EXTENDED ABSTRACT

Introduction

Farmworkers in the United States are subject to many health risks as a direct result of occupational hazards associated with their job, making agricultural work regarded as one of the most dangerous occupations in the country (Frank, McKnight, Kirkhorn, & Gunderson, 2004). The population also suffers from limited access to health care services for a number of different reasons, including, but not limited to, language barriers, lack of adequate transportation methods, lack of health insurance, and a limited number health care facilities (Arcury & Quandt, 2007). On top of these barriers, farmworkers in general will often choose not to seek medical care for their injuries or illnesses, as "they do not receive paid time off for health care. When work is missed as a result of obtaining health services, a farmworker's income declines substantially, causing economic hardship…" (Arcury & Quandt, 2007, p. 351). When farmworkers do seek healthcare, they often access health services at federally funded community health centers established by the Migrant Health Act of 1962 and the Health Centers Consolidation Act of 1996 (Das, Steege, Baron, Beckman, & Harrison, 2001). However, as eligibility for using the centers is income based, farmworkers often lose access when their incomes rise during peak season (Das et al., 2001). It is because of these unique circumstances, paired with the observation that farmworkers generally have a tough time applying for public insurance programs (Das et al., 2001), that it is absolutely imperative for farmworkers to have access to employer-sponsored health benefits such as worker's compensation or access to employer-sponsored health insurance so that they are given every chance possible to utilize health care when it is necessary.

Having some form of job-based insurance increased the probability someone would visit the doctor or nurse by an average of 19.4% in a study performed on the 1997 National Survey of America's Families (Ku & Matani, 2001). According to Carroll et al. (2005), about half of farmworkers said that their employer covered them with worker's compensation, and between eight and twelve percent of farmworkers were covered by employer-sponsored health insurance in 2001 and 2002 (Carroll, Samardick, Bernard, Gabbard, & Hernandez, 2005). Using the same dataset but for the years of 2006 and 2007, Hoerster et al. (2011) reported that 28% of farmworkers were insured and about 71% of farmworkers had access to worker's compensation (Hoerster et al., 2011). It is encouraging that these percentages are both increasing over time, however, in the multivariate analysis performed by Hoerster et al. (2011), being insured was statistically significantly associated with utilizing health care while having access to worker's compensation benefits was not (Hoerster et al., 2011). This may give some information about the actual availability of worker's compensation benefits to farmworkers, rather than just their status as to whether it is offered or not. It is important to understand how these employer-sponsored health benefits are available and utilized in the farmworker population, and information about how that access and utilization is distributed throughout the population may give us some information about how effective these institutions are at reaching even the most vulnerable of farmworkers in the United States.

This study has two specific aims. The first aim is to assess whether both documented and undocumented farmworkers have equal access and knowledge of access to employer-sponsored health benefits such as workers' compensation and employer-sponsored health insurance. The second aim is to assess the existence of differences in the utilization of employer-sponsored health benefits by documentation status, as judged by comparing the primary payer of health care in both work related medical visits, and non-work related medical visits. It is entirely possible that the barriers to care listed above are exacerbated when farmworkers lack proper documentation status; an issue that affects more than half of all farmworkers in the United States (Carroll et al., 2005). According to Arcury and Quandt (2007), "farmworkers without documents want to remain anonymous, [thus] they do not seek health

care at emergency departments as well as migrant and community clinics because they fear they will be reported to authorities" (Arcury & Quandt, 2007, p. 351). Undocumented workers are also often "prey to exploitation and deception by employers…" (Grove & Zwi, 2006, p. 1933), which could lead to the lack of availability of employer-sponsored benefits, or possibly fear of using their "available" benefits. There are also policy-level factors that promote differential access to benefits by documentation status, as many states explicitly omit undocumented farmworkers from being eligible to receive worker's compensation benefits, whether the employer has worker's compensation insurance or not (*State Workers' Compensation Coverage for Agricultural Workers*, 2009).

According to Carroll et al. (2005), documented farmworkers nationwide were about twice as likely as undocumented farmworkers to report that they were covered by worker's compensation insurance, and about half as likely to report that they had no knowledge of whether or not they were covered. In a study of Mexican immigrant health care access in North Texas, undocumented immigrants were 72% less likely to have health insurance than their documented counterparts (Urrutia-Rojas, Marshall, Trevino, Lurie, & Minguia-Bayona, 2006). These disparities in coverage, coupled with the sociological barriers to seeking care, leave undocumented workers as an incredibly vulnerable sub-population of farmworkers in the United States. Obtaining information about their access and utilization of employer-sponsored health benefits is pivotal to understanding the extent that our immigration system has negatively affected the living conditions of this underrepresented and understudied group of workers.

Dataset

The dataset used to answer these research questions is the National Agricultural Workers Survey (NAWS)[1] from 1999-2000. According to the NAWS website, "The National Agricultural Workers Survey (NAWS) is an employment-based, random survey of the demographic, employment, and health characteristics of the U.S. crop labor force. The information is obtained directly from farm workers through face-to-face interviews. Since 1988, when the survey began, over 53,000 workers have been interviewed" (U.S. Department of Labor, 2011).

The NAWS is a nationally representative, cross-sectional survey conducted three times a year that is sampled from the continental United States population of field workers active in crop agriculture. The sampling frame is a random sample of workers who were working at the time of the survey at an employer that was willing to participate, which was part of a random selection of employers. It is possible that the sampling frame only partially captures the living conditions of farmworkers in the continental United States, as the cooperating employers are likely the ones with comparably better working conditions than the non-cooperative employers. According to the documentation, the survey uses a stratified multi-stage sampling design that is intended to account for seasonal and regional variations in farming employment. There are three interviewing cycles per year administered in 12 geographic regions. Each interview cycle lasts approximately ten to twelve weeks, with cycles beginning in February, June, and October. For each interview cycle, a random sample of locations is drawn from the entire universe of Farm Labor Areas (primary sampling units consisting of multiple counties). Once the random sample of Farm Labor Areas is chosen, counties are chosen randomly from each Farm Labor Area, and a simple random sample of agricultural employers is chosen from a comprehensive list of employers in each chosen county. If the employer grants access to a worksite, a random sample of workers at the work site is chosen to take part in the survey. In 2008-2009, 92% of approached workers agreed to be interviewed, however only 66% of the randomly selected employers agreed to participate, and interviews were conducted on only 59% of the eligible

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[1] http://www.doleta.gov/agworker/naws.cfm

establishments. Missing data for the interviews are coded as missing. The data are weighted to account for the sampling design and non-response.

Measures

The dataset is unique in that it contains a variable (currstat) that represents the current documentation status of each farmworker at the time they were surveyed, which is a key piece of information for answering questions about disparities based on documentation status. The dataset also contains variables representing the availability of employer-sponsored benefits such as health insurance and workers compensation (D22, D23, D24), as well as a variable representing the utilization of these employer-sponsored benefits had they used health services anytime in the prior two years before they were surveyed (NQ01, NQ05). As a result of the complex sampling design of the survey, when the responses are properly weighted using the provided weight variable, we are able to infer valuable, nationally representative information about this often transient and difficult to study population. For the first aim of investigating differences in access and knowledge of access to employer-sponsored health benefits, the entire universe of data for the years 1999-2000 is used, and differences in responses to D22, D23, and D24 by documentation status are investigated. When assessing the primary payer of healthcare services for the second aim, only the subset of the population that had reportedly received health services in the previous two years (assessed by the answer to question NQ01) is used. However, as the second aim asks about employer-sponsored health insurance and workers' compensation use separately, the two models will have differing subpopulations. The first model asking about utilization of workers' compensation consists of those who reported access to workers' compensation and reportedly sought medical care for a farmwork related reason. The second model, which investigates utilization of employer-sponsored health insurance, consists of those farmworkers who reported access to employer sponsored health insurance and reported seeking medical care not for a farmwork related reason. Hotdeck imputation methods are utilized to impute values for missing data in individual variables based on gender and age.

Analysis Plan

In order to assess differences in the availability and knowledge of availability of employer-sponsored health insurance and workers' compensation by documentation status for the target population of farmworkers in the United States, a series of six bivariate logistic regressions are run for each of the outcomes of interest, followed by another six multivariate logistic regressions for the same outcomes of interest controlling for marital status, age, years of farmwork in the US, education, gender, follow the crop status, migrant status, English speaking proficiency, ethnicity, and state of employment. To assess the utilization differences of employer-sponsored health benefits by documentation status for those with access, separate bivariate logistic regressions are run of documentation status on dichotomous variables representing the utilization of workers' compensation benefits or employer-sponsored health insurance, respectively, however multivariate regressions are not run due to small sample sizes of the subpopulations for these models. Odds ratios are reported for outcomes comparing documented farmworkers to undocumented farmworkers, and two tailed t-tests are used to determine the statistical significance of the findings, rejecting the null hypothesis of no effect with a p-value at or below .05. Taylor series standard errors are used for significance tests to correct for the survey design.

Expected Results

Table 1. Adjusted and Unadjusted Odds Ratios of Access and Knowledge of Access to Employer-Sponsored Health Benefits for Documented versus Undocumented Farmworkers in the United States, 1999-2000

	Unadjusted OR	SE	Adjusted OR*	SE
Reported Knowing WC Medical Coverage Status	**3.75 (2.56-5.49)**	0.73	1.77 (0.96-3.26)	0.55
Reported Access to WC Medical Coverage for those who know Coverage Status	**1.67 (1.23-2.26)**	0.26	**1.58 (1.05-2.39)**	0.33
Reported Knowing WC Wage Replacement Coverage Status	**3.15 (2.46-4.04)**	0.40	1.34 (0.92-1.94)	0.26
Reported Access to WC Wage Replacement for those who know Coverage Status	**2.11 (1.63-2.73)**	0.28	1.19 (0.84-1.71)	0.22
Reported Knowing ESHP Coverage Status	**3.10 (2.08-4.61)**	0.63	0.80 (0.44-1.47)	0.25
Reported Access to ESHP for those who know Coverage Status	**3.49 (2.49-4.88)**	0.60	**1.74 (1.14-2.66)**	0.38
Paid with WC+	0.90 (0.19-4.27)	0.71	-	-
Paid with ESHP#	0.43 (0.16-1.16)	0.22	-	-

Source: National Agricultural Workers' Survey (NAWS), 1999-2000 public-use data file
WC = Workers' Compensation, ESHP = Employer-Sponsored Health Plan
Note: Standard errors are calculated using Taylor Series with Stata version 12
Note: Standard errors may be incorrect due to lack of availability of appropriate cluster and strata variables in public-use dataset[2]
Note: Reference group is undocumented farmworkers
+Universe consists of those farmworkers that reported seeking health care services in the U.S. in the past two years, reported access to workers' compensation, and reported seeking care for a work related injury
#Universe consists of those farmworkers that reported seeking health care services in the U.S. in the past two years, reported access to employer-sponsored health insurance plan, and reported seeking care for a non-work related injury
* Multivariate models adjusted for marital status, age, years of farmwork in the US, education, gender, follow the crop, migrant status, English speaking proficiency, and ethnicity[3]
Bold results are statistically significant at the 95% confidence level

[2] All cross-tabs and regressions will be run again with appropriate cluster and strata variables to assess proper statistical significance
[3] Multivariate regressions will be run again with the inclusion of a geographic variable representing farmworker state of employment