

DATA SNAPSHOT

UNDERSTANDING THE HEALTH IMPACT OF 9/11

NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE

NOVEMBER 2004 VOLUME 2, 1

THE WTCHR QUARTERLY ENROLLMENT UPDATE DATA THROUGH FRIDAY, SEPTEMBER 10, 2004

This report is the fifth in a series providing updates on characteristics of World Trade Center Health Registry (WTCHR) enrollees. It is the first report to contain information on physical and mental health conditions reported by enrollees. This report summarizes the completed interviews of 61,087 people conducted from September 5, 2003 to September 10, 2004. Criteria for inclusion in the WTCHR include:

- € People who were living south of Canal Street on 9/11/01
- € People who were in a building, on the street, or on the subway south of Chambers Street on 9/11/01
- € People involved in the rescue, recovery, clean-up and other disaster-related activities at the WTC site and/or WTC Recovery Operations on Staten Island any time between 9/11/01 and 6/30/02
- € Children enrolled in schools (pre K-12th grade) or day care centers south of Canal Street on 9/11/01
- € Staff employed or volunteering at schools (pre K-12th grade) or day care centers south of Canal Street on 9/11/01

While pre-registration of enrollees has ended, interviews are still being completed through November for persons who volunteered prior to the

end of pre-registration and active outreach. The next Quarterly Report in January will present final enrollment information.

This report includes an update on the number of enrollees by place of residence and eligibility criteria, as well as preliminary information on physical and mental health outcomes reported. Future analyses will explore the relationship between certain exposures (e.g. being in the dust cloud, or working at the WTC site) and health outcomes.

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INFORMATION ON ENROLLEES' PLACE OF RESIDENCE

Figure 1 is a map that shows the number of people enrolled in the WTCHR through September 10, 2004 by their state of residence on 9/11/01. All 50 states are represented in the WTCHR.

Figure 1. Place of Residence of Registry Enrollees

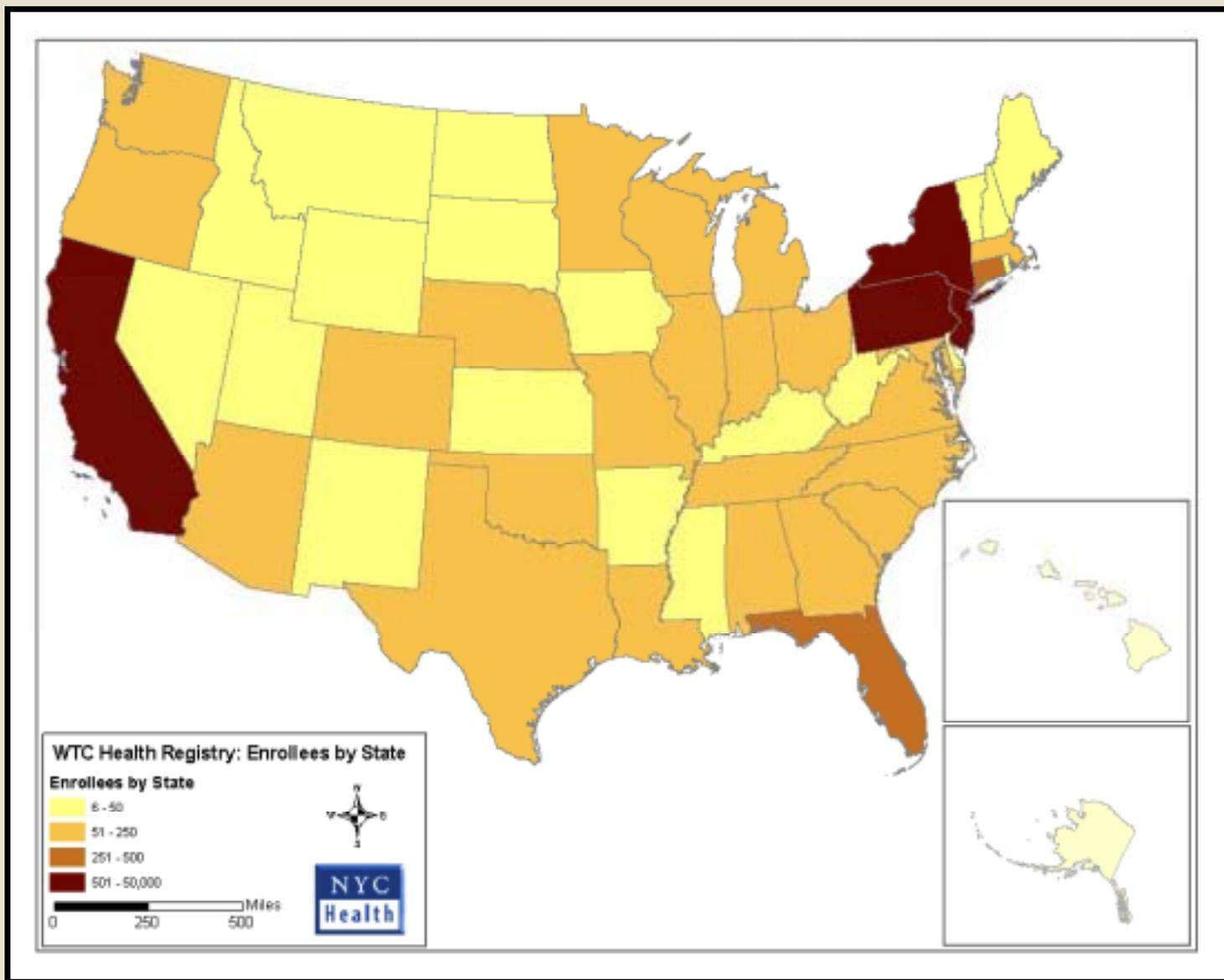


Figure 2. Table of Enrollees by State of Residence on 9/11/01

State	Number Enrolled	State	Number Enrolled
ALABAMA	100	NEBRASKA	58
ALASKA	<25*	NEVADA	58
ARIZONA	56	NEW HAMPSHIRE	28
ARKANSAS	31	NEW JERSEY	6,331
CALIFORNIA	559	NEW MEXICO	<25
COLORADO	121	NEW YORK	47,230
CONNECTICUT	408	NORTH CAROLINA	218
DELAWARE	<25	NORTH DAKOTA	<25
DISTRICT OF COLUMBIA	<25	OHIO	195
FLORIDA	299	OKLAHOMA	77
GEORGIA	150	OREGON	67
HAWAII	<25	PENNSYLVANIA	584
IDAHO	<25	RHODE ISLAND	28
ILLINOIS	150	SOUTH CAROLINA	67
INDIANA	159	SOUTH DAKOTA	<25
IOWA	35	TENNESSEE	90
KANSAS	44	TEXAS	168
KENTUCKY	48	UTAH	<25
LOUISIANA	62	VERMONT	<25
MAINE	<25	VIRGINIA	158
MARYLAND	95	WASHINGTON	176
MASSACHUSETTS	183	WEST VIRGINIA	32
MICHIGAN	103	WISCONSIN	58
MINNESOTA	125	WYOMING	<25
MISSISSIPPI	43	Other**	2,345
MISSOURI	180	Total:	61,087
MONTANA	<25		

* To protect the confidentiality of enrollees, states with less than 25 enrollees are reported as "<25".
 ** Includes Puerto Rico, Canada, Mexico, US Military Base Personnel, other non-U.S. addresses, and enrollees who provided invalid zip code information.

Figure 3 is a map of enrollees in the New York City area by their home zip code on 9/11/01. The WTCHR has 38,937 enrollees from New York City with all five boroughs represented.

- € 17,707 lived in Manhattan on 9/11/01
- € 8,202 in Brooklyn
- € 6,617 in Queens
- € 3,517 on Staten Island
- € 2,894 in the Bronx

Figure 3. Local Map of Enrollees' Zip Code of Residence on 9/11/01

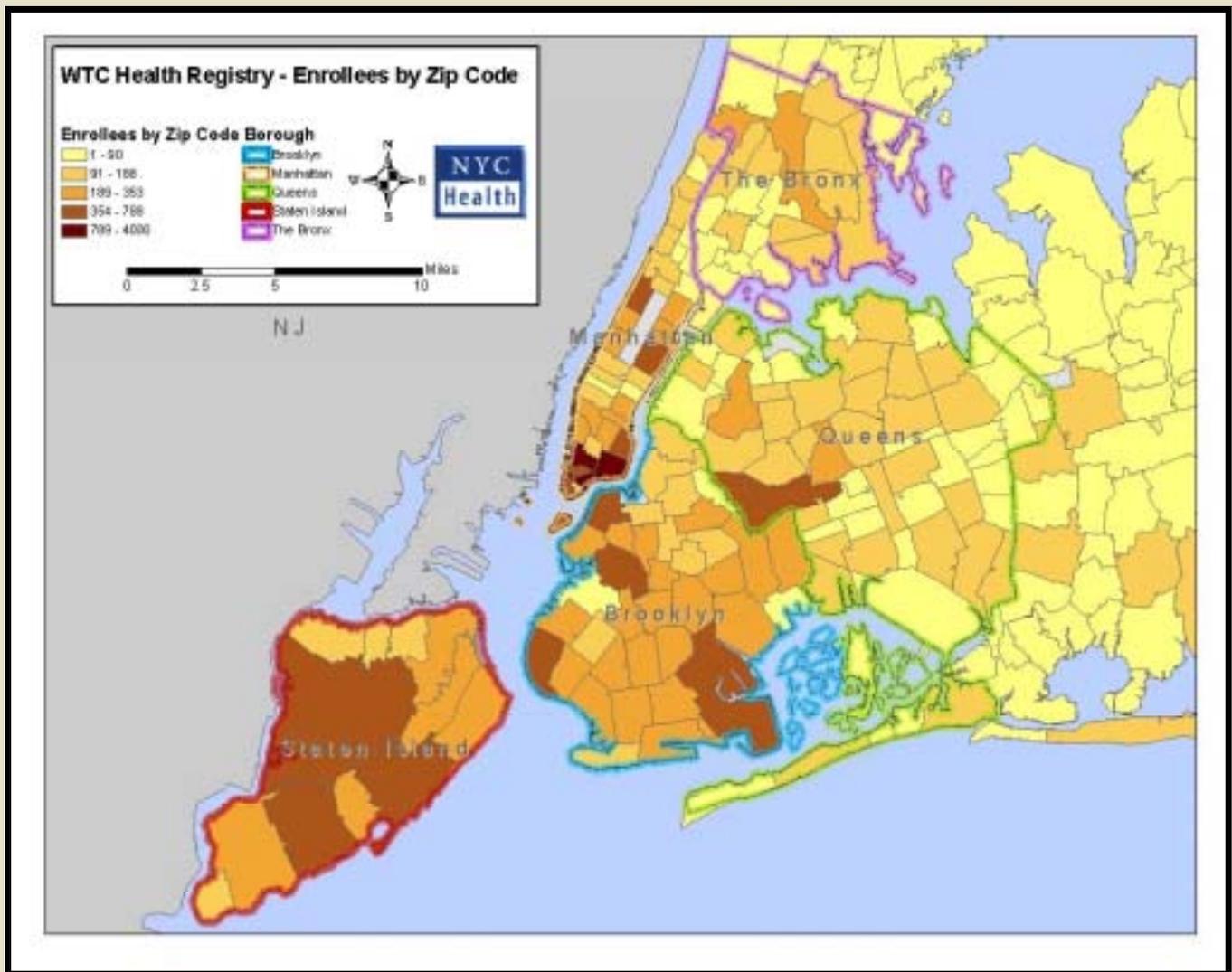
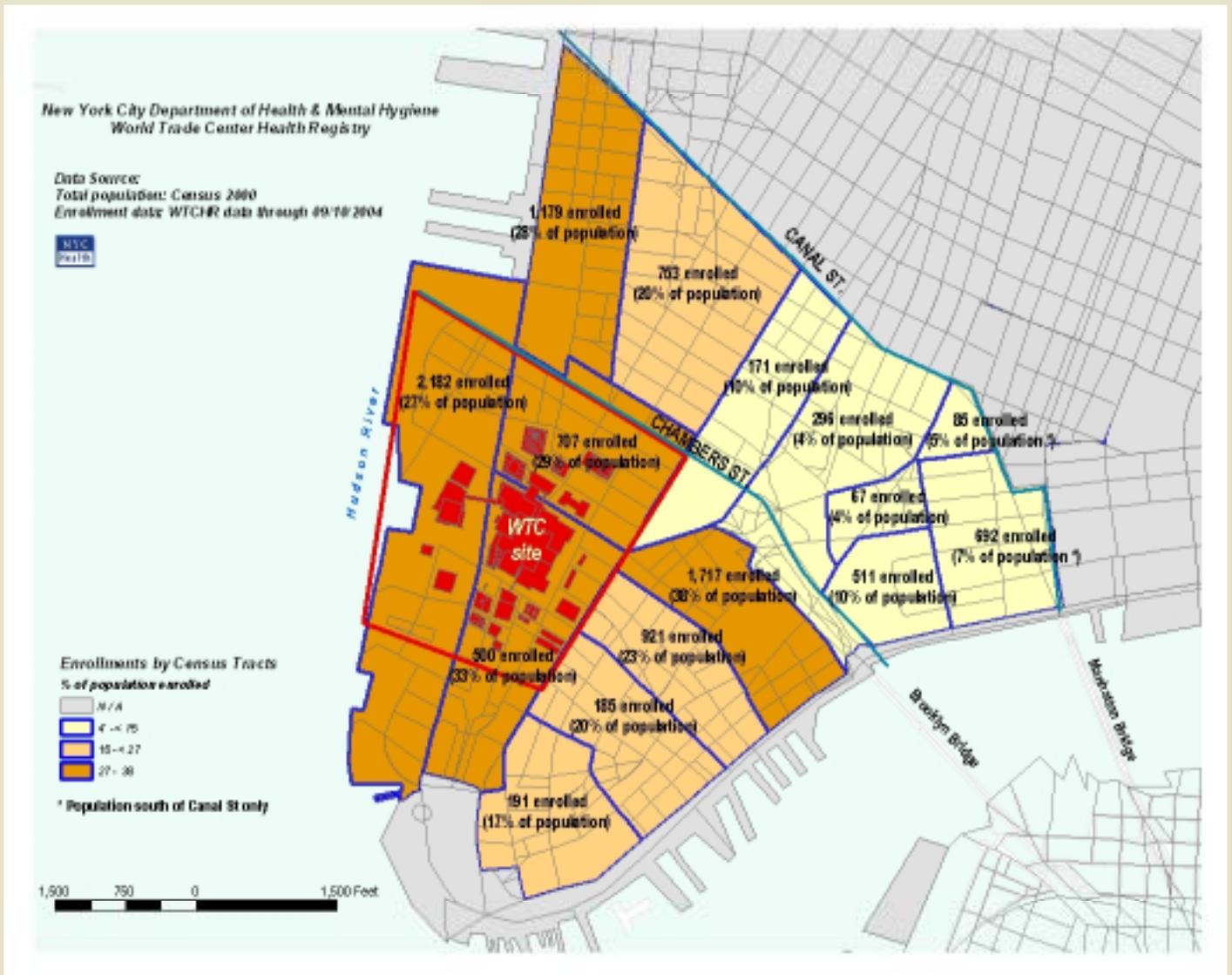


Figure 4 is a map of enrollees who reported that their primary residence on 9/11/01 was an address below Canal Street. The WTCHR currently has 12,576 enrollees who reported living below Canal Street on 9/11/01, representing 21% of the 58,562 individuals living below Canal Street according to the 2000 U.S. Census*. Coverage is greater among residents who lived closest to the WTC site. The WTCHR has 6,403 enrollees who reported living below Chambers Street on 9/11/01, representing more than one in four residents (28%) according to the 2000 Census (population = 22,732).

Figure 4. Lower Manhattan Map of Enrollees' Census Tract of Residence on 9/11/01

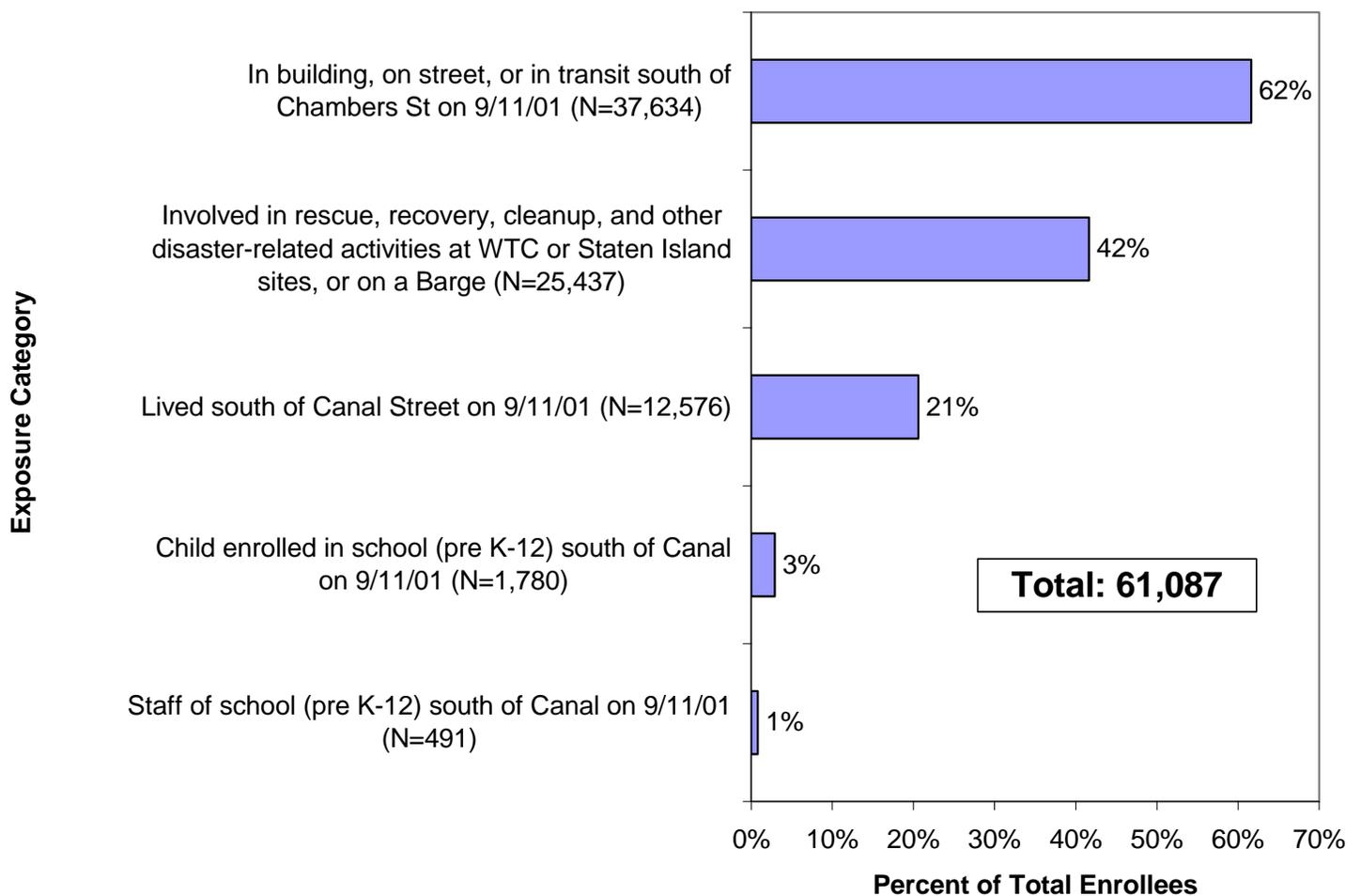


* Among the 12,576 residents with addresses below Canal Street, 10,157 provided complete addresses to be shown on the census tract map above.

INFORMATION ON EXPOSURE GROUPS BY ELIGIBILITY

Enrollees are eligible because they were living, working or attending school near the WTC site or because they were involved in either disaster-related or cleanup activities at the WTC site, or at the recovery operations on Staten Island or on the barges. **Many enrollees were exposed in more than one way.** Figure 5 is a chart displaying the percent of enrollees who report each exposure category.

Figure 5. Proportion of People Enrolled in the WTCHR by Exposure Category*



*28% of enrollees were in more than one exposure category; the sum of the percentages is thus greater than 100%.

DEMOGRAPHIC CHARACTERISTICS OF ENROLLEES

Figure 6 provides information on demographic characteristics of all enrollees in the WTCHR. Among enrollees, 58% are male and 42% are female. Over 2,600 children under the age of 18 are enrolled.

The majority of enrollees report their race as white, non-Hispanic (63%), followed by black, non-Hispanic (12%), Hispanic (12%) and Asian (7%). Most enrollees have at least some college education (73%). Among enrollees reporting income, 80% had a total household income of \$35,000 or more in 2002.

Figure 6. Demographics of WTCHR Enrollees

	White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian		Other**		Total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Total	24,802	13,909	2,927	4,384	4,073	3,479	2,199	2,142	1,722	1,439	61,076*
Age Group on 9/11											
<18***	647	593	93	120	229	235	245	251	94	101	2,608
18-24	971	1,045	95	211	248	303	138	136	96	113	3,356
25-44	13,047	6,311	1,533	2,171	2,403	1,754	903	827	837	608	30,394
45-64	9,111	5,149	1,113	1,701	1,089	1,031	598	575	590	493	21,450
65+	774	557	56	93	68	92	200	211	56	52	2,159
Unknown	252	254	37	88	36	64	115	142	49	72	1,109
Education											
< High School	1,136	663	308	229	677	485	527	650	169	132	4,976
HS Diploma/GED	4,651	1,927	783	931	1,096	743	241	241	325	182	11,120
Some college	5,831	2,625	882	1,423	1,234	1,120	243	235	449	355	14,397
College Graduate	8,072	4,931	666	1,225	789	809	693	643	448	434	18,710
Post-Graduate	5,053	3,720	277	550	260	315	475	344	257	260	11,511
Unknown	59	43	11	26	17	7	20	29	74	76	362
Household Income											
<\$35,000	1,954	2,266	640	1,293	1,073	1,299	764	849	264	349	10,751
\$35,000 to <\$50,000	1,963	1,672	508	1,091	590	678	170	202	195	248	7,317
\$50,000 to <\$75,000	4,580	2,554	698	865	905	567	291	244	328	243	11,275
\$75,000 to <\$100,000	5,229	1,913	446	423	657	308	253	176	263	134	9,802
\$100,000+	8,619	3,704	426	340	580	340	430	293	334	149	15,215
Unknown	2,457	1,800	209	372	268	287	291	378	338	316	6,716

*Total equals 61,076 because gender is missing for 11 enrollees,

** Other category includes enrollees who report more than one race/ethnic group as well as those of unknown race/ethnicity.

*** Parents/guardians completed a proxy interview for children under 18.

INJURIES SUSTAINED ON 9/11/01

The WTCHR asks participants who were below Chambers Street on 9/11/01 about injuries they sustained. **Figure 7** shows the percent of enrollees south of Chambers Street on 9/11/01 who report being injured. The most common injury was eye injury/eye irritation. The next most common injury was sprain or strain, followed by cut, abrasion, or puncture wound.

Figure 7. Injuries Sustained on 9/11/01 Among Enrollees *

Enrollees South of Chambers Street on 9/11/01			
	Adults	Children**	Total
	N	N	N
	35,463	1,543	37,006*
On 9/11/01, did you have any of the following injuries as a result of the World Trade Center terrorist attack?			
No injury	51%	73%	52%
Eye injury/eye irritation	42%	24%	41%
Sprain or strain	10%	2%	9%
Cut, abrasion, puncture wound	8%	2%	8%
Burn	2%	1%	2%
Broken bone (fracture) or dislocation	1%	0%	1%
Concussion/head injury/knocked out by being hit on head	1%	0%	1%
Any other type of injury	10%	4%	10%

* Total is a subset of all enrollees and includes only those who reported being south of Chambers Street on 9/11/01.

** Parents/guardians completed a proxy interview for children under 18.

HEALTH SYMPTOMS SINCE 9/11/01 AMONG ENROLLEES

The WTCHR interview includes a section on health symptoms. The questions were designed to learn about people's experience with selected symptoms before and after September 11, 2001. The questions were adapted from standard questions that have been used in other health surveys such as the National Health Interview Survey (NHIS, www.cdc.gov/nchs/nhis.htm).

Figure 8 shows the percent of enrollees who reported having new symptoms after 9/11/01 or pre-existing symptoms before 9/11/01 that got worse after the event. This figure does **not** describe how many enrollees were experiencing the symptoms at the time of the interview or how long the symptoms lasted after September 11, 2001.

Key Findings:

- ##### Nearly half of adult enrollees reported new or worsened sinus problems/nose irritation/post nasal irritation (47%) after 9/11/01.
- € Other common respiratory complaints included shortness of breath (42%), wheezing (38%), persistent cough (37%), and throat irritation (38%).
- € One in four enrollees (26%) reported new or worsened heartburn, indigestion or reflux symptoms.

The health conditions reported here are averages across very large populations. They do not take into account the potential impact of specific exposures on health conditions (e.g. exposure to the dust/debris cloud, proximity to the disaster, or working at the WTC site). Future analyses will examine the health effects of specific exposures among enrollees.

Figure 8. New and Worsened Health Symptoms Following 9/11/01

	All WTC Health Registry Enrollees		
	Adults		Total
	Male	Female	
N	N	N	
	33,926	23,433	57, 359*
New and Worsened Health Symptoms Following 9/11/01			
Sinus problems, nose irritation, post-nasal irritation	44%	50%	47%
Shortness of breath	41%	43%	42%
Throat irritation	37%	40%	38%
Wheezing	39%	37%	38%
Persistent cough	37%	37%	37%
Eye irritation	30%	37%	33%
Heartburn, indigestion, reflux	25%	25%	26%
Severe headaches	17%	27%	21%
Skin rash or irritation	13%	16%	14%
Hearing problem or hearing loss	10%	8%	9%

* Total equals 57,359 because age or gender is missing for 1,120 enrollees, and 2,608 children were not included; not all enrollees responded to every health symptom question.

MENTAL HEALTH SYMPTOMS SINCE 9/11/01 AMONG ENROLLEES

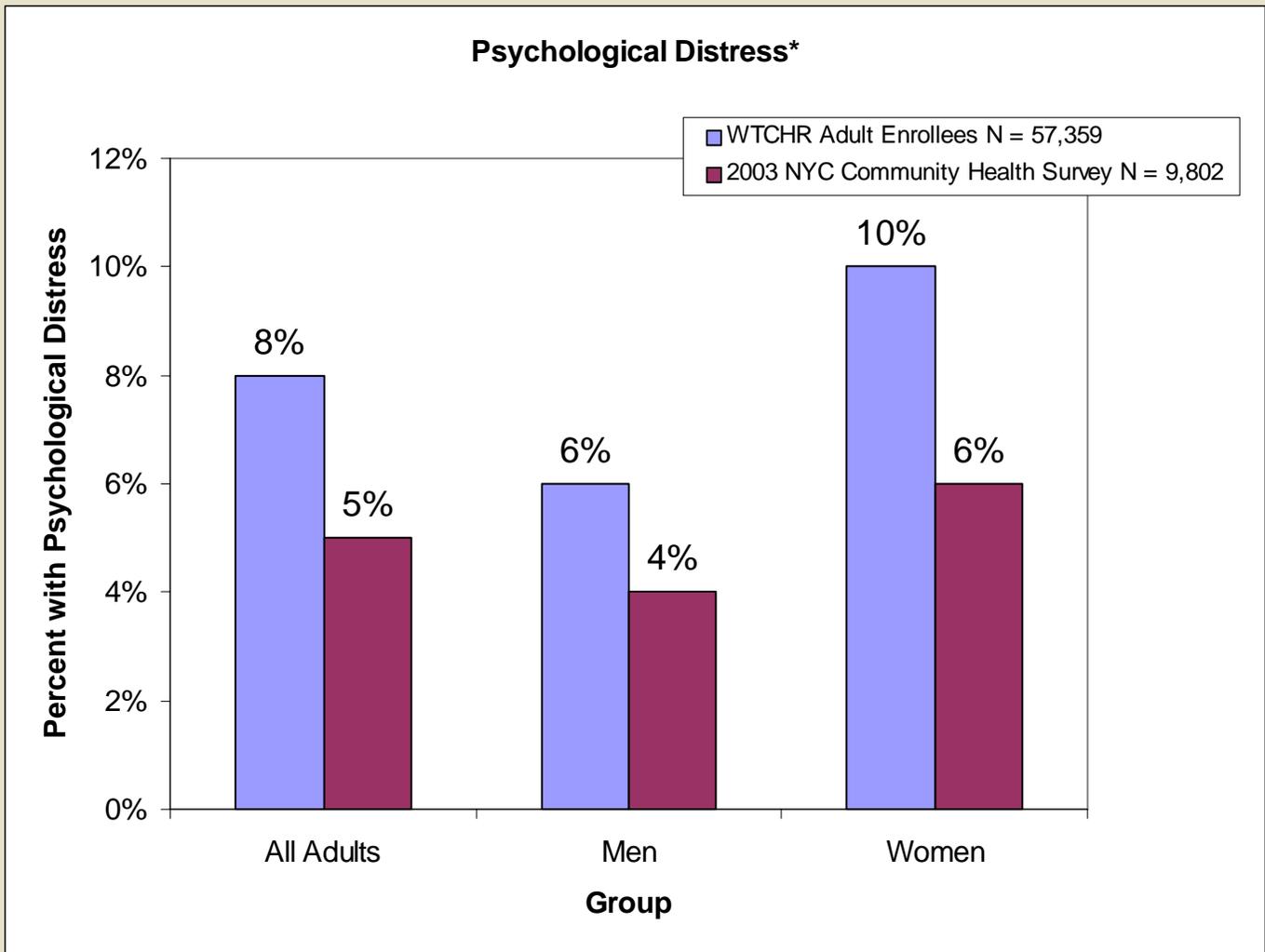
The WTCHR baseline interview includes a section on mental health. This section reports on a mental health scale (known as the K6) which screens individuals for psychological distress. The K6 (www.hcp.med.harvard.edu/ncs/K6-K10) is routinely used in the National Health Interview Survey, as well as in the annual National Survey on Drug Use and Health. Enrollees are asked: During the past 30 days, how often did you feel 1) so sad that nothing could cheer you up? 2) nervous? 3) restless or fidgety? 4) hopeless? 5) that everything was an effort? and 6) worthless? Each question has the following possible responses: All of the time, Most of the time, Some of the time, A little of the time, and None of the time. The psychological distress measured by this scale is a composite measure of symptoms that are highly correlated with clinical diagnoses of anxiety, depression and other emotional problems.

Figure 9 is a table comparing the level of reported psychological distress between adults enrolled in the Registry and the NYC citywide average, taken from the 2003 New York City Community Health Survey (<http://www.nyc.gov/html/doh/html/survey/survey.html>). Eight percent of adult WTCHR enrollees reported symptoms indicating psychological distress at the time of the interview, compared to 5% identified in a citywide representative sample. Psychological distress levels among enrollees were higher in women than men (10% vs. 6%).

Most people exposed to a traumatic event experience symptoms of distress immediately following the trauma. Some people may continue to suffer emotionally and may have impaired functioning. The percentages reported here do not take into account how specific exposures may impact mental health, nor do they take into consideration pre-9/11/01 mental health conditions. Further analyses and follow-up studies are needed to fully understand the mental health impact of 9/11/01.

If you recognize these symptoms in yourself or someone you know or love, contact a mental health professional or call 1-800-LIFENET (1-800-543-3638).

Figure 9. Psychological Distress in the 30 Days Prior to Interview



* The psychological distress measured by this scale is a composite measure of symptoms that are highly correlated with clinical diagnoses of anxiety, depression and other emotional problems.

SUMMARY

This is the first WTCHR Quarterly Report in which we have presented physical and mental health findings. Enrollment into the Registry is almost complete, and the health information presented here represents more than 60,000 persons living, working, or attending school near the site or because they were involved in either disaster-related or clean-up activities. Findings shown here are self-reported information from volunteer Registry enrollees only and generalizability may vary across different populations within the Registry.

Preliminary health findings indicate that half of the enrollees who were below Chambers Street on 9/11/01 report sustaining some type of physical injury or eye irritation.

A large proportion of enrollees reported new or worsened respiratory symptoms after 9/11/01 (over 40% for some symptoms). We do not yet know how many people are still having these problems or how serious the symptoms are. Ongoing follow-up of WTCHR enrollees will provide important information about the impacts of physical health problems.

Our preliminary findings on mental health suggest that WTCHR enrollees had higher levels of psychological distress than in the general New York City adult population. Nearly 8% of adult registry enrollees have psychological distress compared to a 5% citywide average. We will continue to monitor the mental health of WTCHR enrollees to understand the various forms of psychological distress and which specific experiences of 9/11/01 had the greatest impacts on mental health.