



C.H.A.I.N. REPORT

CHAIN Report
2006-6

Employment & Economic Wellbeing

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Introduction

With the introduction of combination anti-retroviral therapy in 1996 persons living with HIV/AIDS (PLWHA) could look forward to a longer life and one of improved quality. The promise of longer life has been substantially fulfilled as sharp and sustained declines in HIV/AIDS mortality have followed the introduction of HAART. Evidence is much more limited on the extent to which these medically effective treatments have improved the quality of life for PLWHA's. One dimension of quality of life, employment and economic well being, is the subject of this report.

Key Findings

- Despite widespread use of HAART, CHAIN cohort members remain weakly attached to the labor force.
 - Less than 20 percent of the 2002 New York City cohort and just over a quarter of the Tri-County cohort were currently employed at any of the three rounds of interviews included in the study. These levels are similar and even below the level of employment reported by the 1994 NYC cohort in 1999.
 - Roughly 1/3 of the cohort is unemployed but interested in returning to work.
 - Approximately half of the NYC cohort and approximately 40 percent of the Tri-County cohort reported no interest in returning to work
- The great majority of CHAIN cohort members live economically precarious lives.
 - Median annual income for the New York City cohort is below \$7,500 and falls between \$7,500 and \$10,000 for the Tri-County cohort.
 - Very few CHAIN participants earn above \$45,000.
 - Current employment substantially increases personal income, but the median personal income, even for those who work full time, falls between \$15,000 and \$25,000.
 - CHAIN cohort members are often short of money to pay for household expenses: clothing, food, rent and utilities. In contrast, very few report financial difficulties for medical care.
- Lack of human capital, as measured by educational attainment and prior work experience, coupled with impaired health are major obstacles to participants returning to paid work.

Background

A previous CHAIN report (Update #27) found modest upward trends in both current employment and interest in returning to work among CHAIN cohort members following the introduction of HAART. The proportion of CHAIN cohort members reporting some degree of current work increased from 19 percent at baseline in 1994 to 25 percent for 6th round interviews completed in 1999. At each round of interviews, the proportion of cohort members working full time was approximately half of all those reporting any current work. In contrast, approximately half the cohort, 46%, expressed no interest in returning to work.

There are no local data and very little national information to compare employment rates for the CHAIN cohort with representative samples of HIV+ individuals. The only study with relevant data reported that approximately 40% of a nationally represented cohort of people living with HIV/AIDS was currently employed at baseline interview, conducted prior to widespread introduction of HAART, and two follow-up surveys conducted between 1996 and 1997 (Goldman and Bao, 2004). In this study, a rigorous statistical analysis found that HAART helped PLWHA's maintain their jobs among those who continued to work during the pre-HAART period, but had minimal effect on returning to work among those who had stopped working (see also Rabkin et al. 2004).

A larger number of studies have explored, typically with *small groups or convenience samples*, the challenges HIV positive individuals confront in deciding to return to work. Recurrent themes in the return to work literature include the pervasive fear of losing benefits by virtue of employment, difficulties in adhering to ARV treatment regimens (Glenn, Ford & Moore 2003), and fear of workplace stigma (Brooks et al. 2004; Brooks & Klosinski 1999). PLWHA also engage in a personal health calculus—weighing the potential costs and benefits to their health—when deciding whether or not to return to work (Martin et al. 2004). Individuals who believe that work on balance would be beneficial to health are much more likely to contemplate returning to work than those who believe it would be detrimental to their health (Brooks et al. 2004). Possible adverse health effects mentioned by PLWHA include work related stress and the physical consequences of strenuous work (Hergenrath, Rhodes & Clark 2005, Kohlenberg & Watts 2003, Glenn, Ford & Moore 2003). Finally, improvements in financial situation, normative

values associated with being economically productive, self esteem, and improved mental health have all been mentioned as important motivations for returning to work (Hergenrather, Rhodes & Clark 2005, Hergenrather et al. 2006, Conyers 2004, Brooks et al. 2004)

Among the many barriers to work, two in particular were salient for members of the 1994 CHAIN cohort. Many lacked human capital skills that are needed to secure stable, well paying work. The cohort had low educational attainment and many had limited or sporadic work experience. Second, despite life extending medications, most cohort members continued to experience physical and mental health disabilities that limited their capacity to find and maintain employment. Recent participation in job training programs was associated with current employment, and loss of benefits was a stimulus for interest in work for those not yet employed. The purpose of this study is to revisit work experience in the recent past for the 2002 NYC cohort and the Tri-County Cohort. We re-examine the set of questions investigated in the earlier CHAIN studies of work, adding information on income and economic well being. We first examine recent trends in employment, interest in returning to work and economic well being. We next explore the reasons why individuals are and are not interested in returning to work, before turning to a consideration of the on-the-job difficulties faced by individuals who have returned to work. The concluding section replicates analyses in earlier CHAIN employment studies that identify the most important determinants of current work (Update #27).

Methods

Data for this study come from the first three rounds of interviews with the 2002 New York City cohort and the Tri-County cohort. The 2002 NYC cohort was sampled and recruited following a protocol similar to that followed for the 1994 NYC cohort. Recruitment for the 2002 cohort was conducted between July 2002 and December 2003 at 34 randomly selected medical and social service agencies. Baseline interviews were completed by 693 individuals between August 2002 and March 2004. Table 1 compares the 2002 CHAIN cohort of 693 individuals with contemporaneous New York City HIV/AIDS epidemiology data and a duplicated count of Ryan White CARE Act-funded encounters. The gender and ethnic composition of the NYC cohort is similar to the AIDS and HIV epidemiology data with the notable exception of the substantial under representation of white males and the corresponding greater concentration of African

Table 1. Sample Representativeness, NYC HIV/AIDS Cases and CHAIN Cohort

	NYC Persons Living with AIDS, as of 6/30/03 ¹		NYC Persons Living with HIV, as of 6/30/03 ¹		Ryan White CARE Act Encounters, 3/2001 - 2/2002 ²		CHAIN 2002 Cohort 6/2002-6/2004	
	Female	Male	Female	Male	Female	Male	Female	Male ³
Total N	15,753 (28%)	39,765 (72%)	10,104 (35%)	18,995 (65%)	10,765 (39%)	16,962 (61%)	278 (40%)	415 (60%)
White	11%	25%	8%	30%	9%	8%	6%	10%
Black	56%	40%	58%	36%	53%	53%	62%	47%
Latino	33%	32%	31%	30%	37%	37%	31%	41%
Other	1%	2%	3%	4%	2%	2%	<1% (1)	2%

¹ Source: Personal correspondence, HIV Epidemiology Program, Department of Health and Mental Hygiene, the City of New York

² Source: HIV CARE Services. Data represent a duplicated count of first time encounters with Ryan White CARE Services in FY11, March 2001 - February 2002.

³ Seven transgender cases are included in male category.

American and Latino males. The ethnic imbalance is similar but much less pronounced for females. The NYC cohort more closely mirrors the demographics of clients of CARE Act services. One possible explanation for this pattern is that the great majority of non Latino white NYC residents living with HIV/AIDS, at this stage of the epidemic, receive medical care in private practices, venues not included in the CHAIN sampling frame. They may also have less need and thus may be much less likely than minority residents to seek care at social service agencies where CHAIN members were also recruited and CARE Act services are located. With respect to the study focus, it is possible that our recruitment strategy may under represent HIV+ individuals who are most likely to hold stable jobs with health insurance benefits and therefore we may understate the level of work experience for all HIV positive individuals living in New York City. However the CHAIN sample's employment experience represents well the target population of clients for CARE Act services.

Second round interviews conducted between March 2004 and October 2005 were completed by 548 individuals or 89% of the 615 cohort members who were alive and still living in New York City. This study also includes 457 third round interviews that were still underway at

the time this report was being prepared.

The Tri-County cohort was recruited using methods and protocols similar to those for the New York City cohort. Recruitment for the Tri-County cohort was conducted in 28 agencies in Westchester, Rockland and Putnam Counties. Baseline surveys were completed by 396 individuals between November 2001 and November 2002. Table 2 shows that compared to the gender and ethnic composition of surviving AIDS cases in Tri-County at the end of 2000, females were over represented, but ethnic composition within gender closely approximated the AIDS case data.

Table 2. Sample Representativeness, Tri-County AIDS Cases and CHAIN Cohort

	Tri-County Surviving AIDS Cases, 12/31/00 ¹		Tri-County CHAIN Cohort	
	Male	Female	Male	Female
n	1429	748	204	194
<i>White</i>	27%	18%	27%	14%
<i>Black</i>	50%	60%	43%	57%
<i>Latino</i>	22%	22%	29%	26%
<i>Other</i>	<1%	<1%	1%	3%

¹ Source: New York State Department of Health, Bureau of HIV/AIDS Epidemiology

A second round of interviews was completed by 315 individuals during 2003, or 91% of the 348 surviving cohort members still residing in the Tri-County region. A third round of interviews was conducted between February 2004 and May 2005 with 311 individuals that included a refreshment sample of 58 individuals, interviewed for the first time.

Study Variables.

Nearly identical interviews were conducted with both the New York City and Tri-County cohorts, and information on work and income were almost identical to the information collected from the original New York City cohort. At each round of interviews, we ask participants if they are currently working in a paid position, full-time, part-time or irregular work. We also ask “how many hours a week do you work?” To determine whether cohort members had some regular work

experience prior to HIV infection, we used the question asked at baseline survey, “have you ever been regularly employed for at least one year?” Data were also collected at each round of interviews on further education or job training received since the last interview.

Unemployed participants were asked whether or not they were interested in returning to work as well as their reasons for wanting or not wanting to do so. These open ended responses are multiply coded into one or more of the following themes: health, social welfare, loss of cash benefits, financial need, job skills, psychological need for work, and retirement.

Those who were working were asked to comment on work related difficulties they attributed to HIV. All participants were asked to report their individual and household income (including social welfare benefits) from all sources for the prior calendar year, as a further measure of economic well being. Participants were also asked, “how often has it happened in the last six month that there was not enough money in the household for rent, utilities, food, medical care, clothing and recreational activities?” Possible responses were “Never”, “Once in a while”, “Fairly often” and “Very often”. For this study we collapsed “Once in a while”, “Fairly often” and “Very often” into a single category indicating lack of money at some point in the prior six months.

Table 3 displays the baseline sample distribution of other variables examined for their influence on current employment.

Analysis Plan

Study findings are presented in tabular format. Tables summarize unadjusted employment rates and mean income ranges that are disaggregated by cohort and round of interviews. We fit a series of multiple regression models to obtain more precise estimates of the correlates of current employment. For these analyses, the outcome measure was a binary variable—any current paid employment versus no current paid employment. We estimated models that successively examined the effects of demographic factors, human capital and health. The models combined data from all rounds of interviews. We first estimated a model that combined Tri-County and New York City and then two cohort-specific models. Standard errors are corrected for repeated observations on individual participants. Results are summarized in the body of the report. Tables reporting the estimated regression coefficients can be found in the appendix.

Table 3: Sample Distribution of Study Variables*

	New York	Tri-County
Sociodemographic Characteristics	% (N=693)	% (N=398)
Age		
Under 35	9%	12%
35 to 49	59%	63%
50 and older	32%	25%
Education		
Less than H.S.	52%	42%
H.S.	21%	25%
Some College	27%	33%
Every Work a Year or more?	80%	85%
Recent Job Training or Further Education	22%	16%
Substance Use		
Never	26%	34%
Past	41%	44%
Current (in Last 12 month)	34%	22%
CD4 T-Cell Count		
< 200	23%	23%
201-349	22%	18%
350-499	22%	22%
>500	33%	38%
Year of HIV Diagnosis		
Before 1991	31%	29%
1991-1996	40%	41%
After 1996	29%	29%
Currently on HAART	63%	56%
Receiving SSI or SSD	58%	53%

*For baseline interviews

Findings

Current Employment

Table 4 displays recent work experience for the 2002 New York City and Tri-County cohorts. Employment rates were low for both cohorts, but particularly for New York City participants. Report of any current work showed a modest increase from 13 percent at baseline surveys to 16% at round three. The percentage of New York City residents who reported full-time work ranges between 3 and 6 percent. The upward trend in employment, as modest as it was, may be an artifact of higher rates of sample attrition among the unemployed. For individuals interviewed at all three rounds there was virtually no change in the percentage of participants currently employed and the rise in full-time employment was sharply reduced. The overall rate

Table 4: Trends in Work Status for 2002 New York City and Tri-County Cohorts

Work Status	New York City			Tri County		
	Round 1 8/02-3/04	Round 2 3/04-10/05	Round 3 11/05-12/06	Round 1 11/01-11/02	Round 2 1/03-12/03	Round 3 2/04-5/05
(Sample Size)	(692)	(547)	(457)	(396)	(315)	(311)
Currently Employed	13%	15%	16%	26%	28%	26%
Full Time	3%	5%	6%	14%	15%	15%
Part Time or Irregular	10%	10%	10%	12%	13%	11%
Currently Unemployed	87%	85%	84%	74%	72%	74%
Interested in Work	38%	33%	29%	31%	31%	34%
Disinterested in Work	49%	52%	55%	43%	41%	40%

of employment for the 2002 cohort was substantially lower than that for the original New York City cohort in 1999, when 25 percent of that cohort was currently working. Although still low, a larger proportion of Tri-County cohort members were employed—approximately 25 percent at each round of interviews. Approximately 15 percent of the Tri-County cohort worked full-time at each round of interview, more than twice the level for the NYC cohort.

As discussed below, weak attachment to the work force prior to infection is a partial but far from a complete explanation for the low level of current employment. Approximately 80 percent of the New York City cohort and 85 percent of the Tri-County cohort worked for a year or

more at some point in their lives.

Interest and Disinterest in Returning to work

The majority of the NYC unemployed (approximately half of the entire cohort) expressed no interest in returning to work. This compares to roughly one-third of the entire cohort who indicated an interest in looking for work. A similar pattern among the unemployed is evident for the Tri-County cohort. Table 5 shows that economic considerations followed closely by psychological need to do something meaningful with one's life were the most frequent reasons CHAIN cohort members gave for wanting to return to work. Economic concerns were more widespread among Tri-County than NYC participants. Substantially smaller percentages of individuals indicated that their interest in returning to work was related to feeling better, or having requisite skills, or viable job prospects. Very few individuals stated that they were required to work as a basis for continuing their benefits.

Among CHAIN participants, poor health was, by far, the most frequent reason stated for lack of interest in returning to work (Table 6). Loss of benefits and lack of skills and job opportunities were far less often stated as reasons for not returning to work. Among those employed, we probed for worked related difficulties encountered by persons living with HIV/AIDS. The 47 responses expressed some concerns commonly found in the literature, namely physical health, adherence and stigma. Physical health surfaced as a common complaint and was often exacerbated by side effects associated with medications. Logistical difficulties of maintaining adherence to a medication regimen and fear of losing social welfare benefits as a result of gaining employment were also mentioned. A few respondents mentioned stigma associated with their HIV-positive status, but a more common response was that there were no difficulties because HIV status had not been disclosed. As stigma and adherence were seldom given as reasons for lack of interest in returning to work, these concerns would seem to be subsidiary to physical health and lack of training as major impediments to returning to work. Emotional burnout may be an additional challenge for those working as HIV/AIDS educators or peer counselors.¹ One outreach worker explained, "You get close to somebody; then you go back to see them, and they're not there. It's depressing." Since many people living with HIV/AIDS

¹ Interestingly, at least 12 of the 63 presently employed respondents work as HIV educators or peer counselors.

choose to work or volunteer in this field, this job-related emotional fatigue should be added to the list of important employment related issues for this population.

Table 5: Reasons For Wanting to Return to Work (Asked of those not currently working)

Reasons for Returning to Work	New York City			Tri County		
	Round 1 8/02-3/04	Round 2 3/04-10/05	Round 3 11/05-12/06	Round 1 11/01-11/02	Round 2 1/03-12/03	Round 3 2/04-5/05
Feel Better	19%	12%	10%	12%	10%	5%
Opportunity for Work	22%	20%	10%	17%	13%	5%
Requirement to Continue Benefits	1%	0%	1%	1%	2%	0%
Need the money	43%	44%	36%	71%	60%	46%
Psychological Need	45%	37%	47%	33%	49%	32%

Table 6: Reasons For Not Wanting to Return to Work (Asked of those not currently working)

Reasons for Not Returning to Work	New York City			Tri County		
	Round 1 8/02-3/04	Round 2 3/04-10/05	Round 3 11/05-12/06	Round 1 11/01-11/02	Round 2 1/03-12/03	Round 3 2/04-5/05
Poor Health	67%	71%	73%	82%	81%	58%
Loss of Benefits	14%	11%	8%	5%	16%	9%
Lack skills or Job Opportunities	12%	11%	12%	6%	9%	5%

Economic Well being

The low rates of employment are reflected in high levels of economic deprivation. Over half the 2002 New York City cohort (57 %) reported baseline household incomes below the federally defined poverty level. This compares with a poverty rate of 21% for all New York City residents. Half the New York City cohort reported individual incomes below \$7,500 per year and virtually no cohort member reported an annual income above \$45,000 (as a point of reference, the

2000 median for personal income for all New York City residents was \$38,000).. Taking into account income from all household members only slightly improves the cohort’s economic well being. Household median income rises but only to the next reporting range, between \$7,500 and \$10,000, and there is virtually no increase in the percentage of cohort members who reside in households with annual incomes above \$45,000.

The Tri-County cohort was better off economically than the New York City cohort, but the improvement was marginal at best. A significantly smaller, but still large, proportion of Tri-County participants (43 percent) had household incomes below the poverty level. The median annual income of individual cohort members was slightly higher, falling between \$7,500 and \$10,000, and just about 2% of the sample report individual incomes about \$45,000 per year. As was the case for New York City, economic status improved only slightly when household income is examined. Median household income still fell within the \$7,500 to \$10,000 range and the percentage of households with incomes above \$45,000 barely increased to just over 5 percent. The minimal impact of household income to improve income levels undoubtedly represents the substantial proportion of cohort members who live alone or in group homes, 61 percent for New York City and 38% for Tri County.

Table 7 displays median annual-income-range for individuals and households by current work status. Employment, particularly full-time, substantially increased both individual and

Table 7: Median Annual Individual/Household Income

Work Status	New York City			Tri County		
	Round 1 8/02-3/04	Round 2 3/04-10/05	Round 3 11/05-12/06	Round 1 11/01-11/02	Round 2 1/03-12/03	Round 3 2/04-5/05
Currently Employed						
Full Time						
Individual	\$25K-35K	\$15K-25K	\$15K-25K	\$15K-25K	\$15K-25K	\$15K-25K
Household	\$25K-35K	\$15K-25K	\$25K-35K	\$15K-25K	\$15K-25K	\$25K-35K
Part Time						
Individual	\$7.5K-10K	\$10K-15K	\$10K-15K	\$10K-15K	\$10K-15K	\$10K-15K
Household	\$10K-15K	\$10K-15K	\$10K-15K	\$10K-15K	\$15K-25K	\$15K-25K
Currently Unemployed						
Individual	\$5K-7.5K	\$7.5K-10k	\$7.5K-10k	\$7.5K-10K	\$7.5K-10K	\$7.5K-10K
Household	\$5K-7.5K	\$7.5K-10k	\$7.5K-10k	\$7.5K-10K	\$7.5K-10K	\$7.5K-10K

household income, but it is equally apparent that even individuals with full-time employment had incomes typically in the \$15,000 to \$25,000 range, still well below median income levels for all New York City residents. When we fit the annual income data to a statistical model that included cohort membership and educational attainment, employment status was the strongest predictor of income variation. Full-time employment was associated with \$12,246 increase in annual individual income compared to no current employment and part-time work yielded an increase of \$3,572 compared with current unemployment.

As a consequence of low employment and its association with low income levels, large percentages of cohort members reported not having enough money at some point in the last six months to pay for various household expenses listed in Table 8. Participants most often lacked sufficient money for recreational activities and clothing, but between 22 percent and 33 percent of New York City cohort members and between 28 percent and 41 percent of the Tri-County

Table 8: Need for Money for Everyday Expense*

Household Expense	New York City			Tri County		
	Round 1 8/02-3/04	Round 2 3/04-10/05	Round 3 11/05-12/06	Round 1 11/01-11/02	Round 2 1/03-12/03	Round 3 2/04-5/05
(Sample Size)	(624)	(514)	(457)	(382)	(315)	(288)
Rent	23%	22%	23%	36%	30%	28%
Utilities	28%	28%	33%	35%	38%	41%
Medical Care	6%	5%	5%	12%	10%	14%
Food	32%	31%	30%	40%	41%	40%
Clothing	38%	42%	40%	49%	56%	57%
Recreation	47%	51%	56%	60%	65%	61%

Mean Number of household expenses for which money was insufficient during last six Months (0 to 6). Sample sizes are in parentheses.

Not Employed	1.7 (539)	1.9 (436)	1.9 (381)	2.4 (282)	2.4 (226)	2.5 (207)
Currently Employed	1.7 (83)	1.1 (76)	1.7 (86)	2.2 (96)	2.2 (86)	2.3 (77)

*Not enough money in last six months once in a while, fairly often, very often

cohort reported insufficient money to pay for rent, utilities, and food. In sharp contrast to household expenditures, the CHAIN cohort seldom reported insufficient money to cover medical care expenses, which undoubtedly reflects the high level of government supported medical care for HIV/AIDS in New York.

Across all rounds of interviews, 70 percent of CHAIN participants reported insufficient money for one or more of the expenditure categories in Table 8, and at each interview, cohort members experienced financial difficulties in an average of two of the six areas. The lower panel of Table 8 suggests that current employment has only a modest effect on lessening difficulties in meeting household expenses. A more detailed analysis of these data indicate that full time employment was associated with a .5 decline in the count of categories where participants experienced some financial difficulties. Table 8 and further statistical analysis confirm that the Tri-County residents consistently reported greater financial difficulties than New York City residents.

Factors influencing current employment

Tables 9 and 10 display relationships between current employment and demographic, human capital and health related attributes. The results of the associated multiple regression analysis are presented in an appendix to this report and guide the interpretation of patterns of association reported in Tables 9 and 10.

The patterns of influence on current employment closely conform to results for the original NYC cohort. The three demographic variables included in this analysis—age, race/ethnicity and gender—have minimal systematic effect on current employment. Older age is associated with lower rates of current employment in Tri-County ($p < .01$) but not in New York City. Latinos have significantly lower rates of employment than whites in New York City ($p < .05$) but not in Tri-County. Observed differences that may be present with respect to age were substantially diminished when other variables are considered.

What we term human capital variables—measures of work related or marketable skills—are positively related to current employment. Specifically, educational attainment, prior work history, recent job training and continuing education all increase the likelihood of current employment. Although not a conventional measure of human capital, illicit drug use may be regarded as a negative indicator as it clearly can be disruptive for stable work and not surprisingly is associated with increased unemployment. Although there is some variation in strength of

effects between cohorts, the human capital variables operate similarly in both Tri-County and New York City cohorts—with the possible exception of a weakened effect of job training for the Tri-County participants. We did not include occupation in our analysis, because of a large amount of missing information, but the incomplete information offers further evidence of the importance of human capital, as individuals with managerial and professional occupations have higher rates of employment.

Table 9: Currently Working by Sociodemographic Characteristics

Sociodemographic Characteristics	New York City			Tri County		
	Round 1 8/02-3/04	Round 2 3/04-10/05	Round 3 11/05-12/06	Round 1 11/01-11/02	Round 2 1/03-12/03	Round 3 2/04-5/05
Age						
Under 35	11%	13%	22%	44%	48%	37%
35 to 49	14%	15%	16%	24%	25%	25%
50 and older	10%	14%	16%	22%	29%	25%
Gender						
Female	12%	13%	18%	27%	23%	26%
Male	13%	16%	18%	25%	33%	26%
Race/Ethnicity						
White	25%	26%	14%	24%	30%	24%
Black	13%	15%	20%	26%	25%	26%
Latino	10%	11%	12%	27%	30%	30%
Education						
Less than H.S.	8%	10%	11%	19%	20%	21%
H.S.	14%	17%	22%	25%	32%	24%
Some College	21%	21%	22%	35%	33%	38%
Every Work a Year or more?*						
No	4%	2%	8%	7%	9%	6%
Yes	17%	19%	10%	30%	32%	30%
Recent Job Training or Further Education						
No	10%	12%	14%	24%	24%	23%
Yes	26%	25%	26%	36%	49%	50%
Substance Use						
Never	16%	17%	23%	38%	40%	39%
Past	15%	17%	17%	24%	26%	26%
Current (in Last 12 months)	7%	9%	11%	13%	17%	18%

*As reported at baseline interviews

Table 10: Currently Working by Health Status

Health Status	New York City			Tri County		
	Round 1 8/02-3/04	Round 2 3/04-10/05	Round 3 11/05-12/06	Round 1 11/01-11/02	Round 2 1/03-12/03	Round 3 2/04-5/05
CD4 Count						
<200	8%	6%	6%	20%	21%	10%
201-350	12%	14%	14%	30%	24%	33%
351-500	9%	16%	20%	21%	26%	15%
500+	19%	18%	21%	31%	45%	35%
Recent Opportunistic Infection						
Yes	10%	10%	9%	20%	14%	15%
No	14%	17%	18%	29%	32%	29%
Year of HIV Diagnosis						
Before 1991	13%	19%	17%	22%	28%	25%
1991-1996	13%	12%	14%	24%	26%	24%
After 1996	12%	13%	18%	33%	31%	35%
Physical Health Score						
<44	10%	10%	11%	11%	13%	14%
44to 55	16%	17%	22%	38%	47%	32%
55 and higher	16%	21%	28%	52%	48%	48%
Mental Health						
<37	10%	9%	13%	15%	20%	35%
37-50	11%	17%	18%	28%	29%	19%
50 and higher	17%	15%	17%	36%	36%	22%
Currently Taking HAART						
No	16%	17%	16%	21%	25%	23%
Yes	11%	13%	16%	29%	30%	27%
Receiving SSI or SSD						
Yes	10%	10%	11%	10%	14%	13%
No	16%	22%	26%	44%	48%	44%

Measures of poor health and HIV disease are consistently associated with lower employment. Superior physical and mental health status and higher T-Cell count were associated with increased current employment. Individuals receiving SSI or SSD, further evidence of chronic disabilities, were also less likely than others to be currently employed. Recent experience with an opportunistic infection was associated with lower current employment. Current

employment is not related to either current use of HAART or length of time living with HIV. While poorer health restricts employment for both cohorts, there are some secondary differences in the relative importance of the health related variables. In Tri-County, T-Cell Counts and opportunistic infections are not associated with current employment. Whereas in New York City, the positive association between mental health status and employment was nonsignificant. One last observation: the higher rate of employment in Tri-County is not linked to differences in measured correlates of employment. The observed cohort difference remains undiminished even after taking into account the influence of all explanatory variables.

The joint effect of low human capital and poor health on limiting employment prospects is best illustrated in Table 11, which shows the current employment rates for a subset of individuals with “optimal” work related attributes compared with those of all other individuals. Those considered to have optimal employment characteristics have worked for at least one year prior to baseline survey and are free of debilitating illness as defined in the footnote to Table 11. The resulting contrast in employment rates is striking. Increase in employment is typically three or more times higher among those with optimal work related attributes. Rates of employment approach 50 percent by the third round of interviews for the New York City cohort and are consistently above 50 percent and as high as 77 percent in Tri-County. The low half of Table 11—in which the cohorts are stratified by educational attainment—examines the compounding effect of education.

The conditioning effect of education is particular evident for the New York City cohort, as high school and college education accentuate the increased employment among individuals who are healthy and have prior work history. For example, New York City cohort members with some college have employment rates that approach and exceed 50% when work related characteristics are optimal, but are only slightly elevated in comparison with individuals with lesser education when they remain in poor health. Of equal importance for understanding the limited prospects for employment in this sample are the very small percentages of the sample that meet what are reasonably relaxed standards for optimal work related characteristics. At baseline interviews, only 70 or approximately 10 percent of the New York City cohort and 77 or just under 20% of the Tri-County cohort met criteria for optimal work related characteristics. Only 16 of the New York City cohort and 18 of the Tri County cohort had optimal work related characteristics

and some college education.

Table 11: Employment and Optimal Work Related Characteristics*

Optimal Work Characteristics	New York City			Tri County		
	Round 1 8/02-3/04	Round 2 3/04-10/05	Round 3 11/05-12/06	Round 1 11/01-11/02	Round 2 1/03-12/03	Round 3 2/04-5/05
Yes	30%	42%	46%	62%	77%	57%
No	10%	12%	13%	17%	19%	24%
By Level of Education						
less the H.S.						
Yes	15%	24%	6%	63%	85%	NA
No	8%	9%	11%	10%	13%	22%
H.S.						
Yes	25%	38%	75%	55%	75%	NA
No	12%	13%	15%	18%	23%	22%
Some College						
Yes	46%	60%	60%	65%	72%	NA
No	16%	15%	15%	26%	26%	35%

NA: 5 or fewer cases

Optimal work conditions

CD4 counts >200, no recent opportunistic infection, worked a year or more in the past, not receiving ssi_ssd, physical functioning > 42 and mental health functioning >37.

Discussion

As a result of HAART, people living with HIV/AIDS are living longer, but the findings of this study underscore the fact that there remains considerable room for improved quality of life, at least as measured by economic well being. Despite six plus years of widespread use of HAART, employment among people living with HIV/AIDS remains low, even when compared to the work experiences of the 1994 CHAIN cohort in the late 1990's. Closely linked to the low level of employment, CHAIN members live economically precarious lives. The interview data indicate that New York City and State AIDS programs and policies have essentially eliminated financial barriers to HIV medical care, but most of the CHAIN cohort experience recurrent difficulties in paying for basic household expenditures: rent, utility, food and clothing. The Tri-County cohort

has a higher rate of employment and somewhat higher level of income than the NYC cohort, but the former cohort reports if anything a slightly higher level of financial difficulties paying for household expenses.

Two primary factors are at work that keep large numbers of cohort members out of the workforce. First, while we may today regard HIV/AIDS as a chronic health condition, it is a debilitating condition for many CHAIN cohort members that affects their efforts and motivation to return to work. This is evident both in the low levels of reported physical and mental health function, and the large fraction of the CHAIN cohort receiving SSI and SSD. Second, many CHAIN members are further handicapped by weak attachment to the workforce that pre-dated their HIV infection. A small minority have no history of regular employment, but many more worked in low skill, low paying jobs prior to HIV infection. These individuals lack the kind of specialized skills that would make them attractive for reintegration into stable and well compensated employment. Thus, for many CHAIN participants, there may be little economic incentive to return to work, when employment opportunities are limited to low paying jobs that at best offer modest increase in income over what can be earned through disability benefits.

This study begins to sort out how these influences shape the decisions to return to work, but further study is needed to design effective return to work policies and programs. First, we need a better understanding of the precise nature of the physical and mental health toll that HIV continues to exact that limits full engagement in the workforce. Second, more detailed studies are warranted to more accurately distinguish individuals who suffer from permanent physical or mental disabilities that preclude work, and those who currently experience reduced physical and mental health functioning that may be improved by appropriate health care and counseling interventions. The CHAIN data set offers at best only an estimate of the percentage of CHAIN participants who are interested in and capable of returning to work, but the numbers appear to be quite substantial. Approximately one-third of the cohort is currently unemployed and would like to return to work, but some unknown percentage of those interested in returning to work experience limited physical or mental health functioning that restrict the kind of work they can perform. Greater attention must be directed to exploring the range of rehabilitation possibilities that match the physical and mental capacity of HIV positive individuals to job demands. Some individuals may be able to return to work in a diminished capacity, as suggested by the large

proportion of employed individuals who work part-time or irregular hours. Other individuals may have worked at occupations or in workplaces that pose unacceptable occupational hazards for immune-compromised individuals. For some PLHWA returning to work may require retraining or training for occupations and jobs that provide suitable environments for PLWHA. A complete solution for helping PLWHA return to productive work should also encourage employers to redesign the workplace to accommodate the special needs of PLWHA's.

HIV/AIDS policy in New York City has been extraordinarily successful in providing access to appropriate HIV medical care regardless of economic circumstances. However, HIV/AIDS policy will remain at best a partial success if the availability of medical care with its promise of extending life is not complemented by policies and programs that ensure PLWHA will have the capabilities to live full and productive lives.

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APPENDIX

NYC and Tri County Combined

Variable				
cohort	1.41***	1.33***	1.22***	1.22***
age		-0.04**	-0.03	0.00
sex		0.40	0.23	0.10
latino		-0.58	-0.26	-0.31
black		-0.06	0.09	-0.10
Education			0.67***	0.49***
Substance Use			-0.55***	-0.47**
Job Training			1.00***	1.02***
Physical hlth				0.05***
Mental hlth				0.02**
Opportunistic				-0.49*
Infections				
T-Cell Count				0.17
On SSI or SSD				-1.56***
haart				0.06
Year HIV Dx				-0.04
N	2718.000	2718.000	2531.000	2474.000

legend: * p<.05; ** p<.01; *** p<.001

NYC Cohort

Variable			
age	-0.02	-0.00	0.01
sex	0.29	0.08	-0.01
latino	-1.13*	-1.03*	-0.96*
black	-0.41	-0.44	-0.63
Education		0.56***	0.44**
substance use		-0.41*	-0.32+
Job training		1.14***	1.11***
Physical hlth			0.03**
Mental health			0.02
T-cell			0.28**
Opportunistic			-0.53+
Infections			
ssi or ssd			-0.90***
On haart			-0.39
Year dx			-0.04
N	1696.000	1550.000	1527.000

legend: + p<.1 * p<.05; ** p<.01; *** p<.001

Tri-County Cohort

Variable			
age	-0.08**	-0.07**	-0.02
sex	0.63	0.54	0.40
latino	0.16	0.75	0.41
black	0.24	0.59	0.53
Education		0.83***	0.57*
Substance use		-0.74**	-0.64**
Job Training		0.66	0.69+
Physical Hlth			0.07***
Mental Hlth			0.03*
T-Cell Counts			0.00
Opportunistic			-0.33
Infections			
ssi or ssd			-2.46***
haart			0.44
Year Dx			-0.05
N	1022.000	981.000	947.000

legend: +p</05 * p<.05; ** p<.01; *** p<.001