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# Health Care and Social Issues of Immigrant Rescue and Recovery Workers at the World Trade Center Site

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## Abstract

This article reviews the experience of a unique occupational group of World Trade Center (WTC) workers: immigrant workers. This group is comprised largely of men, laborers, who are first-generation immigrants. The majority of these workers are from Latin America (predominantly from Ecuador and Colombia) or from Eastern Europe (predominantly from Poland). Our data shows that the disease profile observed in these workers was what we have previously reported for WTC working population as a whole. Recent reports have begun to document the disproportionate burden of occupational hazards, injuries, and illnesses experienced by immigrant workers in the

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United States. The WTC experience of immigrants exemplified this burden but, additionally, highlighted that this burden is exacerbated by limitations in access to appropriate health care, disability and compensation benefits, and vocational rehabilitation services. A clinical program that was designed to address the complex medical and psychosocial needs of these workers in a comprehensive manner was successfully established. Full justice for these workers depends on larger societal changes.

The rescue, recovery, cleanup, and service restoration tasks at the World Trade Center (WTC) site were conducted from September 11, 2001, to the end of June of 2002. The operation, which involved tens of thousands of workers and volunteers, represented a massive and efficient effort. Occupational hazards, however, were abundant, though their complete and thorough description is not fully known. Due to exposure to a still incompletely characterized cloud of air contaminants, capable of producing intense and persistent mucosal irritation, to ergonomic and psychological stressors and potential carcinogens, WTC workers and volunteers risked their safety and health in the course of performing needed duties at a very fast pace.

Primarily reflecting the ethnic diversity of New York City, a substantial proportion of the workers at the WTC site were first-generation immigrants to the United States. Re-construction operations required an array of labor skills and occupational categories—specific trades and also general labor—which provided an abundant source of work for many workers, some of which was well paid. In addition to the massive involvement of many city employees (particularly among the Fire and Police Departments of New York), several large contractors and trade unions negotiated contracts a few days after the terrorist attack to conduct the cleanup of debris from the WTC towers and the surrounding buildings. Immigrant workers constituted approximately 15% of the workers evaluated by the Mount Sinai WTC Worker and Volunteer Medical Screening Program[1] and close to 40% of those treated at the Mount Sinai WTC Health Effects Treatment Program (WTC HETP).[2] In this article, we review the experience evaluating and treating immigrant workers at the WTC HETP, presenting a socioeconomic and medical perspective, and the operational approach to this particular challenge.

## Methods

Patients were evaluated sequentially during the first year of operation of the WTC HETP at Mount Sinai Medical Center in New York City. Entirely funded by philanthropic organizations, the WTC HETP was developed to address the clinical needs identified in the federally funded WTC Workers and Volunteers Medical Screening Program.[1] Established in January 2003, the WTC HETP is dedicated exclusively to the diagnosis and treatment of WTC-related adverse health effects observed in former rescue, recovery, cleanup and service restoration workers and volunteers at the WTC disaster site, the Staten Island landfill, and the barges that transported debris between those two sites. Eligibility to receive clinical services has been described elsewhere.[1] Philanthropic funding allowed similar diagnostic investigation and provision of treatment for WTC-related diseases for all patients. A total of 588 patients were evaluated during the first year of the program, and their data

were reviewed prospectively and retrospectively. The Mount Sinai School of Medicine Institutional Review Board approved this review.

The medical conditions of 34 patients were deemed unrelated to their WTC exposures or the clinical information was insufficient to formulate a firm diagnosis. From the remaining group of 554 patients, a sample of 168 patients (approximately 30% of the study population) was formed by selecting every third or fourth of the sequentially ordered patient list. This sample allowed us to 1): examine a number of exposure variables in relation to lower airway disease diagnoses (published elsewhere[2]); and, 2) describe the demographic, occupational, socioeconomic, and clinical characteristics of two subpopulations classified as US born workers and first-generation immigrant workers. All of the latter were in turn subclassified into Polish and Latino immigrants. Occupations were coded using the 1990 United States Census occupational codes. Demolition and construction laborers, asbestos handlers, and building cleaners were all grouped as laborers, since their job assignments and duties were similar and frequently interchanged. Police officers, firefighters and ambulance workers were grouped as first responders. Construction trades included a variety of construction related occupations (ironworkers, electricians, carpenters, plumbers etc,). All descriptive data analyses were conducted using SPSS software.[3]

Two of the authors (RED and SH) evaluated and followed in excess of 70% of the immigrant workers, using item lists on each and every one of them. Some of the items were not formally quantified. The authors reached consensus on and summarized 1) the challenges faced by the immigrant workers, and 2) the operational strategies utilized to serve their special needs.

## Results

### Demographic and Occupational Characteristics

Table 1 summarizes the demographic characteristics of the study population. Among the US born workers, Whites largely predominated, with only 5 (5.4%) and 2 (2.2%) being African American and Latino, respectively. The proportion of immigrant workers was 44.5%, practically all of whom are first-generation immigrant from Latin America (predominantly from Ecuador and Colombia, but also from several other countries), and from Poland, with limited or no command of the English language. The male predominance and proportion of unionization among WTC workers[2] are both more pronounced among Polish workers, and less so among Latino workers. The proportion of those without health insurance coverage (18% for US born workers) was 2.5- and 4-times higher among Polish and Latino workers, respectively.

As shown on Table 2, the vast majority of the immigrant workers were laborers, who worked in the buildings surrounding the collapsed WTC towers removing and cleaning massive amounts of dust and debris. Compared with the US born workers, and in large part reflecting their occupations and duties, most of the immigrant workers arrived at the WTC site after the first few days of the attack, were not exposed to the dust and smoke cloud of the towers collapse, and stayed at the WTC site as long or longer.

## Clinical Findings

From the medical perspective, and as summarized in Table 3, immigrant workers exhibited the same major disease categories that we previously described among WTC workers in general; namely, upper and lower airway diseases, gastroesophageal reflux disease, psychological illness, and musculoskeletal injuries.[2] There appear to be differences in the relative proportion of those health effects among immigrant versus US born WTC workers. For instance, immigrant workers had less symptoms and diagnoses of lower airway disease and spirometric abnormalities, but proportionally more disabling chronic musculoskeletal illnesses.

## Challenges in Serving the Needs of the WTC Immigrant Workers

A number of obstacles impeded the ability of WTC immigrant workers to receive adequate medical attention for these health effects and to attain medical and socioeconomic recovery, including:

1. Language barriers to the provision of health care and social work services. This generated the need for a vigorous effort to provide interpretation services for at least 45% of the patient population, and also to identify culturally sensitive specialized testing and consulting services.
2. Lack of access to public or private health insurance coverage due to disability resulting from WTC-related illness, loss of employment, and/or immigration status.
3. Pressure to remain economically productive, acutely felt by immigrant workers who needed to continue supporting their family members in the US or (more often) in their countries of origin. Some immigrant workers continued to work in physically demanding and hazardous jobs even when ill physically and/or mentally.
4. Lack of accurate information about available benefits, including health care coverage, workers' compensation, and WTC-related programs that might have provided necessary coverage for needed medical and/or mental health treatment.
5. Heightened security measures and surveillance mechanisms implemented by the then newly created United States Department of Homeland Security markedly reduced work opportunities, generated a substantial fear of accessing medical and psychosocial services, and significantly restricted or delayed the process of adjusting immigration status to legal resident status, which could have opened up access to health benefits for some WTC immigrant workers.
6. Difficulties navigating the New York State Workers' Compensation system, which offers coverage of work-related medical treatment and wage replacement for ill workers, and is often the only benefits system accessible to undocumented immigrant workers. Many immigrants:
    a. lacked documentation of their employment status at the WTC, often due to ambiguous and/or illegal employment relationships;

b. had not filed reports of their on-the-job injuries due to fear of employer retaliation or job loss;

c. continued working despite partially disabling injuries due to financial need and lack of access to resources;

d. could not or did not seek medical attention to document their diagnosis and disability;

e. encountered great difficulty finding and/or communicating with their legal representatives and with health care professionals who could document their work-related conditions appropriately;

f. experienced language barriers which also hindered the Workers' Compensation process for some workers who missed mandatory case hearings simply because the hearing notices are issued in English only.

7. Several public and private programs to benefit and compensate former WTC workers for their injuries, illnesses, and disability placed immigrant workers at a disadvantage by setting up multiple exclusionary criteria.

8. Lack of access to permanent disability benefits from Social Security due to a frequent lack of permanent residence or citizenship status. Despite their payments into the Social Security system as workers with federal taxpayer identification numbers, many immigrant workers are not eligible for these benefits that also provide Medicare and/or Medicaid health insurance coverage for the disabled recipient.

9. Difficulties accessing vocational rehabilitation services, related to immigration status, lack of information, the frequent need for "double training" (language and specific work skills), and inability to survive financially while undergoing training. This significantly limited their ability to find occupational options more in keeping with their medical disability and limited re-injury prevention.

10. A very limited range and number of options of WTC-specific comprehensive and long-term physical and mental health programs, which include access to long-term benefits. It should be noted that the existing programs are not located in the communities or neighborhoods where most of the immigrant workers reside.

## Operational Approach to Serve the Needs of Immigrant WTC Workers

An important determinant of our health services design approach was based on knowledge of the formidable economic and psychosocial challenges faced by immigrant workers briefly summarized before. Accordingly, the HETP was designed with a "two-prong" approach, which gave equal emphasis to medical and psychosocial services requiring a strong interdisciplinary health care model. The HETP was organized as a modified general occupational clinic, where a core clinical model of a chronic cough clinic was expanded to cover the main disease categories that were observed. The core included occupational, pulmonary, and rehabilitation medicine services, to which a strong interaction was built

with Otolaryngology and Psychiatry. HETP physicians sought access for patients to primary care providers, while focusing on the diagnostic investigation and the treatment of diseases that appeared to be WTC-related. A larger specialized consulting network was built within and outside The Mount Sinai Medical Center. Sufficient time was allowed for physicians to evaluate and treat their patients (90 minutes for new and 45 minutes for a follow-up visit, without overbooking or overlapping appointments). Overcoming language and cultural barriers required the two main approaches discussed in the medical literature 1): provision of services with “culturally” or “ethnically” concordant providers, and, 2) provision of services by means of qualified interpreters and by increasing the cultural competency of English-speaking health care professionals.[4]

Overall, almost 70% of the patients seen by the HETP physicians were also evaluated and served by social workers and benefits coordinators in the program. Workers seen in the social work unit of the program were proportionally more likely to be immigrant, non-English speaking, and to encounter the obstacles to health care described previously in this article.

Philanthropic funding allowed the program to exist for 4 years, and the data presented above served in turn to justify to the funding agencies the need for medical interpretation services not only to support the work of the HETP, but also that of selected external specialists. Extensive data gathering and analyses allowed the program to review its demands in “real time,” and adjust the provision of services very rapidly.

## Discussion

We have described in this article the adverse physical and psychological health effects and socioeconomic disadvantages of the immigrant workers at the WTC disaster site, and our operational approach to serving their needs. With some differences, it is clear that these workers suffered a similar disease profile to what we described previously for the population as a whole.[2,5,6] Most immigrant workers were laborers, and their apparent lower prevalence of lower airway disease and pulmonary functional abnormalities may relate to their arrival at the WTC site 48 hours or more after the attack to the WTC,[2,7,8] and work away from the pile of rubble.[8] A history of having ever smoked, which we previously identified as an additional risk factor for obstructive ventilatory impairment and lower airway disease diagnoses, tobacco smoking,[2] may also account for differences in prevalence of both among the three subgroups.

Recent reports in the occupational health literature underscore the disproportionate rates of occupational injuries and hazards experienced by immigrant workers. Occupational injury rates, including fatal injury, are particularly high among construction laborers, the occupation of most of the immigrant workers at the WTC site.[9] A number of factors probably account for the higher risks of injuries and illnesses among immigrant workers. A first factor is the fact that immigrant workers frequently perform some of the harshest and most hazardous jobs, which are unattractive to US-born workers. The second risk factor is limited access to health care and social protection systems for immigrants. The third risk factor is limited command of the English language, which undermines on-the-job

communication, safety training, and seeking and finding appropriate health care. A fourth risk factor is that immigrants often work for marginal employers who do not provide safety training or other customary or required job protection measures.

Our experience with this patient population demonstrates that the above described conditions prevailed for immigrant workers involved in cleanup of the WTC site and surrounding areas. Work at the WTC site was hazardous, communication was difficult, the risk of disease was underestimated by all involved, and normal protections were deficient. These factors were more pronounced for immigrant workers, who reported lack of respiratory protection or safety, and were often improperly trained to work in hazardous environments where chemical/toxic exposures were prevalent.

### Summary and Recommendations

WTC immigrant workers suffered a pattern of adverse health effects similar to those described for other WTC workers. However, the care and consequences of these health effects differ for immigrant workers due to their limited resources, options, social integration, and access to health care.

In future similar situations it is clear that early governmental involvement with adequate funding is necessary to ensure appropriate investigation and care for the physical and psychological health effects of work of this nature. That funding should ensure coverage for all workers, regardless of their cultural background and immigration status.

To effectively address the unmet needs and the health concerns of WTC immigrant workers, an interdisciplinary treatment model integrating the work of physicians, nurses, and social workers has proven very effective. The approach to clinical services to this population must include mechanisms to effectively diminish language and cultural barriers.

Due to the multiplicity of needs of the WTC immigrant worker population, the treatment model should address medical, mental health, legal, and psychosocial concerns. The treatment providers should be included not only on the basis of their general expertise but also on their ability to work with the immigrant worker population.

Although the implementation of these recommendations by the WTC HETP helped to resolve a broad range of medical and psychosocial concerns, it should be realized that a large balance of issues remains unresolved and requires significant societal, political, and legislative changes.

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**TABLE 1**

Characteristics of the Patient Population ($n = 168$)

| | | Immigrants | |
|---|---|---|---|
| | **US Born** | **Polish** | **Latinos** |
| *n* (%) | 93 (55.4%) | 12 (7%) | 63 (37.5%) |
| Age (yr, ±SD) | 44.6 ± 8.8 | 53.3 ± 7.1 | 42.9 ± 9.4 |
| Female sex | 15.7% | 20.5% | 41.2% |
| No health insurance | 18.0% | 47.7% | 73.5% |
| Residence | Several | Brooklyn | Queens |
| Unionization | 66.6% | 93.2% | 54.7% |
| Smoking history | | | |
| Never | 45.2% | 25.0% | 57.8% |
| Former | 35.5% | 33.3% | 32.8% |
| Present | 19.4% | 41.7% | 9.4% |

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**TABLE 2**

WTC Occupations and Exposure Characteristics of the Patient Population ($n$ = 168)

| | | Immigrants | |
|---|---|---|---|
| | **US Born** | **Polish** | **Latinos** |
| Occupational group | | | |
| Laborers | 13.0% | 86.4% | 90.0% |
| First responders | 32.2% | 2.3% | 0.6% |
| Construction trade | 15.1% | 4.5% | 5.9% |
| Volunteer | 10.9% | 0% | 1.1% |
| Other | 30.8% | 6.8% | 2.4% |
| Presence at the WTC site | | | |
| On 9/11 or 9/12/2001 | 77.4% | 50.0% | 12.7% |
| Exposed to 9/11 dust cloud | 30.1% | 8.3% | 1.6% |
| 9/13-21/2001 | 80.6% | 58.3% | 73.0% |
| 9/22-28/2001 | 68.8% | 58.3% | 76.2% |
| 9/29-10/5/2001 | 64.5% | 91.7% | 87.3% |
| On or after 10/6/2001 | 72.0% | 100% | 96.8% |
| Exposure duration (wks) | 15.3 ± 14.4 | 20.3 ± 9.0 | 21.7 ± 17.5 |

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**TABLE 3**

Respiratory Symptoms, Spirometric Findings, and Major Disease Category Diagnoses in the Patient Population ($n$ = 168)

| | | Immigrants | |
|---|---|---|---|
| | **US Born** | **Polish** | **Latinos** |
| Respiratory symptoms | | | |
| Cough | 79.6% | 75.0% | 57.1% |
| Exertional dyspnea | 23.1% | 22.7% | 21.2% |
| Wheezing | 73.1% | 41.7% | 20.6% |
| Spirometric findings | | | |
| Normal expiratory flows | 50.5% | 50.0% | 77.8% |
| Low forced vital capacity | 34.4% | 33.0% | 22.2% |
| Obstruction | 16.1% | 41.7% | 0% |
| Bronchodilator response | 25.8% | 50.0% | 7.9% |
| Reduced inspiratory flow | 24.7% | 8.3% | 12.7% |
| Major disease categories | | | |
| Upper airway disease | 84.9% | 100.0% | 90.5% |
| Gastroesophageal reflux disease | 71.0% | 75.0% | 61.9% |
| Lower airway disease | 77.4% | 75.0% | 14.3% |
| Psychological diseases | 48.4% | 58.3% | 47.6% |
| Musculoskeletal diseases | 11.8% | 33.0% | 27.0% |

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