

# **Access to Heart and Lung Transplantation for Minority Populations**

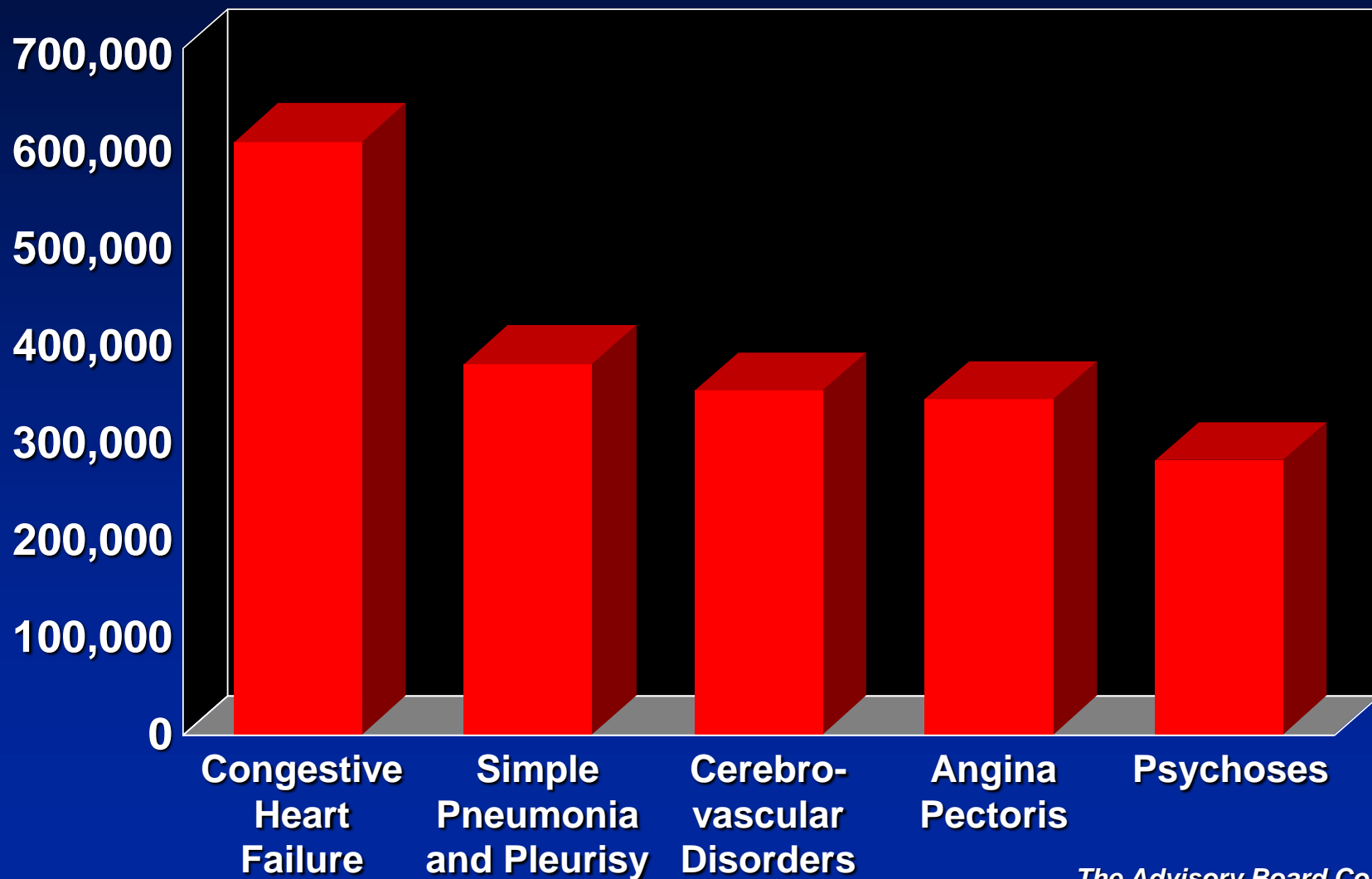
**Cedric Sheffield, MD**

# **End Stage Heart Failure**

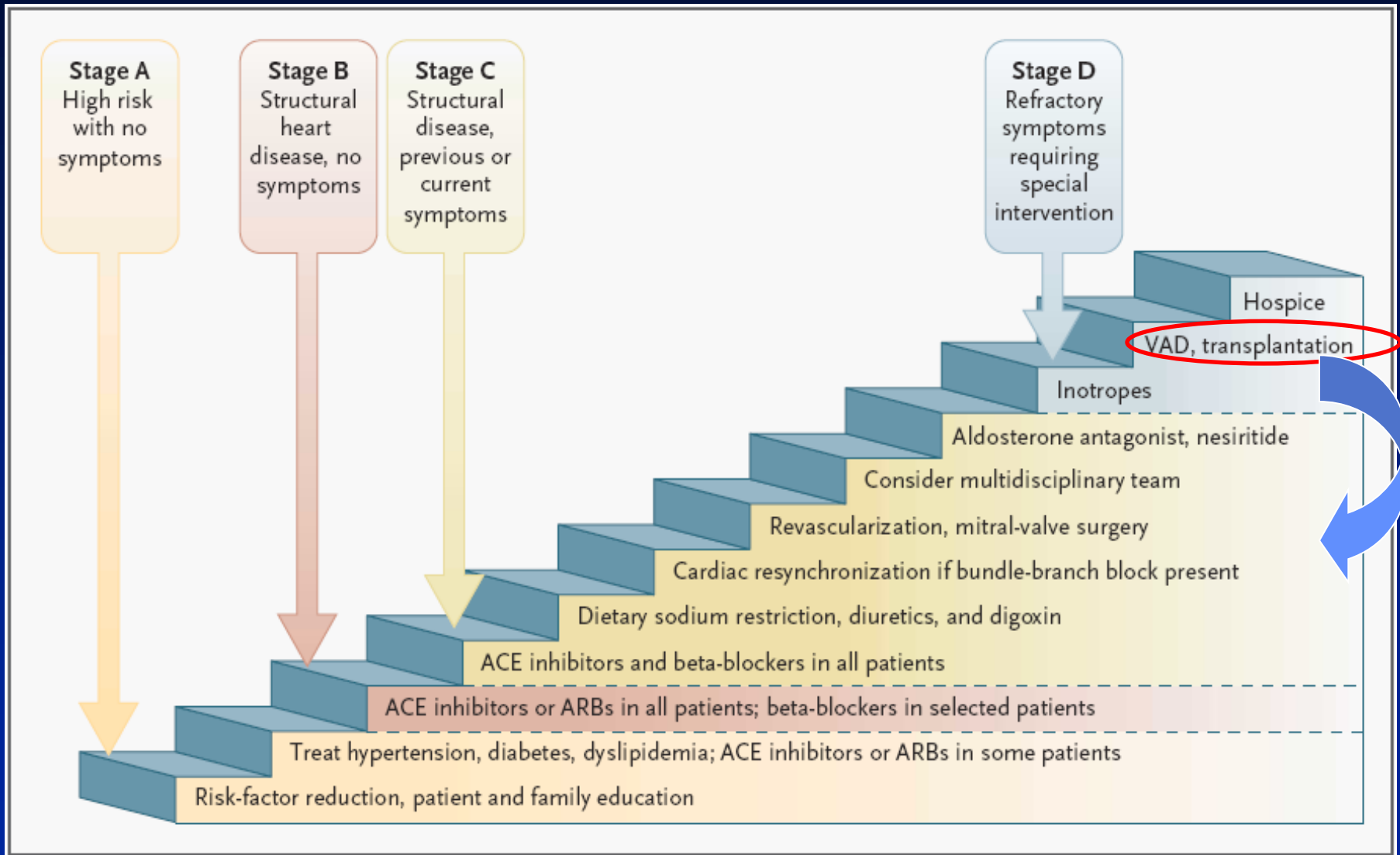
**Magnitude of the Problem**

# CHF is America's Highest - Volume

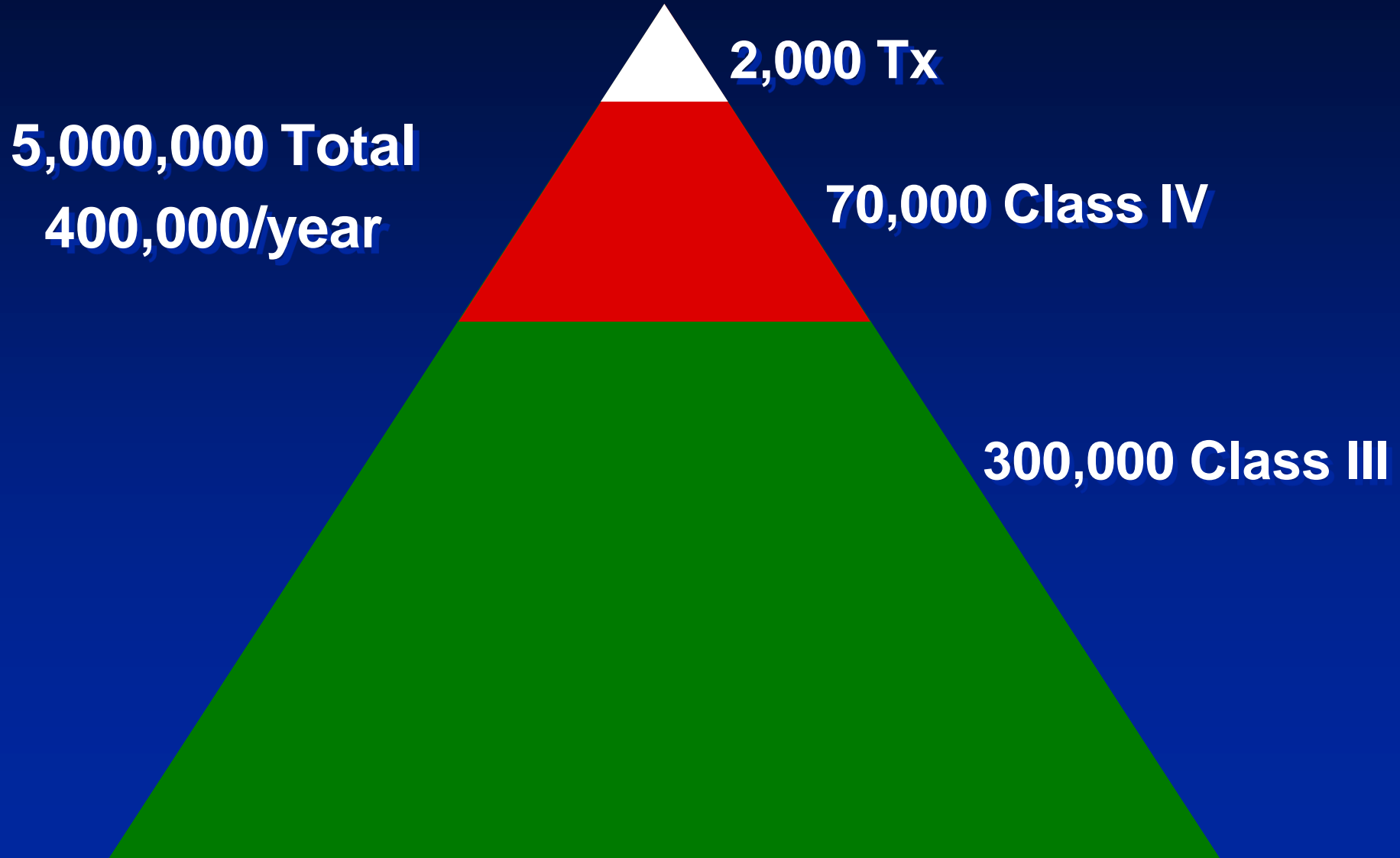
## DRG *Annual In-patient Volume*



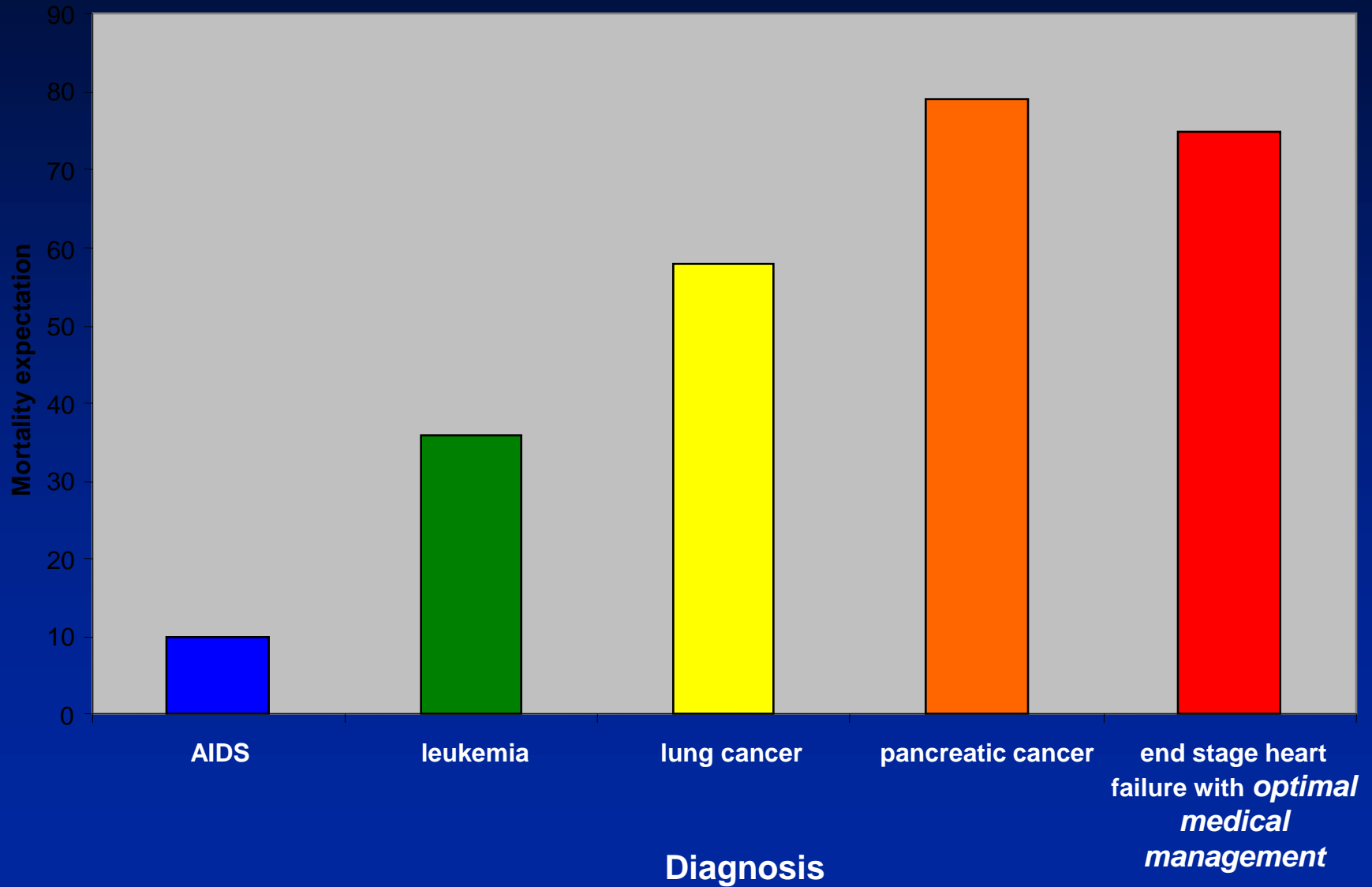
# Where Do We Need To Be?



# CHF - USA

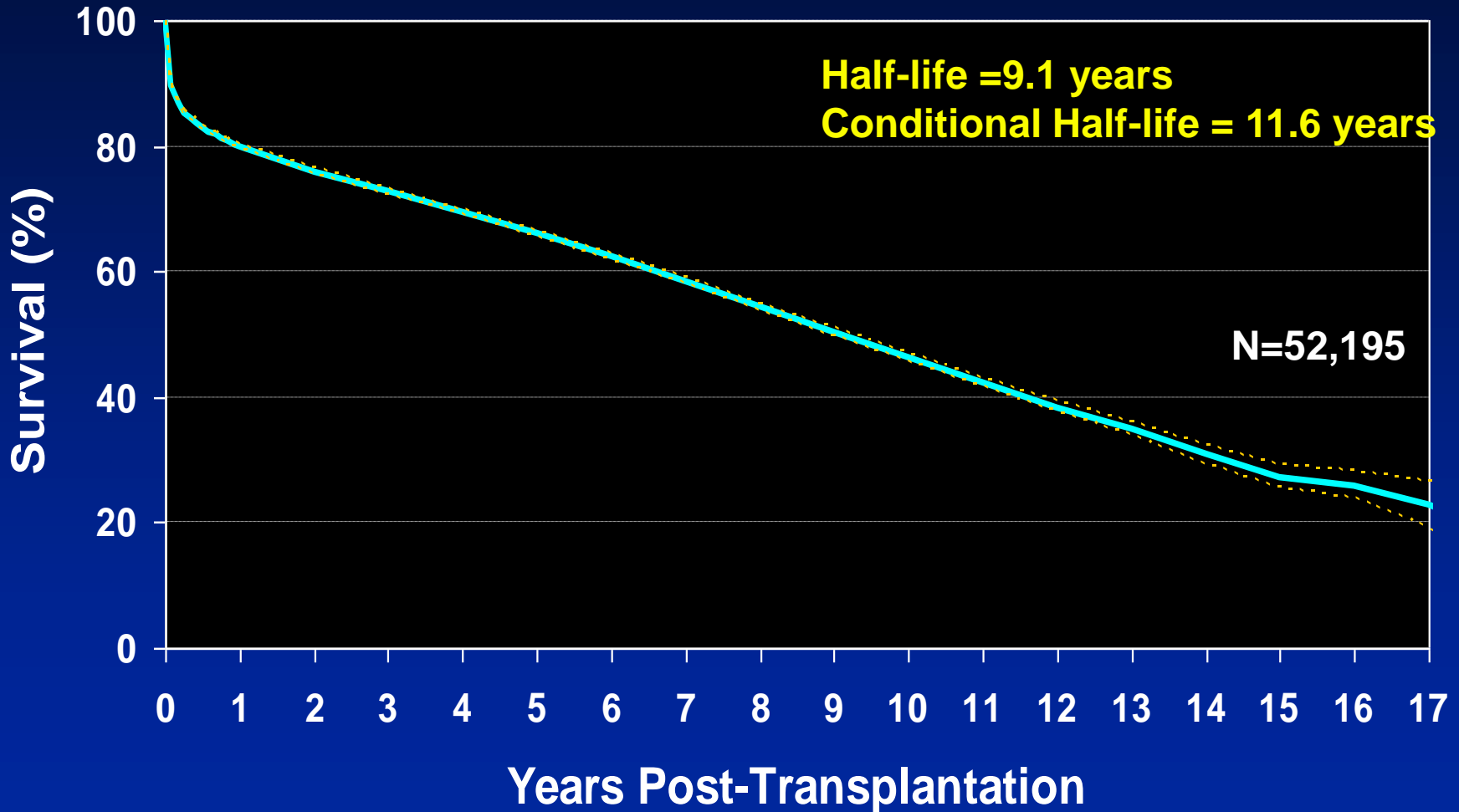


# Mortality at One Year

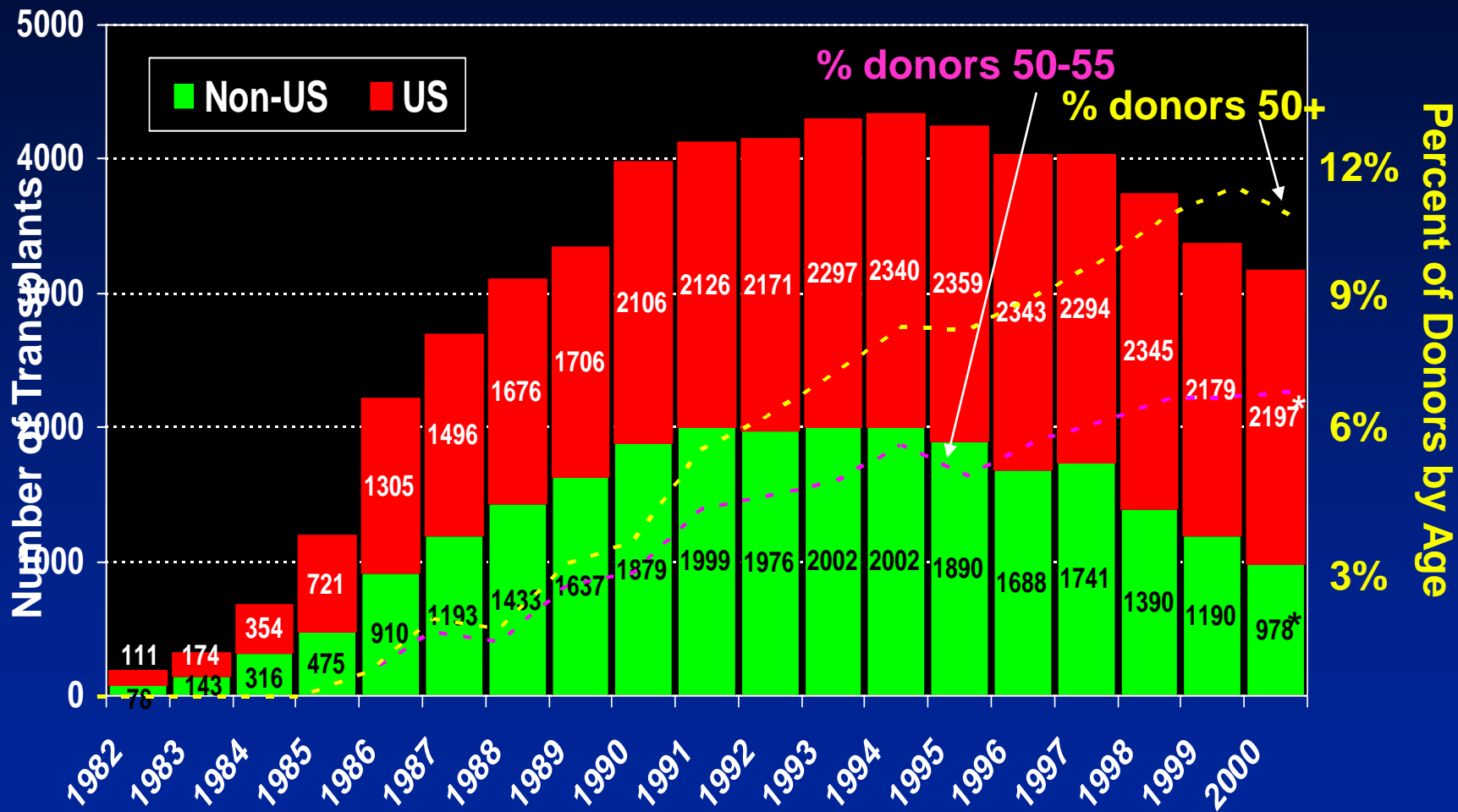


# HEART TRANSPLANTATION

## ACTUARIAL SURVIVAL (1982-2000)



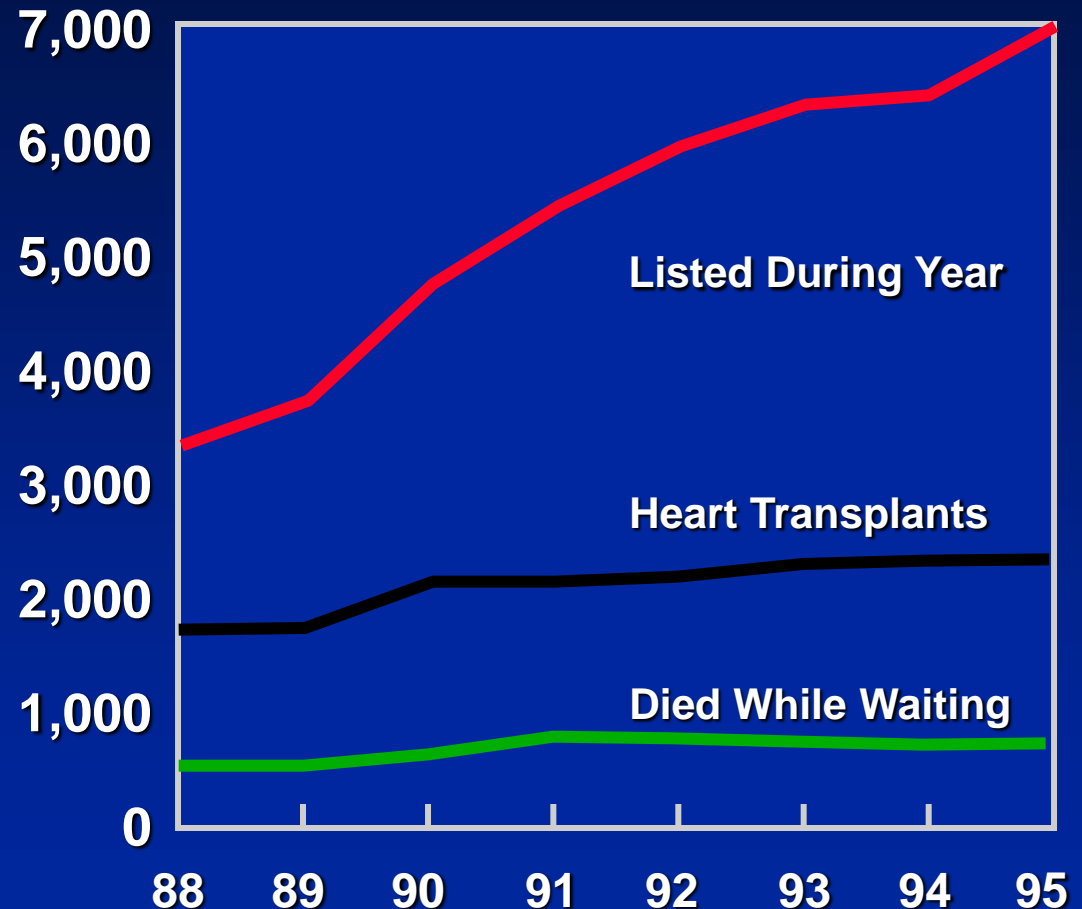
# HEART TRANSPLANTATION



\* Numbers may be low due to incomplete reporting

# Heart Transplants in the US

- Heart transplants have plateaued
- Number of candidates listed continues to increase



Source: UNOS 1996 Annual Report

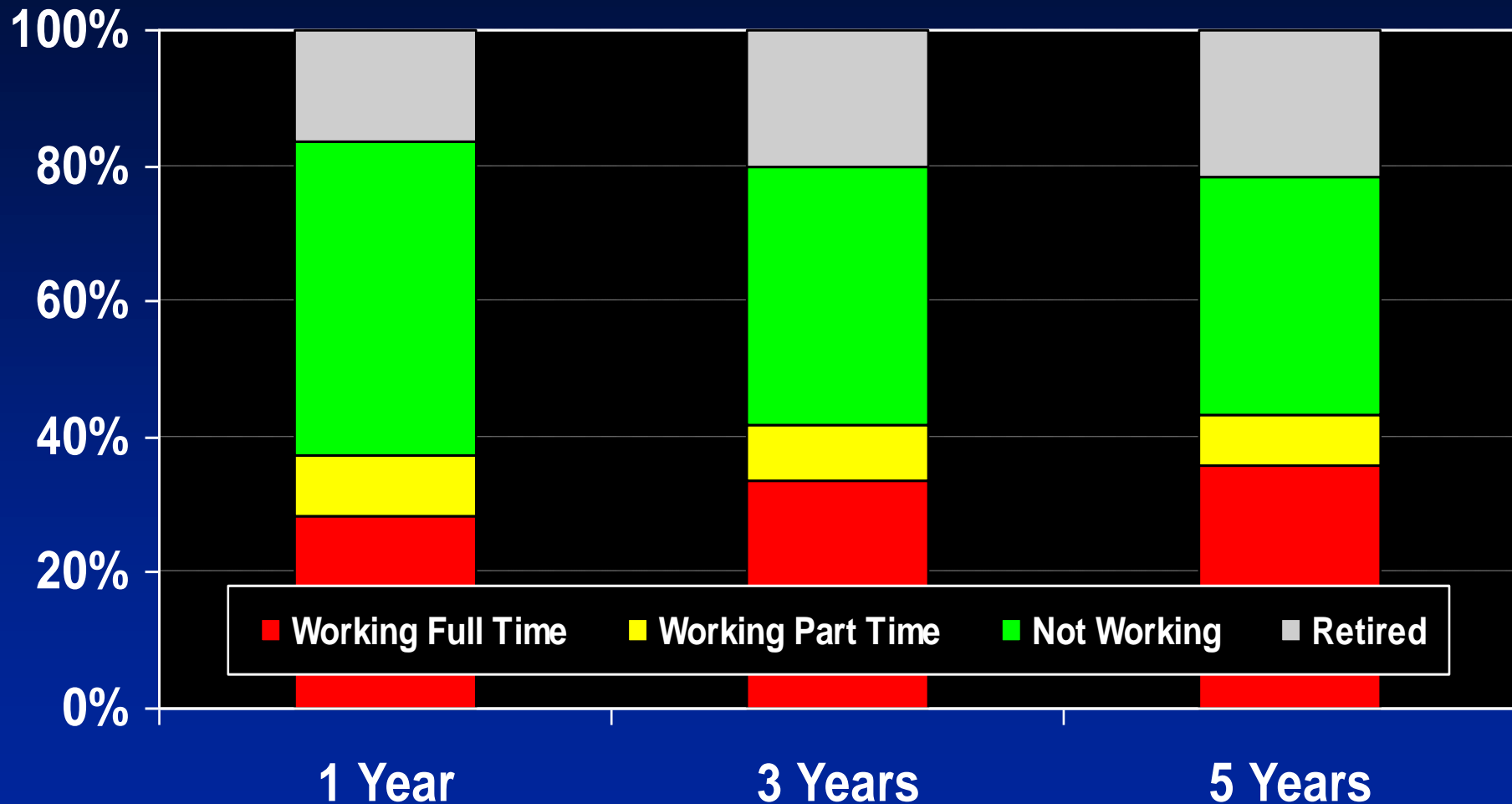
# FUNCTIONAL STATUS

Heart (April 1994-Dec. 2000)



# EMPLOYMENT STATUS

Heart (US Data: April 1994-Dec. 2000)



# Indications for Transplant

Organ	1 <sup>st</sup> Diagnosis (%)	2 <sup>nd</sup> Diagnosis (%)	3 <sup>rd</sup> Diagnosis (%)
Heart	Dilated Myopathy Idiopathic (32%)	Dilated Myopathy Ischemic (32%)	Congenital Defect (7%)
Lung (Single and Double)	COPD/Emphysema (30%)	Pulmonary Fibrosis (28%)	Cystic Fibrosis (16%)
Heart-Lung	Pulmonary Hypertension (29%)	Congenital Defect (13%)	Eisenmenger's Syndrome (10%)

- **Transplant Trends**
- **Waiting list candidates as of today** **112,173**
- **Active waiting list candidates as of today** **72,480**
- **Transplants January - June 2011** **13,969**
- **Donors January - June 2011** **6,924**

# Organ Transplants Performed

Year	Kidney	Liver	Heart	Lung-Single	Lung-Double	Pancreas	Intestine
2004	15,676	5781	1958	597	569	547	52
2005	16,075	6003	2061	718	684	465	68
2006	16,640	6139	2147	718	684	380	61
2007	17,108	6374	2207	760	714	391	66
2008	17,588	6617	2269	804	766	402	72

# Recipient Demographics

Organ	Kidney	Liver	Heart	Lung	Pancreas	Intestine
White	55%	70%	68%	84%	88%	69%
Black	24	11	19	9	7	14
Hispanic	14	14	9	5	4	13
Asian	5	4	3	1	0	3
Other	2	1	1	1	1	3

# Organ Surgival by Ethnicity

Organ	White	Black	Hispanic	Asian	Other	Unknown
Heart	92.8%	89.1%	76.6%	56.9%		
White	92.2	83.7	63.5	41.0		
Black	92.2	83.7	63.5	41.0		
Hispanic	94.3	89.9	73.1	58.4		
Asian	97.1	91.2	73.2	60.6		
Other	93.5	75.8	70.6	57.7		
Unknown						33.6

# Organ Surgival by Ethnicity

## Lungs

White	92.2%	82.4%	50.6%	24.8%
Black	90.2	81.5	54.8	23.4
Hispanic	87.5	79.0	48.5	29.7
Asian	93.2	76.3	58.0	21.7
Other	100.0	94.3	55.6	33.6

# Waiting Times by Ethnicity (Days)

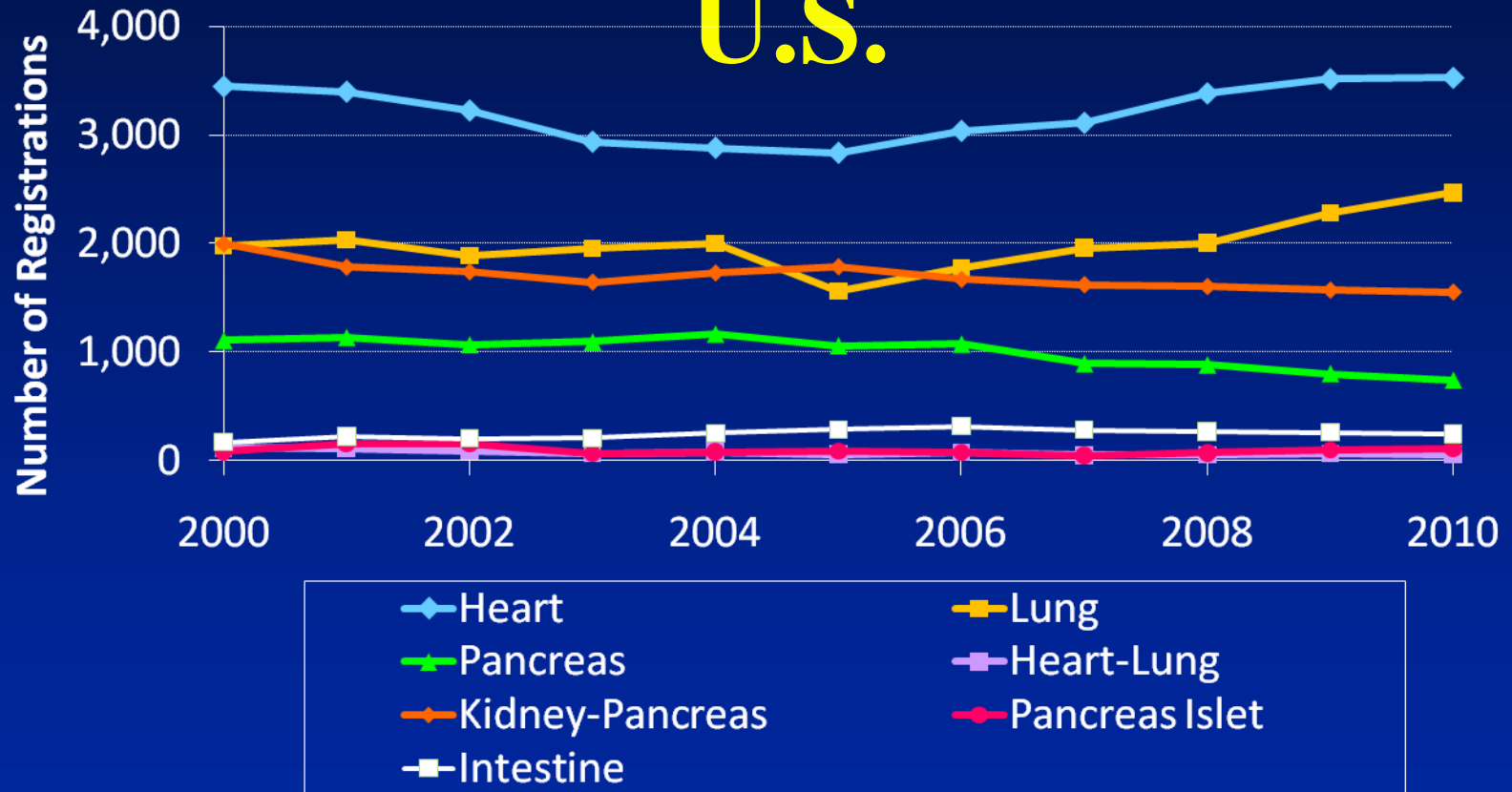
	Heart	Lung
White	152	580
Black	132	755
Hispanic	106	1093
Asian	86	784
Native American	168	1096

# **Waiting List National Trends**

- **General “flattening” to growth of waiting list since 2007 – most significant for kidney**
- **Most relative growth in lung waiting list**
- **More heart waiting list additions in 2010 than in any previous year**

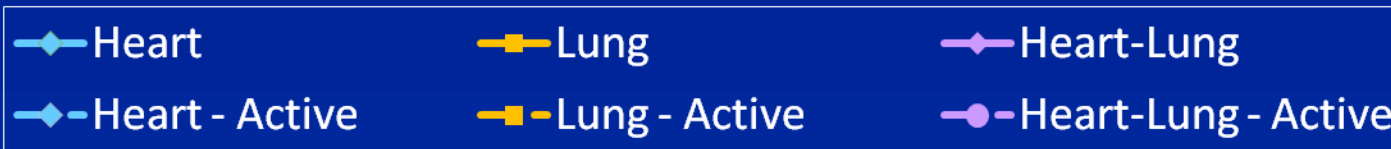
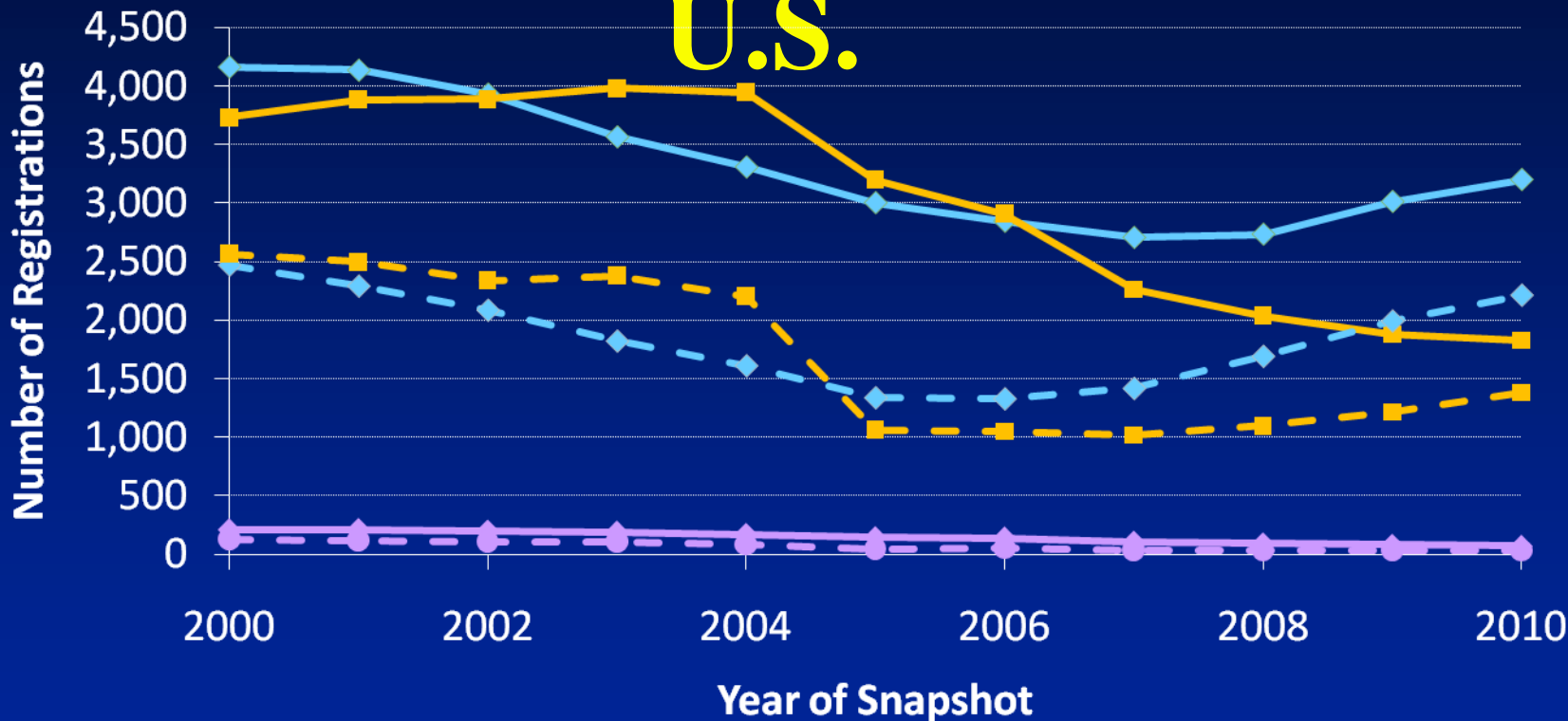
# Waiting List Additions 2000-2010

## U.S.



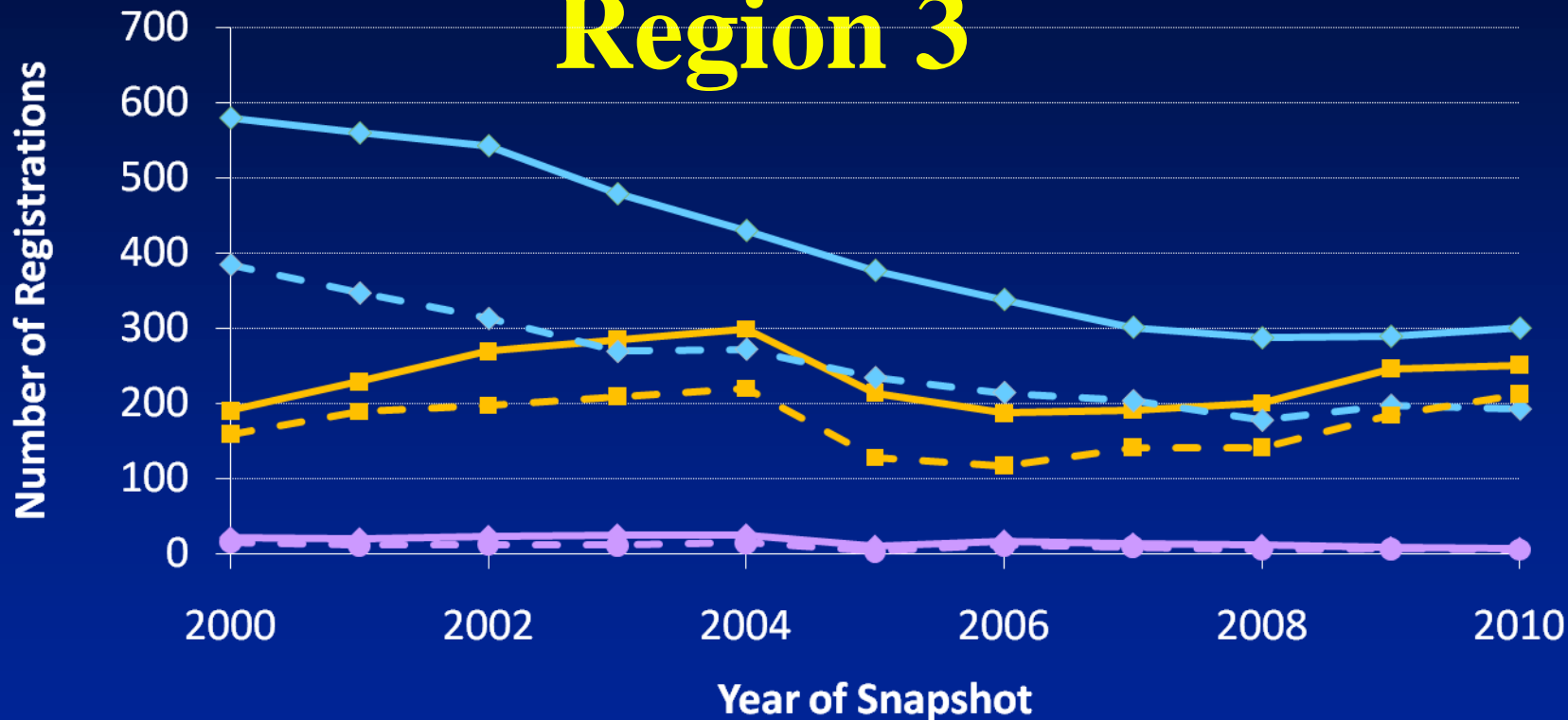
# Waiting List Registrations 2000-2010

U.S.

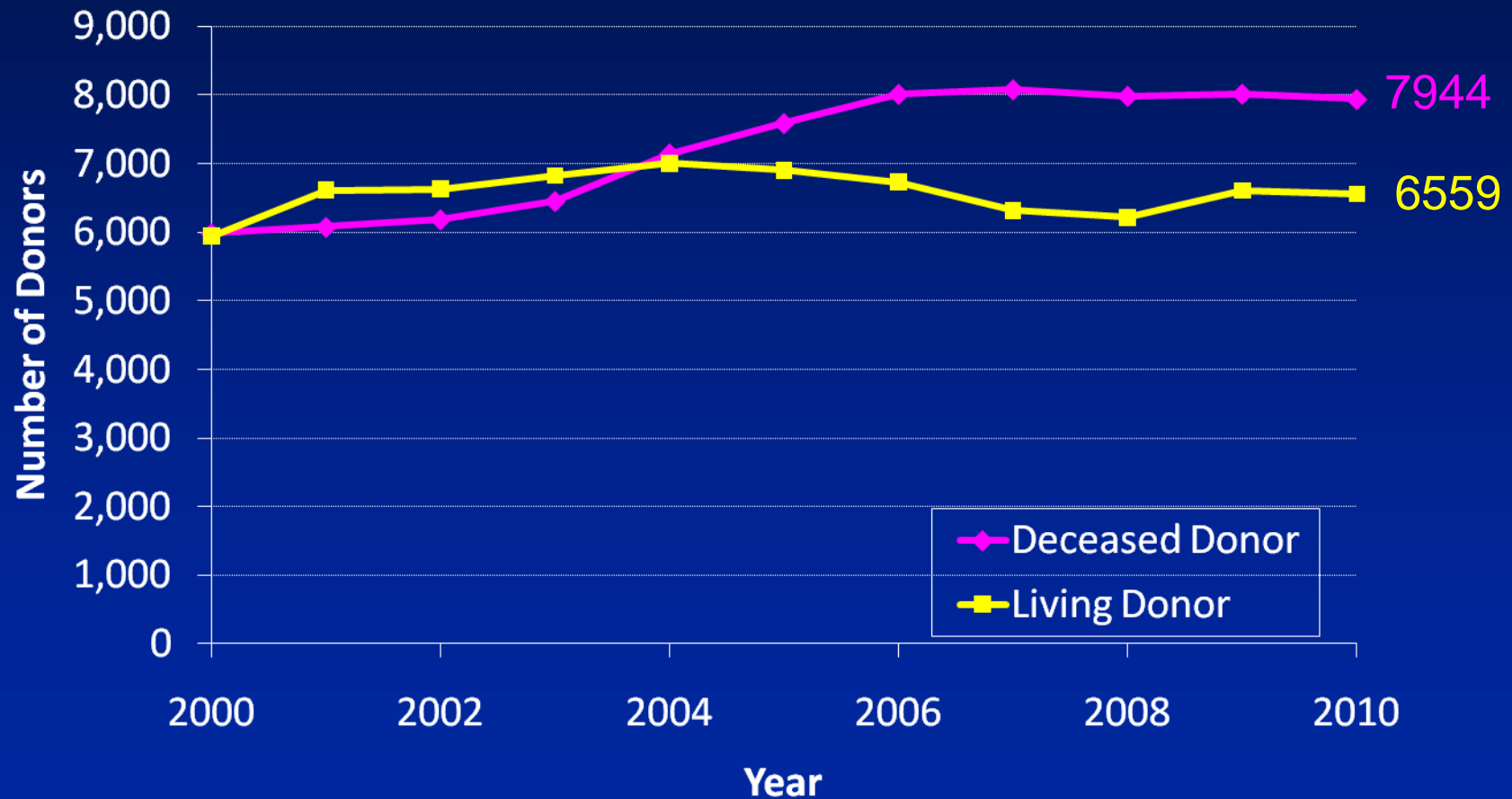


# Waiting List Registrations 2000-2010

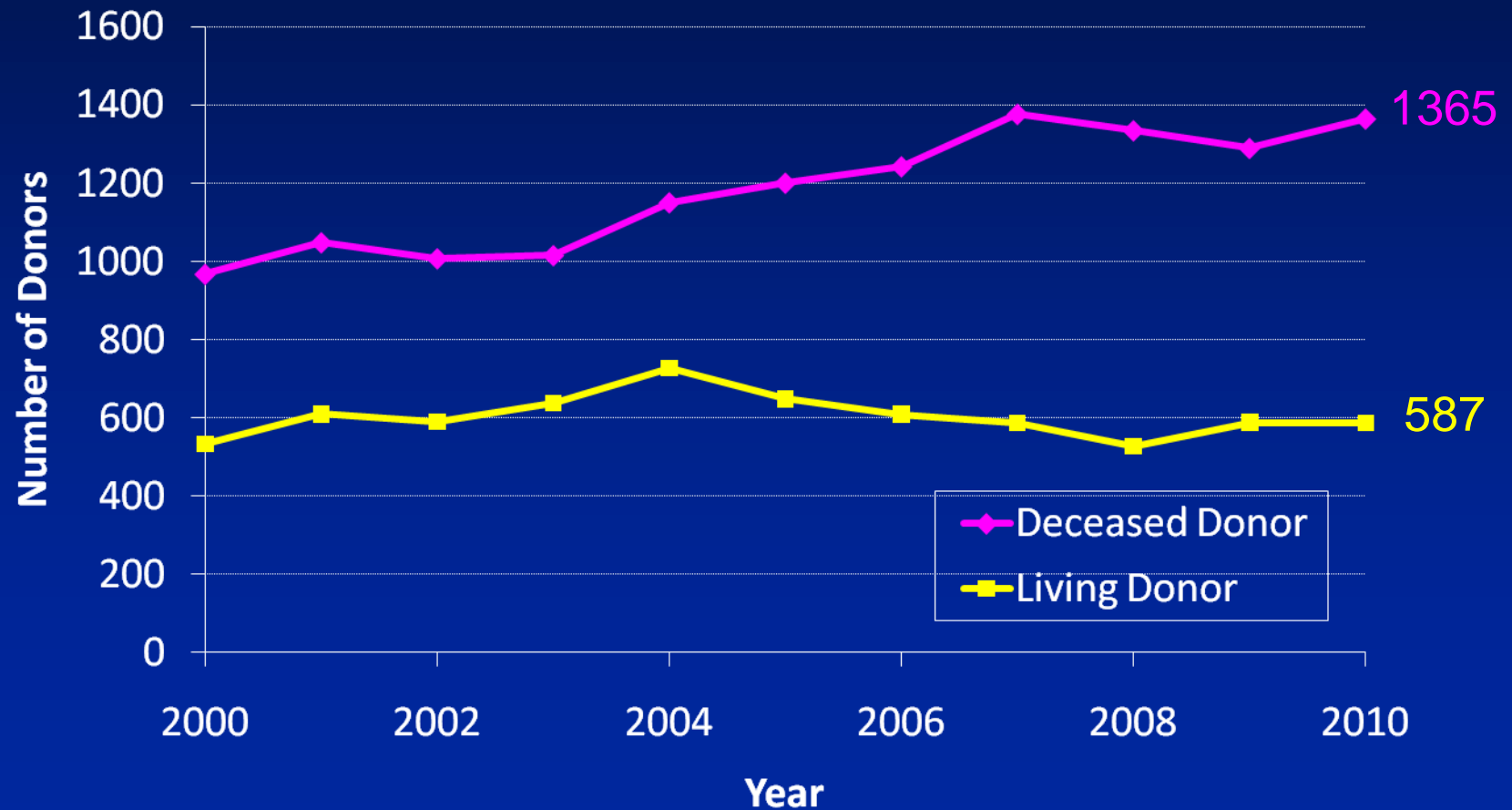
## Region 3



# Deceased and Living Donors 2000-2010 U.S.



# Deceased and Living Donors 2000-2010 Region 3

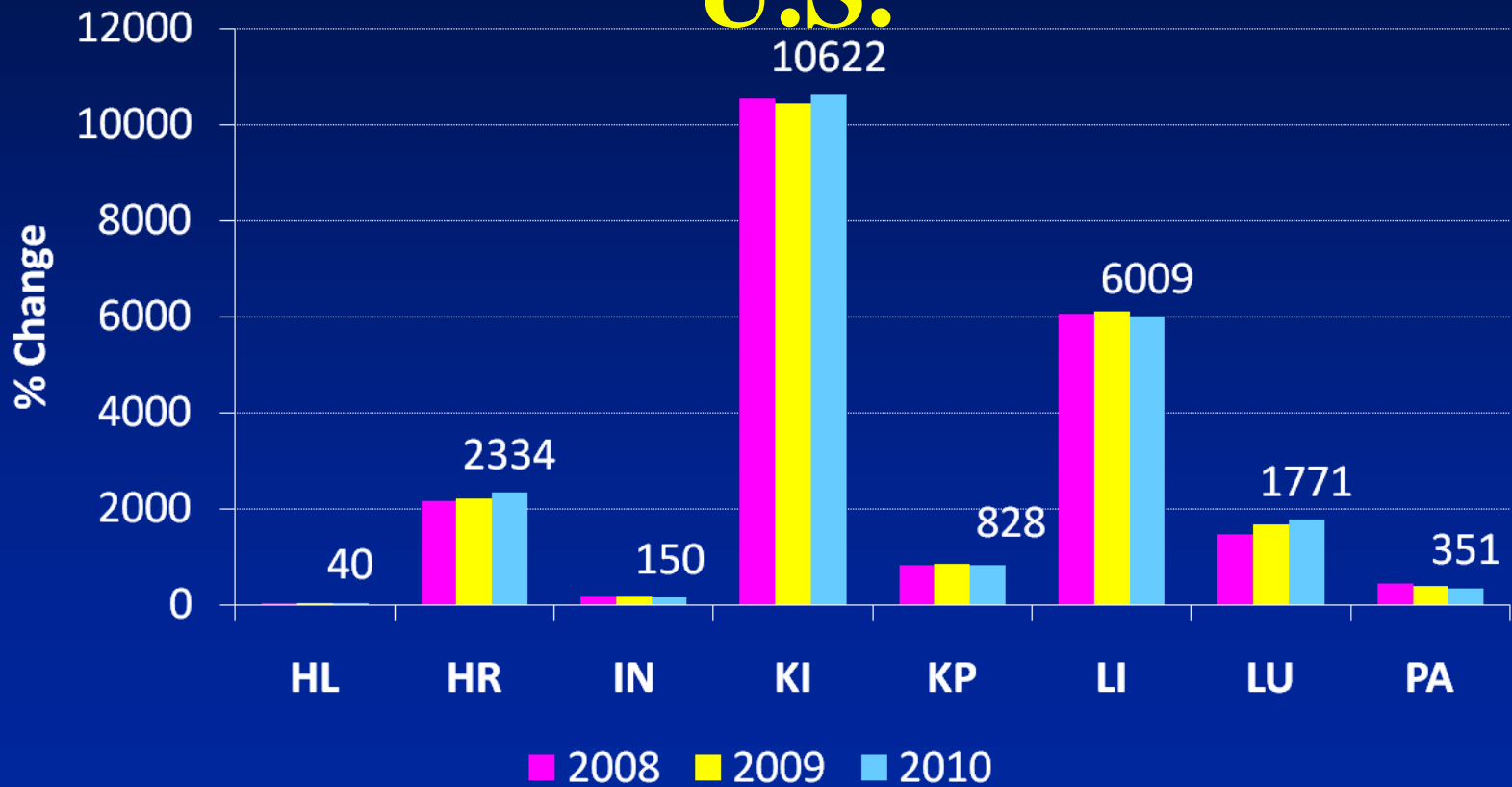


# Deceased Donation 2009 – 2010

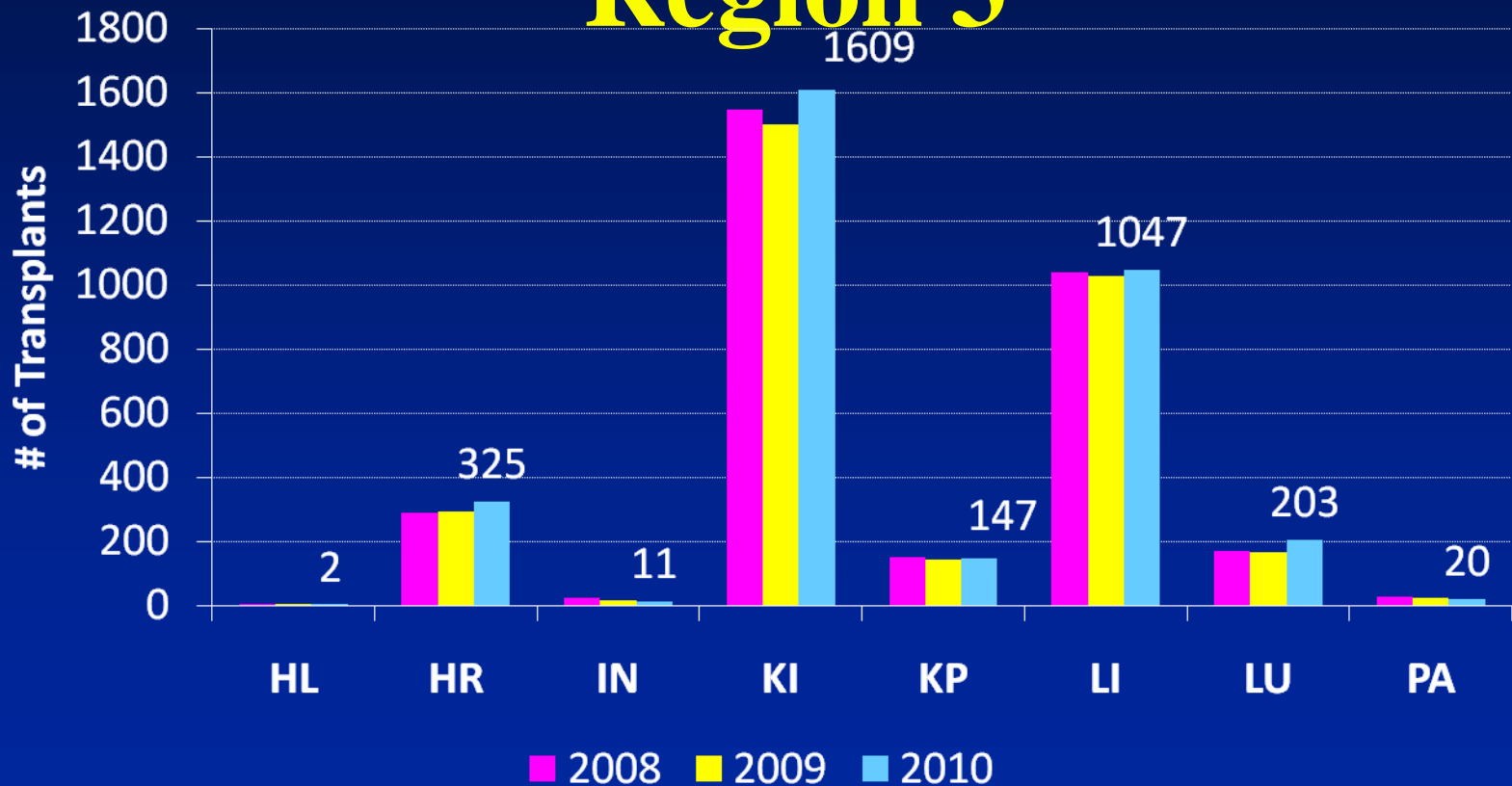
	Donors Recovered	Organs Recovered	Organs Transplanted	OTPD
2009	1290	4447	3865	2.99
2010	1365	4755	4176	3.06
% Change	<b>5.8%</b>	<b>6.9%</b>	<b>8.0%</b>	<b>2.1%</b>

# Deceased Donor Transplants 2008-2010

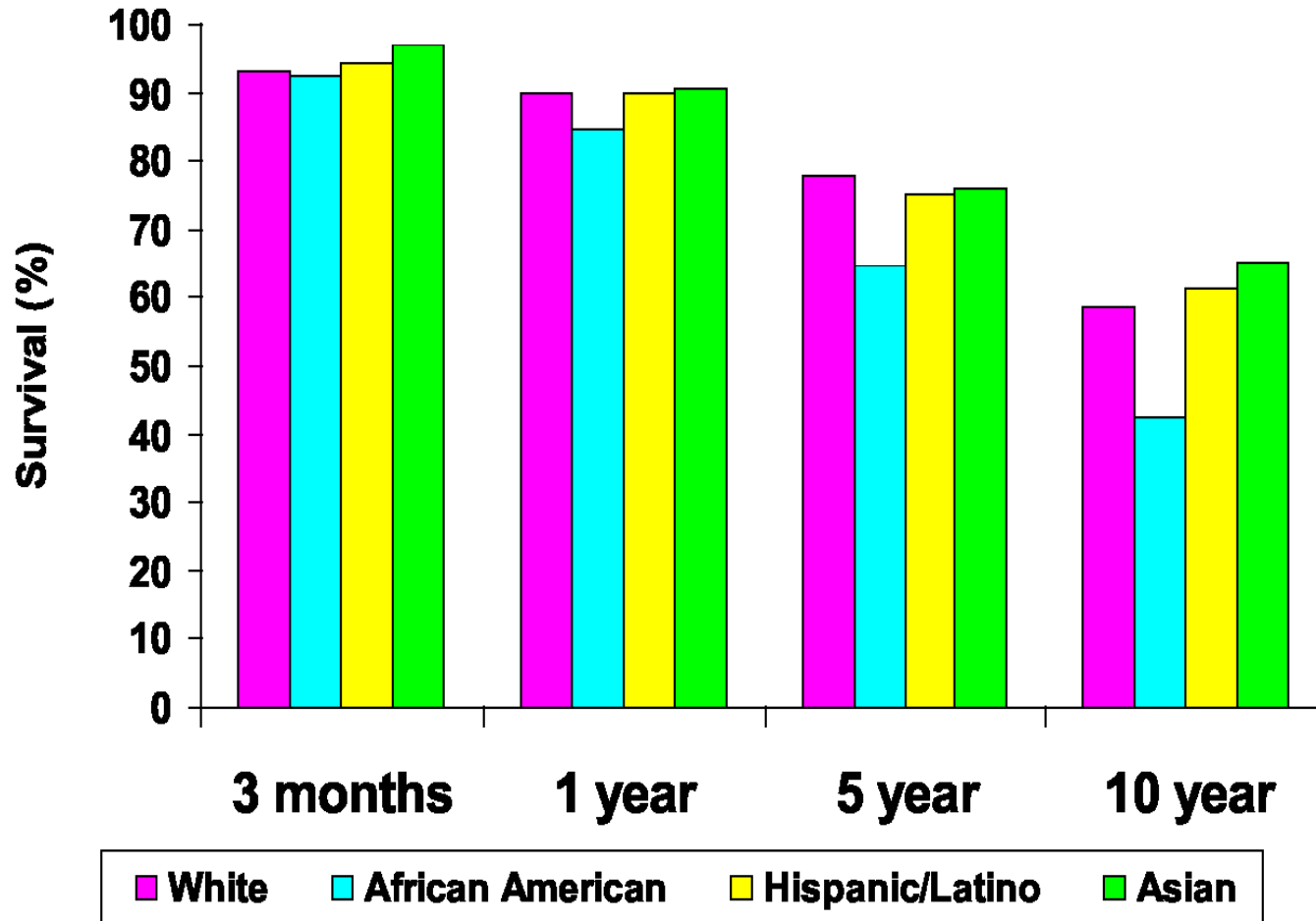
U.S.



# Deceased Donor Transplants 2008-2010 Region 3

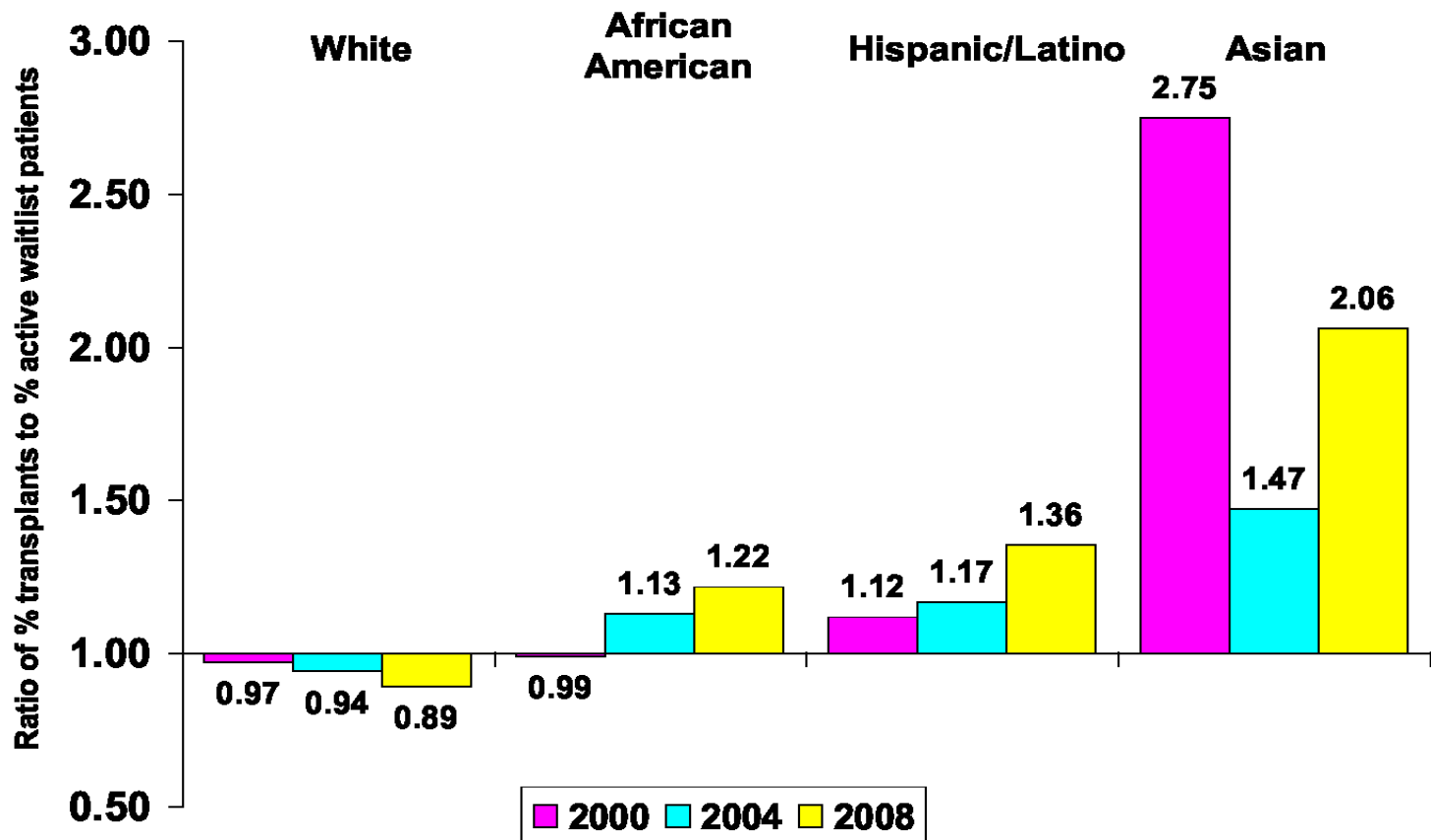


**Figure X-7. Adjusted Heart Patient Survival by Race/Ethnicity**



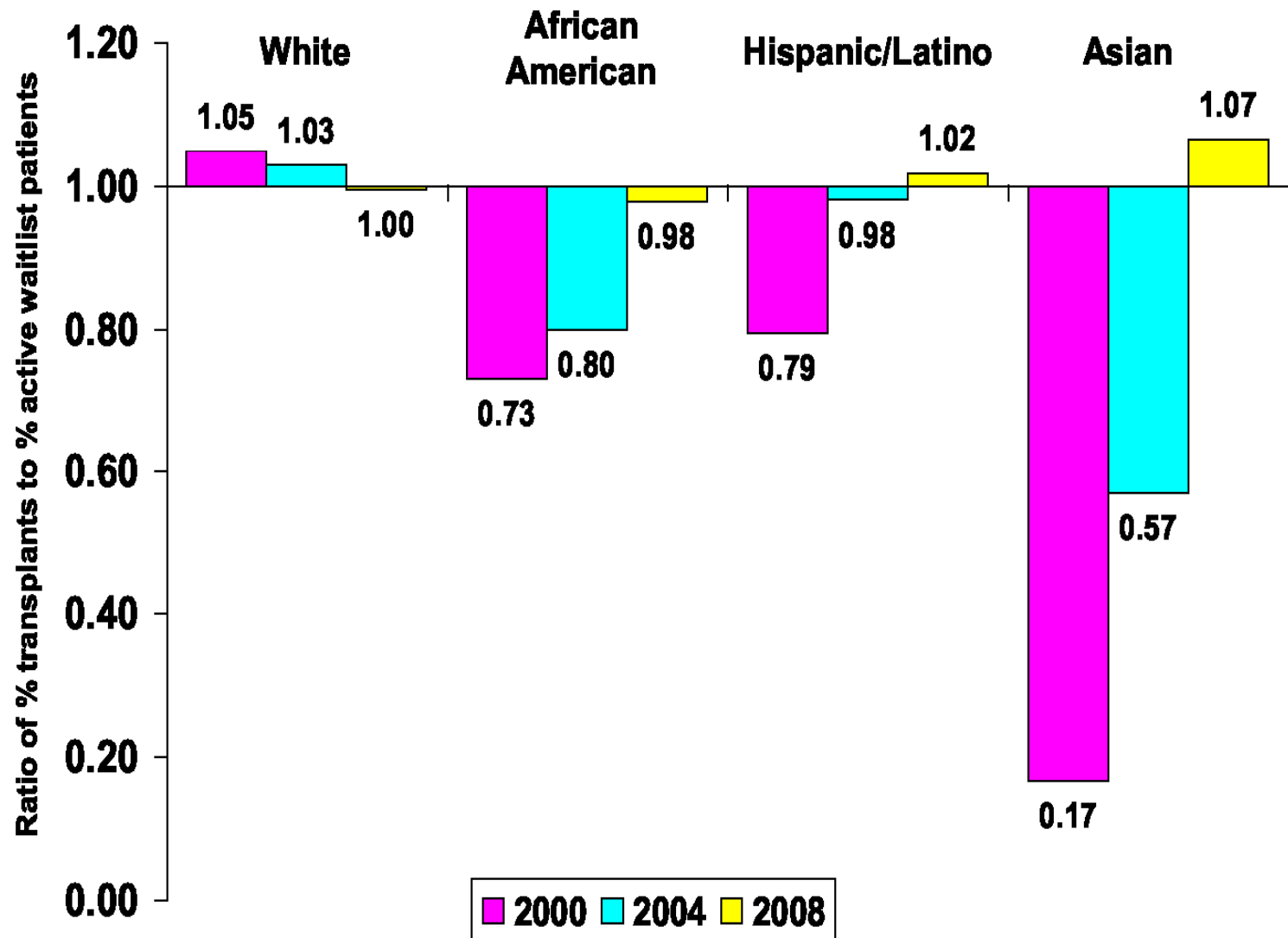
\*Transplants 2006-2007 used to calculate 1 year survival, 2002-2007 for 5 year survival, and 1997-2007 for 10 year survival.

**Figure X-6. Ratio of Percent of Heart Transplants and Percent on Active Waiting List at End of Prior Year, 2000-2008**



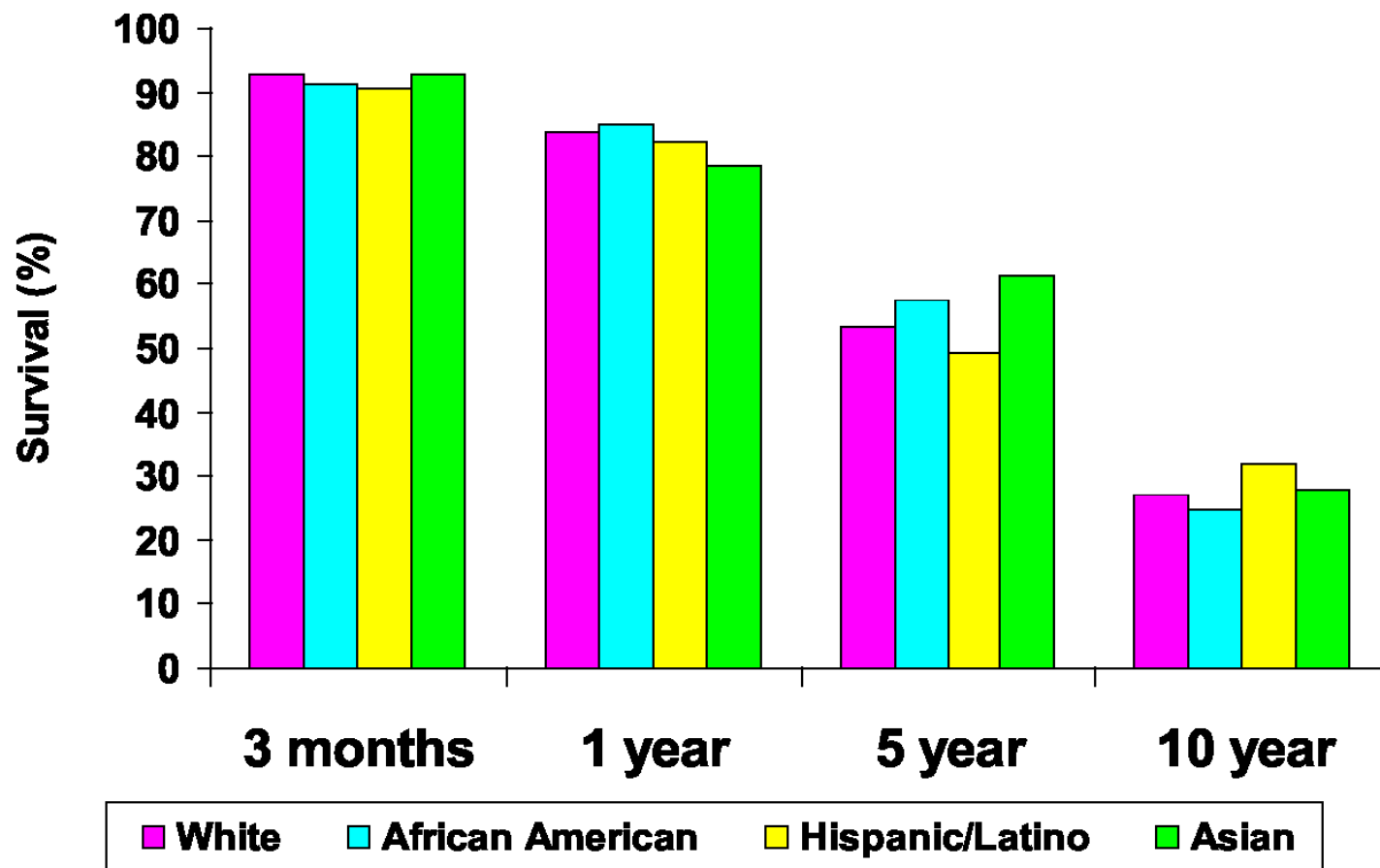
Source: OPTN/SRTR Special Analysis, September 2009; data as of May 2009

**Figure X-8. Ratio of Percent of Lung Transplants and Percent on Active Waiting List at End of Prior Year, 2000-2008**



Source: OPTN/SRTR Special Analysis, September 2009; data as of May 2009

### Figure X-9. Adjusted Deceased Donor Lung Patient Survival by Race/Ethnicity



\*Transplants 2006-2007 used to calculate 1 year survival, 2002-2007 for 5 year survival, and 1997-2007 for 10 year survival.

# Recipient Criteria

- Age 15 to 69 years
- Class IV CHF
- Class III CHF with limited life expectancy
- Intractable angina
- Recurrent ventricular tachycardia refractory to

# **Significant systemic disease**

- **Diabetes mellitus > mild end organ damage**
- **Malignancy < 80% 5 year survival**
- **Amyloidosis with liver involvement**
- **Active infection**
- **Recent pulmonary infarction**
- **Active peptic ulcer disease**
- **Significant peripheral vascular disease**
- **COPD Severe**

# **Significant systemic disease**

- **Smoking**
- **Noncompliance**
- **Inadequate Social support**
- **Inadequate Financial support**

# Transplant Cost

	Pre	Procurement	Hospital	Physician	Post	Meds	Total
Kidney	16,700	67,500	92,700	17,500	47,400	17,200	259,000
Heart	34,200	94,300	486,400	50,800	99,700	22,300	787,700
Single Lung	7,500	53,600	256,600	27,900	84,300	20,500	450,400
Double Lung	20,700	96,500	344,700	59,300	113,800	22,800	657,800

2008 US Organ and tissue transplant cost estimates

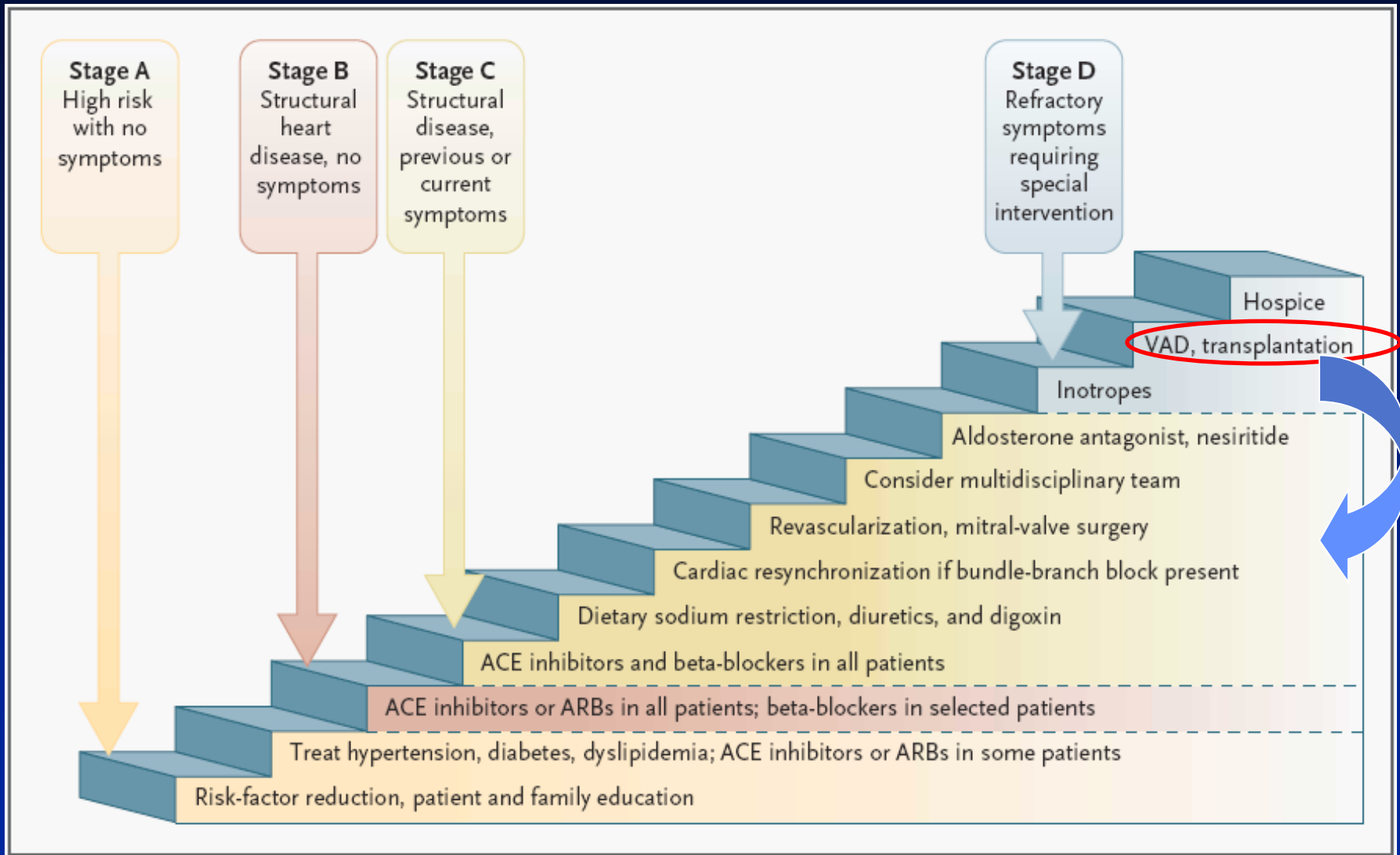
# Case Studies

**Organ based or recipient based  
outcomes**

# Case Studies

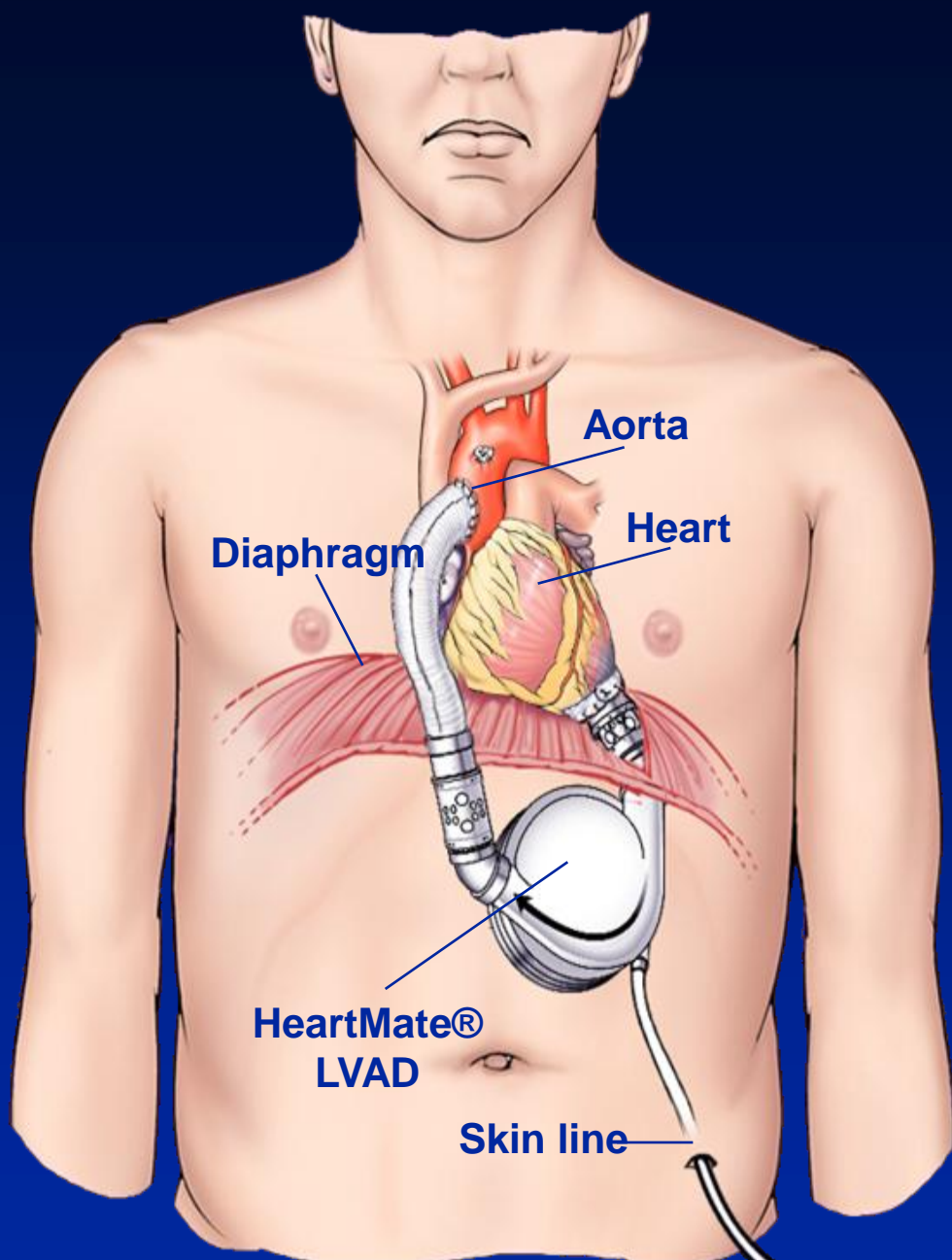
- **Pretransplant center barriers**

# Where Do We Need To Be?



# Case Studies

**Financial barriers age based**



Aorta

Heart

Diaphragm

HeartMate®  
LVAD

Skin line

To drive console

# Conclusions

**Greatest transplant benefit would incorporate eliminating barriers to transplant, improving access to donor organs, and improving posttransplant outcomes**

**Improved access to transplantation will have to involve increased organ donation.**

**Barriers to transplantation will likely act also as obstacles to improved organ donation.**

**Perhaps it time to discuss presumed donation consent.**

**Trust in the health care system would have to strengthened for presumed organ donation to work.**

**Continued open minded data collection and analysis with interpretation and input by all affected groups is essential and necessary to avoid unintended consequences of good intentions.**