

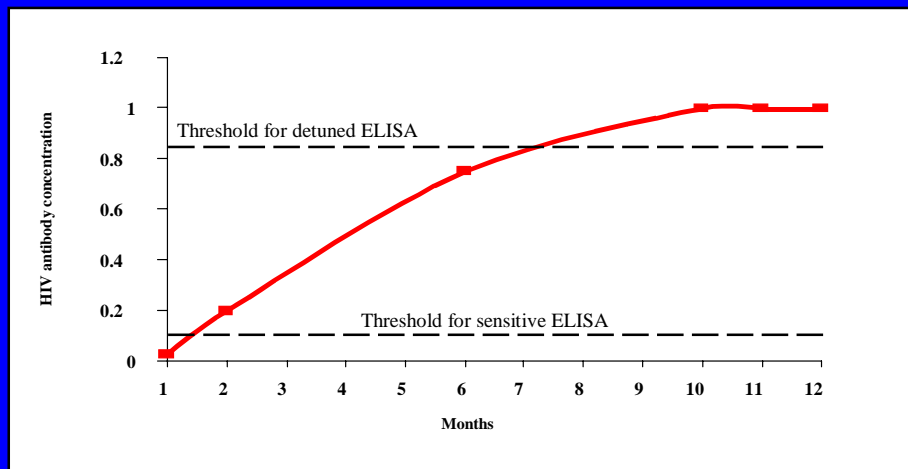
Detection of Recent HIV Infection Using the Standardized Testing Algorithm for Recent HIV Seroconversion: New Public Health Opportunities for Prevention

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Issues

- The long period of time between acquisition of HIV and the manifestations of disease hinders prevention efforts. As a result:
 - we monitor and prevent an epidemic that happened several years ago,
 - overlook emerging epidemics, and
 - miss the optimal chance to interrupt chain of transmission.
- HIV prevention would greatly benefit from a simple means to rapidly identify recent infection:
 - characterize factors that lead to transmission, and
 - pinpoint where transmission is occurring right now for precise targeting of prevention interventions.
- The Standardized Testing Algorithm for Recent HIV Seroconversion (STARHS, also know as the Sensitive/Less Sensitive EIA), now makes this possible.

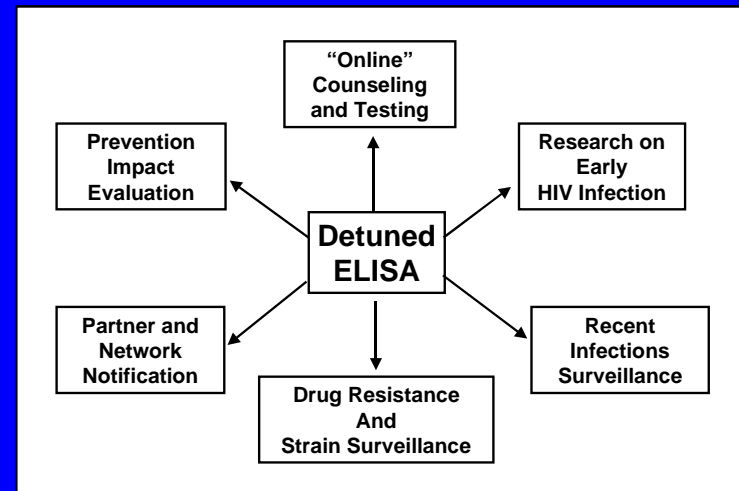
Figure 1: How the detuned ELISA works



Description

- STARHS identifies recent HIV seroconversions using two EIA, one sensitive to low levels of antibody and one less sensitive. Based on the slow increase in antibody during the early period of infection, the algorithm distinguishes between people who have recently seroconverted (within the last 129 days on average) and persons with longstanding infection (on average greater than 129 since seroconversion).
- STARHS also provides a basis to estimate HIV incidence.
- The San Francisco Department of Public Health has integrated the S/LS EIA many activities
 - public HIV counseling and testing programs,
 - partner notification activities, sentinel surveillance,
 - variant strain and antiretroviral drug resistance surveillance,
 - transmission studies,
 - research on early HIV infection,
 - and to identify and intervene in clusters of recent HIV transmission.
- STARHS also provides the means of estimating population-level HIV seroincidence.

Figure 2: Applications of the Detuned ELISA in San Francisco



Results

- Proportion of newly detected HIV infections that are recent
- Incidence estimates at ATS sites
- Race/ethnicity distribution of new infections
- Geographic distribution of (a) newly detected HIV infections, and (b) recently HIV-infected in San Francisco
- Increase in HIV incidence among STD attendees with GC

Figure 3: Detection of Early HIV Infection at Counseling and Testing Sites, San Francisco, 1999

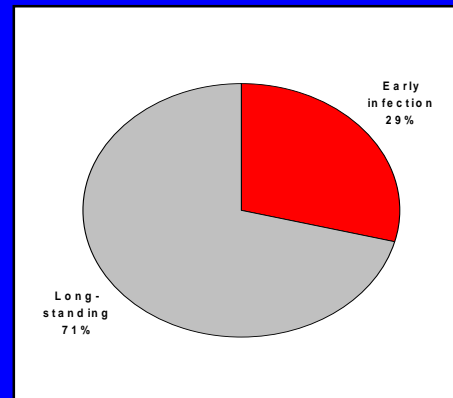


Figure 4: HIV Incidence among MSM Anonymous testers, SF 1996-98

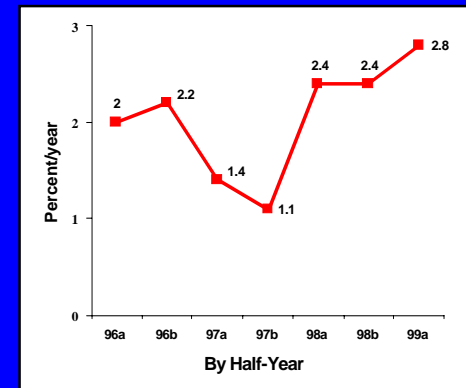


Figure 5: HIV Prevalence and Incidence among MSM at Anonymous Testing Sites by Race/ethnicity, SF 1996-99

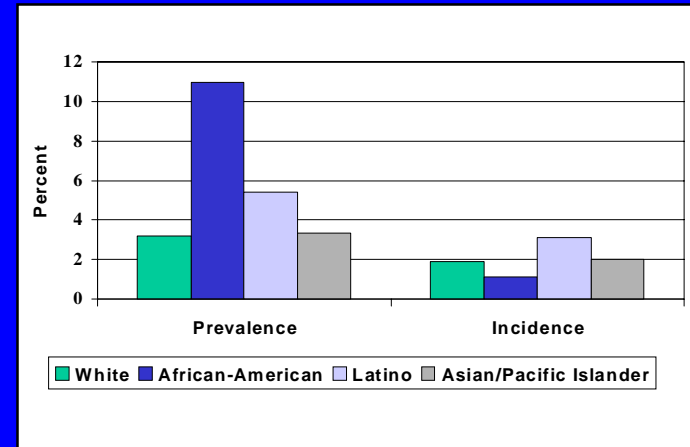


Figure 6: Zipcodes of residence for (a) newly detected and (b) recently HIV-infected persons in San Francisco: July 1998 - June 1999

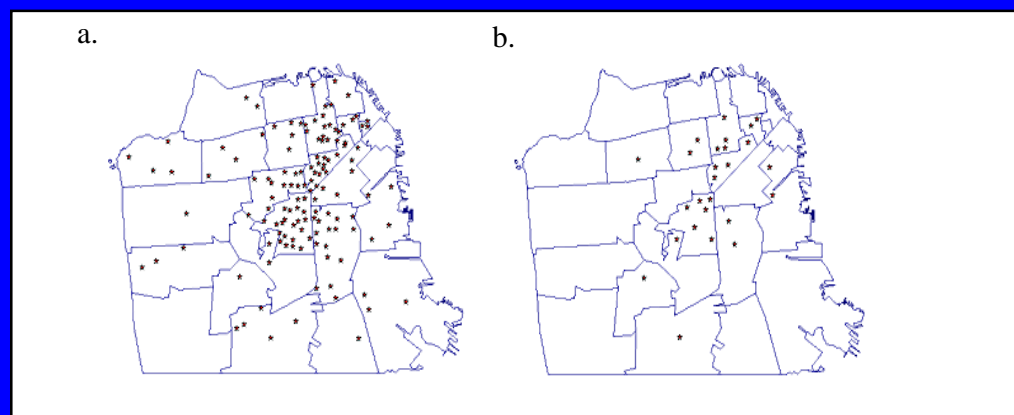
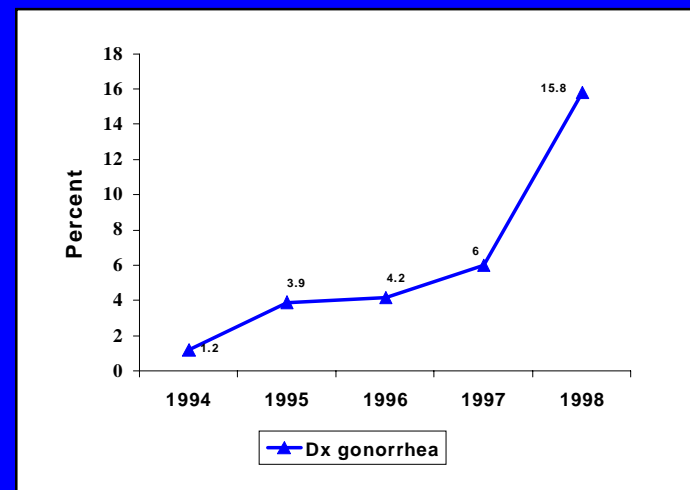


Figure 7: HIV incidence among persons diagnosed with gonorrhea at the municipal STD clinic in San Francisco, 1994 - 1998



Conclusions

- Integration of STARHS into routine counseling and testing, epidemiological studies, and prevention programs has resulted in the capacity to identify and characterize recent HIV transmission in San Francisco.
 - STARHS was acceptable to testing clients,
 - expanded our ability to estimate HIV incidence in high risk populations,
 - recruited subjects for studies on early infection and transmission,
 - provided appropriate focus to drug resistance surveillance,
 - over-turned misperceptions based on prevalence data,
 - and contributed to prioritization and prevention planning.
- Evaluation of clinical applications of STARHS and development of prevention interventions for persons recently seroconverting are underway.

Acknowledgements

- SFDPH: Sandra Schwarcz, Tim Kellogg, Mitch Katz, Brian Louie, Sally Liska
- AIDS Health Project UCSF: Barbara Adler, James Sabatino James Dilley
- Blood Centers of the Pacific: Buphat Rawal, Michael Busch
- CDC: Glen Satten, David Withum, Robert Janssen

