Tri-County CHAIN

Report 2007-3

Service Needs & Gaps : Wave 4 Update in Tri-County

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November 10, 2007
HRSA Grant # H89 HA 0016-17

C.H.A.I.N. REPORT

ACKNOWLEDGMENTS

A Technical Review Team (TRT) provides oversight for the CHAIN Project. In addition to Peter Messeri, PhD, Angela Aidala, PhD, and Gunjeong Lee, PhD of Columbia University's Mailman School of Public Health, TRT members include Mary Ann Chiasson, DrPH, MHRA (chair); Jan Park, JoAnn Hilger, Nina Rothschild, DrPH, Clarissa Silva, Lucia Torian, PhD, Daniel Weglein, MD, NYCDOHMH; Julie Lehane, PhD, Tom Petro, Westchester County DOH, and Roberta Scheinmann, MHRA.

This research was supported by grant number H89 HA 0016-17 from the US Health Resources and Services Administration (HRSA), HIV/AIDS Bureau with the support of the HIV Health and Human Services Planning Council, through the New York City Department of Health and Mental Hygiene and the Medical and Health Research Association of New York City, Inc. Its contents are solely the responsibility of the researchers and do not necessarily represent the official views of the U.S. Health Resources and Services Administration, the City of New York, or the Medical and Health Research Association of New York.

INTRODUCTION

This CHAIN report summarizes the need for and gaps in services as reported in the fourth round of Tri-County CHAIN interviews. This report updates an earlier report, "Tri-County Service Gaps Update – A 3-Wave Analysis (Tri-County Report 2005-5)", that was based on the first three rounds of Tri-County data. Service needs and gaps are measured with twelve sentinel measures spanning six service areas (health, case management, housing, mental health, alcohol or drug treatment, and transportation). Table 1 presents operational definitions for each service need and service gap. Tables 2 through 8 present findings of the service gaps analysis. The last table (table 9) explores the possible bias in our findings resulting from loss-to-follow-up.

Most of the tables in this report draw upon data collected from fourth round interviews with 234 Tri-County CHAIN cohort members conducted between November 2005 and March 2007 For a description of the sampling strategy, study protocols, and cohort characteristics see Tri-County CHAIN Report 2002-2, Cohort Characteristics for Tri-County cohort.

Table 1 defines pairing of need and service gap measures for 12 sentinel services. These measures were selected and developed following a series of public presentations in both New York City and Tri-County, as well as the convening of a Tri-County provider advisory group and consultation with both the Westchester Department of Health and the CHAIN Technical Review Team. They are not intended to cover every service funded with Ryan White funding, but rather represent guideposts for assessing the overall reach and coverage of the HIV health services delivery system in the Tri-County Region. These measures are also limited by the data collected through CHAIN interviews. Although CHAIN interviews cover virtually the entire spectrum of HIV services, service utilization information obtained through interviews is limited by what can be reliably collected through respondent self-reports. Strictly speaking, a service gap may not precisely measure whether or not the client received a particular service, but the client's perception of receiving a service. Nonetheless self reports of perceived service needs and delivery of services are important evidence regarding the quality services, quite separate from an objective count of the number of services delivered or provider-client encounters. If a client does not recall receiving a particular component of case management services (e.g. assistance in scheduling services), one might surmise that the case management encounter may have had a diminished impact on accessing services.

CHAIN interview data are elicited in a manner to measure both "subjectively expressed" and "objectively assessed" needs. To illustrate, a respondent report of a problem with housing or seeking housing services is a subjectively expressed need for housing. In contrast, a respondent report of unstable housing in the past 6 months – perhaps doubled-up on a friend's couch – would be regarded as an objectively assessed need. CHAIN participants are considered as having a need for housing services if manifest in either or both of forms of self reports. Similarly a service gap arises if a CHAIN survey participant with a housing need, reports either that she has not received any housing services in the prior six months or that she is not living in specialized AIDS housing (which could be construed as a potential "solution" to her housing problems). For some health services, such as comprehensive medical care and patient/provider communication, it is assumed that all HIV-positive adults have a presumptive need for that

service. To measure a service gap, we first identify the people with a specific need, and then look to see how many with that need are not receiving the corresponding service. That proportion, of "not receiving service" divided by all those with need, represents the service gap.

KEY FINDINGS

- Apart from comprehensive medical care and patient/provider communication, services that all HIV+ individuals are presumed to need, service areas of greatest need are ART adherence (77%), comprehensive case management (76%), alcohol and drug treatment (46%), and counseling case management (43%) (see Table 2).

- Among people with need for each service area, the largest gaps in needed services were for professional mental health services (69%), alcohol or drug treatment (69%), supportive mental health (55%), and comprehensive case management services (47%) (see Table 2). Areas which had the largest number of people in need but not receiving services were comprehensive case management, AOD treatment and patient provider treatment

- To better isolate those service areas where there may be access and delivery problems, Table 3 groups each of the twelve service areas by level of service need and gap in services.

  -The service areas grouped in the high-need /high-gap cell, AOD treatment and case management services, are areas in which relatively large proportions of the Tri-County Cohort are not receiving needed services. As a consequence these areas merit closer scrutiny to better understand the source of service gaps and possible remedies.

  -The low-need/high-gap cell isolates mental health, an area that may constitute a second tier of concern. According to CHAIN interview data, the service gap is large but the overall need is low, and thus the numbers of persons in need and not receiving mental health services are relatively.

  -The two low-gap cells on the right side of table 3, identify service areas where the region is doing a good job in reaching people in need. In particular, the data suggest that the current HIV system of care is doing an excellent job in delivering health services and a good job in providing housing and transportation services to the smaller number of CHAIN participants in need of these services.

- Table 4 explores the evolution of service gaps among respondents with service needs. It compares the status of each service gap between the wave 3 and the wave 4. Professional mental health service and AOD service areas have by far the highest rates of persistent and developing gaps (69% and 69% respectively). Case management services have a relatively high proportion of persistent gaps, and housing services have more developing gaps than persistent gaps, indicating variability over time in respondents' housing statuses.

- Tables 5, 6 and 7 examine whether there are subgroups of infected individuals that experience much greater service needs or greatly disadvantaged in receiving needed services. Table 5 reports results of subgroup analyses for gender, race/ethnicity, HIV risk behavior and geographical residential type. MSM with problem drug use is the only subgroup examined that exhibits above average need across multiple service areas, cutting across health, case management and housing service areas. On the service gap side, none of the subgroups examined appear to be systematically disadvantaged with regard to accessing n needed services.

- Tables 6 and 7 present findings for multiple regression analyses evaluating the influence of a large number of factors on services gaps for medical and case management services. The factors tested were gender, race/ethnicity, household income, high school education, age, children in the household, unstable housing, drug use, residential type, mental health, T-cell counts, opportunistic infections, and delay seeking HIV medical care post-diagnosis, all things being equal. The findings in tables 6 and 7 are reported as adjusted odds ratios. Values greater than 1 indicate higher values or the identified factor is associated with increased risk of not receiving the needed services. A value less than one indicates the factor is associated with lower risk of not receiving the service. Coefficients with bold type signify factors with a substantial impact. Among the key findings:

  – Men are much more likely than women to lack access to comprehensive medical care.

  – Younger individuals (under age 50) and those with less than high school experience more difficulty with patient-provider communications.

  – Former drug users and current drug users are less likely then individuals never using drugs to get needed ART treatment adherence services.

  – Recent opportunistic infections, and with less consistency, suppressed CD4 counts are associated with reduced access to the sentinel measures of quality medical care and case management services. These findings may point to the poorer health outcomes that result when individuals are not connected to appropriate medical care and effective case management services, and thus the benefits of these services for improving and maintaining the health of HIV+ clients.

  - There is some evidence that individuals who delayed getting HIV medical care following initial HIV diagnosis continue to experience above average risk in maintaining connection to appropriate HIV medical care.

  -The reduce gaps in case management services for young cohort members, individuals with low incomes, those with current or past history of drug use are indicative of successful efforts in Tri-County to focus intensive case management services to marginalized groups who would most benefit from these services. .

- Table 8 displays secular trends in services needs and gaps in services across all four

rounds of services cover the 2001 to 2007 period. A "↘" indicates a service area in which the Tri-County Cohort has experienced a substantial decline in either need or service gap over the study period. In particular, a sustained decline in a service gap may be interpreted as an indicator of successful efforts to improve access and the reach of services. In this regard, Table 8 offers evidence of major improvements in delivering needed housing and transportation services as well as improvements in patient/provider communications. Although not as consistent, there appears to be some headway in getting supportive mental health services, but not professional mental health services, to individuals exhibiting poor mental health status. The level of service gaps remained relatively stable for all other services. It is notable that in no area was there an appreciable rise in service gaps.

- Declines in need for housing services, AOD treatment and transportation may be taken as possible indications of the success of service interventions in these areas.

- Table 9 compares the needs and service gaps at wave 3 between two groups – those who were interviewed again in wave 4, and those who were lost to follow-up in wave 4. This analysis assesses whether change in needs and service gaps between the two rounds of interviewing may be due to cohort attrition. Generally, the results of this "bias" analysis show little evidence that reduction in service needs from the third to fourth round of interviews was simply an artifact of failure to re-interview hard-to-reach people at increased risk of not getting the services they needed. The one area of caution is permanent housing services. Individuals lost to follow-up were more likely to have reported need for permanent housing services than were those who were interviewed at wave 4 (30% vs. 17%). Thus it can't be ruled out that the drop in permanent housing service need from 22% to 12% between waves 3 and 4 in Table 8 was in to some extent due to disproportionate loss of people with housing problems. However, the data in Table 9 also indicate that level of service gap for permanent housing is if anything smaller for those lost to follow-up and therefore is not likely to be a factor in the reduction in the service gap between waves 3 and 4..

- For each service area, there are no significant differences in reported service gaps in wave 3 when comparing those lost to follow-up with those who were interviewed in wave 4. This implies that the service gaps remain relatively consistent across rounds even in the face of attrition from the cohort of individuals with those needs and gaps (Table 9).

Table 1. Measuring Needs & Service Gaps – Definitions

Service Area	NEED	SERVICE GAP
HEALTH		
Comprehensive medical care	Positive HIV serostatus	Primary HIV medical provider does not provide ALL of the following: (1) Routine check-ups, well visits, vaccinations, (2) Source of health advice, (3) 24-hour access for medical emergencies
Patient/Provider communication	Positive HIV serostatus	Patient doesn't know t-cell or viral load, OR says current doctor "could do a better job explaining my treatment options to me"
Treatment adherence	On antiretroviral medications	Among non-adherent, not receiving treatment adherence services
Antiretroviral therapy	T-cell less than 200	Not on antiretroviral combination therapy
CASE MANAGEMENT		
CM: Comprehensive care model	(1) Current drug user OR (2) poor mental health function OR (3) recent episode of unstable housing OR (4) experienced a barrier to medical or social service because didn't kow where to go, couldn't get child care, couldn't get transportation, or couldn't afford care or (5) says there's not enough money in the household for rent, utilities, food, or clothing	Among those with a need, no CM developed a care plan, assisted in getting or referring client to social services, or helped fill out forms for benefits or entitlements in past 6 months
CM: Counseling model	(1) Poor mental health function OR (2) current drug user OR (3) practiced unsafe sex in past 6 months	Among those with a need, no CM counseled client regarding personal life, drug or alcohol problems, practicing safer sex, or periodically checked up on client in past 6 months
HOUSING		
Financial Housing Services	(1) Fairly often or very often not enough $$$ for rent, OR (2) reported that s/he needed help with eviction, paying rent, or maintaining rental subsidy	No housing service received, AND client not living in specialized AIDS housing
Permanent Housing Services	(1) At least one episode of unstable housing or doubled-up in past 6 months, OR (2) reported that s/he needed help related to homelessness, critical need to move, physical access issues, poor housing quality, or dangerous neighborhood	No housing service received, AND client not living in specialized AIDS housing

Service Area	NEED	SERVICE GAP
MENTAL HEALTH		
Professional Mental Health	Poor mental health function (Mental component summary (MCS) $\leq$ 37.0)	Respondent did not report receipt of professional MH service (psychiatrist, psychologist, therapist, therapeutic social worker) in prior 6 months
Supportive Mental Health	Scored above 37.0 on mental health function AND (1) reported a need for help with emotional or psychological problems OR (2) felt counseling regarding sexuality and sexual issues was considerably or extremely important OR (3) strongly disagreed that "most of the time I am in firm control of my feelings and behavior"	Respondent did not report receipt of supportive MH service (support groups, clergy, case managers, peer workers) in prior 6 months
ALCOHOL OR DRUGS (AOD)		
AOD	(1) Current drug or heavy alcohol user OR (2) client said that treatment or further treatment is "considerably" or "extremely" important	No reported therapeutic or self-help AOD treatment in prior 6 months
TRANSPORTATION		
Transportation Services	(1) Delayed or didn't get med or soc svce because couldn't get transportation, OR (2) reported that s/he needed help or assistance with transportation in prior 6 months	No reported transportation service in prior 6 months

Table 2. Measuring Needs & Service Gaps – Tri-County CHAIN Wave 4 (2006-7)

Service Area	NEED		SERVICE GAP	
	Number with Need	Proportion of Full Cohort (n=234) with Need	Among those with Need, the Number with a Service Gap	Proportion of those with Need Experiencing Service Gap
HEALTH				
Comprehensive medical care	234	**100%**	48	**21%**
Patient/ Provider communication	234	**100%**	63	**27%**
Treatment adherence	180	**77%**	47	**26%**
Antiretroviral therapy	45	**19%**	7	**16%**
CASE MANAGEMENT				
CM: Comprehensive care model	178	**76%**	83	**47%**
CM: Counseling model	101	**43%**	42	**42%**
HOUSING				
Financial Housing Services	54	**23%**	20	**37%**
Permanent Housing Services	27	**12%**	6	**22%**
MENTAL HEALTH				
Professional Mental Health	67	**29%**	46	**69%**
Supportive Mental Health	33	**14%**	18	**55%**
ALCOHOL OR DRUGS				
AOD	108	**46%**	75	**69%**
TRANSPORTATION				
Transportation Services	57	**24%**	21	**38%**

Table 3. Cross Classification of Service Areas by level of Need and Service Gaps Tri-County CHAIN Wave 4(2006-7)

		Service Gap Level	
		High(>40%)	**Low(<40%)**
Service Needs	**High(>40%)**	Case Management Services AOD Treatment	Health Services*
	Low(<30%)	Mental Health Services	Antiretroviral Therapy Housing Services Transportation

*All except Antiretroviral Therapy

Table 4. The Evolution of Service Gaps Among Respondents with Service Needs (row percentages)

	Total Number with Need	Persistent Gaps		Developing Gaps		Gaps Addressed		Needs Met		% Having Persistent/ Developing Gaps
	n	n	%	n	%	n	%	n	%	%
Health										
Comprehensive medical care	234	23	10%	25	11%	36	15%	150	64%	21%
Patient/Provider communication	234	41	18%	22	9%	53	23%	118	50%	27%
Treatment Adherence	180	20	11%	27	15%	37	21%	96	53%	26%
Antiretroviral therapy	45	0	0%	7	16%	2	4%	36	80%	16%
Case Management										
CM: Comprehensive care model	178	35	20%	48	27%	27	15%	68	56%	47%
CM: Counseling model	101	17	17%	25	25%	10	10%	49	49%	42%
Housing										
Financial Housing Services	54	3	6%	17	31%	1	2%	33	61%	37%
Permanent Housing Services	27	0	0%	6	22%	3	11%	18	67%	22%
Mental Health										
Professional Mental Health	67	14	21%	32	48%	4	6%	17	25%	69%
Supportive Mental Health	33	3	9%	15	45%	2	6%	13	39%	54%
Alcohol or Drugs (AOD)										
AOD	108	37	34%	38	35%	9	8%	24	22%	69%
Transportation										
Transportation Services	56	7	13%	14	25%	9	16%	26	46%	38%

Table 5. Subgroup Differences in Needs & Service Gaps

Service	NEED	SERVICE GAP
	Groups significantly more likely to experience a need	Groups significantly more likely to experience a service gap
HEALTH		
Comprehensive medical care		-Men
Patient/Provider communication		
Treatment adherence	-Men - MSM who were problem drug users	
Antiretroviral therapy		-Women
CASE MANAGEMENT		
CM: Social work model	- MSM who were problem drug users - Problem drug users	
CM: Counseling model	- MSM who were problem drug users - Problem drug users -Rural residents	
HOUSING		
Financial Housing Services	- MSM who were problem drug users	
Permanent Housing Services	- Blacks -Urban residents	-Latino
MENTAL HEALTH		
Professional Mental Health		
Supportive Mental Health		- Problem drug users
ALCOHOL OR DRUGS		
AOD	- Women	-Rural residents
TRANSPORTATION		
Transportation Services		

Note: These data represent statistical tests for subgroup differences by gender, race/ethnicity, HIV risk behavior, and geographical residential type (p-value<0.1) .

* “Problem drug users” are defined as individuals who have used cocaine, crack, or heroin three or more times a week for a month or more, or who have ever injected drugs, or who meet the CAGE criteria for heavy drinking.

Table 6. Medical Care Service Gaps Analyses: Logistic Regression

Factor	Odds Ratio of Increased COMP MEDICAL CARE Service Gap	Odds Ratio of Increased MEDICAL COMMUN-ICATION Service Gap	Odds Ratio of Increased TREAT ADHRNCE Service Gap
N=	223 [1]	234	180
Male (vs. Women)	**2.22**+	1.14	1.07
Black (vs. White)	0.59	1.72	0.85
Latino (vs. White)	0.43	0.73	**0.34+**
Household income under $10,000	1.05	0.68	1.17
Less than HS Education	1.71	**2.29***	1.76
20-34 years old (vs. 50+ years old)	na	**6.54****	3.11
35-49 years old (vs. 50+ years old)	0.88	**2.17***	1.24
Suburban or rural area residents (vs. urban)	1.01	0.84	1.19
Children under 18 in the household	0.66	**0.40***	1.00
Unstable housing episode in past 6 months	0.59	0.74	0.46
Former drug user (vs. Never used drugs)	1.04	1.49	**2.81***
Current drug user (vs. Never used drugs)	1.19	0.88	1.42
Very low mental health score (<37.0 mcs)	1.02	1.76	1.50
200-499 t-cell count (vs. 500+ t-cell count)	0.47	**0.44+**	1.29
<200 t-cell count (vs. 500+ t-cell count)	1.35	**0.40***	0.98
Recent opportunistic infection	**2.73***	**2.76***	1.88
Delayed initial HIV medical care >3 months	**1.96+**	1.22	1.89

+ p<.1 * p < .05 ** p < .01 *** p < .001

Note: In those groups with a "reference group," such as male/female, one group is compared to the reference group. Men are 2.22 times as likely to report a comprehensive medical care service gap as are the reference group, women.

na -dropped due to collinearity or lack of variation

[1] 11 cases (age 20-34) were dropped because they predict failure perfectly.

The regression results for ARV treatment service gap is not used because of small N (N=33).

Table 7. Case Management Service Gaps Analysis : Logistic Regression

Factor	Odds Ratio of Increased COMPREHENSIVE CM Service Gap	Odds Ratio of Increased COUNSELING CM Service Gap
N=	178	101
Male (vs. Women)	0.95	0.76
Black (vs. White)	0.99	1.02
Latino (vs. White)	1.52	1.43
Household income under $10,000	**0.45***	0.57
Less than HS Education	1.44	0.81
20-34 years old (vs. 50+ years old)	**0.20+**	0.67
35-49 years old (vs. 50+ years old)	0.84	0.82
Suburban or rural area residents (vs. urban)	0.75	0.69
Children under 18 in the household	0.66	0.78
Unstable housing episode in past 6 months	0.38	0.37
Former drug user (vs. Never used drugs)	**0.48+**	0.45
Current drug user (vs. Never used drugs)	**0.28***	0.23
Very low mental health score (<37.0 mcs)	1.01	1.20
200-499 t-cell count (vs. 500+ t-cell count)	1.36	1.39
<200 t-cell count (vs. 500+ t-cell count)	0.59	0.55
Recent opportunistic infection	**3.24****	**2.96***
Delayed initial HIV medical care >3 months	0.89	0.77

+ p<.1 * p < .05 ** p < .01 *** p < .001

Table 8. Service Needs & Gaps – Comparing Waves 1, 2 , 3 & 4 (Tri-County CHAIN)

	SERVICE NEED Proportion of Full Cohort					SERVICE GAP Proportion of cohort with Need				
	Wave 1 (2001-2)	Wave 2 (2003)	Wave 3 (2004-7)*	Wave 4 (2006-7)	Trend	Wave 1 (2001-2)	Wave 2 (2003)	Wave 3 (2004-7)*	Wave 4 (2006-7)	Trend
HEALTH										
Comprehensive medical care	100%	100%	100%	100%		29%	28%	28%	21%	↘+
Patient/Provider communication	100%	100%	100%	100%		47%	53%	39%	27%	↘*
Treatment adherence	75%	77%	80%	77%		37%	34%	34%	26%	
Antiretroviral therapy	16%	17%	17%	19%		23%	15%	13%	16%	
CASE MANAGEMENT										
CM: Comprehensive care model	77%	85%	85%	76%		45%	45%	48%	47%	
CM: Counseling model	45%	52%	52%	43%		40%	47%	47%	42%	
HOUSING										
Financial Housing Services	34%	33%	28%	23%	↘**	55%	53%	22%	37%	↘***
Permanent Housing Services	18%	23%	22%	12%		39%	58%	38%	22%	
MENTAL HEALTH										
Professional Mental Health	33%	36%	39%	29%		55%	68%	74%	69%	
Supportive Mental Health	18%	19%	21%	14%		64%	60%	49%	55%	
ALCOHOL OR DRUGS										
AOD	63%	58%	54%	46%	↘***	76%	72%	72%	69%	
TRANSPORTATION										
Transportation Services	32%	44%	32%	24%	↘*	67%	83%	64%	38%	↘***

for trend analysis: + p<.1 * p < .05 ** p < .01 *** p < .001

Cohort numbers in each wave are 398 in wave1, 315 in wave2, 338 in wave3, and 234 in wave4.

* The respondents of baseline cohort (N=254) were interviewed during 2004-5, and refresher cohort (N=84) were interviewed during 2005-7. The combined group were used in this table.

Table 9. Attrition Analysis - Are Those "Lost to Follow-up" Different from Those Who Stayed?

	Interviewed in Wave 4				Not interviewed in Wave 4, but interviewed in W3			
Service	**NEED**		**SERVICE GAP**		**NEED**		**SERVICE GAP**	
	Number with need in Wave3	Proportion with Need in Wave3	Among those with Need, # with a Service Gap in Wave3	% of those with Need Experien-cing Service Gap in Wave3	Number with Need in Wave3	Proportion with Need in Wave 3	Among those with Need, # with a Service Gap in Wave3	% of those with Need Experien-cing Service Gap in Wave3
HEALTH								
Comprehensive medical care	234	**100%**	59	**25%†**	111	**100%**	38	**34%**
Patient/ Provider communication	234	**100%**	94	**41%**	111	**100%**	41	**37%**
Treatment adherence	186	**80%**	65	**35%**	88	**79%**	28	**32%**
Antiretroviral therapy	35	**15%**	4	**11%**	21	**19%**	3	**14%**
CASE MANAGEMENT								
CM: Comprehensive care model	192	**83%**	90	**47%**	96	**86%**	48	**50%**
CM: Counseling model	121	**52%**	60	**50%**	58	**52%**	24	**41%**
HOUSING								
Financial Housing Services	62	**27%**	16	**26%**	34	**31%**	6	**18%**
Permanent Housing Services	40	**17%****	16	**40%**	33	**30%**	12	**36%**
MENTAL HEALTH								
Professional Mental Health	92	**40%**	69	**75%**	39	**35%**	28	**72%**
Supportive Mental Health	51	**22%**	24	**47%**	23	**21%**	13	**57%**
ALCOHOL OR DRUGS								
AOD	119	**51%**	85	**71%**	65	**59%**	49	**75%**
TRANSPORTATION								
Transportation Services	72	**31%**	46	**64%**	39	**35%**	26	**67%**

† p<=.10 * p<=.05 ** p <=.01 *** p<=.001

Significant differences between those who were interviewed in Wave 4 versus those who were lost to follow-up.

* Total N is 345, (234+111) which has 7 cases more than N of wave3. Wave 2 information has been used for these 7 cases, since they were not interviewed in wave3 but interviewed in wave4.

DATA & METHODOLOGY

Background

The purpose of the Tri-County CHAIN Study is to assess the impact of the full continuum of services delivered to HIV positive persons living in Westchester, Rockland, and Putnam counties, and to identify unmet needs for services. The interviews for this study present quantitative profiles of respondents' needs for health and human services, their encounters with health care and social service organizations, their satisfaction with services, and their current health status. The people who participated in the baseline survey are being re-interviewed at approximately annual intervals.

In 2001, the Planning and Evaluation Subcommittee of the New York HIV Health and Human Services Planning Council authorized the Westchester Department of Health (WDOH) and Medical and Health Research Association of New York City, Inc. (MHRA), to develop a longitudinal study of Tri-County residents living with HIV similar to the existing New York City longitudinal project. The Mailman School of Public Health at Columbia University was contracted by MHRA to conduct the survey and carry out analyses of survey data.

Sample Design

One of the major goals of this study is to assemble a cohort that is broadly representative of all Tri-County residents living with HIV. The simplest strategy for achieving this goal, drawing a random household sample, is not feasible because persons with HIV are relatively rare in the population, and many are, for good reason, reluctant to disclose their HIV seropositive status. Therefore, to approximate the ideal sample, several sampling strategies were developed. 398 baseline cohort were recruited during 2001-2, and to keep enough sample size, using same method, 84 refresher cohort were additionally recruited between September 2004 to February 2007.

Agency-based random recruitment

The first strategy involved sampling clients and patients drawn from rosters of agencies providing medical and social services to persons living with HIV. To achieve a representative sample of clients, a two-step sampling procedure was followed. The first step involved identifying all health and social service agencies in the Tri-County region providing HIV services to at least ten clients. Since there were only 32 agencies or sites of service identified during this procedure it was determined to sample clients from the entire universe of agencies rather than sampling from this list.

The second step involved recruiting a random sample of clients from each participating agency. Random selection of clients was intended to minimize the tendency of agencies to refer their most satisfied and/or easier-to-reach clients. Each agency that agreed to help recruit participants assembled a list containing anonymous identifiers for all persons living with HIV who had contact with the agency within a year of constructing the list, and also designated one of their employees to act as a liaison/coordinator between the Columbia team and the sampled individuals. In order to be eligible for the study, individuals had to be residents of Westchester, Rockland, or Putnam counties, at least 20 years of age, and HIV-positive for at least 6 months. The Columbia team randomly drew between 15 and 25 identifiers from each agency list. The identifiers were returned to the agency coordinators who made initial contact with the sampled clients to explain the purpose of the study and to determine if they were willing to participate. Only then did the agency coordinator send the names, addresses and telephone numbers of consenting clients to the Columbia

field staff to schedule and conduct the interviews. To keep enough sample size, 84 refresher cohort were recruited using same method between September 2004 to February 2007.

Agency-based sequential enrollment

In addition the agency-based random recruitment we employed a sequential enrollment strategy, in which all clients present at a given site during a specific time period were invited to participate in the study. Such a strategy could only be used at sites with sufficient numbers of clients (nominally 10-20 clients, at a minimum), who would be present for such a recruitment. The Tri--County CHAIN Field Director would coordinate recruitment with an agency coordinator from the participating agency. The agency would maintain a roster of all eligible clients present during the recruitment period so that a later analysis could be conducted to determine if CHAIN recruited most (or all) eligible clients present, and if those recruited were reasonably representative of all eligible clients present.

Interview Schedule

All interviews are conducted in person by trained interviewers. The major topics covered during the interviews include (1) initial encounter with the health care delivery system, (2) need for services, (3) access, utilization and satisfaction with health and social services, (4) sociodemographic characteristics of respondents, (5) informal caregiving from friends, family and volunteers, and (6) quality of life with respect to health status, psychological and social functioning. The interview schedule was developed based upon a listing of questions under each of these broader tropics that was circulated to the Planning and Evaluation Subcommittee, WDOH and MHRA. Whenever possible, interview questions were taken from earlier surveys administered to persons living with HIV and were designed to match questions asked of participants in the New York City CHAIN study. In particular, information on use of health and social services was obtained using questions developed for a federally funded study of AIDS service utilization. Health status was assessed using survey questions that have well established psychometric properties (such as the Medical Outcomes Survey scale, and indices measuring health locus of control, and self-efficacy) and which have been widely administered to HIV positive populations. The interview takes between two and three hours to complete, dependent upon issues relevant to each client's unique service needs. Most interviews were conducted in English, although fifteen were conducted in Spanish and six in Creole.

GLOSSARY OF TERMS

AIDS Institute (AI) criteria for care—AI criteria for appropriate medical care for HIV+ persons consists of: 1) required number of medical care visits (further contingent upon T-cell count and antiretroviral use); 2) self-reported complete physical and blood work; and 3) self-reported T-cell count.

AOD—Alcohol and other drugs.

Comprehensive medical care—Respondents were considered to receive comprehensive medical care if they responded "yes" to the following three questions: Is your routine medical provider someone you can go to for (1) "routine check-ups," (2) "information or advice about a health concern" and (3) "someone you could call up 24 hours a day in case of a medical emergency?"

Help with taking meds—Established via responses to the question: "Has anyone suggested ways to help you take your medicine on time and in the right way?"

Hetero—HIV risk group for persons who risk exposure to the virus via heterosexual contact.

MSM—Men who have sex with men.

Objective need for mental health services—Established by a score of less than 37.0 on the Mental Health Component Summary score of the SF-36, developed by the MOS.

PDU—Problem drug users, who have used cocaine, crack or heroin three or more times a week for a month or more, or who have ever had a serious alcohol problem, or who have ever injected drugs.

Professional mental health services—Mental health services provided by a psychiatrist or psychologist.

Supportive mental health services—Mental health services such as counseling provided by a case manager, clergy, etc.

Unstable housing—Any episode of living in the street, a shelter, a single-room occupancy, or doubled up with a friend or relative in past 6 months.