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Survival among HIV-Positive Veterans Before and After the VA Opt-Out Testing Policy

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MAIN POINTS

- After the VA began opt-out HIV testing, adjusted 10-year cumulative survival increased from 84% to 93%.
- Adjusted rates of all-cause, AIDS-, and non-AIDS-related mortality decreased after the new policy.
- To further improve HIV early detection and linkage to care, providers need to be educated on the policy.

BACKGROUND

- Objective: To estimate the impact of the VA opt-out HIV testing policy on survival of veterans with HIV.
- Before August 17, 2009, federal regulations barred widespread HIV testing in the VA, required written consent, and mandated scripted counseling.[1]
- Prior to this date, most VA patients had AIDS when diagnosed with HIV, with CD4 counts <200 cells/mL.[2]
- After August 17, 2009, the VA began to offer opt-out HIV testing with verbal, rather than written, consent.

METHODS

- Analyses restricted to HIV Atlanta VA Cohort Study (HAVACS) patients who were diagnosed with HIV in the era of cART and before study end (2002-2016).[3]
- Patients diagnosed with HIV after the policy were compared to those diagnosed before the policy for differences in CD4 counts at HIV diagnosis and ART initiation, time from HIV diagnosis to first HIV clinic visit, and ages at HIV and AIDS diagnoses.
- Survival functions, adjusted for CD4 count at ART initiation, were estimated for all-cause mortality.
- Cumulative incidence functions were estimated for undetermined, AIDS-, and non-AIDS-related mortality.
- Poisson regression models estimated rate ratios for all-cause and cause-specific mortality, adjusted for CD4 count at ART initiation.

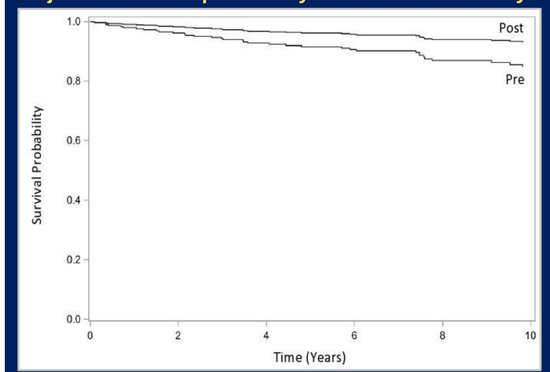
RESULTS

- **1,465** patients contributed **9,577** PY (7,741 PY pre- and 1,836 PY post-policy).
- **844** (58%) patients were diagnosed with HIV **pre-policy**, of whom **118** (14%) died.
- **621** (42%) patients were diagnosed with HIV **post-policy**, of whom **22** (4%) died.
- Majority of patients were male (96%), African-American (84%), and MSM (73%).
- **HIV-related outcomes pre- and post-policy**

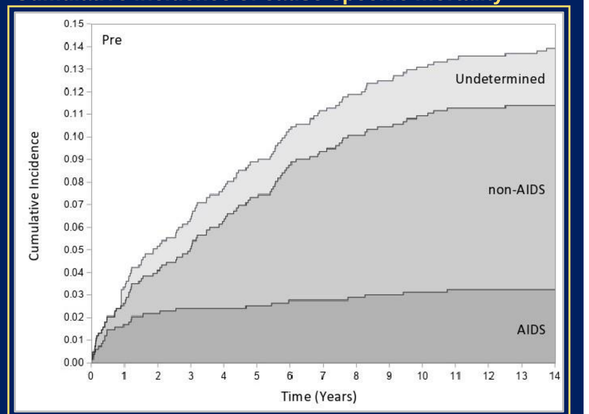
	Pre	Post	P-value
CD4 count (cells/mL) at HIV diagnosis (mean [SD])	331 (262)	432 (290)	**<0.001**
CD4 count (cells/mL) at ART initiation (mean [SD])	180 (160)	352 (265)	**<0.001**
Nadir CD4 count (cells/mL, mean [SD])	132 (168)	278 (271)	**<0.001**
Days between HIV diagnosis and first HIV clinic visit (median [IQR])	164 (508)	78 (81)	**0.024**
Age (years) at HIV diagnosis (mean [SD])	41.2 (11.8)	40.7 (13.5)	0.433
Age (years) at AIDS diagnosis (mean [SD])	46.6 (10.9)	48.7 (13.1)	0.228

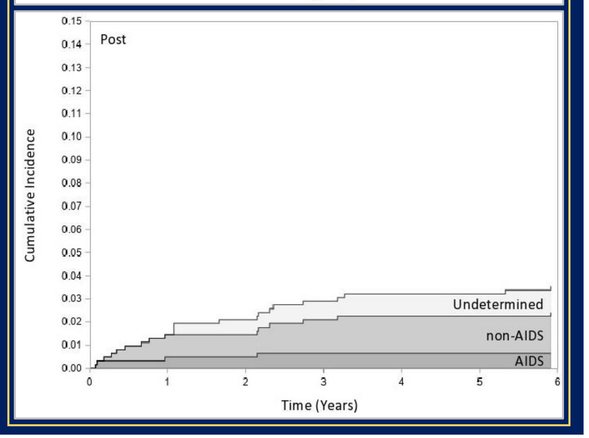
- Adjusted 10-year cumulative survival increased from **84%** to **93%**.
- Adjusted rates of all-cause, AIDS-, and non-AIDS-related morality **decreased** post-policy.

Adjusted survival probability of all-cause mortality



Cumulative incidence of cause-specific mortality





Adjusted rate ratios of cause-specific mortality

	Mortality rate (95% CI), per 100 person-years		Rate ratio (95% CI)
	Pre	Post	
All-cause	1.5 (1.3, 1.8)	1.2 (0.8, 1.8)	0.8 (0.5, 1.2)
AIDS-related	3.5 (2.3, 5.1)	2.2 (0.6, 5.6)	0.6 (0.2, 1.8)
Infection	2.8 (1.8, 4.3)	2.2 (0.6, 5.6)	0.8 (0.3, 2.2)
Malignancy	6.5 (2.1, 15.1)	0.0 (0.0, 20.0)	0.0 (0.0, 3.5)
Non-AIDS-related	8.9 (6.9, 11.3)	6.0 (3.0, 10.7)	0.7 (0.4, 1.3)
Cardiovascular	1.8 (1.0, 3.0)	1.6 (0.3, 4.8)	0.9 (0.3, 3.1)
Infection	3.9 (0.8, 11.3)	0.0 (0.0, 20.0)	0.0 (0.0, 7.2)
Liver-related	6.5 (2.1, 15.1)	0.0 (0.0, 20.0)	0.0 (0.0, 3.5)
Malignancy	2.7 (1.7, 4.1)	2.2 (0.6, 5.6)	0.8 (0.3, 2.3)
Renal failure	7.8 (2.8, 16.9)	0.0 (0.0, 20.0)	0.0 (0.0, 2.7)
Respiratory	3.9 (0.8, 11.3)	5.4 (0.1, 30.3)	1.4 (0.1, 13.5)
Sudden death	1.8 (1.0, 3.0)	1.1 (0.1, 3.9)	0.6 (0.1, 2.7)
Violence	3.9 (0.8, 11.3)	5.4 (0.1, 30.3)	1.4 (0.1, 13.5)

DISCUSSION

- VA patients benefited from the policy change:
  - ✓ Diagnosed with HIV at a younger age
  - ✓ Linked to HIV care earlier
  - ✓ Higher CD4 count at HIV diagnosis
  - ✓ Higher CD4 count at ART initiation
  - ✓ Diagnosed with AIDS at an older age
  - ✓ Increased 10-year cumulative survival
- A large percentage (32-55%) of VA providers remain unaware of this policy change; increasing knowledge will further improve HIV early detection and linkage to care.[4]
- At an average VA facility, increasing HIV testing from 2% to 15% annually identifies 21 veterans with HIV, and costs only $10,000 per quarter ($60,000 including ART) – compared to their annual budget of $300 million.[5]
- Results provide valuable lessons for large healthcare organizations seeking to increase HIV testing rates.

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