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HIV Testing Among Patients Screened, Diagnosed, or Treated for Sexually Transmitted Diseases

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Background

- The CDC recommends that all patients seeking treatment for sexually transmitted diseases (STDs) be tested for HIV[1]
- The U.S. Preventive Services Task Force found good evidence that appropriately timed interventions, particularly highly active antiretroviral therapy (HAART), lead to improved health outcomes for many of those screened, including reduced risk for clinical progression and reduced mortality
- Paltiel et al., 2006 found the clinical and economic benefit of routine screening of adults for HIV in the United States would outweigh the likely harm at the HIV prevalence threshold of 0.20% [2] which is below the current estimated prevalence of 0.4%
- At the end of 2006, an estimated 1,106,400 persons (95% confidence interval 1,056,400-1,156,400) in the United States were living with HIV infection, with 21% were unaware of their infections[3]

CDC Guidelines Regarding HIV Testing

- HIV screening recommended for all persons who seek evaluation and treatment for STDs
- HIV testing must be voluntary
- Consent for HIV testing should be incorporated into general consent for medical care
- Separate written consent is not recommended
- Patients have the option of declining the testing
- Pre-test counseling should no longer be required

Objective

- Our objective was to assess the rates and determinants of HIV testing among patients with health insurance screened, diagnosed, or treated for STDs

Methods

Data Set

- 2006-2007 administrative claims data for 6 US health plans covering 16 million members across 6 states

Study Sample (n=270,423)

- Inclusion Criteria
  - 14 to 64 years, continuously insured for at least 13 months
  - Screened, diagnosed, or treated for an STD (i.e., chancroid, chlamydia, gonorrhea, epididymitis, granuloma inguinale, herpes, human papilloma virus, syphilis, and trichomonas)
  - Screened for or diagnosed with hepatitis B or C

Methods (cont'd)

- Exclusion Criteria
  - History of HIV or AIDS any time in history
  - Tested for HIV viral load or CD4 count in the past year

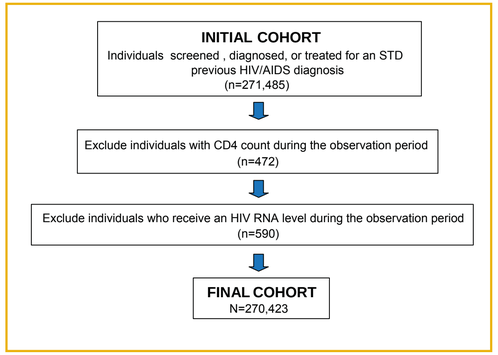
Variables

- Dependent variable = Receipt of HIV screening (defined as HIV-1 screening test, CD4 lab test , HIV RNA level, HIV counseling, or HIV diagnosis in the 2 months prior to and after the STD event)
- Independent variables
  - Method in which the STD event is captured (i.e., via STD laboratory test, or STD diagnosis code)
  - Age, Gender
  - Comorbidity (e.g., hypertension, diabetes, heart failure, asthma, etc.)
  - Income (median income obtained by matching zip code with US Census data)
  - Health care setting of STD encounter (i.e., outpatient, inpatient, or ER)
  - Type of HIV informed consent State laws
    - Written informed consent only
    - Written or verbal informed consent
    - No specific informed consent requirement

Statistical Analyses

- Multivariate logistic regressions

Figure 1. Selection of Individuals without Known HIV Seropositivity



Results

Table 1. Population Characteristics

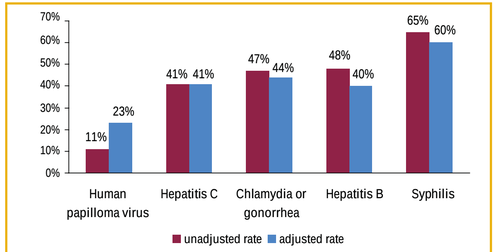
Characteristics	Study Sample (n =270,423)
Age (mean, [SD])	37.5 [12.8]
Female (%)	71.3%
No comorbidity	61.1%
Family Income by zip code	$51,681
Healthcare Setting utilized in 2006	
Outpatient	90.7%
Emergency room (ER)	2.2%
Inpatient	6.5%
ER followed by inpatient admission	0.5%
Hospital observation	0.1%
State Law regarding HIV testing	
Written informed consent only	12.9%
Written or verbal informed consent	72.0%
No specific informed consent requirement	15.1%

Table 2. HIV Testing Rate by STD Risk Groups

Risk Groups	N	Screening Rate (%)
Total	**270,423[a]**	**32.7**
Hepatitis B	111,031	48.4
Syphilis	99,230	65.2
Chlamydia & gonorrhea	98,454	46.9
Hepatitis C	89,814	41.3
STD exposure, counseling, or screening	66,781	43.8
Human papilloma virus (HPV)	23,345	11.0
Trichomonas	17,019	22.8
Genital herpes	10,368	21.4
Epididymitis	8,654	3.1
Condyloma	6,396	13.3
Pelvic inflammatory disease	1389	10.8
Other non-gonoccocal urethritis	501	22.2
Granuloma inguinale	114	9.7
Chancroid	59	39.0
Lymphogranuloma venereum	43	18.6

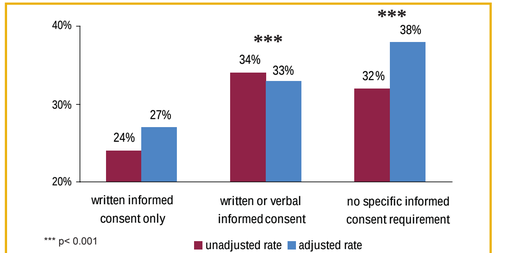
a. Numbers from subgroups are not additive because individuals may have multiple conditions

Figure 2. Unadjusted and Adjusted HIV Screening Rates for the 5 Largest Risk Groups[a]



a. The multivariate regression model adjusted for age, gender, comorbidity, income, health care setting, type of HIV informed consent law

Figure 3. Unadjusted and Adjusted[a] HIV Screening Rates by Type of State Law



a. The multivariate regression model adjusted for category of STD, age, gender, comorbidity, income, and health care setting

Table 3. Likelihood of Receiving HIV Screening - Multivariate Analysis[a]

Variable	Odd Ratio (95% CI)
Age (reference: 25 to 34 years)	
14 to 24	0.72 (0.69, 0.74)[b]
35 to 44	0.81 (0.78, 0.83)[b]
45 to 54	0.46 (0.45, 0.48)[b]
55 to 64	0.32 (0.31, 0.33)[b]
Gender (reference: male)	
Female	0.85 (0.83, 0.87)[b]
Comorbidity (reference: 0)	
At least one comorbidity	0.78 (0.76, 0.80)[b]
Medium Family Income (reference: > $61,386)	
≤ $43,355	0.97 (0.95, 1.00)
$43,356 to $ 61,386	0.98(0.96, 1.00)
Income missing	0.98 (0.96, 1.00)
Setting (reference: outpatient)	
Inpatient	0.75 (0.72, 0.78)[b]
ER	0.39 (0.36, 0.43)[b]
ER followed by admission	0.44 (0.38, 0.51)[b]
State Law (reference: written informed consent only)	
Written or verbal informed consent	1.58 (1.52, 1.64)[b]
No specific informed consent requirement	2.24 (2.15, 2.34)[b]

a. We also controlled for type of high risk group (e.g., Chlamydia or gonorrhea, condyloma, HPV)
b. $p < 0.001$

Conclusions

- **CDC guidelines on HIV testing are far from being implemented; only one-third of patients who are screened, diagnosed, or treated for STD received HIV testing**
- **HIV testing rates among members diagnosed with certain high risk conditions such as trichomonas and human papilloma virus were even lower**
- **Ensuring better compliance of treating physicians to clinical guidelines on HIV testing is urgently needed, with particular attention to women and STDs that are commonly diagnosed in primary care settings such as HPV**
- **Requiring specific written informed consent for HIV testing is associated with significantly less HIV testing, and is likely to result in delayed HIV diagnosis and treatment as well as poorer patient health outcomes**

References

1. CDC MMWR 11/16/2006/
2. Paltiel AD, et al. N Engl J Med. 2005 Feb 10;352(6):586-95.
3. CDC MMWR 2008;57(39):1073-76.

Acknowledgements

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