Differences in the Diagnosis of AIDS Over Two Decades: From 1993 to 2012 in Houston Harris County, texas

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Outline

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Background

Reporting of Opportunistic Infections (OIs)

- Opportunistic Infection was the primary method for AIDS diagnosis from 1981 to 1992.
- In 1993, CD4 absolute T-cell <200 and CD4%<14 were added as AIDS defining diagnosis.
- Reporting of OI as the bases for AIDS, either by definitive or presumptive has been on the decrease
- Ascertainment of CD4<200 and CD4%<14, as a maker for AIDS diagnosis has been on the increase

Objective

- The purpose of this study is to determine the differences in the level of reporting using the two preceding definitions for AIDS:

1981-1992 (OI) versus 1993 – 2012 (CD4 & CD4%)
For Two Decades

METHODS

- Data for this study was obtained from the Houston, Texas Enhanced HIV/AIDS Reporting System (EHARS). OI's and CD4 absolute T-cell <200 and CD4% <14 were calculated for 20 years, from 1993 to 2012. Trend analysis was conducted for the study period using linear regression. Comparisons, between the OI and the CD4 counts, controlling for demographic factors, were performed using multiple regression.

RESULTS

TABLE 1. DEMOGRAHIC CHARACTERISTICS 1993 -2012

Characteristic	Male		Female	
	(n=14166)		(n=4464)	
	Number	Percentage	Number	Percentage
Age Diagnosis				
<20	164	0.88	150	0.82
20-29	2453	13.17	1108	6.03
30-39	5554	29.81	1556	8.47
40-49	4051	21.74	1106	6.02
50+	1944	10.43	544	2.96
Mean Age (SD)	48.1(11.6)		44.5(11.8)	
Race/Ethnicity				
White	4,286	23.01	372	2.00
Africian Am	6,073	32.60	3262	17.51
Hispanic	3,476	18.66	725	3.89
Asian-Pacific Islander	115	0.62	17	0.09
Am Indian-Alaskan	12	0.06		
other/unknown	204	1.10	88	0.47
Mode of Transmission				
MSM	8,089	43.42		
IDU	1,364	7.32	999	5.36
MSM/DU	1,137	6.10		
Hemophilia	16	0.09	1	0.01
Heterosexual	1,924	10.33	2596	13.93
Blood Transfusion	6	0.03	4	0.02
Perinatal	45	0.24	58	0.31
Other/Unknown	1,585	8.51	806	4.33

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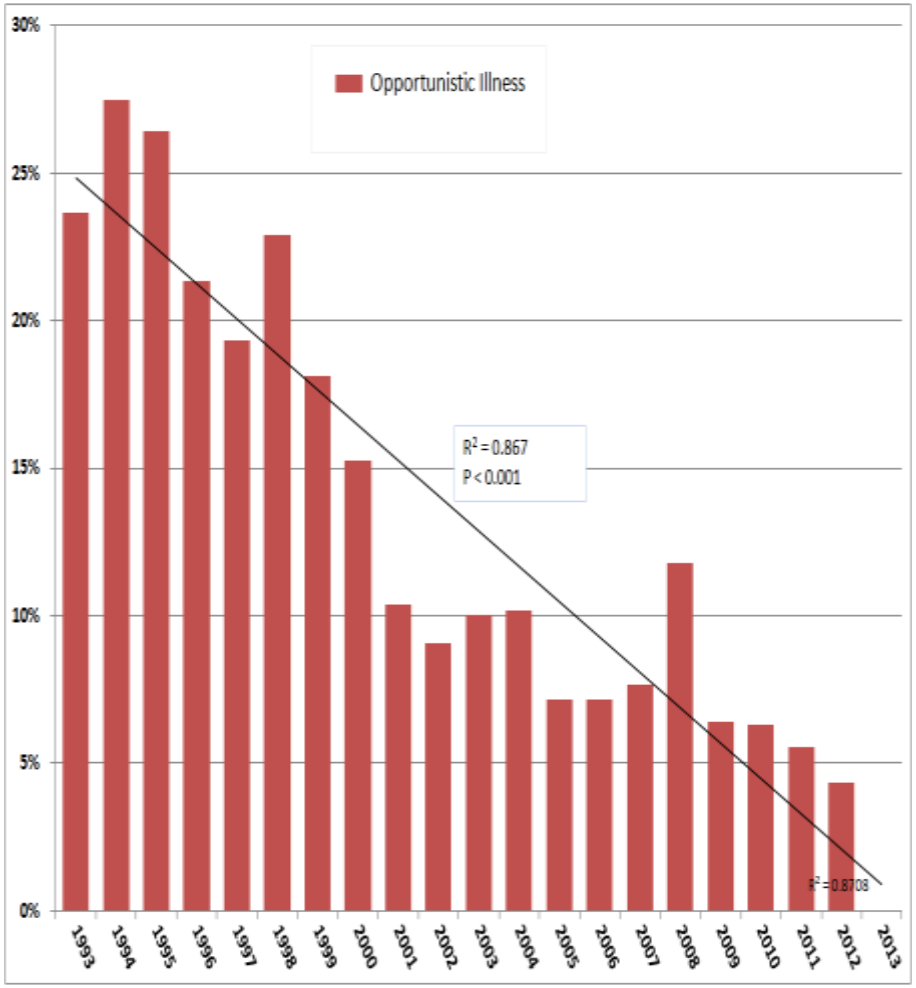
FIGURE 1. AIDS DIAGNOSIS COMPARISON 1993 -2012



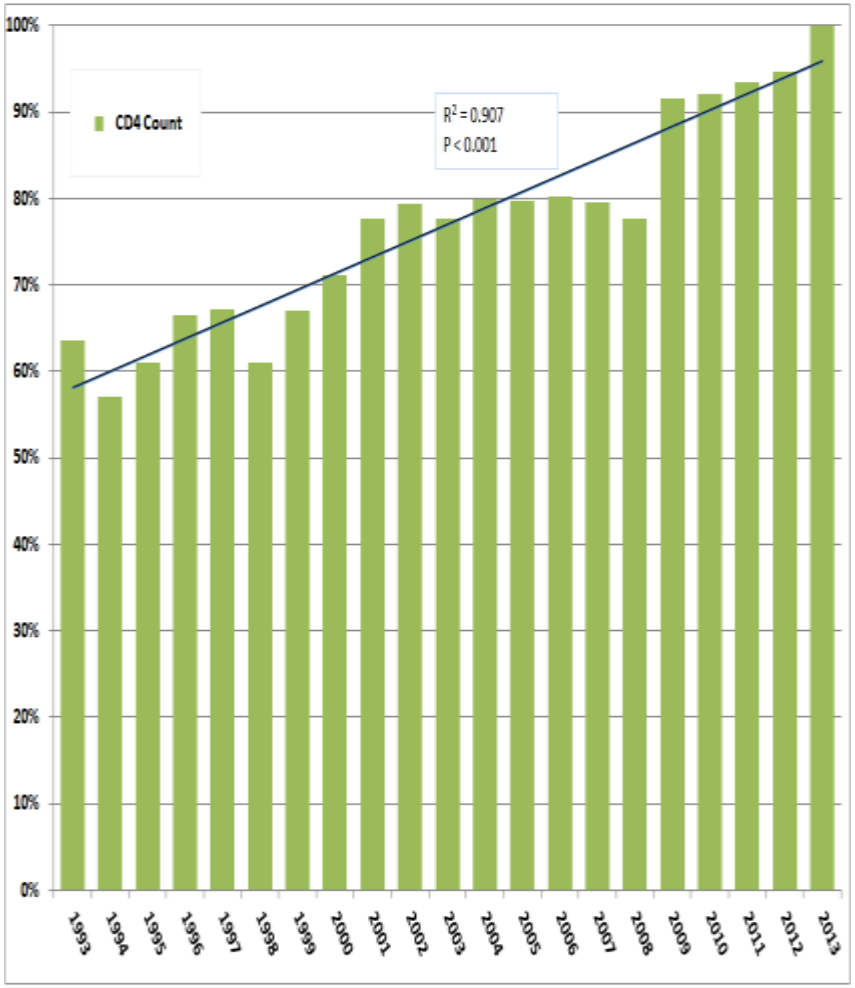


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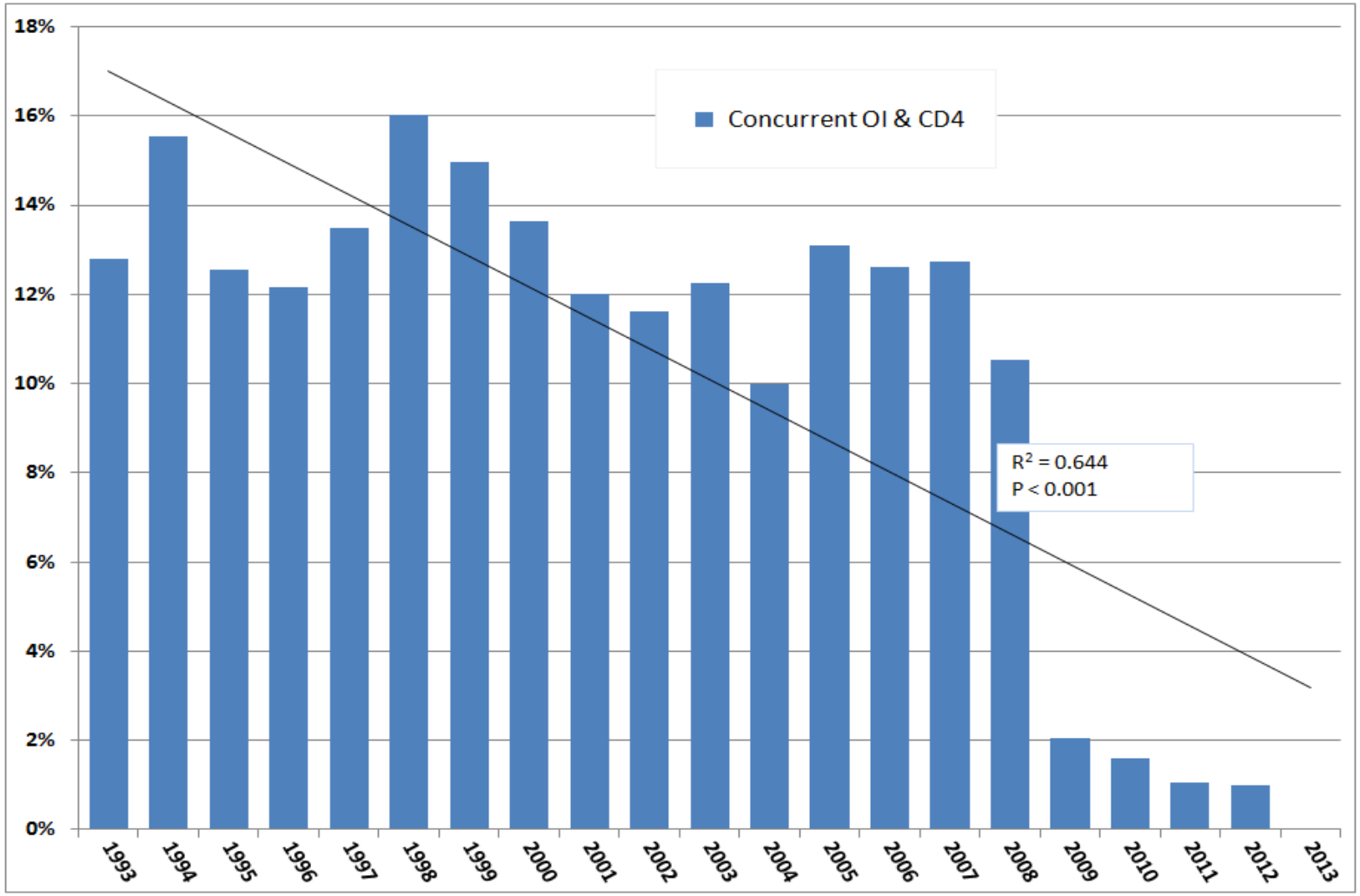
FIGURE 2. CONCURRENT AIDS DIAGNOSIS 1993 -2012



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Discussion

- Why physician's often rely on CD4 counts <200 for AIDS diagnosis?
- Time consumption because of lack of resources/manpower for collecting this information?
- The ease in which determination of AIDS can be based on CD4 or CD4 percentage rather than OI ?
- Conflation of the acute phase with the stage 3 (AIDS) in patients that initially presented and OI and a CD4 count less than 200cells/mul. ?
- Difficulties in determining whether the AIDS diagnosis was definitive or presumptive?

Discussion Cont.

- **Definition of stage 0** *or stage-3 (AIDS)-indicative opportunistic illness* **at diagnosis**
  - *The criteria for stage 0 or stage-3 (AIDS)-indicative opportunistic illness (OI) is based on CD4 values only if OI was not diagnosed, and is based on CD4 percent only if CD4 count is missing.* (*see the table on stag e 1, 2, and 3*)
  - Reduces confusion between acute HIV infection of stage 0, when CD4 counts can be transiently depressed, and stage 3 (AIDS), when CD4 values are usually persistently depressed

HIV INFECTION STAGE, BASED ON AGE-SPECIFIC CD4 COUNT OR CD4 PERCENTAGE

Stage*	Age on date of CD4 T-lymphocyte test					
	<1 year		1—5 years		6 years through adult	
	Cells/µL	%	Cells/µL	%	Cells/µL	%
1	≥1,500	≥30	≥1,000	≥26	≥500	≥26
2	750—1,499	20—29	500—999	14—25	200—499	14—25
3	<750	<20	<500	<14	<200	<14

**Criteria for stage 0 or stage-3 (AIDS)-indicative opportunistic illness (OI) supersede the above. Stage is based on CD4 values only if OI was not diagnosed, and is based on CD4 percent only if CD4 count is missing.*

LIMITATION

- Data for this study were obtained from the Houston, Texas Enhanced HIV/AIDS Reporting System (eHARS) which has limited capacity for capturing OI data

- Other Supplemental HIV/AIDS projects such as MMP are designed for capturing OI information which includes HAART data

Conclusion

- Investigation has shown that the OI reporting as AIDS, has significantly decreased ($p<0.001$) since the 1993 revised AIDS definition by the Center for Disease Control and Prevention (CDC) came into effect

- In 1994, seventy-two percent of all AIDS diagnosis in Houston, Harris County was associated with an OI infection compared to eight percent in 2012 and approximately one percent in 2013

Conclusion

- The decrease in the number of diagnosed AIDS cases from 1993 to 2013 based on the occurrence of an OI requires further investigation to determine its relation to reporting requirements under the CDC AIDS definition change of 1993

IMPLICATIONS

- Additional analysis is also needed to determine the prevention and control methods that lessen probability of an OI in AIDS patients.

- We did not use HAART data which may have significantly contributed to this study.

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THANK YOU

A computer-generated image
of HIV exiting a T-cell.
Source: AVERT.org

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