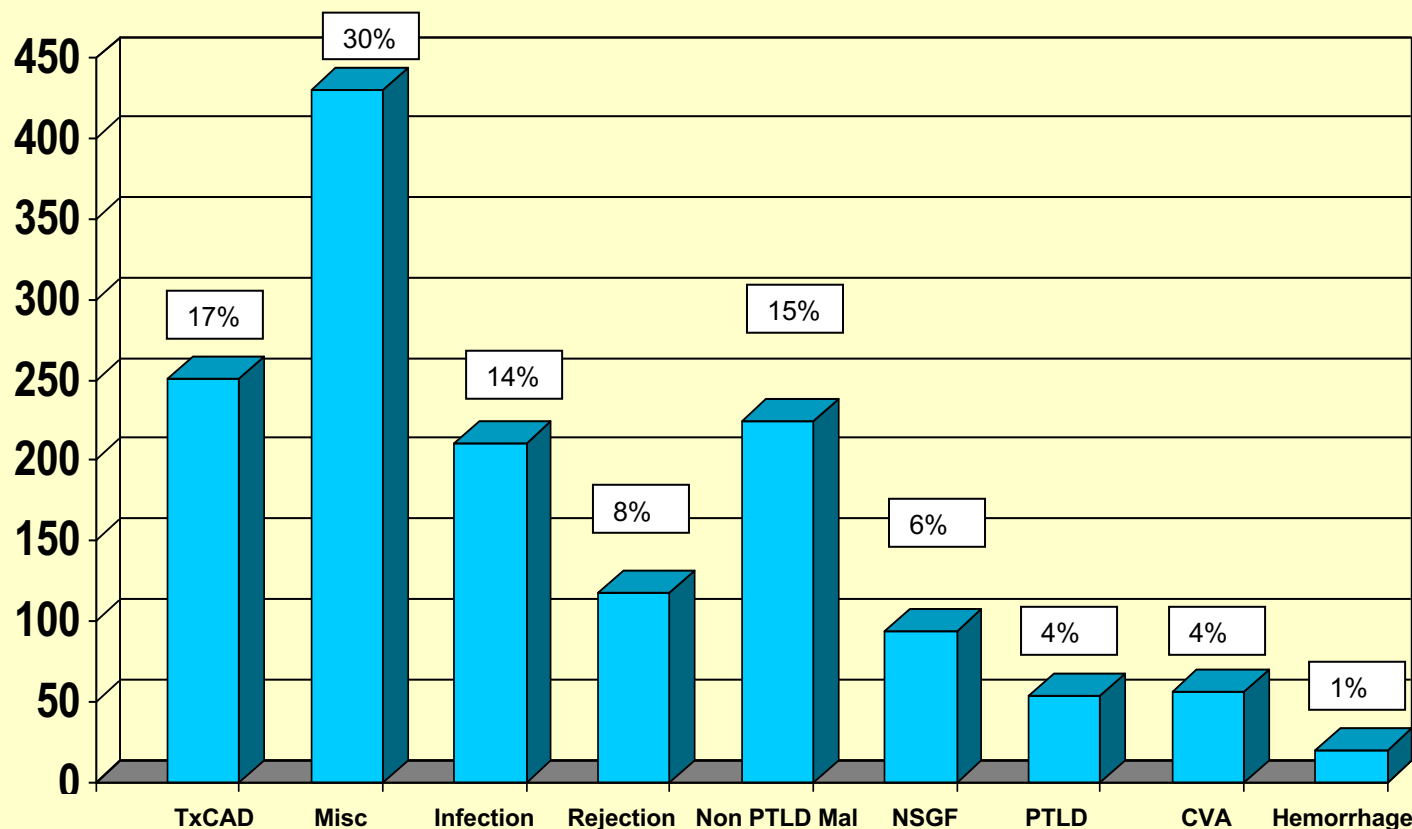
ALL MALIGNANCIES* - HEART n = 746

1984 - 2018



| | | | |
|--------------|----------------------|-----|----------------------|
| PTLD | | 110 | 114/2974=4% |
| Skin | | | |
| | SCC | 314 | 445/2974= 15% |
| | BCC | 81 | |
| | Melanoma | 40 | |
| | Spindle Cell | 3 | |
| | Merkle Cell | 5 | |
| | Dermatofibrosarcoma | 2 | |
| | | 445 | |
| Other | | | 187/2974=7% |
| | Lung | 44 | |
| | Bowel | 26 | |
| | Prostate | 17 | |
| | Liver | 13 | |
| | Bladder | 12 | |
| | Renal | 9 | |
| | Pancreas | 9 | |
| | Oesophagus | 6 | |
| | Bone/myeloma | 6 | |
| | Breast | 6 | |
| | Tonsil/throat/tongue | 5 | |
| | Cervix | 5 | |
| | Parotid | 4 | |
| | Mesothelioma | 4 | |
| | Caecum | 4 | |
| | Brain | 4 | |
| | Thyroid/Parathyroid | 3 | |
| | Testicle | 3 | |
| | Larynx | 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 - 2018 n = 1458



| | |
|---|------------|
| Transplant Coronary Artery Disease (TxCAD) | 251 |
| Other Malignancy (non PTLD) | 224 |
| Infection | 211 |
| Acute Rejection | 118 |
| Non-specific Graft Failure (NSGF) | 94 |
| CVA | 56 |
| PTLD | 54 |
| Hemorrhage | 19 |
| OTHER TOTAL(incl unspecified) | 431 |
| Renal Failure | 93 |
| Multi-organ Failure | 49 |
| Cardiac Arrest/MI | 47 |
| Sudden Death | 37 |
| Heart Failure | 32 |
| TxCAD + Rejection | 21 |
| Pulmonary/Resp Failure | 12 |
| Non-compliance | 10 |
| Suicide | 8 |
| Pancreatitis | 7 |
| Primary Graft Failure | 7 |
| Motor Vehicle Accident | 6 |
| Bowel Ischemia | 6 |
| Liver Failure | 5 |
| Post Surgical Complication | 5 |
| Pulmonary Embolism | 4 |
| Pulmonary Hypertension | 3 |
| Aortic Dissection (Marfan's) | 3 |
| Right Ventricular Failure | 2 |
| Other Primary (13) + detailed descriptions(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(2), 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) | 53 |
| Total all Deaths = 1458 | |

| |
|--|
| <p style="text-align: center;">CAUSE OF DEATH ALL HEARTS <5 YEARS POST Tx 1984 - 2018</p> |
|--|

| | <u>No</u> | <u>%</u> |
|------------------------------------|------------|------------|
| Infection | 134 | 23 |
| Rejection | 95 | 16 |
| Misc | 121 | 21 |
| Non Specific Graft Failure | 72 | 12 |
| TxCAD | 59 | 10 |
| Non PTLD Malignancy | 36 | 6 |
| Lymphoproliferative Disease (PTLD) | 14 | 2 |
| CVA | 23 | 4 |
| Hemorrhage | 14 | 2 |
| TxCAD and Rejection | 10 | 1.5 |
| Pulmonary Failure | 7 | 1 |
| Pulmonary Hypertension | 2 | 0.5 |
| No Data | 8 | 1 |
| TOTALS | 592 | 100 |

| |
|---|
| <p style="text-align: center;">CAUSE OF DEATH ALL HEARTS ≥5 YEARS POST Tx 1984 - 2018</p> |
|---|

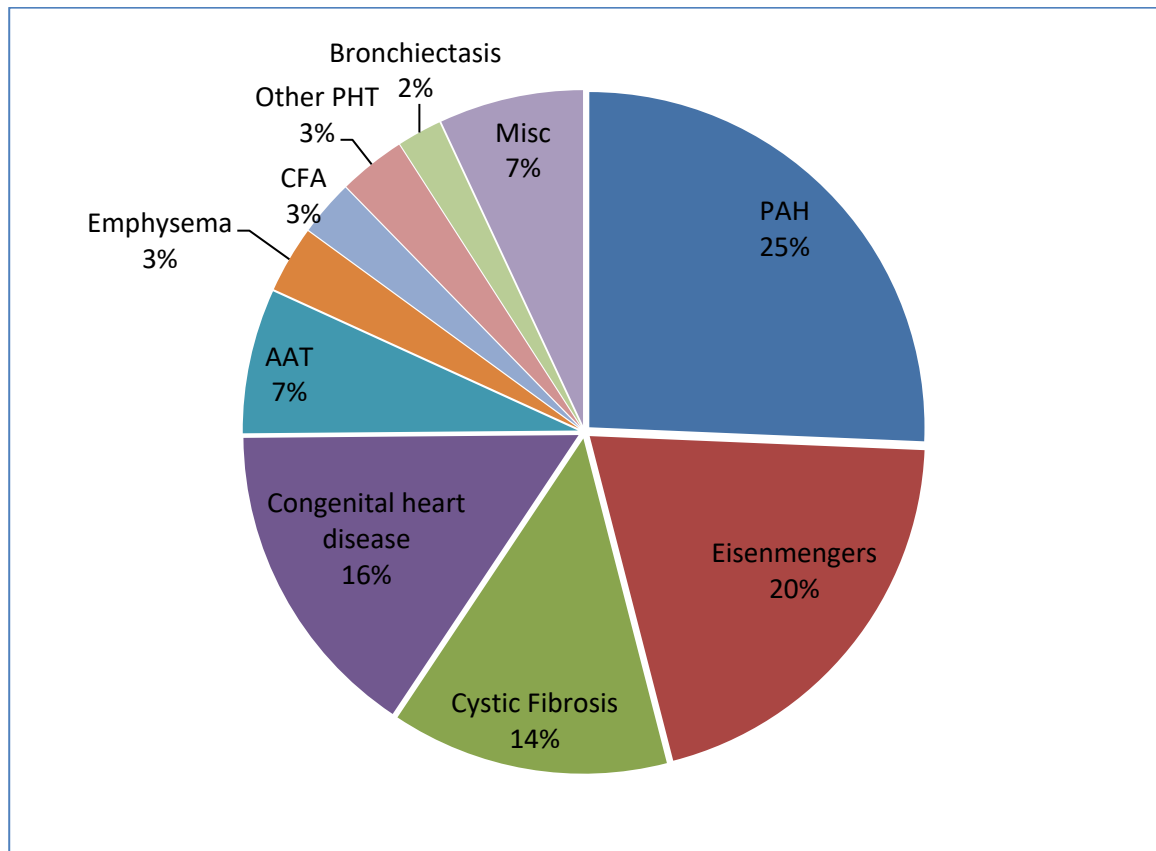
| | <u>No</u> | <u>%</u> |
|------------------------------------|------------|------------|
| Misc | 219 | 25 |
| TxCAD | 192 | 22 |
| Non PTLD Malignancy | 191 | 22 |
| Infection | 77 | 9 |
| Lymphoproliferative Disease (PTLD) | 40 | 5 |
| Rejection | 23 | 3 |
| CVA | 33 | 4 |
| Non Specific Graft Failure | 22 | 3 |
| Hemorrhage | 5 | 0.5 |
| Pulmonary Failure | 7 | 1 |
| TxCAD and Rejection | 11 | 1 |
| Pulmonary Hypertension | 1 | 0.5 |
| No Data | 45 | 5 |
| TOTALS | 840 | 100 |

LUNG TRANSPLANTATION

1986 - 2018

PRE TRANSPLANT DIAGNOSIS HEART LUNG

1986 – 2018 n=208

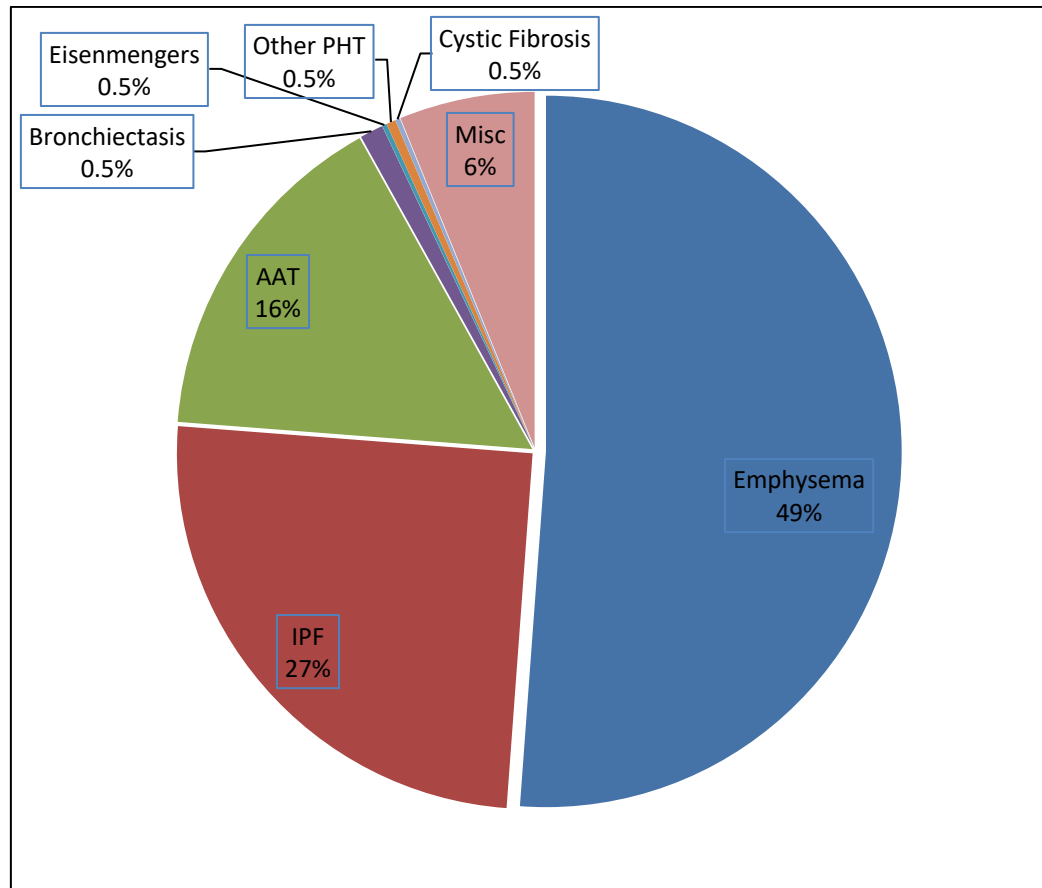


| | |
|--------------------------------|------------|
| Primary Pulmonary Hypertension | 54 |
| Eisenmenger's Syndrome | 42 |
| Congenital Heart Disease | 36 |
| Cystic Fibrosis | 27 |
| COPD (AAT=13, Emphysema=6) | 19 |
| Other Pulmonary Hypertension | 6 |
| Idiopathic Pulmonary Fibrosis | 5 |
| Bronchiectasis | 4 |
| Miscellaneous | 15 |
| Total = | 208 |

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

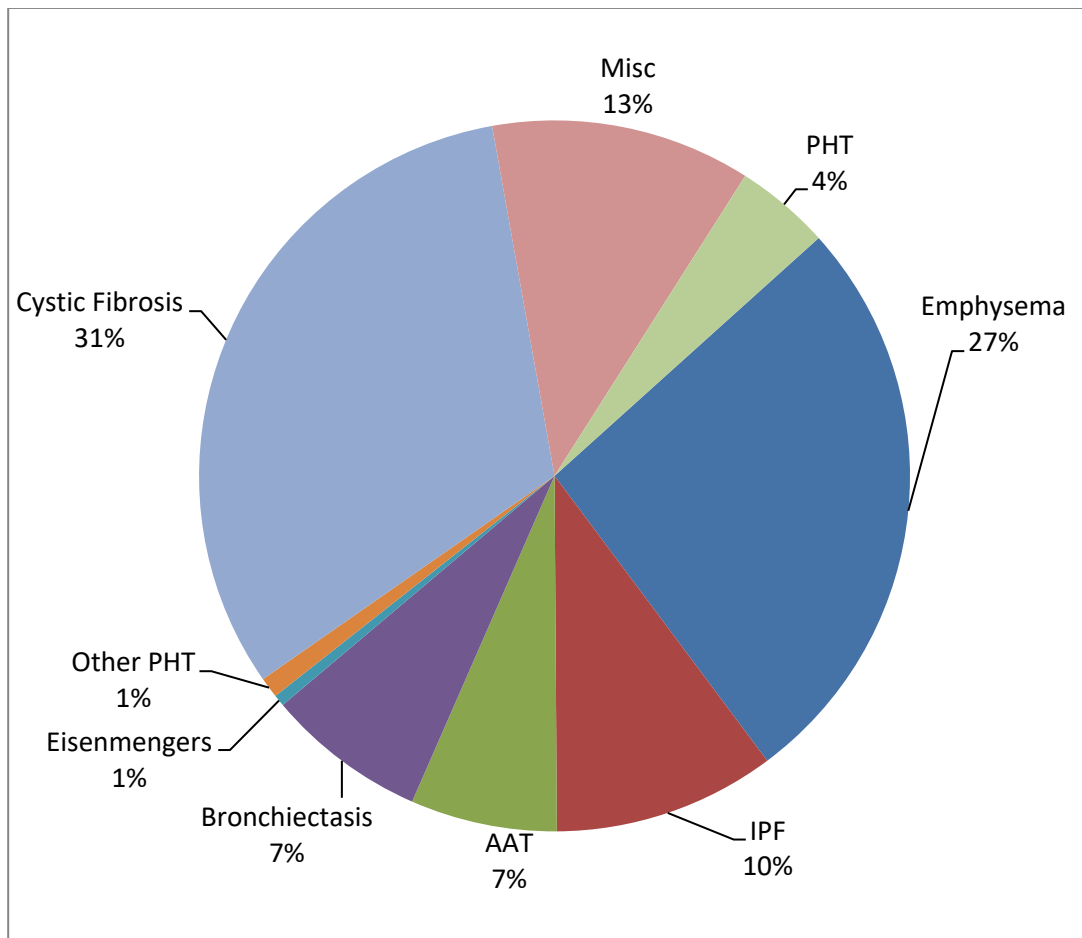
1990 – 2018 n=552



| | |
|-------------------------------|------------|
| COPD (Emphysema=256, AAT= 74) | 330 |
| Idiopathic Pulmonary Fibrosis | 166 |
| Bronchiectasis | 6 |
| Other Pulmonary Hypertension | 3 |
| Cystic Fibrosis | 1 |
| Eisenmengers Syndrome | 1 |
| *Miscellaneous | 45 |
| Total = | 552 |

*Lymphangiomyomatosis(5), OB/CLAD(9), PLAM(5), sarcoidosis(6), pulmonary eosinophilic granulomatosis(2), allergic alveolitis(3), tuberous sclerosis(2), severe air flow obstruction(1), Histiocytosis X(2), alveolar cell sarcoma(1), asthma(5), Agammaglobulinaemia(1), hypersensitive pneumonitis(1), UIP(1), Graft v Host(1) Scleroderma(1)

PRE TRANSPLANT DIAGNOSIS BILATERAL LUNG 1992 – 2018 n=2749

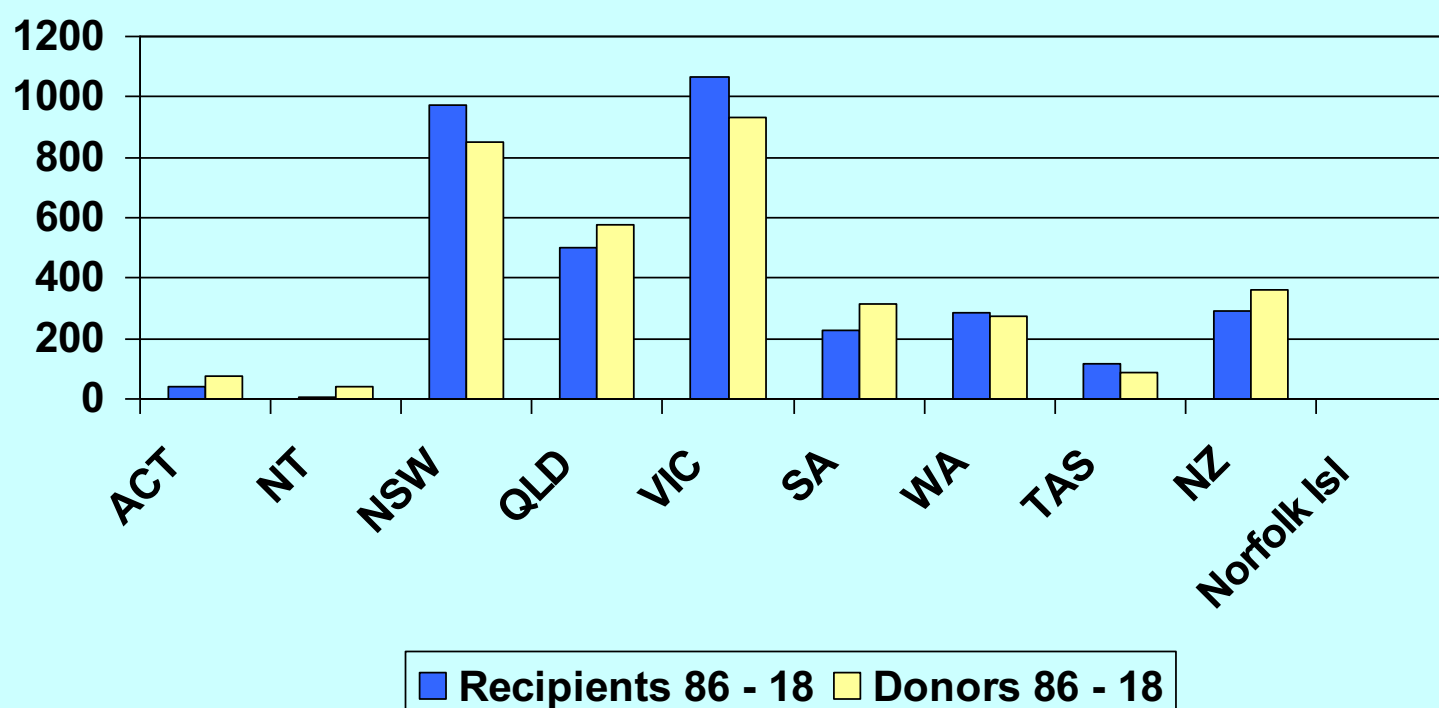


| | |
|--------------------------------|-----|
| COPD (Emphysema=773, AAT=156) | 929 |
| Cystic Fibrosis | 781 |
| Idiopathic Pulmonary Fibrosis | 241 |
| Bronchiectasis | 164 |
| Primary Pulmonary Hypertension | 122 |
| Other Pulmonary Hypertension | 20 |
| Eisenmengers Syndrome | 10 |
| Miscellaneous | 482 |

ILD(198), Retx (107), OB(29), sarcoidosis(32), PLAM (28), histiocytosis X(9), asthma (8) **TOTAL = 2749**
 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), surfactant c protein deficiency(1),
 alveolar proteinosis(1), microlithiasis(1), pulmonary venoocclusive disease(1),
 pulmonary capillary hemangiomatosis (1), hypersensitivity pneumonitis(7), connective tissue disease(1)

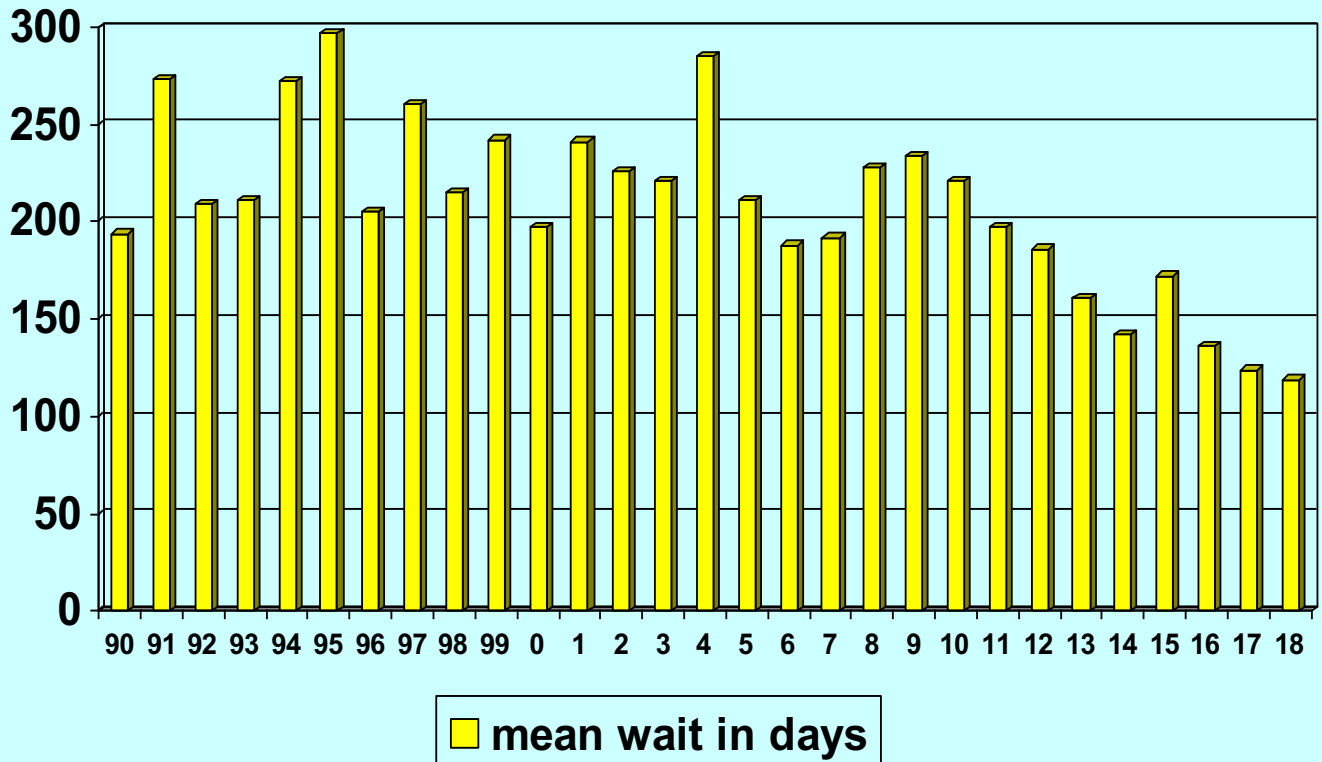
DONOR/RECIPIENT STATE OF ORIGIN

ALL LUNGS 1986 - 2018



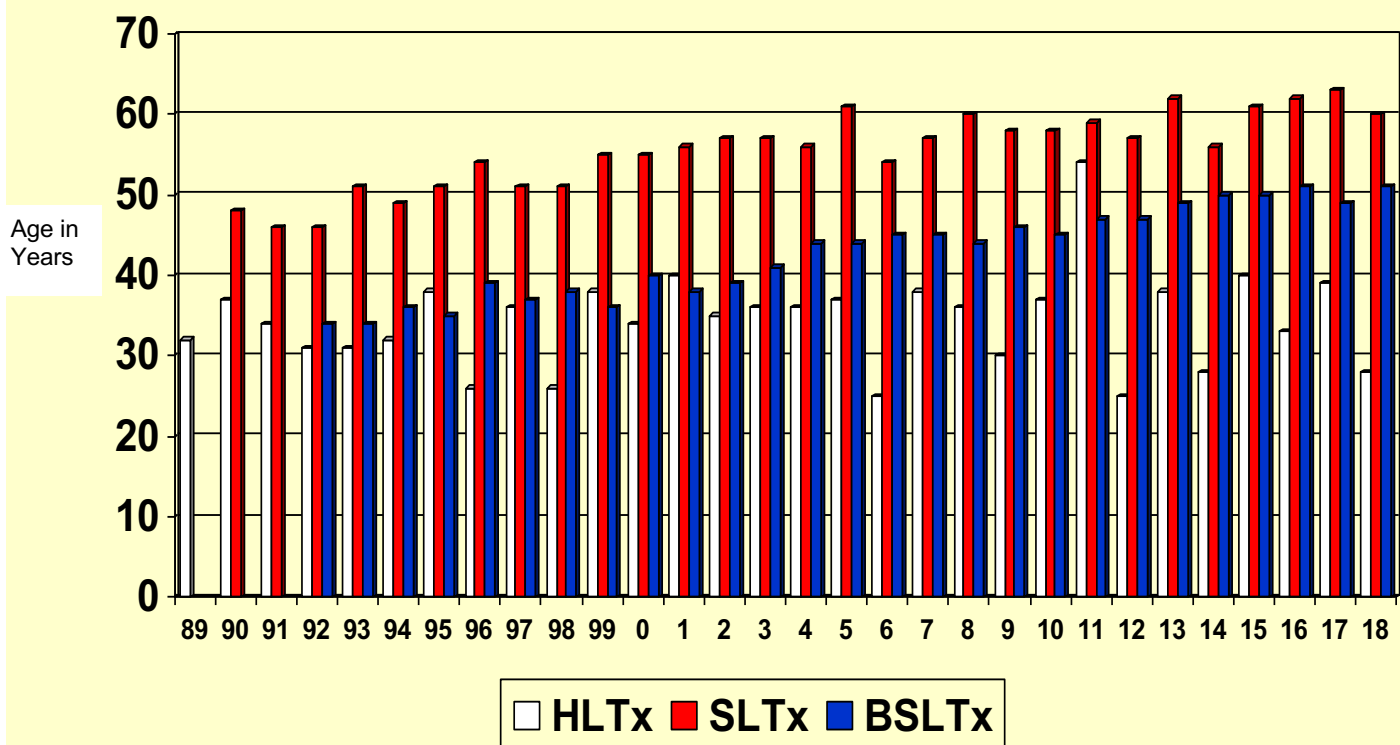
| Location | Recipients 86-18 | % | Donors 86-18 | % | Recipients 2018 | % | Donors 2018 | % |
|--------------|------------------|--------------|--------------|--------------|-----------------|--------------|-------------|--------------|
| ACT | 38 | 1.1 | 74 | 2.1 | 2 | 0.8 | 4 | 1.6 |
| NT | 3 | 0.1 | 40 | 1.1 | 0 | 0.0 | 3 | 1.2 |
| NSW | 971 | 27.7 | 853 | 24.3 | 60 | 24.0 | 47 | 18.8 |
| QLD | 502 | 14.3 | 575 | 16.4 | 40 | 16.0 | 46 | 18.4 |
| VIC | 1065 | 30.4 | 932 | 26.6 | 83 | 33.2 | 83 | 33.2 |
| SA | 230 | 6.6 | 313 | 8.9 | 14 | 5.6 | 14 | 5.6 |
| WA | 283 | 8.1 | 271 | 7.7 | 20 | 8.0 | 20 | 8.0 |
| TAS | 117 | 3.3 | 85 | 2.4 | 3 | 1.2 | 5 | 2.0 |
| NZ | 291 | 8.3 | 364 | 10.4 | 28 | 11.2 | 28 | 11.2 |
| Norfolk Isl | 1 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 |
| Total | 3501 | 100.0 | 3507 | 100.0 | 250 | 100.0 | 250 | 100.0 |

MEAN WAIT TO TRANSPLANT ALL LUNGS 1990 - 2018



| Year | n= | mean | std dev | median | min-max |
|------|-----|------|---------|--------|---------|
| 1990 | 17 | 194 | 168 | 136 | 2-500 |
| 1991 | 37 | 283 | 259 | 206 | 4-1034 |
| 1992 | 48 | 211 | 225 | 146 | 1-1075 |
| 1993 | 72 | 242 | 382 | 122 | 0-2325 |
| 1994 | 82 | 265 | 231 | 209 | 8-1048 |
| 1995 | 84 | 319 | 347 | 178 | 8-1679 |
| 1996 | 81 | 212 | 205 | 141 | 8-1009 |
| 1997 | 91 | 283 | 339 | 166 | 6-1839 |
| 1998 | 92 | 218 | 186 | 190 | 5-1221 |
| 1999 | 76 | 242 | 204 | 195 | 7-939 |
| 2000 | 103 | 200 | 198 | 148 | 1-900 |
| 2001 | 84 | 246 | 240 | 170 | 1-1199 |
| 2002 | 108 | 238 | 244 | 160 | 7-1333 |
| 2003 | 92 | 222 | 232 | 157 | 0-1336 |
| 2004 | 110 | 313 | 365 | 197 | 0-2455 |
| 2005 | 95 | 213 | 262 | 121 | 5-1350 |
| 2006 | 110 | 200 | 233 | 121 | 0-1146 |
| 2007 | 92 | 224 | 275 | 136 | 6-1494 |
| 2008 | 129 | 292 | 430 | 146 | 1-2864 |
| 2009 | 130 | 244 | 288 | 126 | 1-1322 |
| 2010 | 135 | 231 | 245 | 142 | 0-1297 |
| 2011 | 166 | 197 | 225 | 108 | 0-1601 |
| 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 |
| 2018 | 250 | 119 | 137 | 68 | 0-847 |

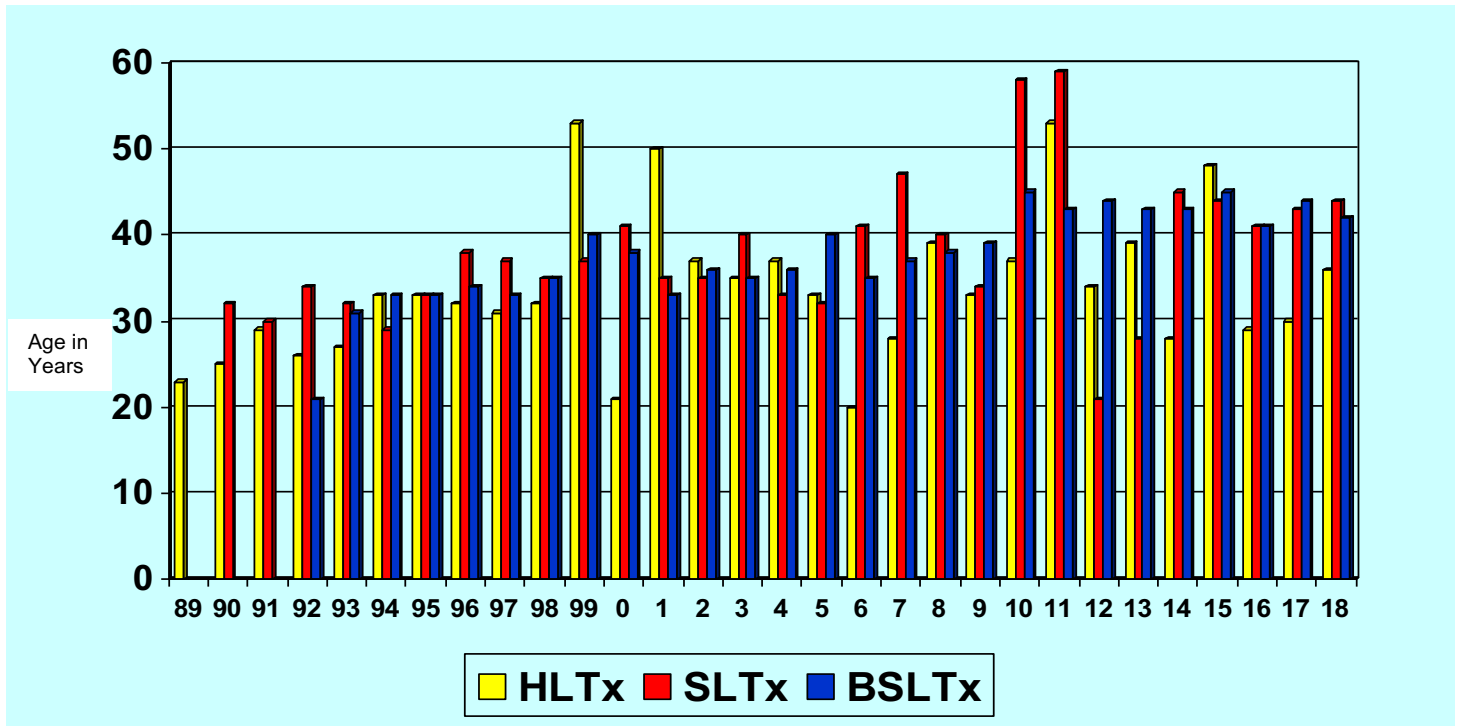
MEAN RECIPIENT AGE AT TRANSPLANT ALL LUNGS 1989 - 2018



| 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 | 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 | 2017 | 26 | 60 | 9 | 30-72 | 2017 | 217 | 51 | 15 | 5-72 |
| 2018 | 7 | 28 | 12 | 13-43 | | | | | | | | | | |

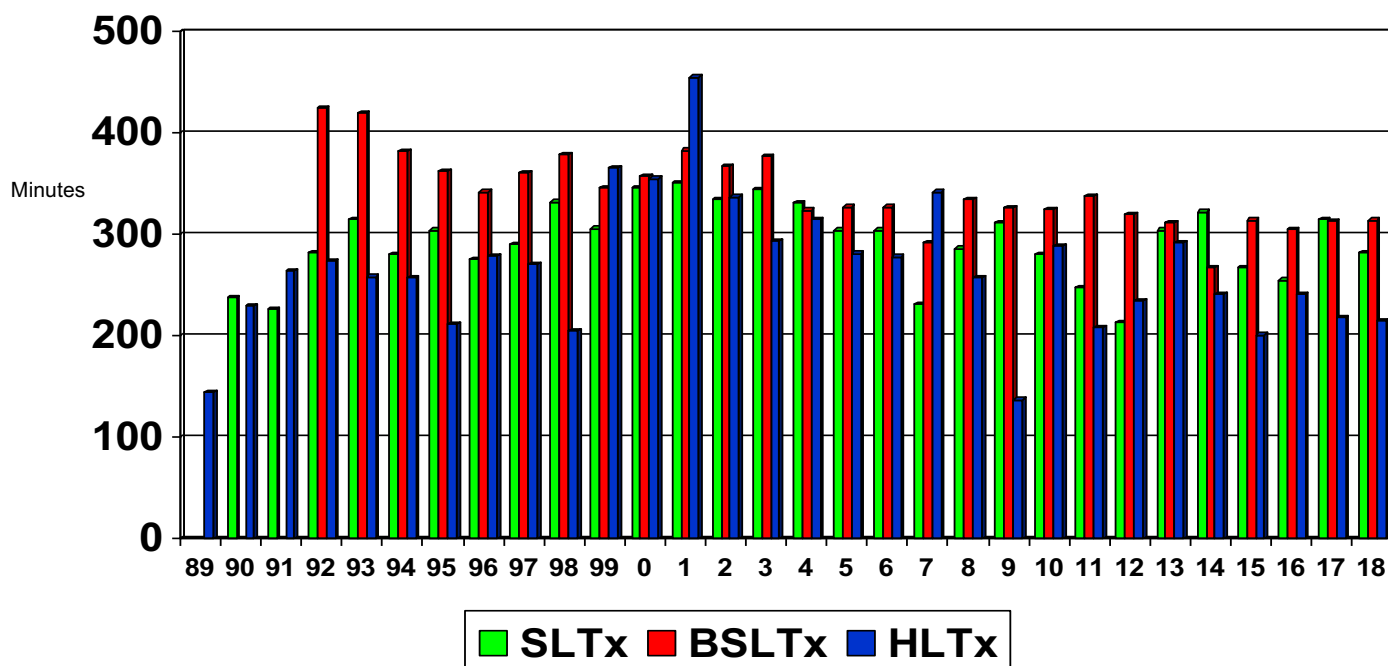
MEAN DONOR AGE AT TRANSPLANT

ALL LUNGS 1989 - 2018



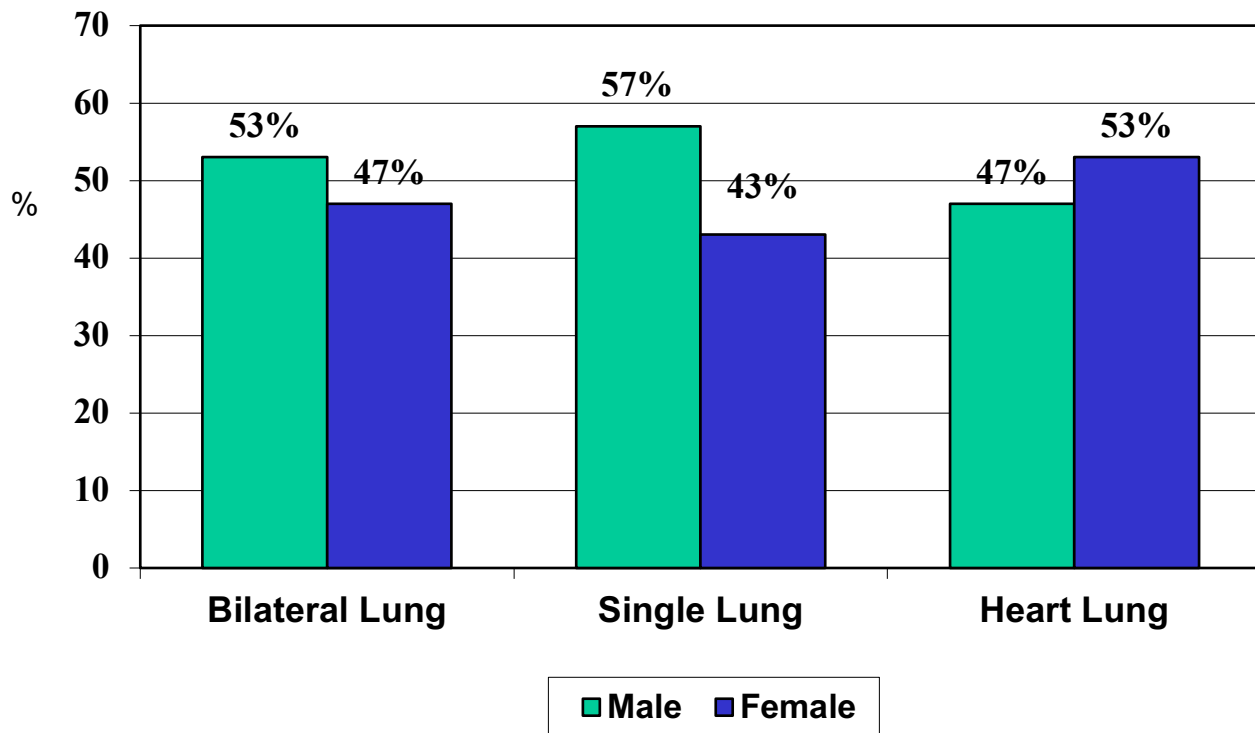
| HLTx year | n= | mean | std dev | min-max | SLTx year | n= | mean | std dev | min-max | BSLTx year | n= | mean | std dev | min-max |
|-----------|----|------|---------|---------|-----------|----|------|---------|---------|------------|-----|------|---------|---------|
| 1989 | 14 | 23 | 11 | 11-43 | 1989 | | | | | 1989 | | | | |
| 1990 | 12 | 25 | 10 | 12-47 | 1990 | 5 | 32 | 12 | 18-49 | 1990 | | | | |
| 1991 | 19 | 29 | 7 | 17-43 | 1991 | 18 | 30 | 11 | 15-53 | 1991 | | | | |
| 1992 | 18 | 26 | 11 | 11-44 | 1992 | 27 | 34 | 9 | 18-50 | 1992 | 3 | 21 | 3 | 18-24 |
| 1993 | 13 | 27 | 14 | 10-55 | 1993 | 24 | 32 | 12 | 14-55 | 1993 | 33 | 31 | 13 | 15-55 |
| 1994 | 13 | 33 | 13 | 15-53 | 1994 | 26 | 29 | 9 | 17-50 | 1994 | 44 | 33 | 13 | 12-55 |
| 1995 | 13 | 33 | 13 | 10-50 | 1995 | 28 | 33 | 12 | 18-56 | 1995 | 43 | 33 | 12 | 9-58 |
| 1996 | 7 | 32 | 16 | 14-49 | 1996 | 32 | 38 | 12 | 14-54 | 1996 | 42 | 34 | 12 | 10-60 |
| 1997 | 4 | 31 | 13 | 17-45 | 1997 | 43 | 37 | 13 | 12-56 | 1997 | 43 | 33 | 14 | 12-55 |
| 1998 | 4 | 32 | 15 | 16-51 | 1998 | 38 | 35 | 13 | 16-58 | 1998 | 50 | 35 | 13 | 10-62 |
| 1999 | 2 | 53 | na | 51-55 | 1999 | 27 | 37 | 17 | 15-62 | 1999 | 47 | 40 | 14 | 14-59 |
| 2000 | 2 | 21 | na | 15-26 | 2000 | 28 | 41 | 17 | 17-66 | 2000 | 73 | 38 | 13 | 11-61 |
| 2001 | 1 | 50 | na | 50-50 | 2001 | 29 | 35 | 13 | 16-53 | 2001 | 55 | 33 | 15 | 10-59 |
| 2002 | 9 | 37 | 12 | 18-50 | 2002 | 29 | 35 | 13 | 12-62 | 2002 | 70 | 36 | 16 | 7-64 |
| 2003 | 5 | 35 | 16 | 8-49 | 2003 | 21 | 40 | 15 | 18-61 | 2003 | 65 | 35 | 14 | 8-62 |
| 2004 | 6 | 37 | 16 | 12-52 | 2004 | 13 | 33 | 13 | 19-56 | 2004 | 88 | 36 | 15 | 7-64 |
| 2005 | 5 | 33 | 18 | 11-58 | 2005 | 10 | 32 | 14 | 13-47 | 2005 | 77 | 40 | 13 | 9-64 |
| 2006 | 6 | 20 | 16 | 7-48 | 2006 | 17 | 41 | 18 | 13-64 | 2006 | 85 | 35 | 15 | 11-62 |
| 2007 | 6 | 28 | 16 | 13-50 | 2007 | 8 | 47 | 19 | 17-61 | 2007 | 73 | 37 | 15 | 10-62 |
| 2008 | 5 | 39 | 18 | 17-58 | 2008 | 11 | 40 | 12 | 19-56 | 2008 | 106 | 38 | 15 | 9-67 |
| 2009 | 2 | 33 | na | 15-50 | 2009 | 12 | 34 | 19 | 16-62 | 2009 | 111 | 39 | 16 | 15-65 |
| 2010 | 3 | 37 | 18 | 17-51 | 2010 | 10 | 58 | 6 | 42-64 | 2010 | 117 | 42 | 15 | 5-70 |
| 2011 | 2 | 53 | na | 46-60 | 2011 | 12 | 59 | 5 | 53-68 | 2011 | 149 | 43 | 17 | 8-72 |
| 2012 | 4 | 34 | 11 | 23-43 | 2012 | 3 | 21 | 3 | 18-23 | 2012 | 150 | 44 | 16 | 11-73 |
| 2013 | 2 | 39 | na | 30-47 | 2013 | 5 | 28 | 10 | 18-41 | 2013 | 173 | 43 | 17 | 9-74 |
| 2014 | 5 | 28 | 16 | 4-44 | 2014 | 8 | 45 | 14 | 28-62 | 2014 | 164 | 43 | 15 | 8-70 |
| 2015 | 2 | 48 | na | 37-58 | 2015 | 11 | 44 | 15 | 22-66 | 2015 | 193 | 45 | 16 | 8-75 |
| 2016 | 6 | 29 | 15 | 8-51 | 2016 | 6 | 41 | 23 | 16-69 | 2016 | 184 | 41 | 17 | 10-74 |
| 2017 | 5 | 30 | 5 | 23-35 | 2017 | 20 | 43 | 13 | 21-67 | 2017 | 205 | 44 | 17 | 3-74 |
| 2018 | 7 | 36 | 10 | 23-47 | 2018 | 26 | 44 | 12 | 16-62 | 2018 | 217 | 42 | 17 | 10-74 |

ALL LUNGS MEAN COLD ISCHEMIC TIME 1989 - 2018



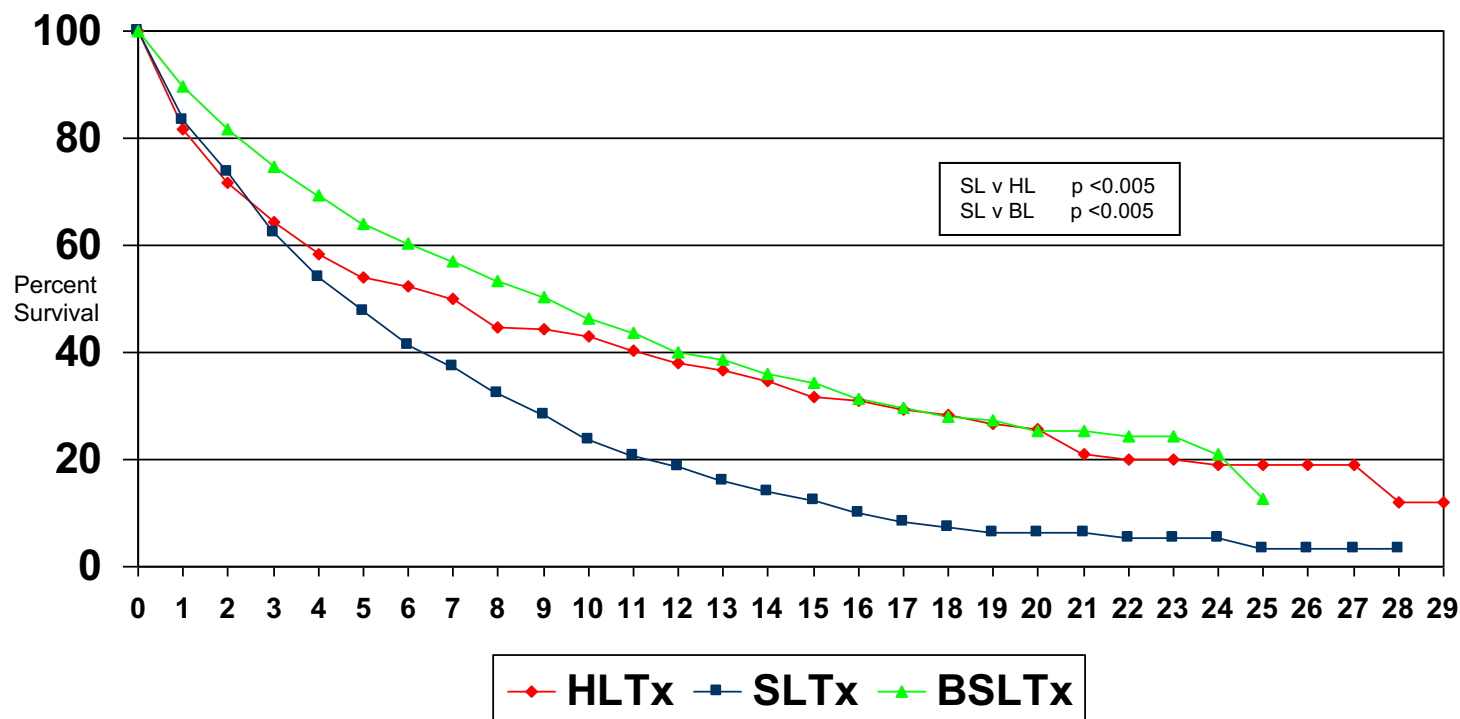
| Year | HLTx mean | std dev | min-max | SLTx mean | std dev | min-max | BSLTx mean | std dev | min-max |
|------|--------------|---------|---------|--------------|---------|---------|---------------|---------|---------|
| 1989 | 144 | 40 | 99-207 | | | | | | |
| 1990 | 230 | 103 | 103-408 | 238 | 47 | 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 |
| 2018 | 215 | 39 | 177-264 | 282 | 115 | 149-601 | 314 | 96 | 128-685 |

RECIPIENT GENDER ALL LUNG TRANSPLANTS 1986 - 2018



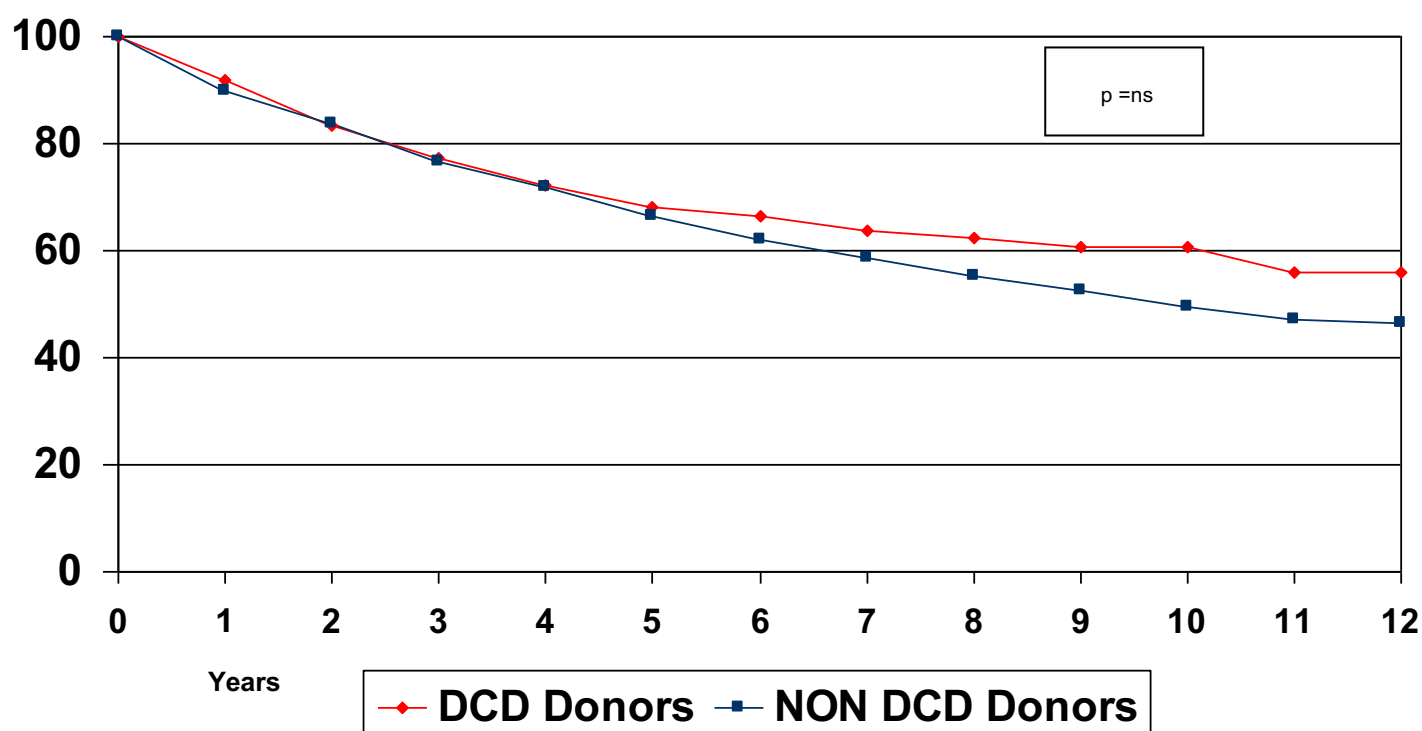
| Transplant Type | Male n= | % | Female n= | % |
|-----------------|---------|----|-----------|----|
| Bilateral Lung | 1457 | 53 | 1293 | 47 |
| Single Lung | 313 | 57 | 239 | 43 |
| Heart Lung | 97 | 47 | 111 | 53 |

CUTLER-EDERER SURVIVAL ALL LUNG TRANSPLANTS 1986 – 2018



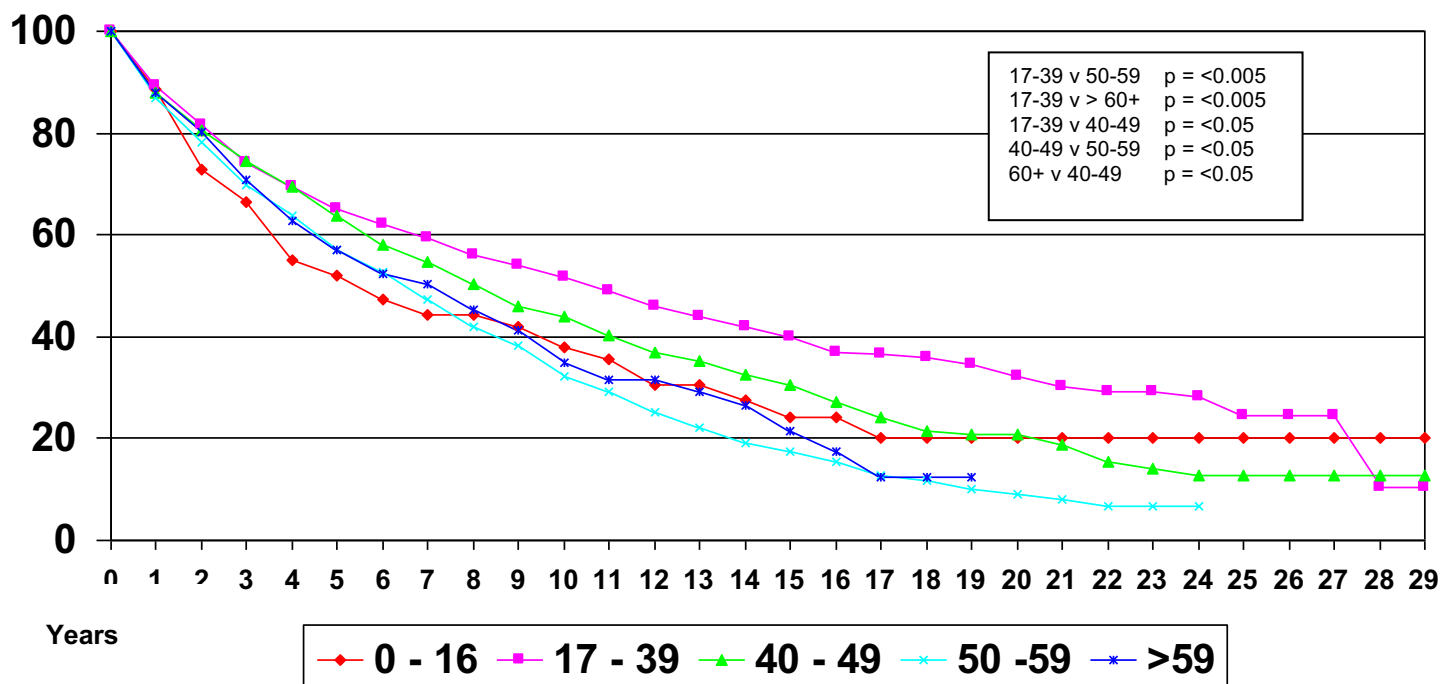
| Year | HLTx n= | % | SLTx n= | % | BSLTx n= | % |
|------|------------|-------|------------|-------|-------------|-------|
| 0 | 208 | 100.0 | 552 | 100.0 | 2750 | 100.0 |
| 1 | 167 | 81.6 | 448 | 82.9 | 2336 | 89.4 |
| 2 | 140 | 71.6 | 378 | 73.5 | 1947 | 81.7 |
| 3 | 122 | 64.4 | 312 | 62.3 | 1629 | 74.6 |
| 4 | 109 | 58.5 | 262 | 54.0 | 1356 | 69.5 |
| 5 | 98 | 54.1 | 228 | 47.8 | 1126 | 64.2 |
| 6 | 91 | 52.5 | 192 | 41.4 | 945 | 60.3 |
| 7 | 85 | 50.1 | 173 | 37.6 | 782 | 56.8 |
| 8 | 75 | 44.8 | 144 | 32.2 | 654 | 53.2 |
| 9 | 74 | 44.2 | 124 | 28.1 | 536 | 50.1 |
| 10 | 71 | 43.0 | 103 | 23.9 | 441 | 46.3 |
| 11 | 66 | 40.5 | 87 | 20.7 | 364 | 43.6 |
| 12 | 61 | 38.1 | 77 | 18.7 | 304 | 40.0 |
| 13 | 55 | 36.8 | 63 | 16.1 | 250 | 38.2 |
| 14 | 48 | 34.7 | 53 | 14.4 | 209 | 35.5 |
| 15 | 42 | 31.7 | 44 | 12.6 | 178 | 33.5 |
| 16 | 39 | 31.0 | 33 | 9.9 | 131 | 30.8 |
| 17 | 35 | 29.3 | 21 | 8.4 | 99 | 29.0 |
| 18 | 32 | 28.5 | 18 | 7.5 | 76 | 27.7 |
| 19 | 30 | 26.7 | 13 | 6.9 | 61 | 26.9 |
| 20 | 28 | 25.8 | 11 | 6.9 | 48 | 25.0 |
| 21 | 22 | 21.1 | 11 | 6.9 | 33 | 24.4 |
| 22 | 20 | 20.1 | 9 | 5.4 | 20 | 22.6 |
| 23 | 19 | 20.1 | 6 | 5.4 | 17 | 21.4 |
| 24 | 16 | 19.0 | 3 | 5.4 | 11 | 19.9 |
| 25 | 14 | 19.0 | 2 | 3.2 | 4 | 17.5 |
| 26 | 11 | 19.0 | 1 | 3.2 | 1 | 17.5 |
| 27 | 6 | 19.0 | | | 1 | 17.5 |
| 28 | 3 | 12.1 | | | 1 | 17.5 |
| 29 | 3 | 12.1 | | | | |

CUTLER-EDERER SURVIVAL DCD BSLTX DONORS v NON DCD BSLTX DONORS 2006 – 2018



| Year | DCD ONLY | | NON DCD | |
|------|----------|-------|---------|-------|
| | n= | % | n= | % |
| 0 | 379 | 100.0 | 1626 | 100.0 |
| 1 | 322 | 91.8 | 1365 | 90.0 |
| 2 | 240 | 83.4 | 1133 | 83.6 |
| 3 | 189 | 77.4 | 922 | 76.6 |
| 4 | 138 | 72.3 | 743 | 72.0 |
| 5 | 98 | 68.2 | 591 | 66.4 |
| 6 | 78 | 66.6 | 458 | 62.1 |
| 7 | 57 | 63.7 | 342 | 58.8 |
| 8 | 43 | 62.5 | 255 | 55.2 |
| 9 | 27 | 60.7 | 178 | 52.7 |
| 10 | 15 | 60.7 | 124 | 49.6 |
| 11 | 9 | 55.9 | 72 | 47.1 |
| 12 | 3 | 55.9 | 45 | 46.3 |

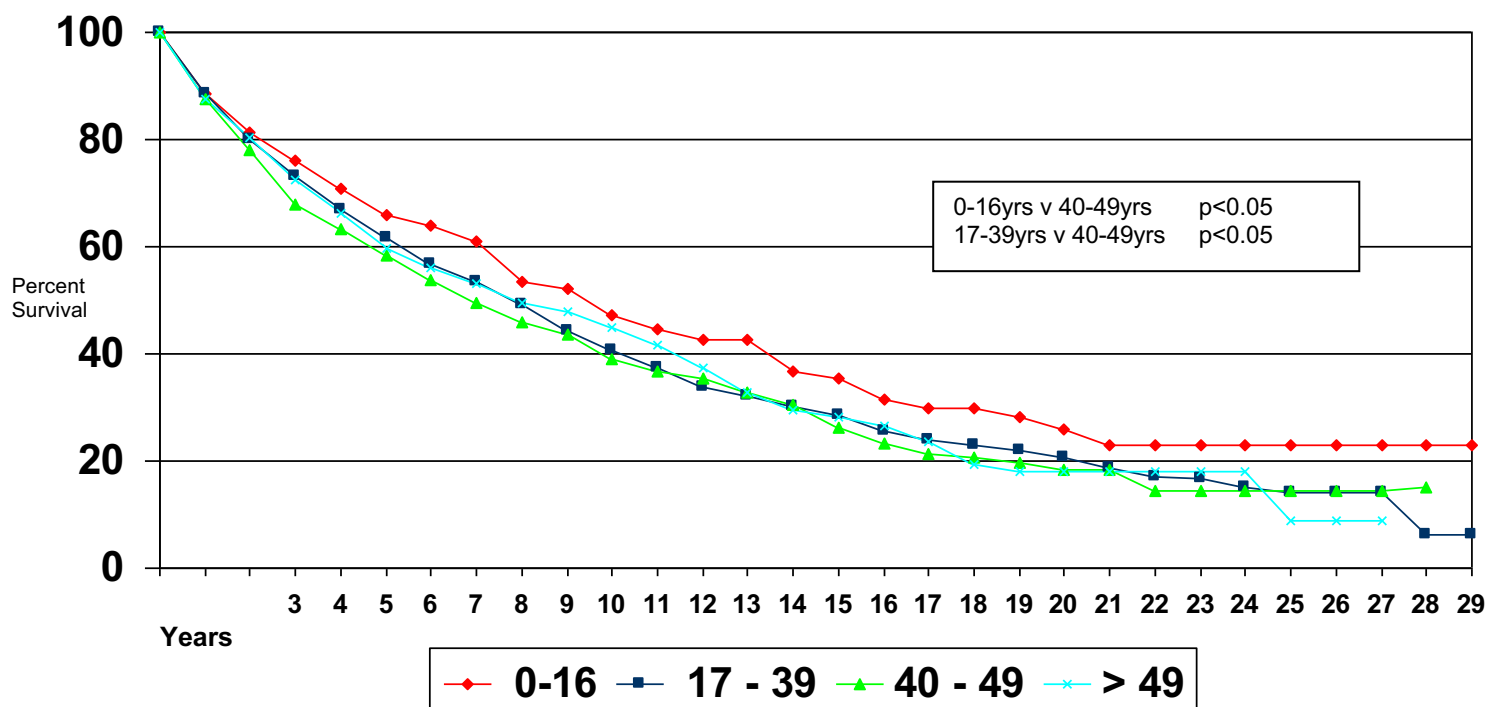
CUTLER-EDERER SURVIVAL RECIPIENT AGE ALL LUNGS 1986 – 2018



| Year | 0 - 16 | | 17 - 39 | | 40 - 49 | | 50 - 59 | | >59 | |
|------|--------|-------|---------|-------|---------|-------|---------|-------|-----|-------|
| | n= | % | n= | % | n= | % | n= | % | n= | % |
| 0 | 90 | 100.0 | 1045 | 100.0 | 584 | 100.0 | 1093 | 100.0 | 698 | 100.0 |
| 1 | 76 | 88.6 | 904 | 89.4 | 498 | 87.8 | 910 | 86.8 | 563 | 87.9 |
| 2 | 57 | 72.9 | 779 | 81.4 | 434 | 80.4 | 765 | 78.2 | 430 | 80.1 |
| 3 | 49 | 66.3 | 667 | 74.0 | 382 | 74.6 | 639 | 69.8 | 326 | 70.8 |
| 4 | 38 | 55.1 | 594 | 69.5 | 326 | 69.5 | 532 | 63.8 | 237 | 62.7 |
| 5 | 33 | 52.1 | 523 | 65.1 | 280 | 63.8 | 441 | 57.2 | 175 | 57.2 |
| 6 | 30 | 47.4 | 466 | 62.1 | 235 | 57.9 | 365 | 52.6 | 132 | 52.5 |
| 7 | 27 | 44.2 | 406 | 59.5 | 205 | 54.8 | 294 | 47.3 | 108 | 50.4 |
| 8 | 23 | 44.2 | 359 | 56.1 | 175 | 50.4 | 231 | 41.9 | 85 | 45.4 |
| 9 | 20 | 42.1 | 316 | 54.0 | 142 | 46.1 | 195 | 38.1 | 61 | 41.3 |
| 10 | 17 | 37.8 | 279 | 51.7 | 127 | 43.8 | 146 | 32.3 | 46 | 34.9 |
| 11 | 15 | 35.5 | 243 | 49.0 | 102 | 40.4 | 123 | 29.1 | 34 | 31.5 |
| 12 | 12 | 30.6 | 214 | 46.1 | 87 | 36.8 | 98 | 25.2 | 31 | 31.5 |
| 13 | 10 | 30.6 | 180 | 43.8 | 77 | 35.4 | 78 | 22.2 | 23 | 29.3 |
| 14 | 8 | 27.4 | 155 | 42.0 | 67 | 32.6 | 63 | 19.0 | 17 | 26.5 |
| 15 | 7 | 24.0 | 134 | 39.8 | 59 | 30.6 | 53 | 17.4 | 11 | 21.4 |
| 16 | 7 | 24.0 | 103 | 36.9 | 47 | 27.3 | 37 | 15.3 | 9 | 17.5 |
| 17 | 5 | 20.3 | 88 | 36.5 | 38 | 24.3 | 21 | 12.8 | 3 | 12.5 |
| 18 | 5 | 20.3 | 73 | 36.0 | 30 | 21.6 | 17 | 11.6 | 1 | 12.5 |
| 19 | 4 | 20.3 | 65 | 34.5 | 24 | 20.8 | 11 | 10.0 | | |
| 20 | 4 | 20.3 | 54 | 32.2 | 20 | 20.8 | 9 | 9.1 | | |
| 21 | 3 | 20.3 | 39 | 30.2 | 17 | 18.7 | 7 | 8.0 | | |
| 22 | 3 | 20.3 | 29 | 29.3 | 13 | 15.3 | 4 | 6.7 | | |
| 23 | 3 | 20.3 | 26 | 29.3 | 11 | 14.1 | 2 | 6.7 | | |
| 24 | 3 | 20.3 | 19 | 28.1 | 8 | 12.6 | | | | |
| 25 | 3 | 20.3 | 10 | 24.5 | 7 | 12.6 | | | | |
| 26 | 2 | 20.3 | 6 | 24.5 | 5 | 12.6 | | | | |
| 27 | 1 | 20.3 | 4 | 24.5 | 3 | 12.6 | | | | |
| 28 | 1 | 20.3 | 1 | 10.5 | 2 | 12.6 | | | | |
| 29 | 1 | 20.3 | 1 | 10.5 | 2 | 12.6 | | | | |

CUTLER-EDERER SURVIVAL DONOR AGE

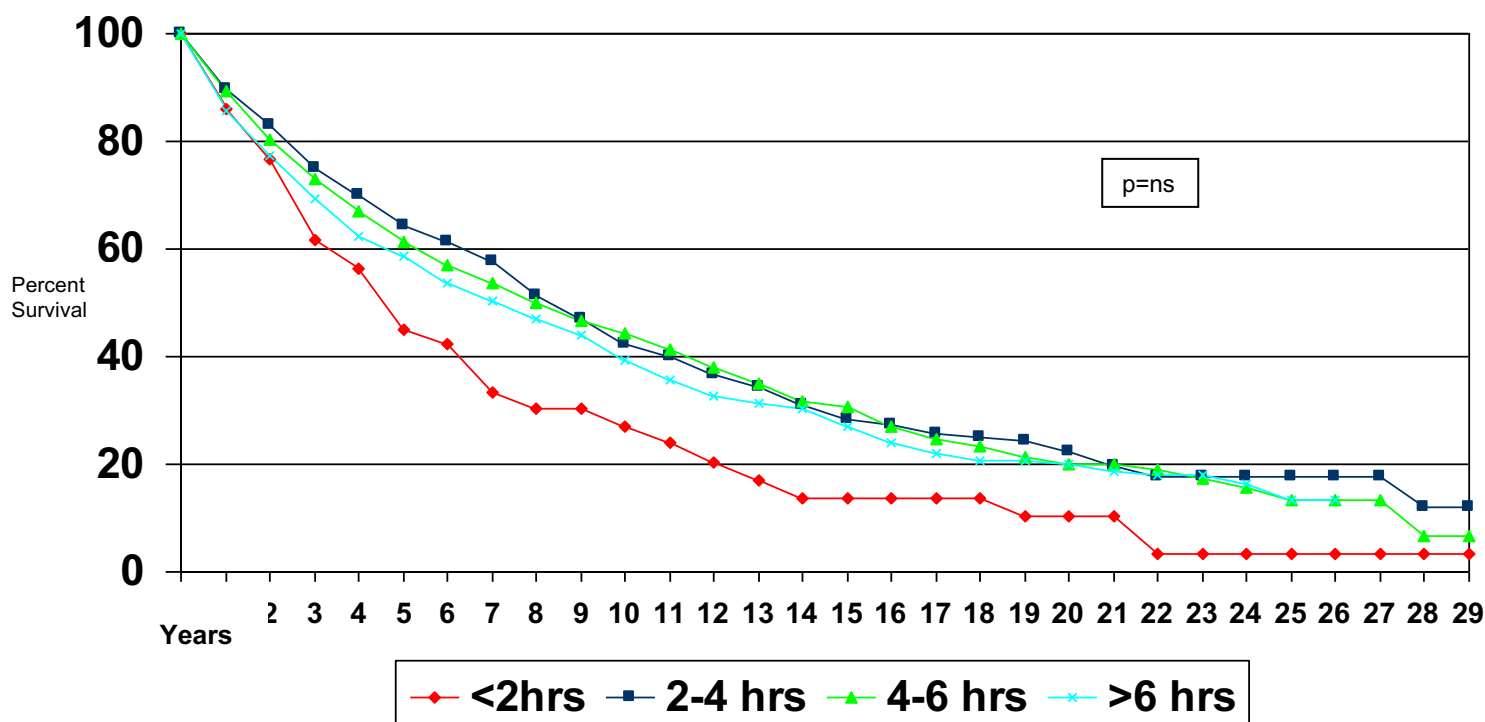
ALL LUNGS 1986 - 2018



| Year | 0-16 n= | % | 17 - 39 n= | % | 40 - 49 n= | % | 50+ n= | % |
|------|------------|-------|---------------|-------|---------------|-------|-----------|-------|
| 0 | 231 | 100.0 | 1495 | 100.0 | 749 | 100.0 | 1034 | 100.0 |
| 1 | 194 | 88.5 | 1262 | 88.4 | 630 | 87.5 | 864 | 87.7 |
| 2 | 169 | 81.4 | 1064 | 80.1 | 530 | 77.9 | 701 | 80.3 |
| 3 | 148 | 76.0 | 910 | 73.2 | 429 | 67.8 | 575 | 72.4 |
| 4 | 132 | 70.7 | 767 | 67.0 | 365 | 63.3 | 462 | 66.1 |
| 5 | 114 | 65.8 | 666 | 61.8 | 308 | 58.2 | 363 | 59.7 |
| 6 | 106 | 64.0 | 572 | 56.7 | 257 | 53.9 | 292 | 56.2 |
| 7 | 94 | 60.9 | 498 | 53.3 | 211 | 49.5 | 236 | 53.1 |
| 8 | 76 | 53.5 | 434 | 49.1 | 181 | 45.8 | 181 | 49.4 |
| 9 | 67 | 52.0 | 361 | 44.4 | 155 | 43.7 | 150 | 47.9 |
| 10 | 57 | 47.2 | 307 | 40.8 | 127 | 39.0 | 123 | 44.9 |
| 11 | 49 | 44.6 | 263 | 37.5 | 105 | 36.7 | 99 | 41.8 |
| 12 | 43 | 42.7 | 222 | 33.8 | 95 | 35.3 | 81 | 37.4 |
| 13 | 38 | 42.7 | 193 | 32.1 | 76 | 32.9 | 60 | 32.9 |
| 14 | 29 | 36.8 | 171 | 30.2 | 60 | 30.5 | 49 | 29.4 |
| 15 | 27 | 35.5 | 148 | 28.4 | 47 | 26.3 | 41 | 28.2 |
| 16 | 23 | 31.5 | 109 | 25.6 | 37 | 23.3 | 33 | 26.7 |
| 17 | 19 | 30.0 | 86 | 23.8 | 31 | 21.4 | 18 | 23.7 |
| 18 | 17 | 30.0 | 73 | 23.0 | 22 | 20.6 | 13 | 19.5 |
| 19 | 14 | 28.1 | 60 | 22.0 | 18 | 19.6 | 11 | 18.0 |
| 20 | 10 | 25.9 | 52 | 20.8 | 15 | 18.4 | 9 | 18.0 |
| 21 | 8 | 23.1 | 40 | 18.7 | 10 | 18.4 | 7 | 18.0 |
| 22 | 5 | 23.1 | 31 | 17.1 | 7 | 14.5 | 5 | 18.0 |
| 23 | 5 | 23.1 | 26 | 16.6 | 5 | 14.5 | 5 | 18.0 |
| 24 | 4 | 23.1 | 19 | 15.1 | 4 | 14.5 | 2 | 18.0 |
| 25 | 3 | 23.1 | 13 | 14.2 | 2 | 14.5 | 1 | 9.0 |
| 26 | 2 | 23.1 | 8 | 14.2 | 1 | 14.5 | 1 | 9.0 |
| 27 | 2 | 23.1 | 4 | 14.2 | 1 | 14.5 | 1 | 9.0 |
| 28 | 2 | 23.1 | 1 | 6.1 | 1 | 14.5 | | |
| 29 | 2 | 23.1 | 1 | 6.1 | | | | |

CUTLER-EDERER SURVIVAL ISCHEMIC TIME

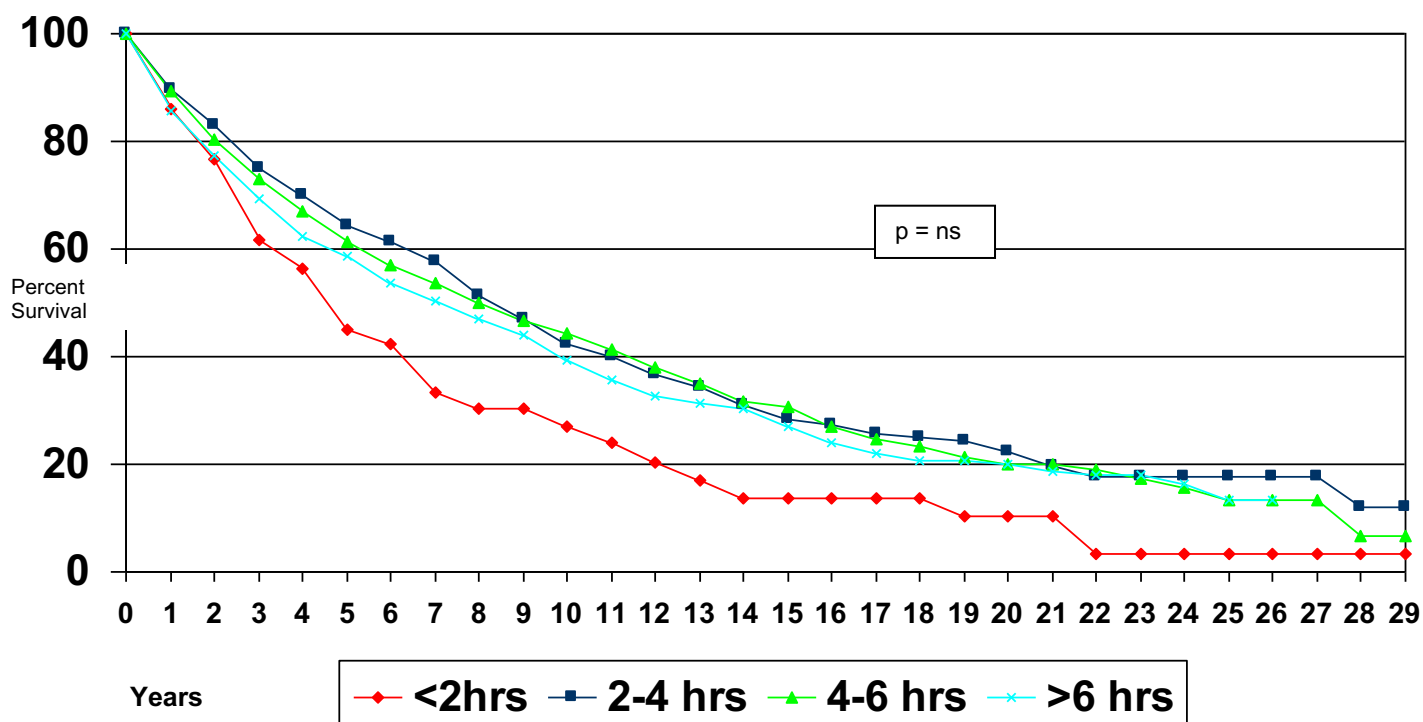
ALL LUNGS 1986 – 2018



| Year | <2hrs | | 2-4 hrs | | 4-6 hrs | | >6 hrs | |
|------|-------|-------|---------|-------|---------|-------|--------|-------|
| | n= | % | n= | % | n= | % | n= | % |
| 0 | 43 | 100.0 | 802 | 100.0 | 1495 | 100.0 | 1099 | 100.0 |
| 1 | 37 | 86.0 | 685 | 89.8 | 1277 | 89.3 | 908 | 85.7 |
| 2 | 32 | 76.6 | 584 | 82.9 | 1046 | 80.3 | 760 | 77.3 |
| 3 | 24 | 61.8 | 482 | 74.9 | 876 | 72.9 | 640 | 69.2 |
| 4 | 20 | 56.4 | 413 | 70.0 | 723 | 67.1 | 537 | 62.4 |
| 5 | 16 | 45.1 | 350 | 64.4 | 597 | 61.2 | 472 | 58.6 |
| 6 | 14 | 42.2 | 299 | 61.5 | 507 | 57.1 | 403 | 53.7 |
| 7 | 11 | 33.2 | 251 | 57.6 | 424 | 53.8 | 353 | 50.4 |
| 8 | 10 | 30.2 | 208 | 51.2 | 354 | 49.9 | 302 | 47.0 |
| 9 | 10 | 30.2 | 171 | 47.0 | 292 | 46.6 | 259 | 44.0 |
| 10 | 9 | 27.1 | 144 | 42.5 | 248 | 44.3 | 213 | 39.3 |
| 11 | 7 | 23.9 | 124 | 40.0 | 201 | 41.4 | 182 | 35.8 |
| 12 | 6 | 20.5 | 109 | 36.7 | 170 | 38.0 | 153 | 32.8 |
| 13 | 5 | 17.1 | 89 | 34.2 | 134 | 34.9 | 133 | 31.4 |
| 14 | 4 | 13.7 | 76 | 31.1 | 109 | 31.8 | 118 | 30.2 |
| 15 | 4 | 13.7 | 60 | 28.4 | 99 | 30.6 | 101 | 27.1 |
| 16 | 4 | 13.7 | 52 | 27.4 | 73 | 27.0 | 78 | 23.9 |
| 17 | 4 | 13.7 | 37 | 25.6 | 57 | 24.6 | 60 | 21.9 |
| 18 | 4 | 13.7 | 34 | 24.9 | 44 | 23.2 | 44 | 20.7 |
| 19 | 3 | 10.3 | 30 | 24.2 | 36 | 21.5 | 35 | 20.7 |
| 20 | 3 | 10.3 | 27 | 22.5 | 25 | 20.1 | 33 | 20.1 |
| 21 | 3 | 10.3 | 20 | 19.8 | 19 | 20.1 | 27 | 18.8 |
| 22 | 1 | 3.4 | 17 | 17.8 | 13 | 18.9 | 17 | 18.0 |
| 23 | 1 | 3.4 | 16 | 17.8 | 12 | 17.5 | 12 | 18.0 |
| 24 | 1 | 3.4 | 14 | 17.8 | 8 | 15.8 | 7 | 16.2 |
| 25 | 1 | 3.4 | 12 | 17.8 | 4 | 13.4 | 3 | 13.2 |
| 26 | 1 | 3.4 | 8 | 17.8 | 3 | 13.4 | | |
| 27 | 1 | 3.4 | 4 | 17.8 | 2 | 13.4 | | |
| 28 | 1 | 3.4 | 1 | 11.9 | 1 | 6.7 | | |
| 29 | 1 | 3.4 | 1 | 11.9 | 1 | 6.7 | | |

CUTLER-EDERER SURVIVAL CROSSMATCH*

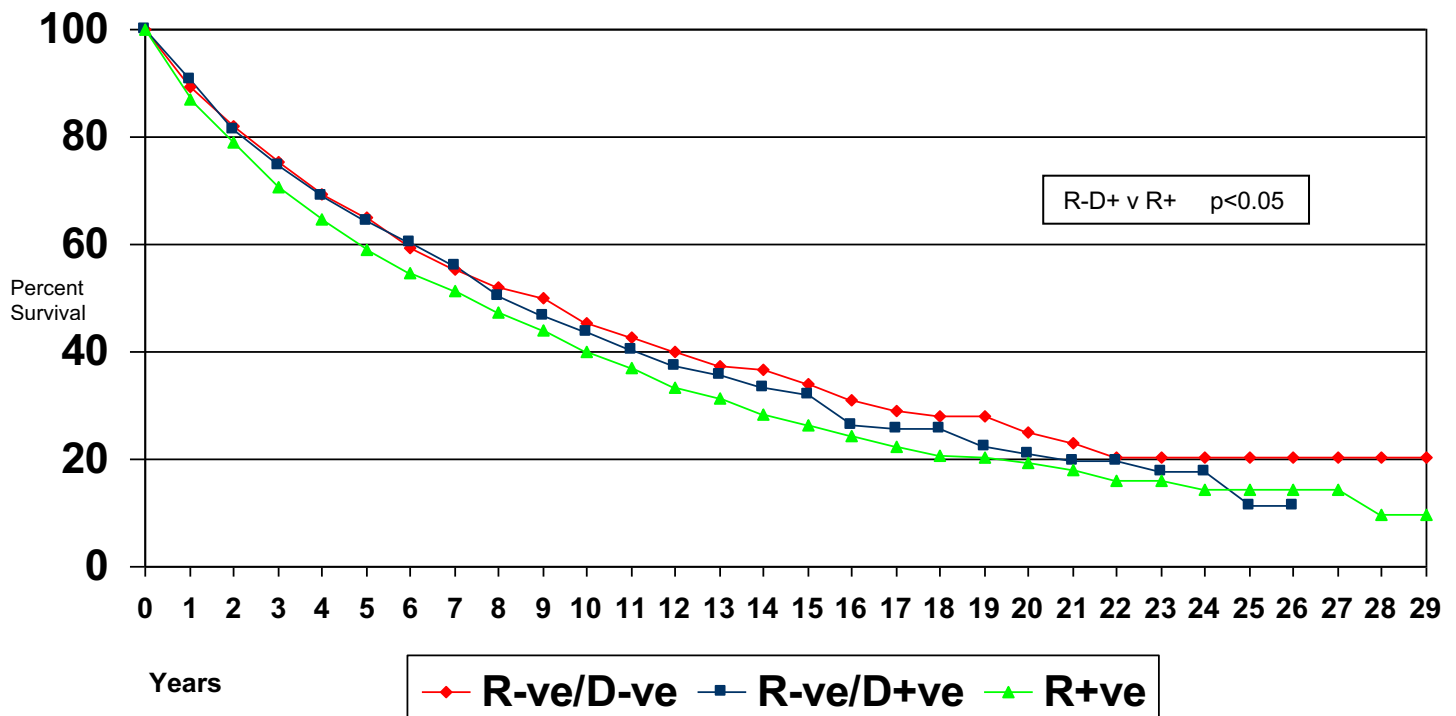
ALL LUNGS 1986 - 2018



| Year | Positive | | Negative | |
|------|----------|-------|----------|-------|
| | n= | % | n= | % |
| 0 | 147 | 100.0 | 2406 | 100.0 |
| 1 | 126 | 86.3 | 2073 | 87.9 |
| 2 | 113 | 78.1 | 1795 | 79.2 |
| 3 | 94 | 65.0 | 1559 | 71.5 |
| 4 | 86 | 59.4 | 1375 | 65.9 |
| 5 | 79 | 56.6 | 1170 | 60.1 |
| 6 | 72 | 53.0 | 988 | 55.6 |
| 7 | 65 | 49.3 | 836 | 51.9 |
| 8 | 54 | 44.5 | 711 | 47.7 |
| 9 | 43 | 41.0 | 612 | 44.5 |
| 10 | 37 | 38.0 | 521 | 40.8 |
| 11 | 29 | 33.7 | 445 | 38.1 |
| 12 | 26 | 30.2 | 382 | 35.0 |
| 13 | 24 | 29.0 | 329 | 32.8 |
| 14 | 22 | 26.6 | 277 | 30.3 |
| 15 | 20 | 26.6 | 235 | 27.9 |
| 16 | 16 | 25.2 | 177 | 25.1 |
| 17 | 12 | 23.4 | 135 | 23.2 |
| 18 | 11 | 21.5 | 110 | 22.1 |
| 19 | 9 | 21.5 | 93 | 20.9 |
| 20 | 7 | 16.7 | 78 | 20.1 |
| 21 | 7 | 16.7 | 57 | 18.4 |
| 22 | 4 | 13.9 | 44 | 17.4 |
| 23 | 3 | 13.9 | 38 | 16.9 |
| 24 | 3 | 13.9 | 26 | 15.9 |
| 25 | 3 | 13.9 | 16 | 14.5 |
| 26 | 2 | 13.9 | 10 | 14.5 |
| 27 | 1 | 13.9 | 6 | 14.5 |
| 28 | | 0.0 | 3 | 11.6 |
| 29 | | | 3 | 11.6 |

*T-cell or B cell positive are combined

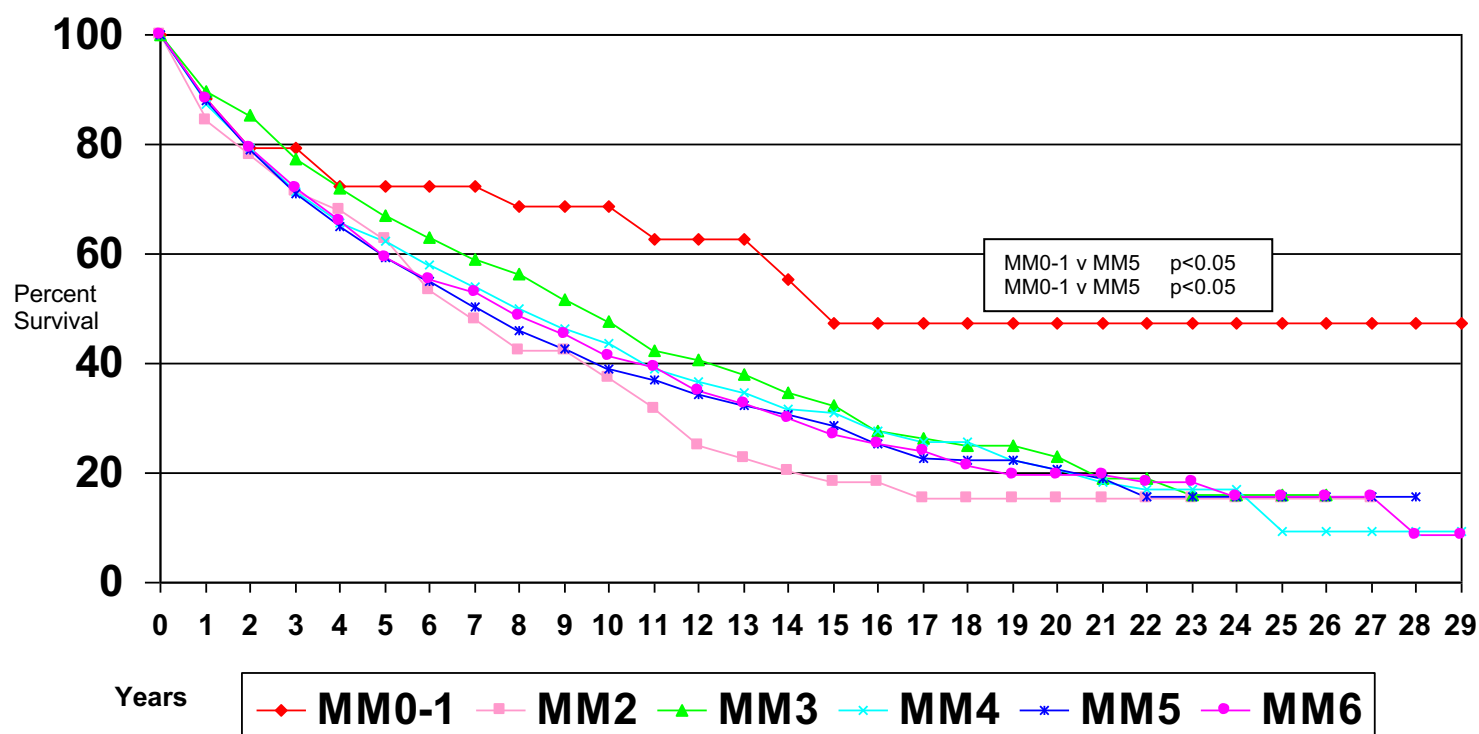
CUTLER-EDERER SURVIVAL CMV STATUS IgG SEROLOGICAL ALL LUNGS 1986 - 2018



| Year | Donor Neg Rec Neg | | Donor Pos Rec Neg | | Recipient Pos* | |
|------|----------------------|-------|----------------------|-------|-------------------|-------|
| | n= | % | n= | % | n= | % |
| 0 | 532 | 100.0 | 656 | 100.0 | 2253 | 100.0 |
| 1 | 452 | 89.2 | 569 | 90.7 | 1878 | 87.1 |
| 2 | 377 | 82.0 | 475 | 81.4 | 1570 | 79.0 |
| 3 | 326 | 75.3 | 413 | 74.6 | 1289 | 70.7 |
| 4 | 276 | 69.3 | 349 | 69.1 | 1074 | 64.8 |
| 5 | 233 | 65.1 | 299 | 64.4 | 895 | 58.9 |
| 6 | 196 | 59.5 | 252 | 60.5 | 756 | 54.6 |
| 7 | 170 | 55.5 | 215 | 56.0 | 635 | 51.4 |
| 8 | 153 | 52.1 | 173 | 50.3 | 529 | 47.4 |
| 9 | 135 | 50.0 | 143 | 46.6 | 439 | 43.9 |
| 10 | 108 | 45.3 | 125 | 43.6 | 366 | 40.0 |
| 11 | 91 | 42.6 | 105 | 40.3 | 308 | 36.9 |
| 12 | 75 | 40.1 | 93 | 37.5 | 264 | 33.5 |
| 13 | 60 | 37.3 | 79 | 35.8 | 220 | 31.3 |
| 14 | 53 | 36.6 | 67 | 33.5 | 182 | 28.3 |
| 15 | 49 | 33.9 | 57 | 31.9 | 153 | 26.4 |
| 16 | 38 | 30.9 | 39 | 26.4 | 121 | 24.5 |
| 17 | 30 | 29.1 | 30 | 25.7 | 92 | 22.3 |
| 18 | 25 | 28.1 | 24 | 25.7 | 74 | 20.8 |
| 19 | 19 | 28.1 | 19 | 22.3 | 64 | 20.2 |
| 20 | 15 | 25.0 | 17 | 21.1 | 53 | 19.5 |
| 21 | 10 | 23.0 | 14 | 19.8 | 40 | 17.9 |
| 22 | 7 | 20.5 | 10 | 19.8 | 30 | 16.0 |
| 23 | 7 | 20.5 | 7 | 17.6 | 26 | 16.0 |
| 24 | 6 | 20.5 | 6 | 17.6 | 16 | 14.5 |
| 25 | 4 | 20.5 | 3 | 11.2 | 11 | 14.5 |
| 26 | 3 | 20.5 | 3 | 11.2 | 8 | 14.5 |
| 27 | 2 | 20.5 | | | 4 | 14.5 |
| 28 | 2 | 20.5 | | | 1 | 9.7 |
| 29 | 2 | 20.5 | | | 1 | 9.7 |

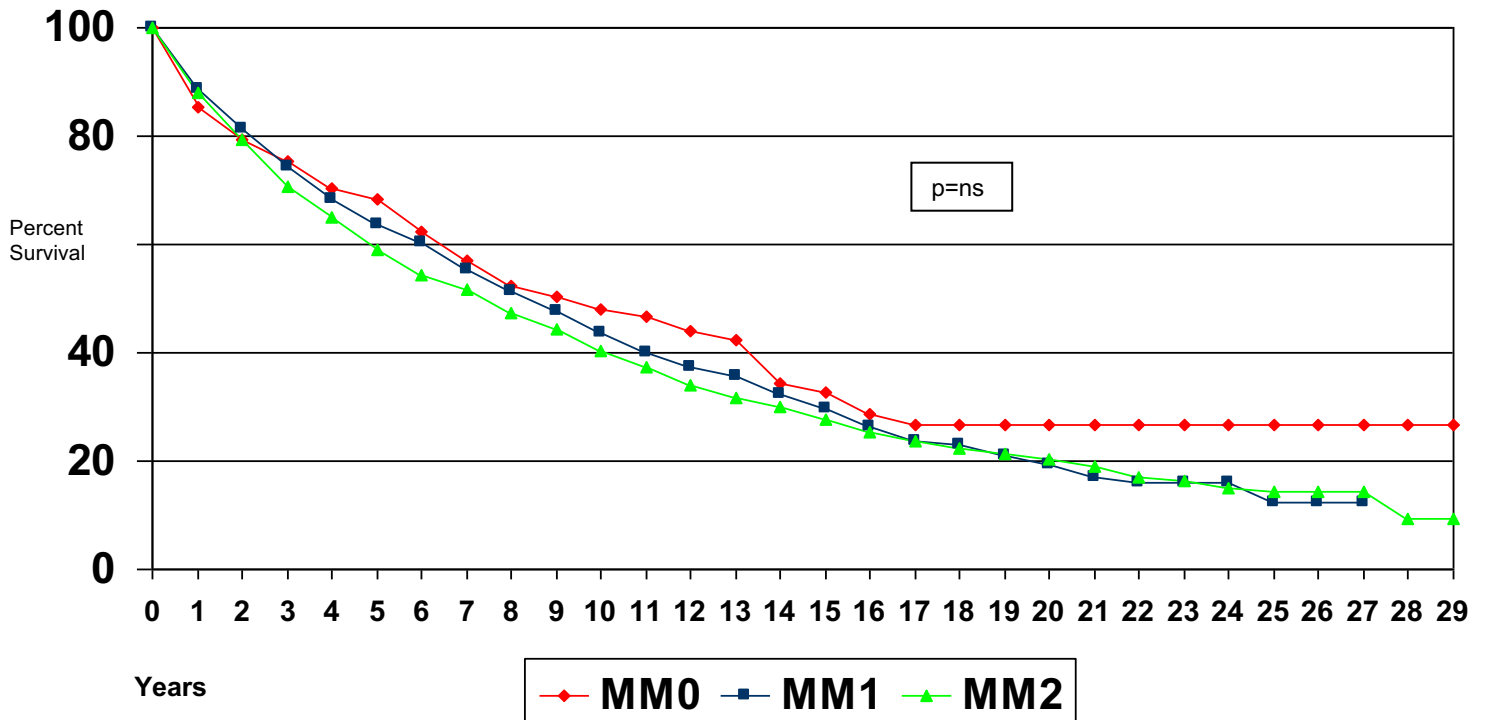
* R+ve = R+ve/D-ve or R+ve/D+ve

CUTLER-EDERER SURVIVAL ALL HLA MISMATCH ALL LUNGS 1986 - 2018



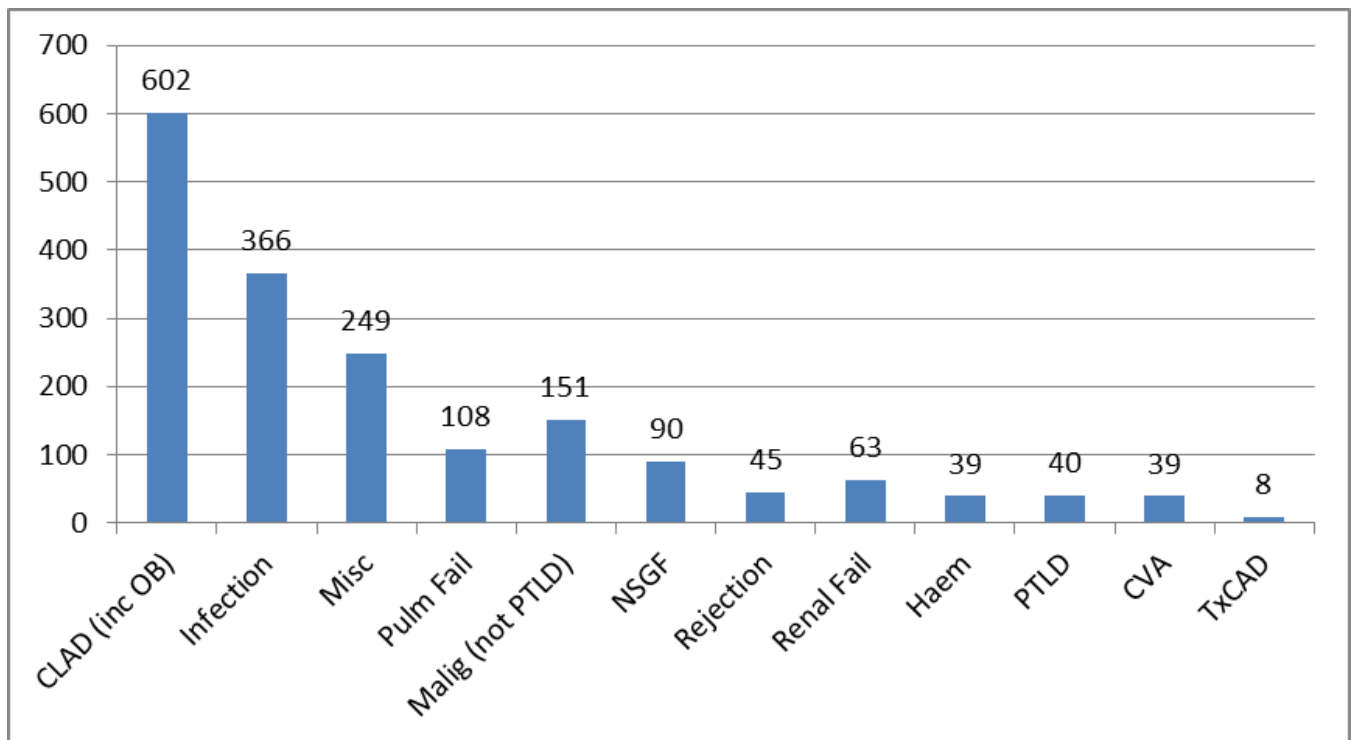
| Year | MM0-1 n= % | MM2 n= % | MM3 n= % | MM4 n= % | MM5 n= % | MM6 n= % |
|------|---------------|-------------|-------------|-------------|-------------|-------------|
| 0 | 35 100.0 | 103 100.0 | 320 100.0 | 698 100.0 | 1107 100.0 | 1247 100.0 |
| 1 | 30 88.4 | 83 84.2 | 274 89.8 | 581 87.5 | 934 87.9 | 1057 88.2 |
| 2 | 26 79.4 | 73 77.9 | 240 85.3 | 491 79.4 | 767 79.0 | 879 79.5 |
| 3 | 24 79.4 | 64 71.4 | 204 77.3 | 401 71.2 | 631 71.1 | 741 71.9 |
| 4 | 20 72.5 | 55 67.9 | 173 72.1 | 341 65.6 | 530 64.9 | 618 66.1 |
| 5 | 20 72.5 | 48 62.8 | 154 67.0 | 284 62.2 | 450 59.5 | 499 59.2 |
| 6 | 19 72.5 | 39 53.4 | 134 63.0 | 240 58.0 | 377 55.0 | 421 55.3 |
| 7 | 19 72.5 | 34 47.9 | 111 59.0 | 206 54.0 | 304 50.5 | 370 53.1 |
| 8 | 17 68.6 | 29 42.2 | 95 56.2 | 171 50.1 | 245 45.9 | 318 48.7 |
| 9 | 14 68.6 | 28 42.2 | 77 51.8 | 139 46.4 | 201 42.7 | 277 45.5 |
| 10 | 12 68.6 | 21 37.3 | 66 47.6 | 120 43.6 | 166 38.9 | 231 41.2 |
| 11 | 10 62.6 | 15 31.6 | 54 42.4 | 97 39.1 | 142 37.0 | 200 39.2 |
| 12 | 10 62.6 | 11 25.0 | 46 40.7 | 86 36.6 | 123 34.5 | 168 35.0 |
| 13 | 9 62.6 | 10 22.8 | 37 37.9 | 70 34.7 | 99 32.4 | 143 32.6 |
| 14 | 7 55.3 | 9 20.5 | 32 34.7 | 59 31.7 | 87 30.7 | 116 29.9 |
| 15 | 6 47.4 | 8 18.2 | 29 32.5 | 55 31.1 | 79 28.6 | 90 27.1 |
| 16 | 5 47.4 | 7 18.2 | 22 27.8 | 46 27.6 | 63 25.5 | 62 25.4 |
| 17 | 5 47.4 | 5 15.4 | 19 26.5 | 39 25.7 | 44 22.8 | 46 24.0 |
| 18 | 5 47.4 | 5 15.4 | 15 24.9 | 33 25.7 | 35 22.3 | 33 21.2 |
| 19 | 5 47.4 | 5 15.4 | 14 24.9 | 26 22.5 | 31 22.3 | 24 19.7 |
| 20 | 3 47.4 | 5 15.4 | 12 23.1 | 21 20.6 | 24 20.7 | 22 19.7 |
| 21 | 2 47.4 | 4 15.4 | 9 19.1 | 15 18.5 | 20 18.9 | 17 19.7 |
| 22 | 2 47.4 | 4 15.4 | 7 19.1 | 9 17.0 | 14 15.8 | 14 18.5 |
| 23 | 2 47.4 | 3 15.4 | 4 15.9 | 7 17.0 | 13 15.8 | 13 18.5 |
| 24 | 2 47.4 | 1 15.4 | 2 15.9 | 5 17.0 | 9 15.8 | 11 15.7 |
| 25 | 1 47.4 | 1 15.4 | 2 15.9 | 2 9.4 | 5 15.8 | 9 15.7 |
| 26 | 1 47.4 | 1 15.4 | 2 15.9 | 2 9.4 | 2 15.8 | 7 15.7 |
| 27 | 1 47.4 | 1 15.4 | | 1 9.4 | 2 15.8 | 5 15.7 |
| 28 | 1 47.4 | | | 1 9.4 | 2 15.8 | 2 8.7 |
| 29 | 1 47.4 | | | 1 9.4 | 2 15.8 | 2 8.7 |

CUTLER-EDERER SURVIVAL HLA DR LOCUS MISMATCH ALL LUNGS 1986 -2018



| Year | MM0 n= | % | MM1 n= | % | MM2 n= | % |
|------|-----------|-------|-----------|-------|-----------|-------|
| 0 | 177 | 100.0 | 934 | 100.0 | 2399 | 100.0 |
| 1 | 144 | 85.5 | 792 | 88.6 | 2016 | 88.0 |
| 2 | 126 | 79.4 | 676 | 81.3 | 1663 | 79.2 |
| 3 | 112 | 75.5 | 576 | 74.5 | 1375 | 70.7 |
| 4 | 93 | 70.5 | 481 | 68.3 | 1155 | 65.1 |
| 5 | 84 | 68.2 | 413 | 63.7 | 955 | 59.0 |
| 6 | 72 | 62.3 | 349 | 60.3 | 807 | 54.5 |
| 7 | 63 | 57.0 | 288 | 55.4 | 689 | 51.7 |
| 8 | 54 | 52.4 | 238 | 51.5 | 581 | 47.3 |
| 9 | 46 | 50.3 | 191 | 47.8 | 497 | 44.2 |
| 10 | 38 | 48.0 | 164 | 43.7 | 413 | 40.4 |
| 11 | 36 | 46.7 | 131 | 40.0 | 350 | 37.5 |
| 12 | 31 | 44.0 | 112 | 37.5 | 299 | 34.1 |
| 13 | 27 | 42.5 | 90 | 35.6 | 251 | 31.7 |
| 14 | 20 | 34.3 | 75 | 32.3 | 215 | 29.9 |
| 15 | 18 | 32.6 | 67 | 29.7 | 180 | 27.8 |
| 16 | 14 | 28.7 | 52 | 26.4 | 137 | 25.5 |
| 17 | 12 | 26.6 | 39 | 23.7 | 104 | 23.8 |
| 18 | 11 | 26.6 | 33 | 23.0 | 82 | 22.3 |
| 19 | 11 | 26.6 | 28 | 20.9 | 65 | 21.4 |
| 20 | 9 | 26.6 | 20 | 19.2 | 58 | 20.4 |
| 21 | 7 | 26.6 | 15 | 17.1 | 44 | 18.9 |
| 22 | 7 | 26.6 | 11 | 15.9 | 31 | 17.0 |
| 23 | 6 | 26.6 | 9 | 15.9 | 27 | 16.4 |
| 24 | 4 | 26.6 | 7 | 15.9 | 19 | 15.0 |
| 25 | 4 | 26.6 | 1 | 12.3 | 15 | 14.2 |
| 26 | 2 | 26.6 | 1 | 12.3 | 10 | 14.2 |
| 27 | 1 | 26.6 | 1 | 12.3 | 7 | 14.2 |
| 28 | 1 | 26.6 | | | 3 | 9.4 |
| 29 | 1 | 26.6 | | | 3 | 9.4 |

CAUSE OF DEATH ALL LUNGS 1986 – 2018 n=1800



| | | |
|--|-------------|--------------|
| CLAD (including Bronchiolitis Obliterans) | 602 | 33.4% |
| Infection | 366 | 20.3% |
| OTHER (incl unspec) | 249 | 13.8% |
| Other Malignancy | 151 | 8.4% |
| Pulmonary Failure | 108 | 6.0% |
| NSGF | 90 | 5.0% |
| Renal Failure | 63 | 3.5% |
| Acute Rejection | 45 | 2.5% |
| Hemorrhage | 39 | 2.2% |
| CVA | 39 | 2.2% |
| PTLD | 40 | 2.2% |
| TxCAD | 8 | 0.4% |
| Totals | 1800 | 100% |
| Multi-organ Failure | 44 | |
| Cardiac Arrest (26) Heart Failure(7) IHD(4) | 37 | |
| Post Surgical Complications | 24 | |
| Sudden Death (cause unknown) | 21 | |
| Liver Failure(11) Cirrhosis(1) | 12 | |
| Suicide(6) Non compliance(4) Withdrawal of treatment(2) Inanition(1) | 10 | |
| 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) | 29 | |

CAUSE OF DEATH ALL LUNGS < 5 YEARS POST TX 1986 - 2018

| | No | % |
|--|------|-------|
| CLAD (includes Bronchiolitis Obliterans) | 362 | 31.2 |
| Infection | 270 | 23.2 |
| Misc | 146 | 12.6 |
| Pulmonary Failure | 83 | 7.1 |
| Non specific Graft Failure | 72 | 6.2 |
| Non Lymphoid Malignancy | 56 | 4.8 |
| Hemorrhage | 39 | 3.4 |
| CVA | 34 | 2.9 |
| Rejection | 32 | 2.8 |
| PTLD | 27 | 2.3 |
| Renal Failure | 23 | 2.0 |
| No Data | 13 | 1.1 |
| Graft Atherosclerosis (TxCAD) | 5 | 0.4 |
| Totals | 1162 | 100.0 |

CAUSE OF DEATH ALL LUNGS ≥ 5 YEARS POST TX 1986 - 2018

| | No | % |
|--|-----|-------|
| CLAD (includes Bronchiolitis Obliterans) | 240 | 37.6 |
| Infection | 96 | 15.0 |
| Non Lymphoid Malignancy | 95 | 14.9 |
| Misc | 75 | 11.8 |
| Pulmonary Failure | 36 | 5.6 |
| Renal Failure | 40 | 6.3 |
| No Data | 16 | 2.5 |
| PTLD | 12 | 1.9 |
| Hemorrhage | 7 | 1.1 |
| NonSpecific Graft Failure | 7 | 1.1 |
| Rejection | 6 | 0.9 |
| CVA | 5 | 0.8 |
| Graft Atherosclerosis (TxCAD) | 3 | 0.5 |
| Totals | 638 | 100.0 |