Using HIV Surveillance Registry Data to Re-link Patients to Care: the RSVP Project in San Francisco

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BACKGROUND

- Assessments of the continuum of HIV care in the U.S. show that a substantial fraction of HIV-infected persons fail to stay engaged in care
- Patients with unsuppressed HIV viral load (VL) who fall out of care may experience poor clinical outcomes and potentially transmit HIV
- We assessed the feasibility and yield of using the San Francisco Department of Public Health (SFDPH) enhanced HIV surveillance system (eHARS) to identify such persons and re-engage them in care

METHODS

Eligibility criteria

We identified all persons with HIV infection reported to San Francisco eHARS as of April 20, 2012 ("index date") who met these criteria:

- aged ≥ 18 years and alive on index date
- no VL or CD4 cell count results for 9 months before index date
- VL > 200 copies/mL at last measurement obtained 9 to 15 months before index date ("qualifying viral load"). *See Figure 1.*

Selecting subset of persons for investigation

We then focused investigation on a subset of eligible persons who:

- resided in the Greater San Francisco Bay Area (GBA) defined as San Francisco, Alameda, Contra Costa, San Mateo, Marin, Solano, Napa, Sonoma, Santa Clara and Santa Cruz counties
- had most recent VL or CD4 count test within the GBA
- for interview: able to speak English and not in jail or prison.

Investigation approach

- RSVP introductory letter to person's last medical provider, if known
- Search of SFDPH databases and available medical records for person's contact information; supplemental search of commercial databases
- Phone recruitment followed by a letter, as needed
- Baseline RSVP visit, including informed consent and interview
- Referral to SFDPH linkage and navigation program (LINCS) for re-linking to HIV care, if warranted

Evaluation of RSVP method and results

We "matched back" records for all eligible persons to San Francisco eHARS data available 12 months after the index date to determine:

- if any eligible persons were misclassified based on incomplete lab data at the time of index date, and
- if any eligible persons re-linked to HIV care within 12 months after index date, as evidenced by new VL or CD4 count result(s) in eHARS. *See Figure 1.*

RESULTS

Figure 1. RSVP Timeline

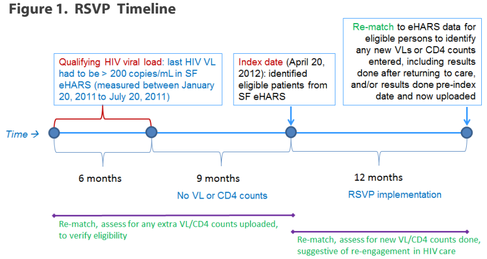


Figure 2. RSVP Implementation – Population Flowchart

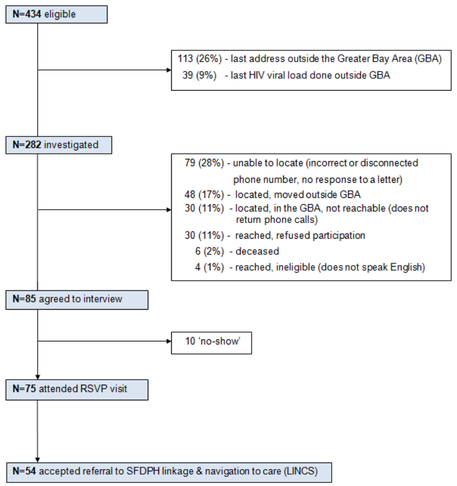


Table 1. Characteristics of the study population: eligible, investigated, and interviewed persons.

	Total Eligible (N=434)	Investigated (N=282)	Interviewed (N=75)
Age, median years (IQR)	45(37-51)	44(36-50)	45(37-50)
Sex			
Male	392 (90%)	250 (89%)	65 (87%)
Female	42 (10%)	32 (11%)	10 (13%)
HIV Infection Risk			
Men who has sex with men	366 (84%)	228 (81%)	64 (85%)
Heterosexual	27 (6%)	27 (10%)	5 (7%)
Injection drug user	27 (6%)	16 (6%)	4 (5%)
Other or unknown	14 (3%)	11 (4%)	2 (3%)
Race/Ethnicity			
Non-Hispanic white	229 (53%)	129 (46%)	32 (43%)
Non-Hispanic black	86 (20%)	65 (23%)	20 (27%)
Non-Hispanic Asian/PI	22 (5%)	20 (7%)	2 (3%)
Hispanic	82 (19%)	63 (22%)	20 (27%)
Other or unknown	15 (3%)	5 (1%)	1 (1%)
Year of HIV diagnosis			
≤ 1994	85 (20%)	42 (15%)	14 (19%)
1995 – 2000	89 (21%)	47 (17%)	11 (15%)
≥ 2001	260 (60%)	193 (68%)	50 (67%)
County of residence			
San Francisco	260 (60%)	211 (75%)	59 (79%)
Greater Bay Area other than SF	71 (16%)	62 (22%)	15 (20%)
Other California county	61 (14%)	1 (0%)	1 (1%)
Other State	33 (8%)	0 (0%)	0 (0%)
Missing	9 (2%)	8 (3%)	0 (0%)
Qualifying Viral Load, copies/ml			
> 200 – 999	70 (16%)	34 (12%)	11 (15%)
1,000 – 10,000	129 (30%)	93 (33%)	27 (36%)
10,000 – 100,000	164 (38%)	112 (40%)	31 (41%)
> 100,000	71 (16%)	43 (15%)	6 (8%)
CD4+ cell count, cells/mm³			
< 200	112 (26%)	70 (25%)	13 (17%)
200-349	77 (18%)	51 (18%)	21 (28%)
350-499	68 (16%)	44 (16%)	11 (15%)
500+	138 (32%)	97 (34%)	26 (35%)
Missing	39 (9%)	20 (7%)	4 (5%)
Any ARV use			
Yes	246 (57%)	145 (51%)	39 (52%)
No	188 (43%)	137 (49%)	36 (48%)

Figure 3. RSVP disposition for n=282 investigated persons

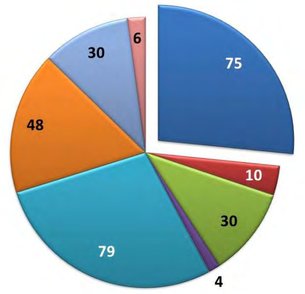


Table 2. Match-back to eHARS data 12 months later: confirming eligibility and assessing re-linkage to care after index date based on new HIV laboratory results.

	Total	Investigated	Interviewed
Eligible persons	N=434	N=282	N=75
Confirm eligibility at index date			
Ineligible	110 (25%)	61 (22%)	25 (33%)
Confirmed eligible subset	N=324	N=221	N=50
Assess re-linkage to care within 12 months after index date			
Among eligible persons			
≥ 1 VL or CD4 cell count	249 (57%)	181 (64%)	62 (83%)
≥ 2 labs (VL or CD4 cell count) ≥ 90 days apart	104 (24%)	80 (28%)	35 (47%)
Among confirmed-eligible subset			
≥ 1 VL or CD4 cell count	171 (53%)	134 (61%)	41 (82%)
≥ 2 labs (VL or CD4 cell count) ≥ 90 days apart	73 (23%)	60 (27%)	24 (48%)

SUMMARY AND CONCLUSIONS

- Starting with routinely collected eHARS data in San Francisco, we were able to identify and investigate persons who appeared to be out of HIV care for at least 9 months but ultimately reached and interviewed only a small subset of them: 75 (27%) of 282 persons investigated, Figure 3
- When we "matched back" the data to eHARS 12 months later, we found, in retrospect, that approximately 25% of persons who originally appeared to be out of HIV care were actually in HIV care, Table 2
- Over 50% of persons had at least one new VL or CD4 count reported to eHARS during 12 months after index date; these persons may have re-engaged in HIV care or were never truly out of care but just had sporadic HIV laboratory measurements, Table 2
- Despite the project's modest yield, the majority of interviewed persons accepted referral to the LINCS program, Figure 2; some benefited from LINCS services in re-engaging to HIV care (data not shown)
- Examining routinely reported HIV laboratory reports in SF eHARS was a feasible, albeit imperfect, method to identify persons lost to HIV care

LIMITATIONS

- Delays in reporting of some VL and CD4 count results to SF eHARS, particularly for persons receiving HIV laboratory monitoring in counties outside of San Francisco, impaired our ability to accurately identify persons who were out of HIV care
- Outdated address information in SF eHARS and incomplete information on the HIV provider who drew the qualifying HIV viral load complicated RSVP investigation

RECOMMENDATIONS

- To better target the "out of care" HIV population and improve yield of future projects, we recommend:
  - Selecting out of care persons based on joint information from the health department and local medical providers
  - Enhancing HIV laboratory reporting across jurisdictions

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