GAINS AND REMAINING CHALLENGES IN MORTALITY AMONG INDIVIDUALS WITH HIV, 1999-2017

Poster #4055

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BACKGROUND

- Improvements in HIV care have resulted in people living with HIV reaching older ages with expected increases in the number of chronic diseases.
  - In Massachusetts, 65% of all individuals living with HIV infection were virally suppressed, as were 88% of those engaged in care, and 91% of those retained in care.
  - The proportion of deaths among individuals with HIV infection and were attributed to HIV-related causes decreased from 50% (N=143/286) in 2006 to 29% (N=75/260) in 2017.

Objective: To evaluate trends in, and causes of deaths in Massachusetts.

METHODS

Records of deaths in Massachusetts from 1999-2017 excluding non-residents were analyzed.
Deaths were grouped in 2:
with HIV or AIDS (ICD-9: 42, 43, 44; ICD-10: B20) or
without HIV (all others)
Causes of death were collapsed into broader system groupings (e.g. circulatory, digestive, respiratory, etc.) using WHO and CDC standards.
Mean age at death was calculated.
Improvements in longevity were calculated as the difference in the mean age at death for specific comorbidities during the earliest three-year period (1999-2001) with the most recent period (2015-2017) .

RESULTS

- 1,018,132 deaths occurred in Massachusetts from 1999-2017
  - 3,384 (0.3%) were among HIV-infected individuals.
- Deaths among HIV+ individuals declined from 1319 in 1999-2003 to 565 deaths in 2013-2017; deaths among HIV- individuals increased from 274,625 to 275,744.
- Mean age of death increased from 42.5 years in 1999 to 60.0 years in 2017 among HIV+ individuals; mean age among HIV- was 76.1 and 76.2 years
- See top 3 contributing causes by HIV status (Table 2)
  - The second cause among HIV+ individuals ranked 9th (23,946 deaths or 8.7% of deaths) among HIV- individuals.
- Increases in age at death varied by contributing cause of death and ranged from 5.2 to 17.7 years among infected individuals. Areas with the least improvement were hypertension (5.2 years), lower respiratory tract diseases (5.6 years), and diabetes (8.6 years). Areas with the most improvement were renal failure (17.7 years) and heart failure (16.9 years).

Life expectancy among HIV-infected individuals in Massachusetts has improved, unlike among non- infected individuals.
A leading contributor to deaths among HIV-infected individuals was infectious diseases including viral hepatitis and bacterial infections.

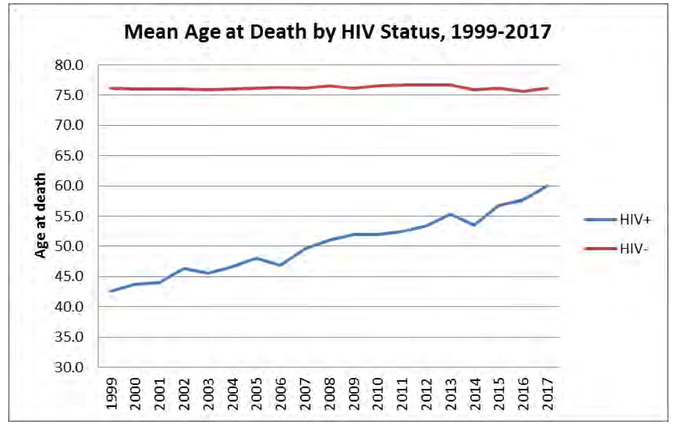
Table 1. Mean Age at Death by Contributing Causes

	HIV+			HIV-		
Contributing Cause	Mean Age at Death			Mean Age at Death		
	1999-2001	2015-2017	Difference	1999-2001	2015-2017	Difference
Hypertension	54.8	60.0	5.2	79.4	78.4	-1.0
Lower respiratory disease	52.9	58.5	5.6	77.6	77.7	0.1
Diabetes	50.5	59.1	8.6	75.6	76.1	0.5
Ischemia	53.4	63.0	9.6	78.7	79.2	0.5
Hepatitis	44.1	54.2	10.1	55.8	61.1	5.3
Cardiac arrest	43.5	56.6	13.1	76.6	77.5	0.9
Liver disease	43.6	57.1	13.5	62.6	64.2	1.6
Neoplasms	45.2	58.8	13.6	72.6	73.5	0.9
Psychactive substance	43.2	56.9	13.7	57.3	63.7	6.4
Influenza/Pneumonia	44.2	57.9	13.7	81.3	80.5	-0.8
Respiratory failure	43.2	57.2	14.0	76.7	77.6	0.9
Bacterial disease	40.6	55.2	14.6	75.0	76.0	1.0
Heart failure	47.2	64.1	16.9	83.2	84.5	1.3
Renal failure	42.7	60.4	17.7	77.3	79.8	2.5

Table 2. Top 3 Contributing Causes of Death by HIV Status, Massachusetts, 2013-2017

	HIV+				HIV-		
Cause	Rank	Number of deaths	Percentage of all deaths*	Cause	Rank	Number of deaths	Percentage of all deaths*
Diseases of the circulatory system	1	205	36.3%	Diseases of the circulatory system	1	137598	49.9%
Certain infectious and parasitic diseases	2	176	31.2%	Diseases of the respiratory system	2	72381	26.2%
Diseases of the respiratory system	3	160	28.3%	Neoplasms	3	70798	25.7%

* Individuals can have up to 15 contributing causes listed



CONCLUSIONS

- The mean age of death increased from 42.5 years in 1999 to 60.0 years in 2017 among infected individuals
- There were 4 categories of contributing causes of death with relatively less improvement over time: hypertension, lower respiratory diseases, diabetes, and ischemia
- A third of deaths among HIV-infected individuals was associated with infectious diseases.

ADDITIONAL KEY INFORMATION

Information about the Massachusetts epidemic are here: https://www.mass.gov/lists/hivaids-epidemiologic-profiles

Progress in addressing incidence is described here:

Cranston K, John B, Fukuda HD, Randall LM, Mermin J, Mayer KH, DeMaria A Jr. Sustained Reduction in HIV Diagnoses in Massachusetts, 2000-2014. Am J Public Health. 2017 May;107(5):794-799.

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