Three years of routine screening for HIV in a large urban hospital system: What has been achieved?

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OBJECTIVE:

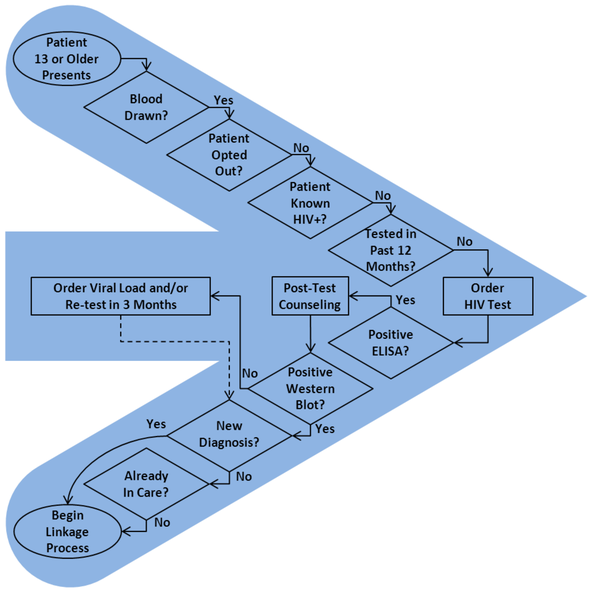
To establish a routine HIV screening program in emergency centers of a large urban hospital system, including linkage to care for newly diagnosed patients and re-linkage for previously diagnosed individuals who were found to be out of care.

METHODS:

Harris Health System (Houston, TX ; formerly known as Harris County Hospital District) started the Routine Universal Screening for HIV (RUSH) program in August 2008. Every patient 13 years of age or older presenting to the emergency center and who was having blood drawn for other reasons and had not been tested at Harris Health System in the past 12 months was tested for HIV unless the patient opted out (Figure 1A). Positive results were checked by the City of Houston against national databases to identify new diagnoses. Newly identified positive patients as well as previously known positive patients not in care at the time of test received counseling and were offered linkage to care. Linkage to care is an active and involved process relying on specialized Service Linkage Workers stationed at the hospitals and new patient specialists at Thomas St. Health Center (Figure 1B).

Statistical tests were performed in Microsoft Excel (Microsoft Corporation; Redmond, WA) and consisted of a Chi-square test followed by a post-hoc linear regression.

A) Routine HIV Screening Flow Diagram



B) Linkage to Care Flow Diagram

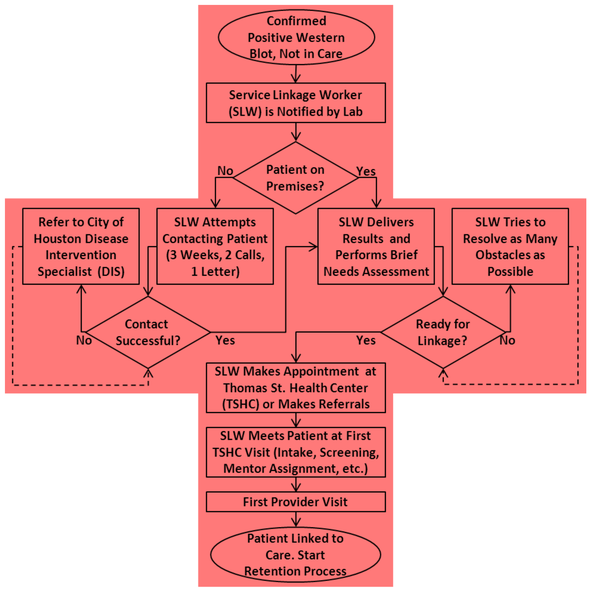


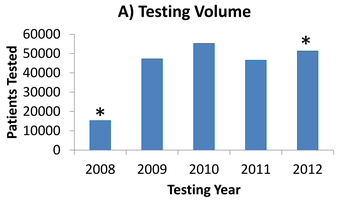
Figure 1. Routine HIV Screening (A) and Linkage to Care (B) Flow Diagrams

RESULTS:

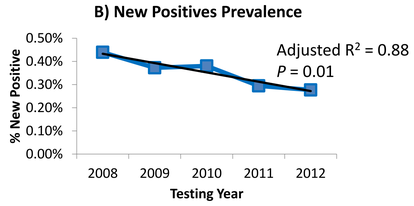
Testing Volume and Prevalence:

Since the program started (August 2008 at Ben Taub and March 2009 at LBJ hospitals) through June 2012, a total of 181,095 screening tests have been performed (Figure 2A). This includes 3,387 tests with a positive result, of which 620 (0.34% of total tested) were new diagnoses. New positives prevalence decreased by 0.04% annually, from 0.44% in 2008 to 0.28% in 2012 (Figure 2B; $P = 0.01$). Previous positives prevalence did not change significantly ($P = 0.15$)

A) Testing Volume



B) New Positives Prevalence



* = Annualized based on partial year data

Figure 2. Annual testing volumes (A) and new positives prevalence rates (B)

Linkage to Care:

From point of diagnosis or inpatient care to outpatient care and other community services, Service Linkage Workers ensure that newly diagnosed patients as well as previously diagnosed patients not currently in care stay on track to receive the services they need. They do so by keeping close contact with the patient throughout the process and by trying to resolve any obstacles that may be preventing the patient from getting linked to care, including housing and transportation issues. Service linkage workers follow the patients until they complete their first primary care physician visit after which retention in care specialists take over. For the purpose of this study, a patient was considered linked to care if they had a primary care physician visit within 6 months of their positive test.

By December 2011 (to allow 6 months for linkage to care), 550 new diagnoses were made, of which 267 (48.5%) were linked to care. Linkage to care increased by 11.4% annually from 25% in 2008 to 62% in 2011 (Figure 3; $P = 0.03$). The majority of the 267 patients (228; 85.4%) were linked to care at TSHC.

During the same time period, 2,408 of the positive tests that were performed had a previous diagnosis. Among them, 1,770 (73.5%) either were in care at the time of test or were linked or re-linked to care. Again, the majority of the linkage was at TSHC (1,509 of 1,770; 85.3%). No significant change was observed across the years ($P = 0.11$).

Linkage data include only Ryan White funded providers in the Houston area, so likely represent a lower bound for the true linkage rate.

New Positives Linkage Rates

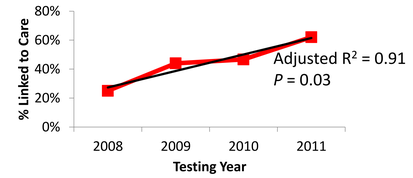


Figure 3. Annual new positives linkage rates

Summary and Demographics:

Summary and demographics information for testing and linkage to care is presented in the table below. To allow 6 months for linkage, Linkage to Care information is for tests performed through December 2011. As previously shown, male, black, and young to middle-aged individuals had disproportionately high positivity rates.

		August 2008 - June 2012								August 2008 - December 2011			
		All Tests		New Positives			Previous Positives			New Positives Linked to Care			
		#Tested	%Category	#Positive	%Category	%Positive	#Positive	%Category	%Positive	#Positive	#Linked	%Category	%Linked
Sex	Female	95,436	52.7	184	29.7	0.19	956	34.6	1.00	171	70	31.1	40.9
	Male	85,560	47.2	433	69.8	0.51	1,811	65.4	2.12	376	197	68.4	52.4
	Unknown	99	0.1	3	0.5	3.03	0	0.0	0.00	3	0	0.5	0.0
Race	Asian	4,121	2.3	2	0.3	0.05	11	0.4	0.27	2	0	0.4	0.0
	Black	61,167	33.8	309	49.8	0.51	1,780	64.3	2.91	275	130	50.0	47.3
	Hispanic	86,158	47.6	209	33.7	0.24	527	19.0	0.61	182	98	33.1	53.8
	White	26,570	14.7	78	12.6	0.29	362	13.1	1.36	69	32	12.5	46.4
	Other	2,293	1.3	8	1.3	0.35	16	0.6	0.70	8	1	1.5	12.5
	Unknown	786	0.4	14	2.3	1.78	71	2.6	9.03	14	6	2.5	42.9
Age	24 & Under	18,434	10.2	73	11.8	0.40	136	4.9	0.74	63	30	11.5	47.6
	25-34	36,118	19.9	161	26.0	0.45	538	19.4	1.49	144	74	26.2	51.4
	35-44	37,556	20.7	179	28.9	0.48	869	31.4	2.31	160	73	29.1	45.6
	45-54	44,931	24.8	138	22.3	0.31	859	31.0	1.91	122	64	22.2	52.5
	55+	43,656	24.1	64	10.3	0.15	365	13.2	0.84	56	26	10.2	46.4
	Unknown	400	0.2	5	0.8	1.25	0	0.0	0.00	5	0	0.9	0.0
ALL		181,095	100.0	620	100.0	0.34	2,767	100.0	1.53	550	267	100.0	48.5

CONCLUSIONS:

The program has been highly successful in identifying positive patients, potentially reducing undiagnosed infection rates, as suggested by the decreasing prevalence of new positives. While the positive prevalence has been decreasing, it remains much higher than the threshold of 0.1% recommended by CDC, warranting continuation of the screening program.

Linking newly diagnosed patients to appropriate care in a timely manner is an integral part of our program. HCHD's Thomas St. Clinic is the largest provider of HIV care in the Houston area. As presented here, our linkage to care rates have significantly improved over time but remain challenging.

References:

Hoxhaj et al. (2011) "Using nonrapid HIV technology for routine, opt-out HIV screening in a high-volume urban emergency department." *Ann Emerg Med.* 58(1 Suppl 1):S79-84.

Acknowledgements:

1- This work was supported by grant funds from CDC (CFDA 93.940) and Texas Department of State Health Services, administered by the City of Houston Department of Health and Human Services; Ryan White Part A (CFDA 93.914), and Ryan White Part C (93.940).

2- We would like to thank City of Houston Department of Health and Human Services and Harris County Public Health and Environmental Services for assistance with data.