Special Topics in HIV Mortality and Survival

Craig Boge

April 29, 2015

Topics Covered

- Sources of Death Information
- Causes of Death Among HIV/AIDS Cases
- Survival After HIV/AIDS Diagnosis
- Years of Potential Life Lost

Sources of Death Information

- 51,539 deaths reported in enhanced HIV/AIDS Reporting System (eHARS)
- Individual records
  - Adult & Pediatric Case Report Forms
  - Death Report Forms
- Matching databases
  - Social Security Death Index (SSDI)
  - Texas Vital Statistics
  - National Death Index (NDI)

Matching to Death Databases

- SSDI & Vital Statistics matched using in-house matching program
  - Selects all combinations of name, DOB, SSN on file
  - User must make determination on “close” matches
- NDI match conducted by National Center for Health Statistics
  - Only receive results of match
  - CDC provides code to select “true” matches, prepare selected matches for import

Causes of Death Among HIV/AIDS Cases

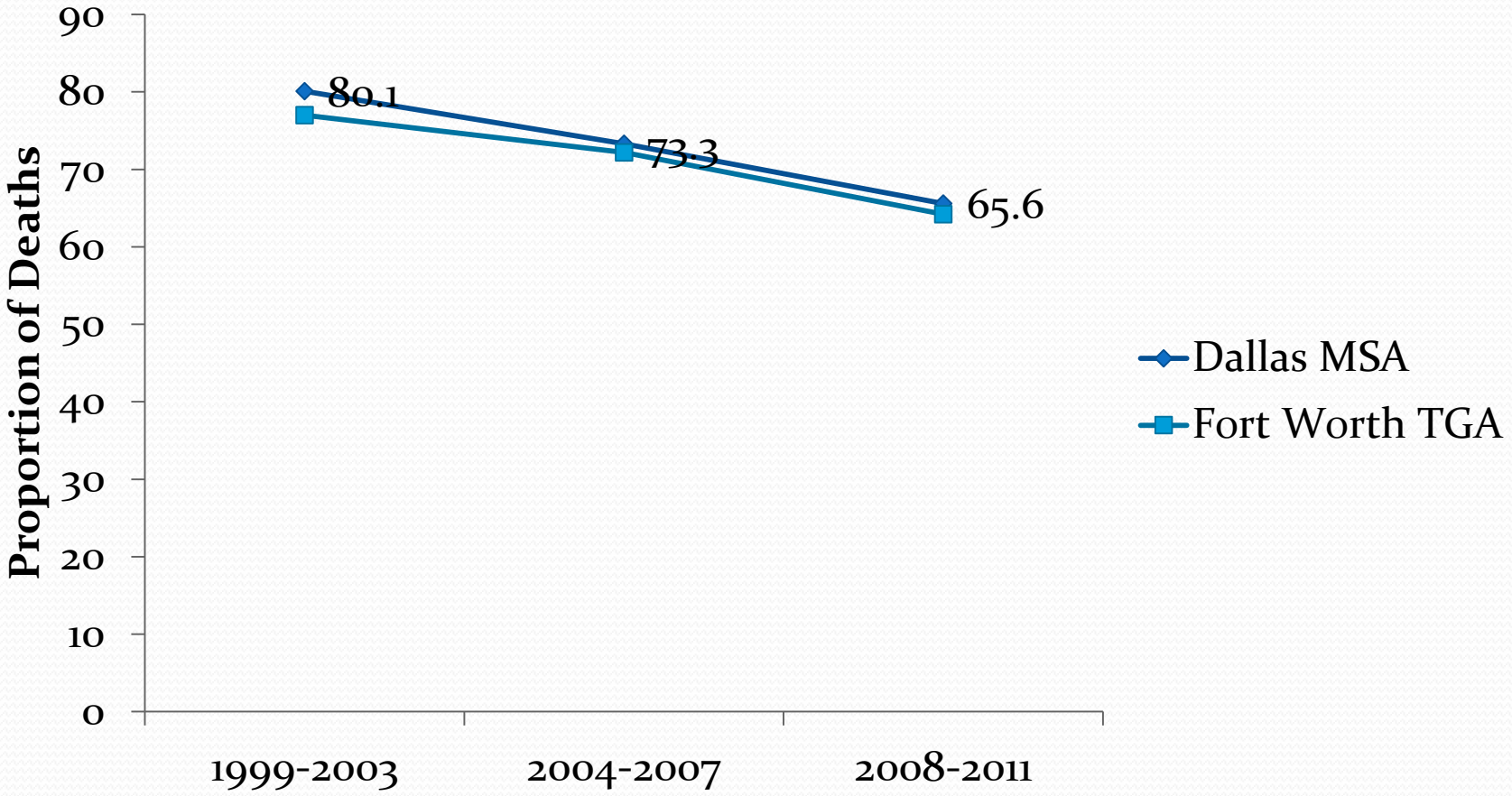
Defining Causes of Death

- Underlying — the single cause identified which initiated any subsequent causes leading up to death
- Contributing — any cause of death, up to 20, listed on a death certificate
- Coding causes of death
  - ICD-9: 1979–1998
  - ICD-10: 1999–present
  - Not comparable across coding change

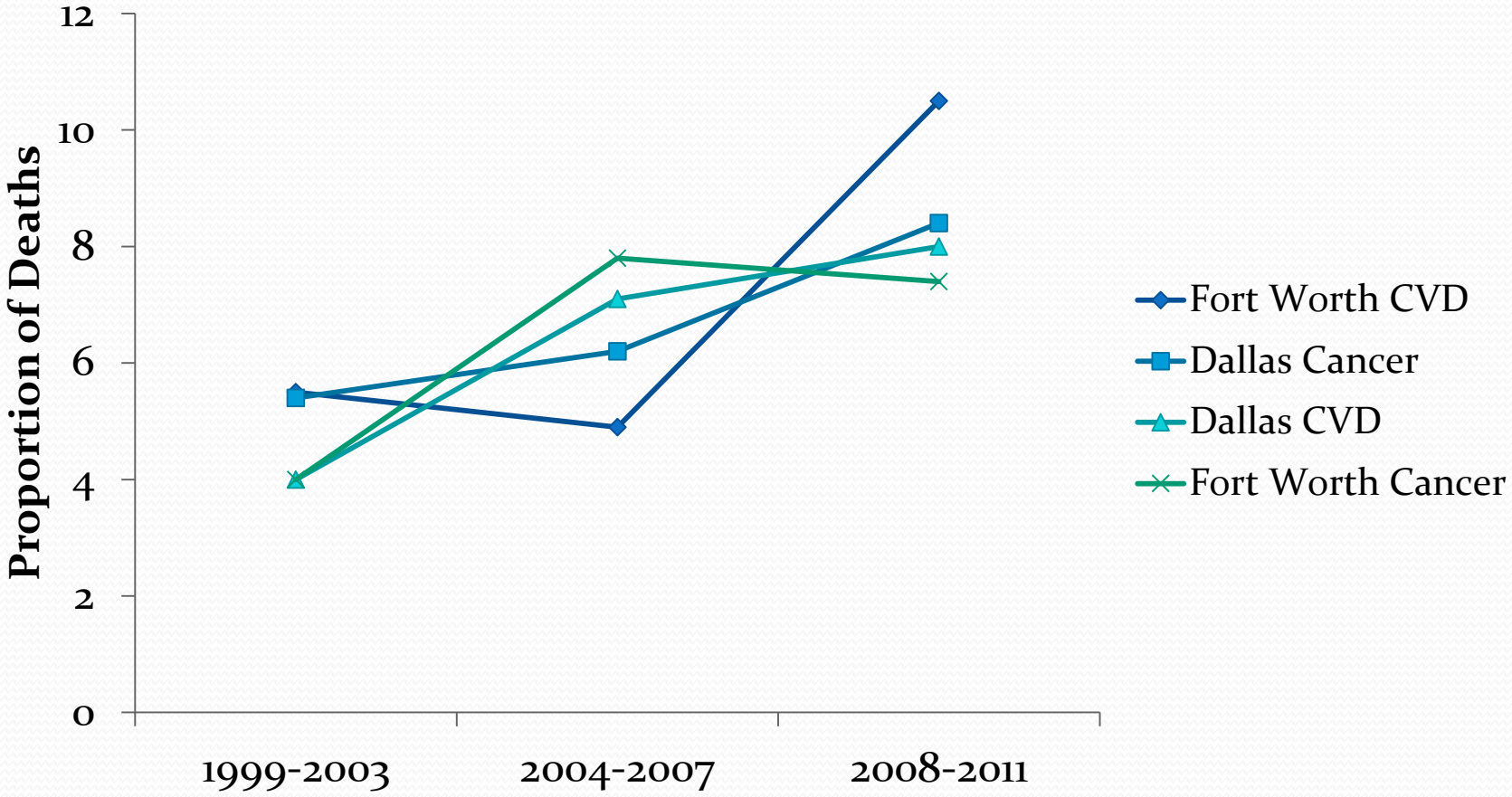
Leading Underlying Causes of Death among Texas HIV Patients

Cause of Death, Underlying	2007		2011	
	#	%	#	%
HIV disease	863	68.4	634	59.5
Malignant neoplasms	81	6.4	106	10.0
Major cardiovascular disease	88	7.0	106	10.0
Unintentional injuries	53	4.2	49	4.6
Chronic lower respiratory disease	5	0.4	17	1.6
Chronic liver disease	17	1.4	14	1.3
Other conditions	88	7.0	78	7.3
All	1262	100.0	1065	100.0

Proportion of HIV/AIDS Case Deaths Due to Selected Underlying Causes of Death



Proportion of HIV/AIDS Case Deaths Due to Selected Underlying Causes of Death



Leading Indicated Causes of Death Among Texas HIV Patients

	2007		2011	
Cause of Death, Any	#	%	#	%
HIV disease	953	75.5	749	70.3
Major cardiovascular disease	295	23.4	312	29.3
Malignant neoplasms	188	14.9	220	20.7
Septicemia	176	13.9	163	15.3
Pneumonia	143	11.3	143	13.6
Nephritis, nephritic syndrome, & nephrosis	133	10.5	134	12.8
Viral Hepatitis	100	7.9	84	7.9
Chronic liver disease	54	4.3	57	5.4
Unintentional injuries	58	4.6	63	5.9
Diabetes	48	3.8	57	5.4

Leading Indicated Causes of Death Among Dallas EMA HIV Patients

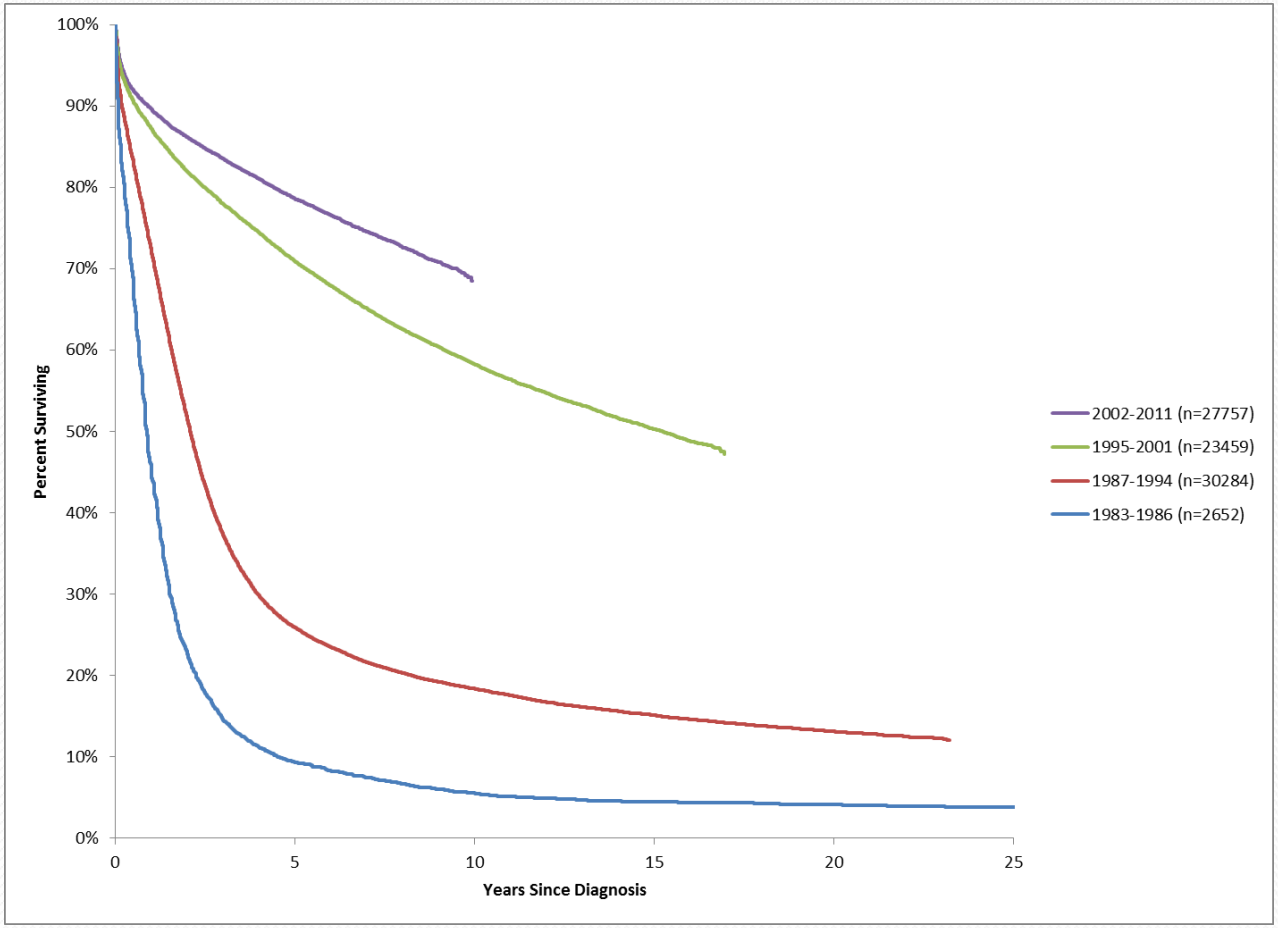
	1999-2003		2004-2007		2008-2011	
Cause of Death, Any	#	%	#	%	#	%
HIV disease	1092	85.5	843	81.2	545	74.8
Major cardiovascular disease	241	18.9	245	23.6	170	23.3
Malignant neoplasms	211	16.5	165	15.9	125	17.1
Septicemia	178	13.9	134	12.9	118	16.2
Pneumonia	166	13.0	118	11.4	104	14.3
Nephritis, nephritic syndrome, & nephrosis	90	7.0	114	11.0	72	9.9
Viral Hepatitis	75	6.2	84	8.1	42	5.8
Chronic liver disease	56	4.4	49	4.7	26	3.6

Leading Indicated Causes of Death Among Fort Worth TGA HIV Patients

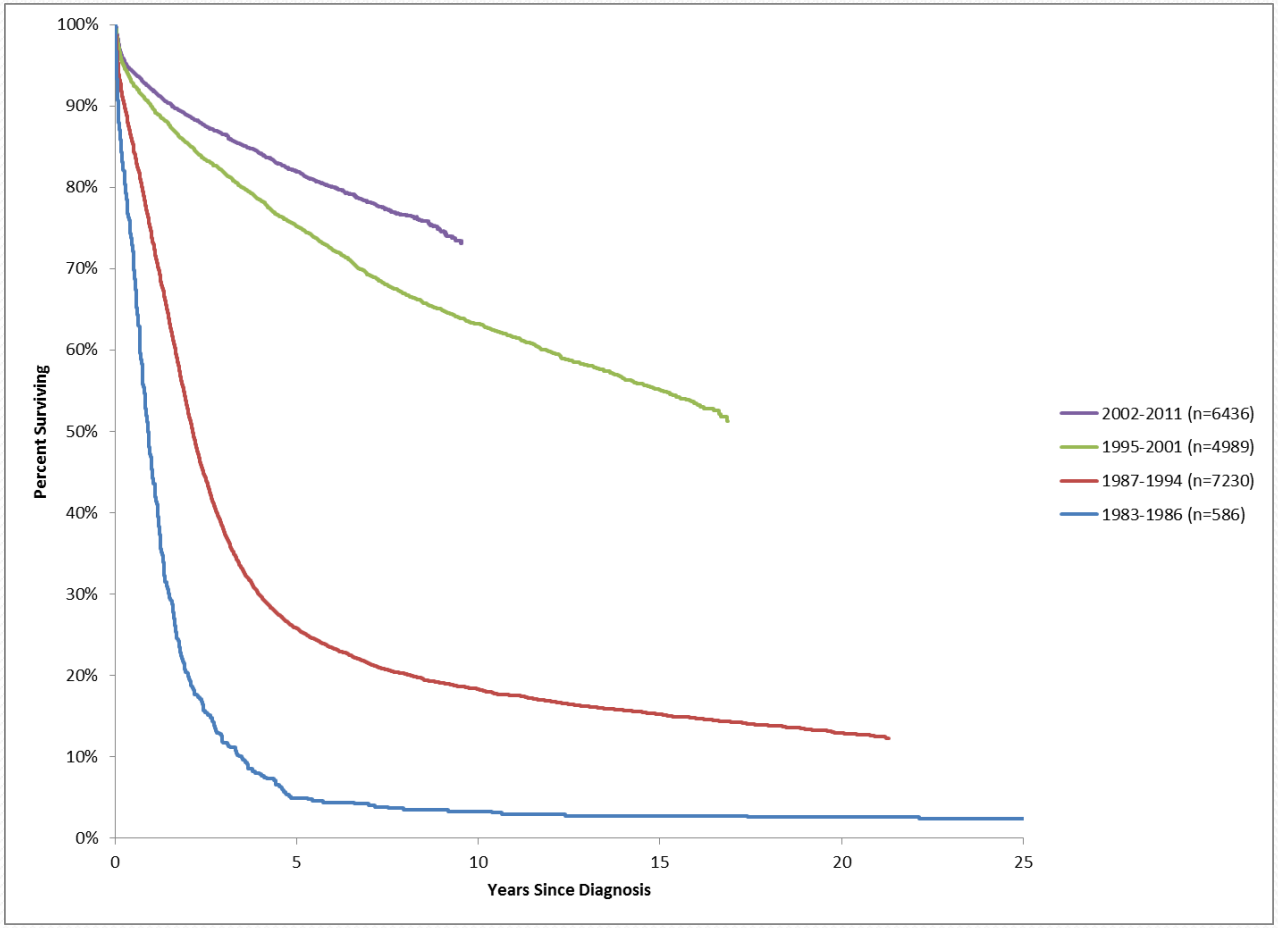
	1999-2003		2004-2007		2008-2011	
Cause of Death, Any	#	%	#	%	#	%
HIV disease	338	83.7	272	78.8	145	76.3
Major cardiovascular disease	85	21.0	78	22.6	57	30.0
Pneumonia	52	12.9	32	9.3	42	22.1
Malignant neoplasms	51	12.6	50	14.5	33	17.4
Septicemia	48	11.9	53	15.4	27	14.2
Nephritis, nephritic syndrome, & nephrosis	49	12.1	31	9.0	21	11.1
Viral Hepatitis	22	5.4	32	9.3	18	9.5
Chronic liver disease	14	3.5	21	6.1	7	3.7

Survival After HIV/AIDS Diagnosis

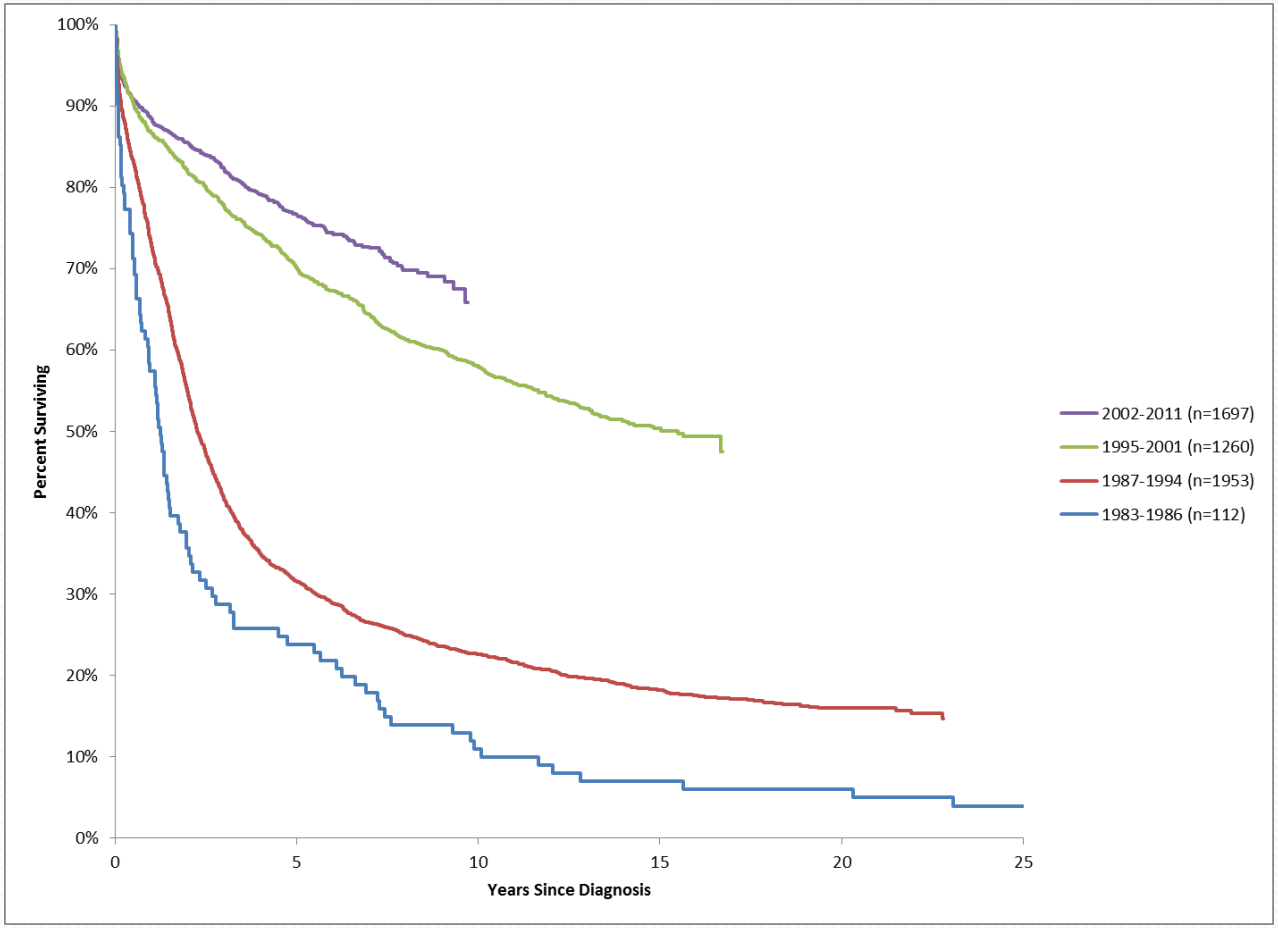
Survival after AIDS diagnosis, Texas, 1983-2011



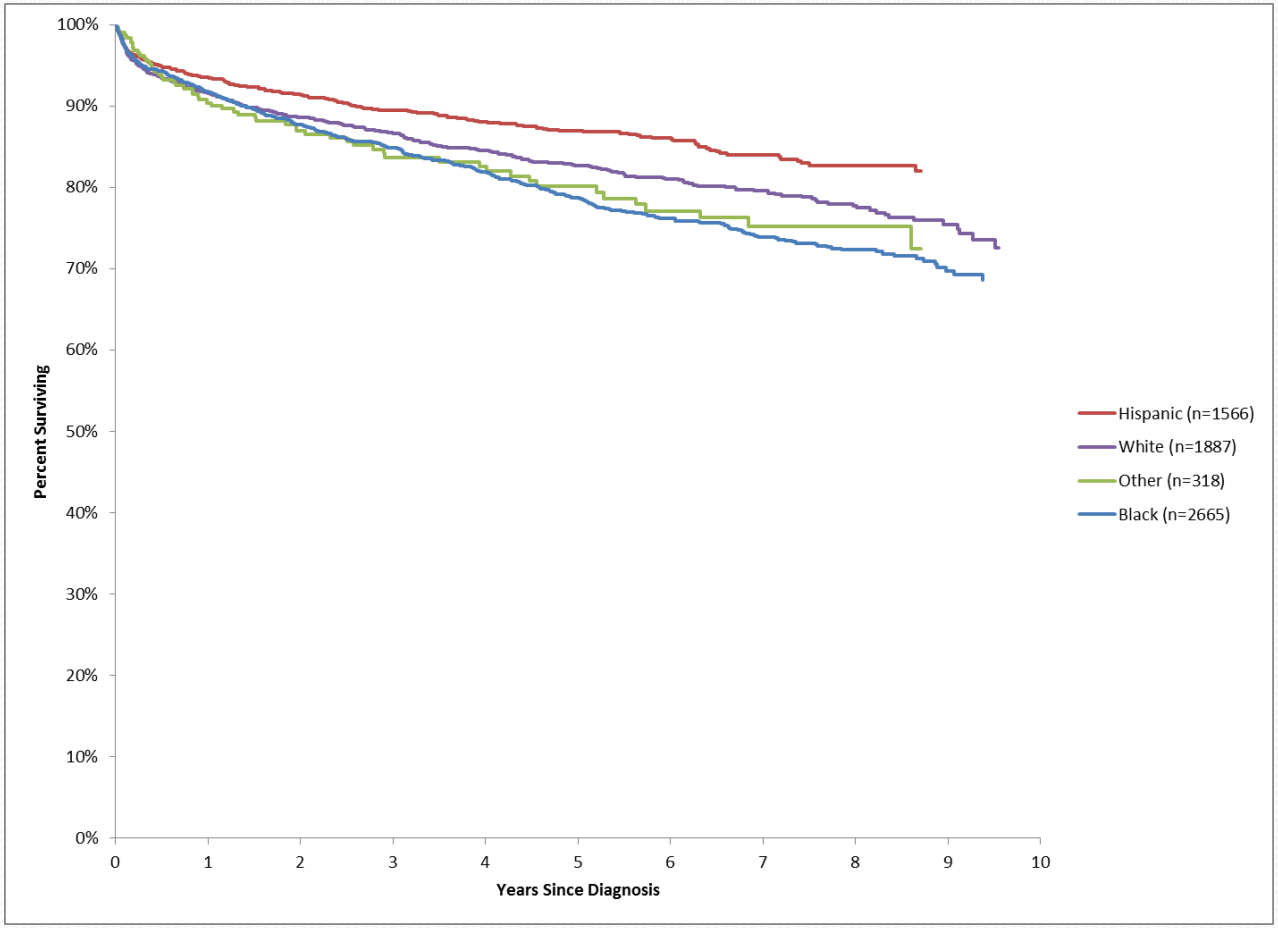
Survival after AIDS Diagnosis, Dallas EMA, 1980-2011



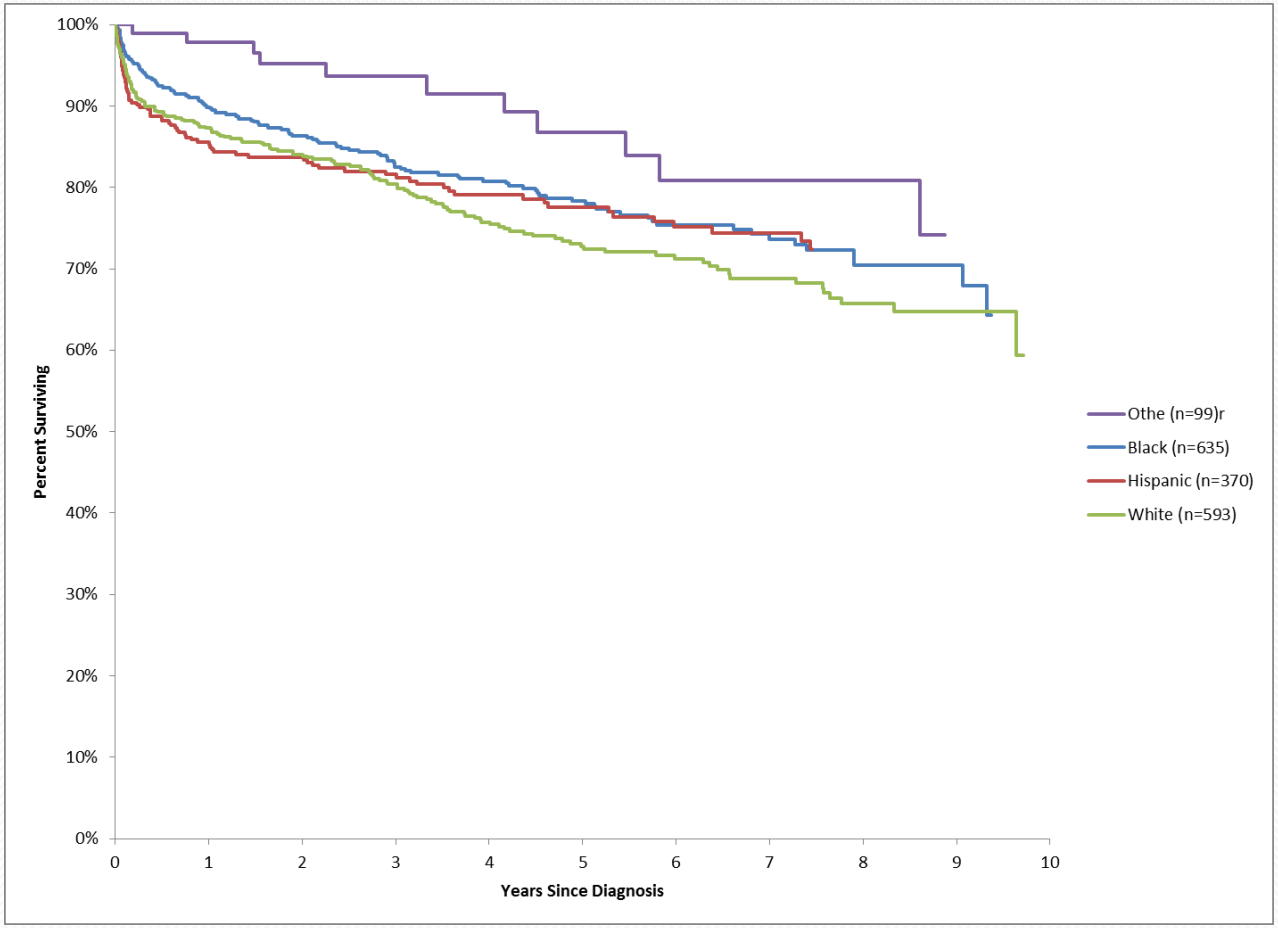
Survival after AIDS Diagnosis, Fort Worth TGA, 1980-2011



Survival after AIDS Diagnosis by Race, Dallas EMA, 2002-2011



Survival after AIDS Diagnosis, by Race, Fort Worth EMA, 2002-2011



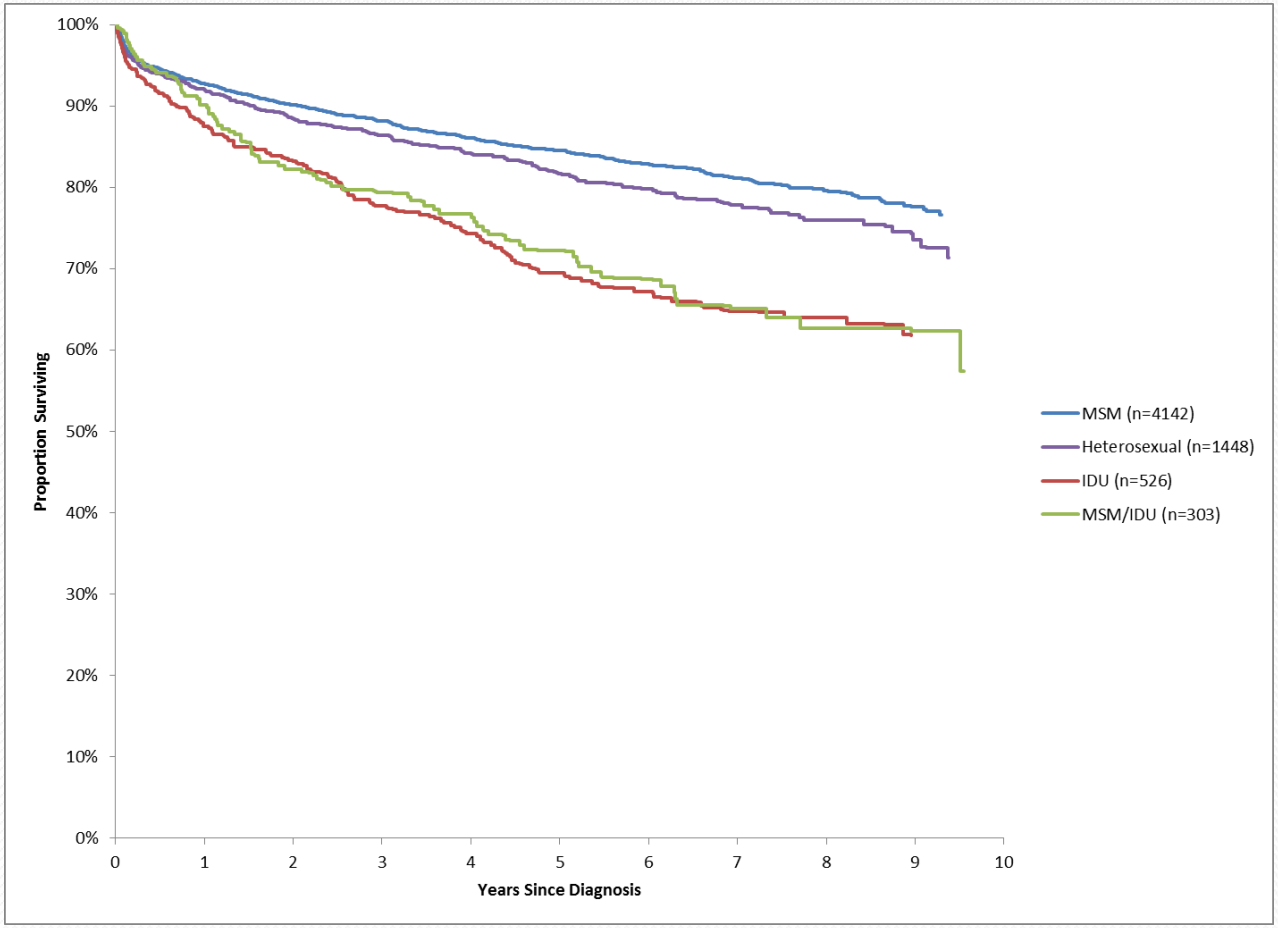
Proportion Surviving ≥ 5 Years After AIDS Diagnosis By Race and Birth Sex, Dallas EMA

Birth Sex	Race	2001		2006	
		# Diagnosed	Proportion	# Diagnosed	Proportion
Female	White	20	65.0%	11	45.5%
	Hispanic	13	92.3%	18	90.0%
	Black	86	83.7%	70	77.8%
Male	White	218	78,9%	172	86.1%
	Hispanic	117	76.1%	139	87.1%
	Black	173	69.9%	163	80.4%
	Total	646	76.8%	617	82.5%

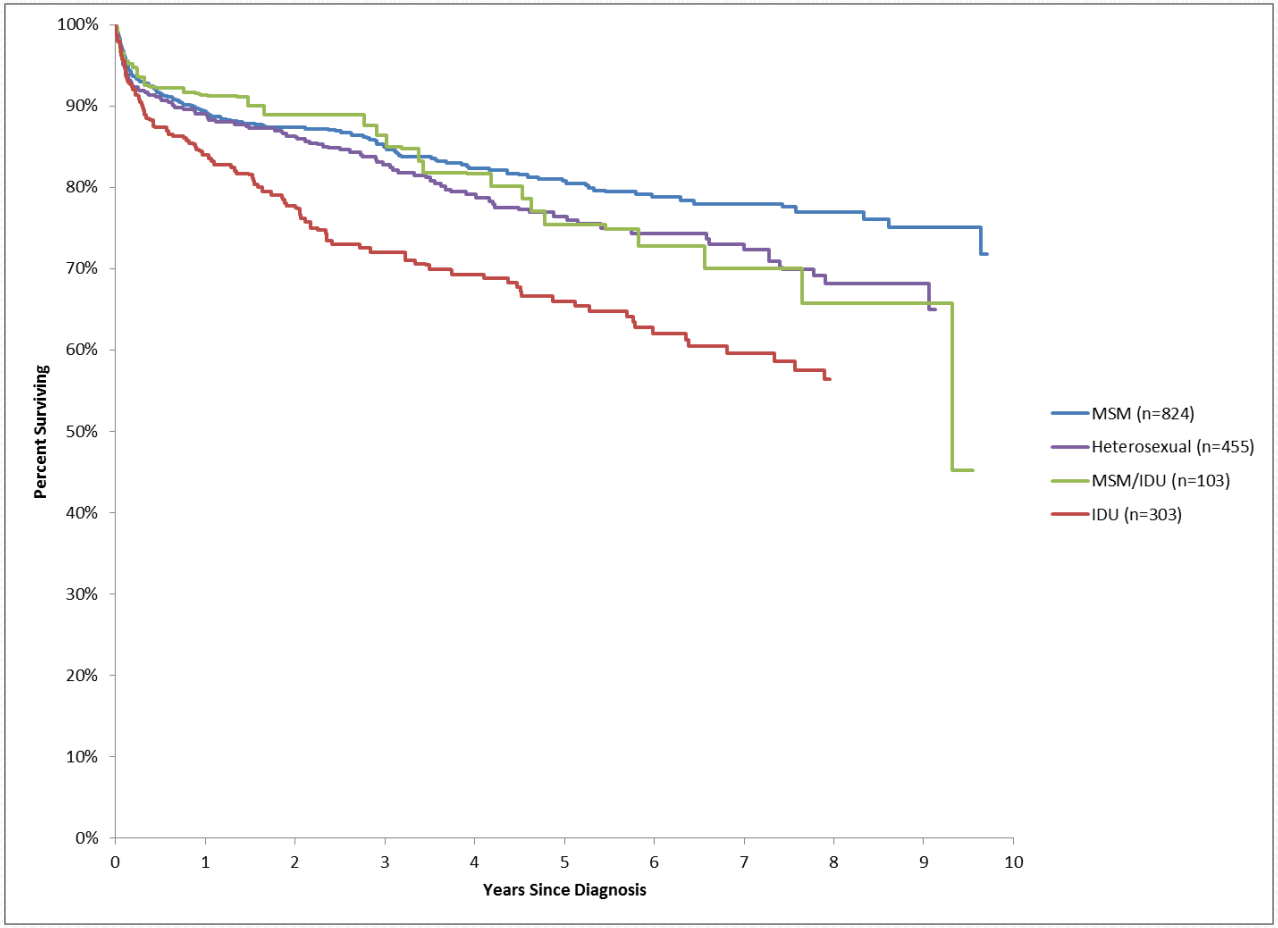
Proportion Surviving ≥ 5 Years After AIDS Diagnosis By Race and Birth Sex, Fort Worth TGA

Birth Sex	Race	2001		2006	
		# Diagnosed	Proportion	# Diagnosed	Proportion
Female	White	4	50.0%	13	61.5%
	Hispanic	6	50.0%	5	80.0%
	Black	21	61.9%	36	72.2%
Male	White	37	75.7%	55	83.6%
	Hispanic	21	71.4%	29	65.5%
	Black	32	65.6%	46	63.0%
	Total	124	67.7%	191	72.8%

Survival after AIDS Diagnosis, by Mode of Transmission, Dallas EMA, 2002-2011



Survival after AIDS Diagnosis, by Mode of Transmission, Fort Worth TGA, 2002-2011



Proportion Surviving ≥ 5 Years After AIDS Diagnosis By Transmission Mode, Dallas EMA

Transmission Mode	2001		2006	
	# diagnosed	Proportion	# diagnosed	Proportion
MSM	314	78.4%	343	85.0%
IDU	59	66.5%	32	69.6%
MSM/IDU	29	65.2%	21	81.4%
Heterosexual	93	83.9%	114	80.3%
Total	496	76.8%	509	82.5%

Proportion Surviving ≥ 5 Years After AIDS Diagnosis By Transmission Mode, Fort Worth TGA

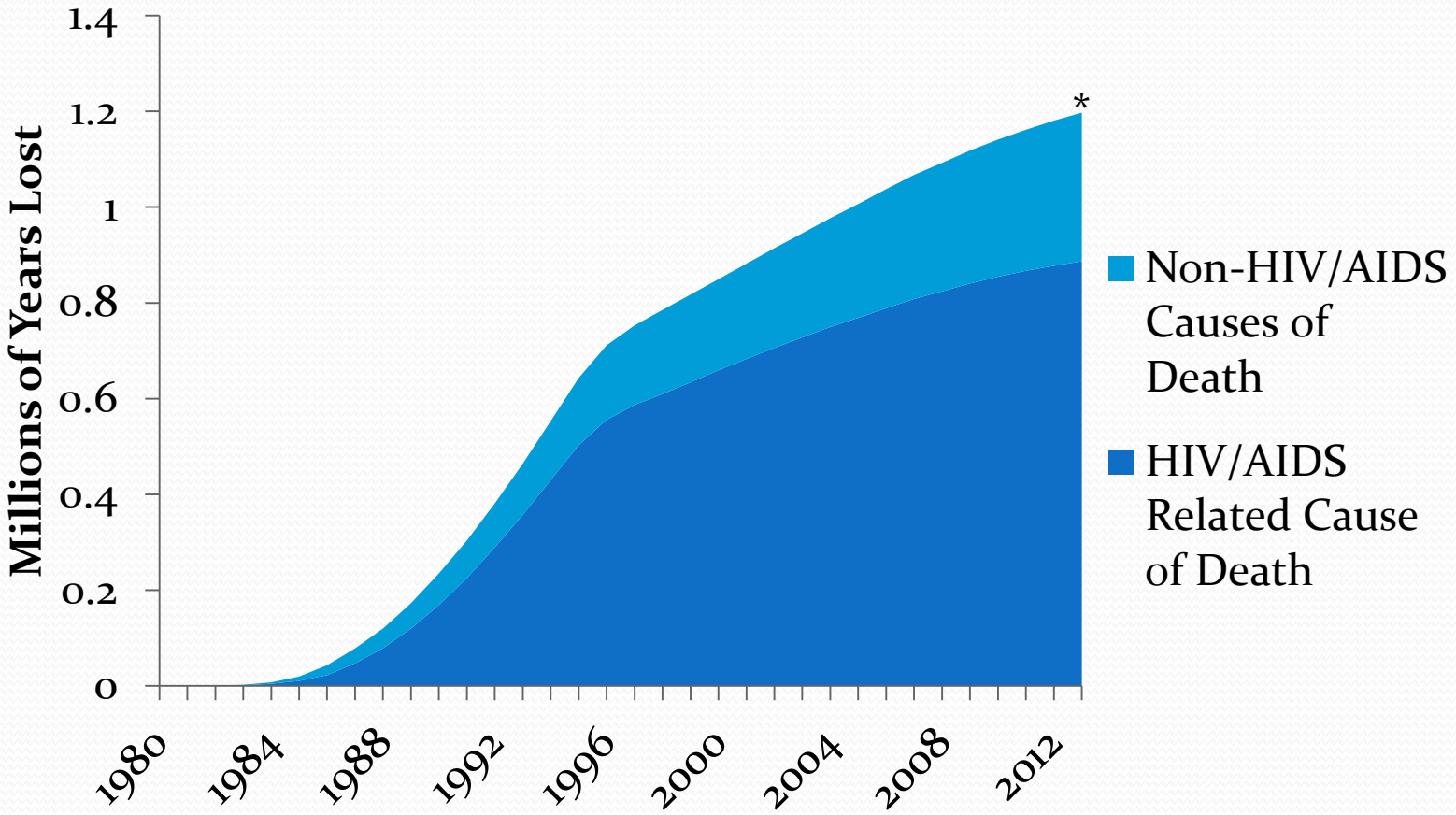
Transmission Mode	2001		2006	
	# diagnosed	Proportion	# diagnosed	Proportion
MSM	40	78.4%	70	76.9%
IDU	20	50.3%	18	55.5%
MSM/IDU	5	76.7%	13	81.9%
Heterosexual	17	69.2%	34	71.8%
Total	84	67.7%	139	72.8%

Years of Potential Life Lost

Years of Potential Life Lost

- Years of potential life lost (YPLL) estimates the additional number of years a patient would have lived if they did not prematurely die
  - Younger deaths contribute more to overall total
- Measures presented used 75 as average life expectancy to calculate YPLL

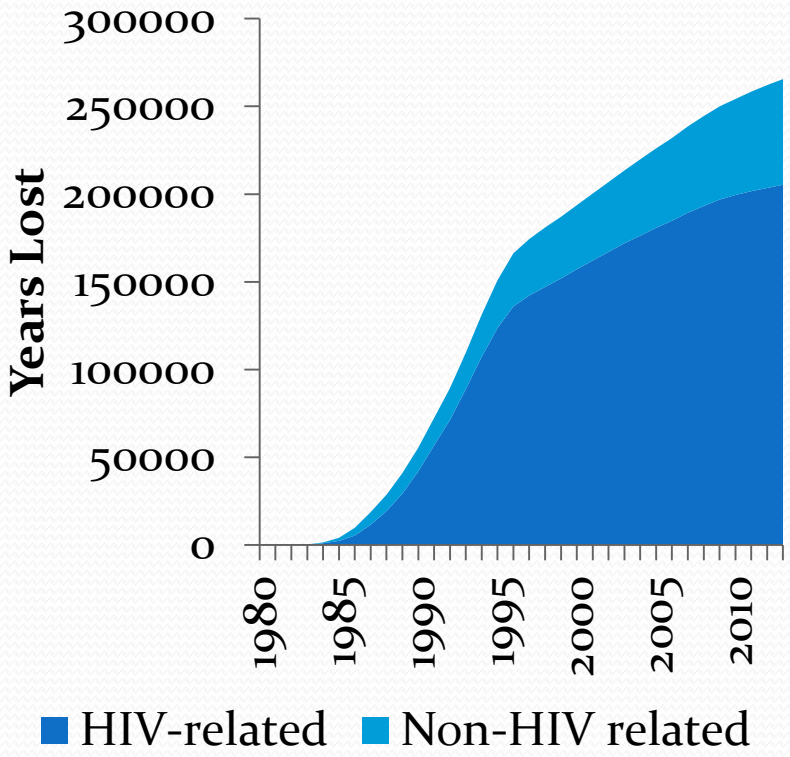
Cumulative YPLL among HIV Cases, Texas, 1980-2013



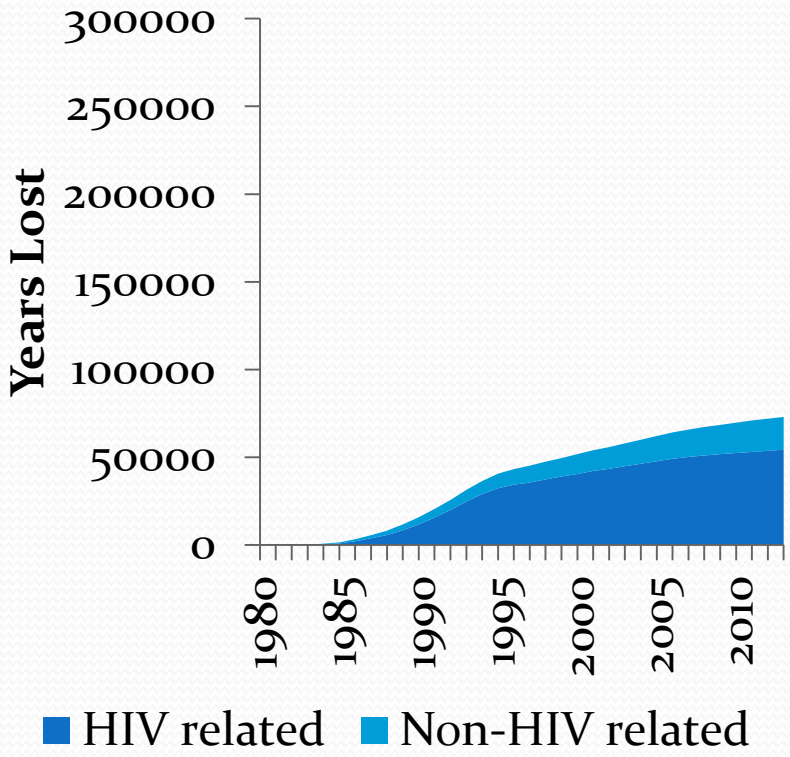
*As of end of 2013, nearly 1.2 million years of life lost among deceased HIV patients

Cumulative YPLL among HIV Cases, Dallas and Fort Worth, 1980-2013

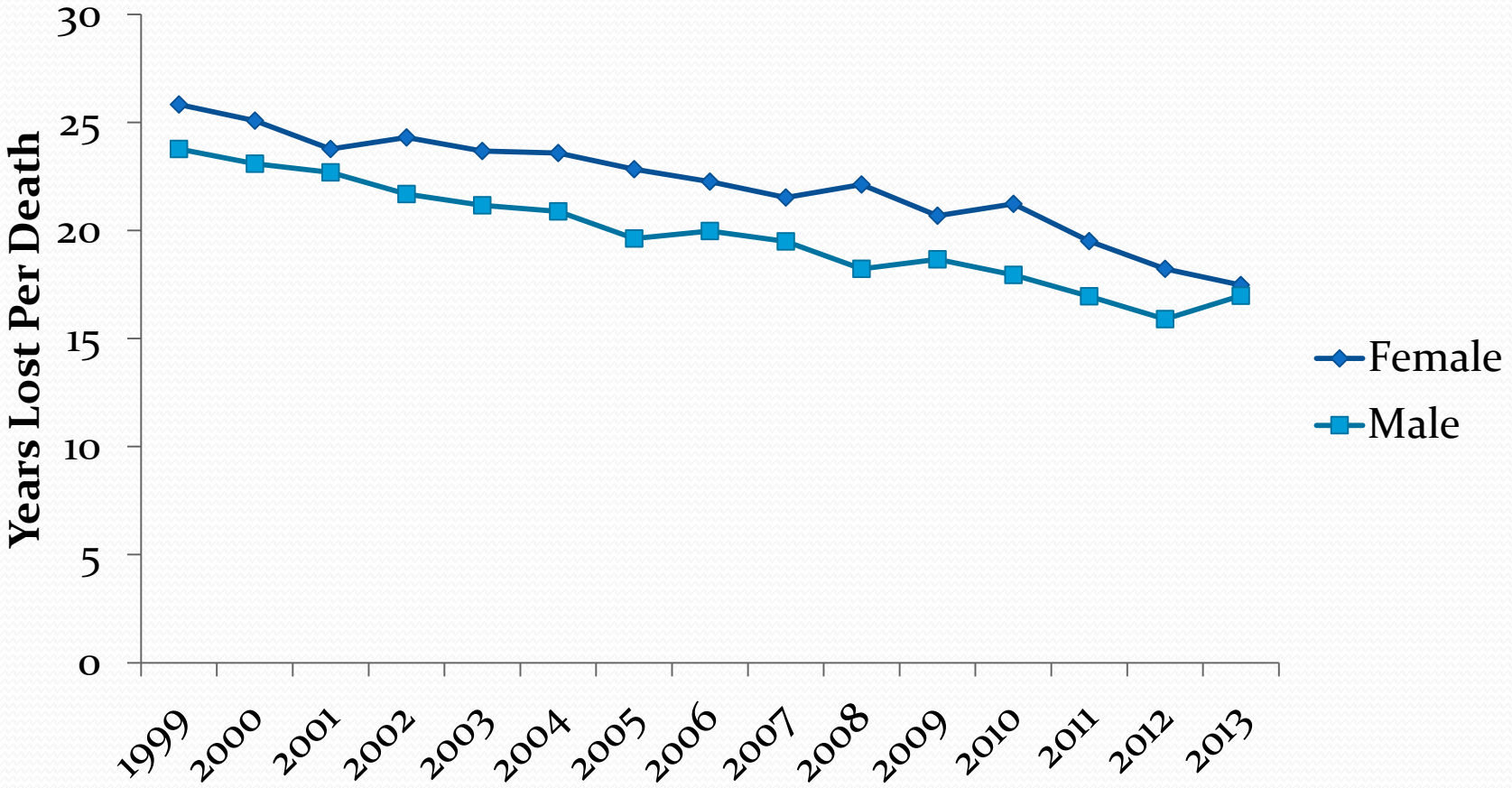
Dallas EMA



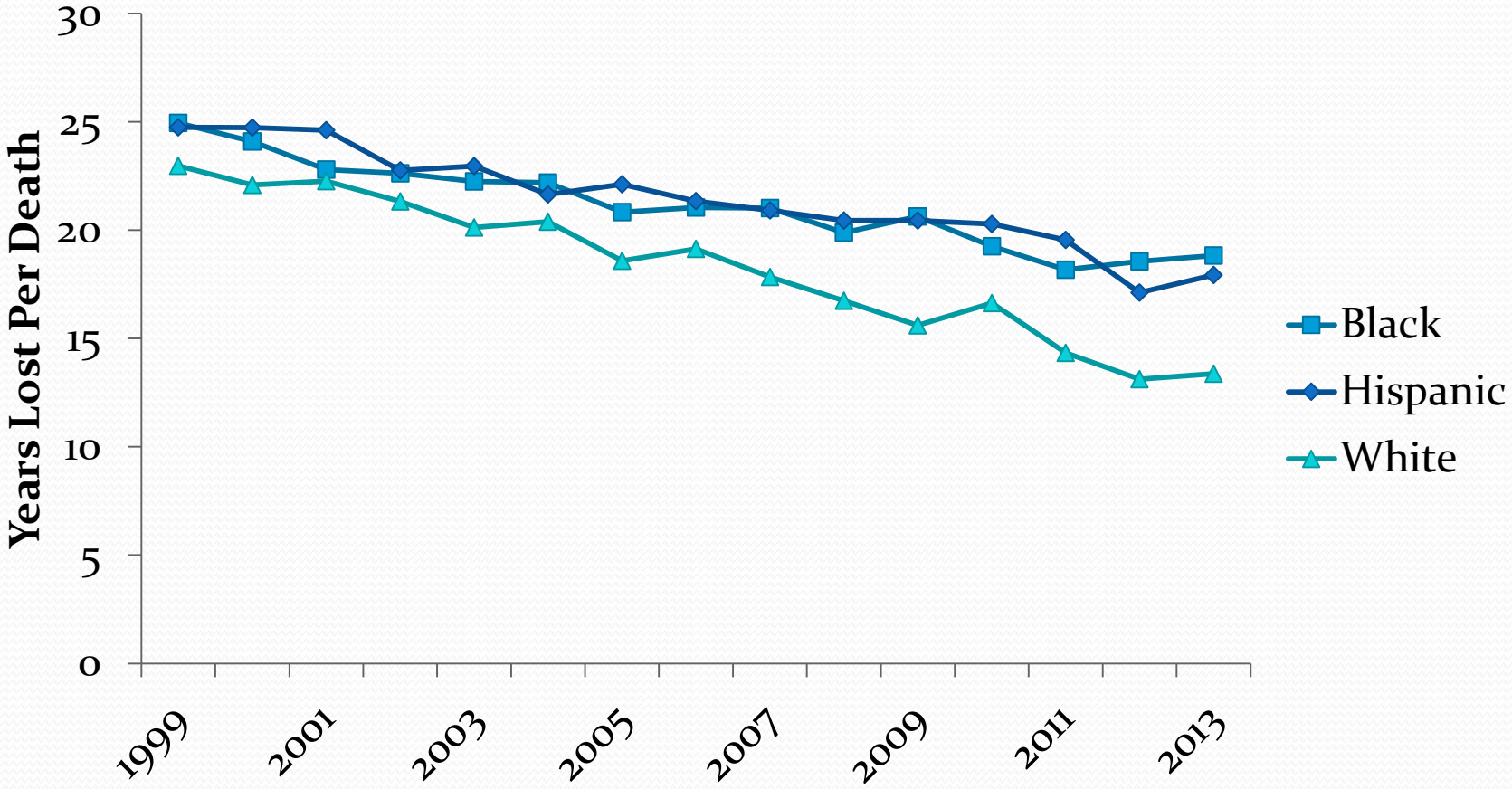
Fort Worth TGA



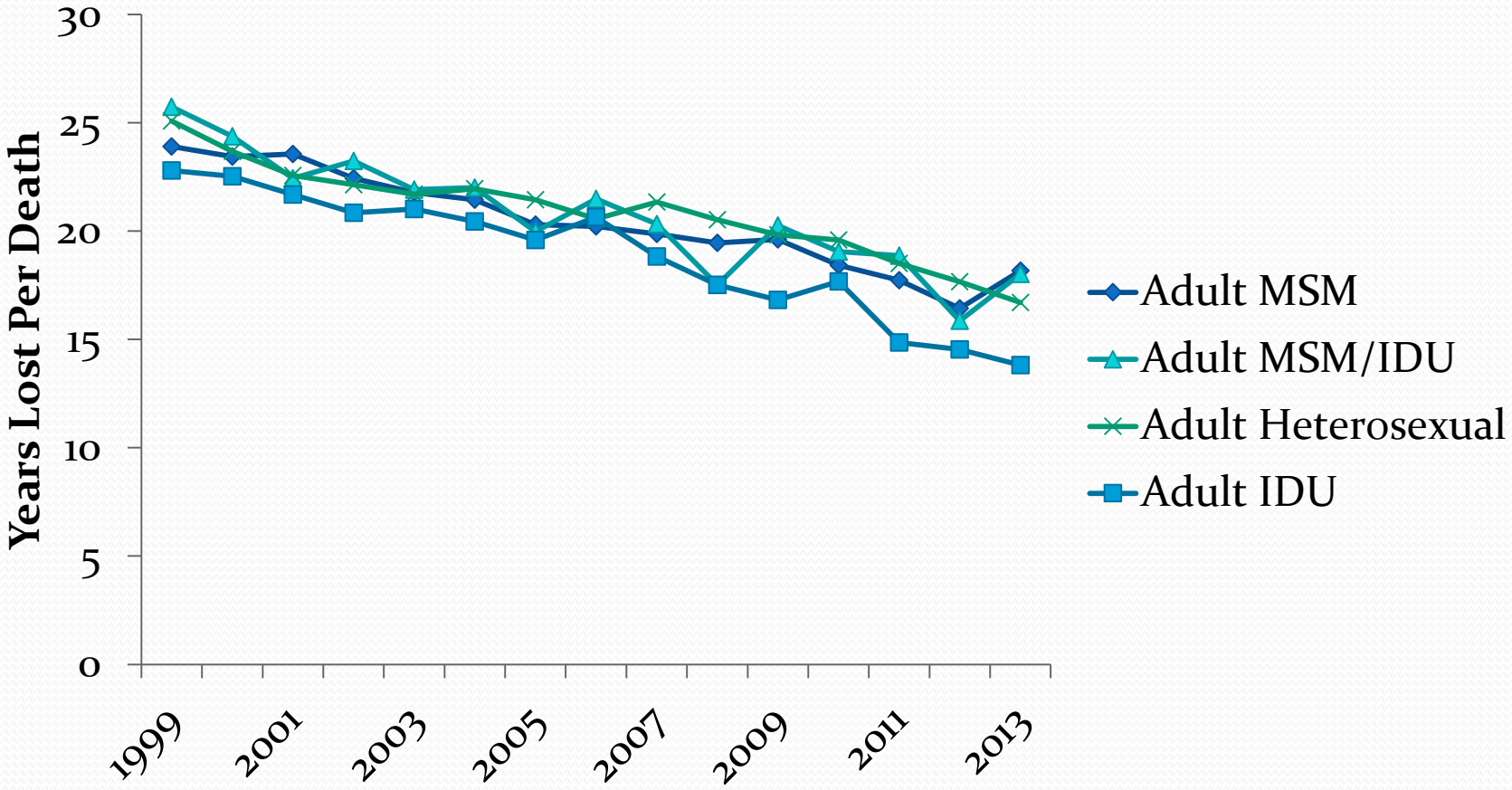
Average YPLL Due to HIV/AIDS, by Birth Sex, Texas, 1999-2013



Average YPLL Due to HIV/AIDS, by Race, Texas, 1999-2013



Average YPLL due to HIV/AIDS by Mode of Transmission, Texas, 1999-2014



Questions?