HIV Screening Among Privately Insured Members at High Risk of Acquiring HIV Infection

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Background

- The CDC recommends that all patients seeking treatment for sexually transmitted diseases (STDs) be screened for HIV
- In addition, since half of all new HIV transmission in the US occurs in people ages 13-24, generally via sexual transmission, the American Academy of Pediatrics recommends that all sexually active adolescents be routinely screened for HIV
- The USPSTF 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%

CDC Guidelines Regarding HIV Screening for Individiuals with High Risk for HIV Infection

- 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 care with an opportunity to decline
- HIV testing should be considered, especially in clinics where a high proportion of patients do not return for HIV results

Objective

- Our objective is to assess predictors of HIV screening among members of large commercial health plans who are at high risk of acquiring HIV infection

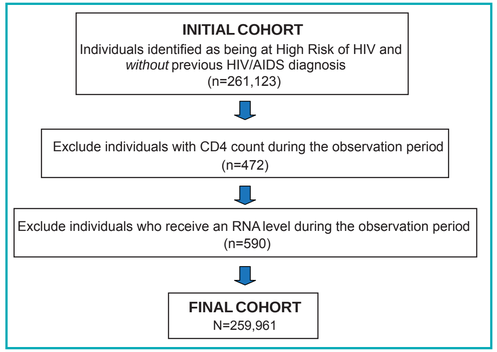
Methods

- **Data Set**
  - 2006 administrative claims data for 8 US health plans
  - 7 health plans consist of commercially insured population, with approximately 70% from a Preferred Provider Organizational (PPO) setting, and 30% from other settings (total ~ 7.5 million enrollees)
  - 1 health plan consists of members in a Medicaid HMO (~180,000 enrollees)

Methods (cont'd)

- **Study Sample** (n=259,961)
  - Inclusion Criteria
    - Men or women 14 to 64 years, continuously insured at least 13 months
      - Screened, diagnosed, or treated for an STD (i.e., chancroid, chlamydia, gonorrhea, epididymitis, granuloma inguinale, herpes, human papillomavirus, syphilis, and trichomonas)
      - Screened or diagnosed with hepatitis B or C
    - Women ages 14 to 24 , continuously insured for at least 13 months with abortion or miscarriage
  - Exclusion Criteria
    - Members with history of HIV, or tested for HIV viral load or CD4 count
- **Variables**
  - Dependent variable = Receipt of HIV screening (y/n) in the 60 days prior to 60 days after presenting event
  - Independent
    - HIV risk factor (e.g., STD, hepatitis, or abortion)
    - Age (i.e., 14 to 17, 18 to 50, 51 to 64 years)
    - Gender
    - Income obtained through matching zip-code with US Census data
    - Income divided into terciles (≤ $43,172, $43,173 - $60,513, ≥ $60,514)
    - Comorbidity Index using Elixhauser method
    - Health care setting members were seen in during the 2006 calendar year
    - Region (i.e., Northeast, Midwest, West, South)
- **Statistical Analyses**
  - Multivariate logistic regression, significance level of $p < 0.05$

Figure 1. Selection of Individuals without Known HIV Seropositivity



Results

Table 1. Population Characteristics

Characteristics	Study Sample (n =259,961)
Age (mean, [SD])	37 years [12.8]
Female (%)	70%
Comorbidity Index using Elxihauser method (mean, [SD]) [possible range 0-29]	0.72 [1.3]
Zip Income (median)	$55,545
Healthcare Setting utilized in 2006	
Outpatient only	62%
Outpatient and Inpatient	11%
Outpatient and ER	14%
Outpatient, Inpatient, and ER	10%
Inpatient and/or ER	3%
Region	
Northeast	4%
Midwest	38%
South	54%
West	11%

Figure 2. HIV Screening Rate by High Risk Group

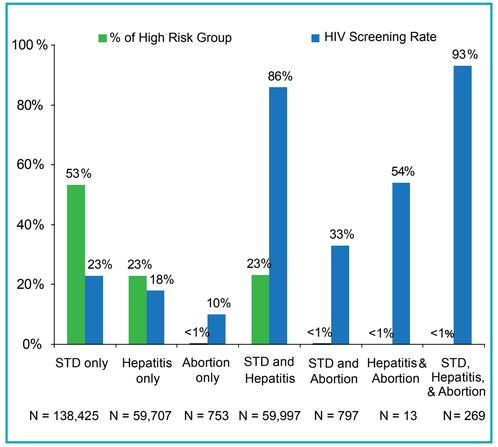


Table 2. STD Diagnoses by Frequency and Screening Rate

Risk Group	N	Screening Rate (%)
Overall High Risk Screening Rate	**259,961[a]**	**36.2**
Hepatitis B or C	119,986	51.9
Abortion/miscarriage	1,832	32.8
Sexually Transmitted Infection (any)	199,488	41.8
Diagnosed with unspecified STD	67,095	46
Chlamydia & Gonococcal infection	97,167	50.8
Syphillis	96,821	70.8
Human Papilloma Virus	20,571	16.2
Trichomonas	12,951	26.3
Epididymitis	9,858	3.3
Herpes	6,995	21.8
Condyloma	6,101	17.1
Non-gonoccal urethritis	2,714	32.7
Pelvic inflammatory disease	1,395	14.3
Granuloma inguinale	136	12.5
Chancroid	66	42.4

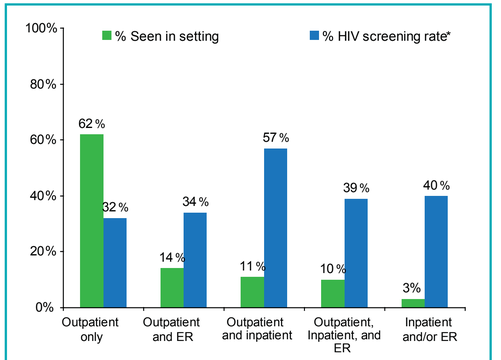
a. Numbers from subgroups are not additive because individuals may have multiple conditions

Table 3. Relative Probability of Being Screened for HIV - Multivariate Analysis[a]

Characteristics	Odd Ratio (95% CI), p-value
Age (reference: 18 to 50 years)	
14 to 17	0.85 (0.81 0.90), p < 0.001
51 to 64	0.40 (0.39 0.41), p < 0.001
Female (reference: male)	0.88 (0.86 0.90), p < 0.001
Elixhauser Comorbidity Index (Possible Range 0-29)	0.92 (0.92 0.93), p < 0.001
Income by zip (reference: > $79,858)	
< $35,378	0.90 (0.88 0.93), p < 0.001
$35,379 to $ 79,858	0.88 (0.86 0.90), p < 0.001
Health Care Setting in past year (reference: outpatient only)	
Inpatient or ER	0.94 (0.85 1.02), p = 0.8
Outpatient and Inpatient	1.79 (1.73 1.85), p < 0.001
Outpatient and ER	1.05 (1.02 1.08), p < 0.001
Outpatient, Inpatient, and ER	1.44 (1.39 1.49), p < 0.001
Region (reference: Northeast)	
Midwest	1.37 (1.29 1.44), p < 0.001
South	1.40 (1.32 1.48), p < 0.001
West	0.94 (0.86, 1.01), p = 0.1

a. Controlled for type of presentation (i.e., STD, hepatitis, abortion)

Figure 3. Proportion of Individuals and HIV Screening Rates by Health Care Setting



*Adjusted for age, gender, comorbiditiy index, income level, region, type of presentation

Conclusions

- **HIV screening rates among individuals at high risk for HIV infection are low, even when multiple high risk factors are present**
- **Women, adolescents (age 14-17), older individuals (age 51-64), and individuals with lower incomes were significantly less likely to be screened for HIV**
- **Although the majority of individuals diagnosed or screened for STD or Hepatitis are seen in the outpatient setting only, rates of HIV screening in this setting appear to be the lowest**
- **Interventions by commercial health plans to increase HIV screening rates will allow an earlier diagnosis of HIV infections, enable health-care providers to counsel infected patients, and help prevent HIV transmission to others**

Acknowledgements

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