

Overview of methodology used in previous studies

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A variety of surveys have been conducted in the past to evaluate agricultural worker health. Among the most prominent are:

National Agricultural Workers Survey (NAWS): This survey is conducted by the US Department of Labor, Employment and Training Administration (USDOL/ETA) on a continuous basis. It is an employment-based random survey of the agricultural worker community which considers the employment, demographic and health related characteristics of the U.S. agricultural workforce.

- Questions asked: Age, gender, ethnicity, employment status, country of birth, work authorization, education, income, use of assistance programs, years and type of farm work experience, non-crop activities, marital status and number of children, housing characteristics, distance from work, pesticide training, health insurance coverage and healthcare utilization.

- Sampling techniques: The survey uses a nationally representative, random sample of agricultural workers. During 2015-2016, a stratified multi-stage sampling technique was used to account for seasonal and regional fluctuations in the level of farm employment. The stratification included three interviewing cycles per year and 12 geographic regions, resulting in 36 time-by-space strata. The staff drew a random sample of locations for each of the 12 regions in each interviewing cycle with a total of 497 Farm Labor Areas (FLAs) with 5342 participants. FLAs were single-or multi-county sampling units. Counties were the secondary level, ZIP Code regions were the third, agricultural employers were the fourth, and workers were the fifth sampling units. The number of interviews allocated to each region was based on data from the U.S. Department of Agriculture's (USDA) Farm Labor Survey (FLS) and the Bureau of Labor Statistics' (BLS) Quarterly Census of Employment and Wages (QCEW).

- Methods: The information is obtained through face-to-face interviews with agricultural workers. A random sample of agricultural employers is drawn from a list compiled from public agency records. NAWS interviewers then contact the sampled growers or farm labor contractors, arrange access to the work site, and draw a random sample of workers at the work site. All states are included except Alaska and Hawaii. The use of an employer-based sample increases the likelihood that migrant and seasonal workers will be interviewed¹.

The California Agricultural Workers Health Survey: The California Institute for Rural Studies (CIRS) was awarded a grant in October 1998 by the California Endowment to conduct a health needs assessment of the agricultural workers in the state.

- Community Participation: A Farm Worker Advisory Committee composed of eight individuals (four men, four women) was formed in October 1998. The members had no formal relationship with agricultural worker advocacy organizations, labor unions or service providers. Three meetings were held during autumn and winter 1998-99.

- Questions asked: Household composition, personal demographics, healthcare utilization, self-reported health conditions, doctor reported health conditions, work history, income, living

conditions, workplace conditions, working with pesticides, immigration status, field sanitation work related injuries and immigration status. Components of the physical exam included -Height, weight, blood pressure, teeth, gums, caries, broken/missing teeth, impacted wisdom teeth, gingivitis, lesions, dermatitis, pre-cancerous growths, palpation, respiratory function, breast examination ,cholesterol, blood glucose, PAP smear, STDs ,full CBC panel, illness history, immunization, family history, menstruation, pregnancies, births, tobacco, alcohol, workplace and domestic violence, partners, STDs, safe sex practices, extent of use, type of drugs, intravenous drug use, mental health history, treatment, workplace alcohol use, workplace injury, treatment and workers compensation.

- **Sampling techniques:** A multi-stage sampling strategy was developed. The first stage involved the assignment of the state's 58 counties to one of 6 agricultural regions, defined by the California Department of Employment Development- Central Coast, South Coast North Coast, Desert, Sacramento Valley and San Joaquin Valley. The second stage of sampling involved selecting at least one community to represent each region with the selection of a Medical Service Study Area (MSSA) which is a geographic area within which most residents obtain most or all their needed health care services. One community was selected in each of five of the state's six agricultural regions. A sixth site was purposefully selected to represent the Desert Region. A seventh site was purposefully selected to provide a second community to represent the San Joaquin Valley because nearly 50 percent of all California agricultural workers work in this region.

- **Methods:** A community-based, household survey method was used for the CAWHS. This sampling method sought to approach potential subjects at their place of residence rather than at their workplace. The criterion for subject eligibility was the being age 18 years or older and employed as an agricultural worker for any length of time within the twelve-month period prior to contact by the CAWHS. Persons who met these qualifications, but who were injured and unable to work at the time of the survey, were eligible for inclusion. A total of 971 workers were sampled and physical exams were conducted for 652 workers. There were no restrictions imposed on the type of hired agricultural workers. A \$30 honorarium was paid to CAWHS subjects and referrals were provided for treatment of conditions disclosed by the exam².

Farm Labor Survey: It is an annual survey conducted by the National Agriculture Statistics Service (NASS). It contains national and regional data for self-employed, unpaid, and hired workers. The survey includes wage rates for selected weeks in selected states along with changes in agricultural workers per region. The data is published in wage rates, number of workers, type of worker, hours worked by region, economic class and type of farm. The survey targets farms and ranches with \$1,000 or more in actual or potential agricultural sales.

- **Questions asked:** number of workers, wage rate, number of hours worked, type of work and region.

- **Sampling Techniques:** The survey uses a dual frame sample design with both list frame and area frame components, to ensure adequate coverage of the target population. The survey uses a combined sample of approximately 13,000 sampling units in each semi-annual data collection period.

- **Methods:** Data are collected primarily by mail and computer-assisted telephone interviews from NASS Data Collection Centers for all states except California. Data is collected in April and October in all states except California, which collects labor data monthly as part of a state program in cooperation with the California Employment Development Department, which collects monthly labor data and publishes monthly state farm labor estimates³.

Sonoma County Farm worker Health Survey: The Sonoma County Farmworker Health Survey (FHS) was conducted with the goal of identifying preventable disparities in the fall of 2013 to collect local data on the health and well-being of Sonoma County agricultural workers.

- **Questions asked:** Demographics, English proficiency, housing, transportation, employer support for housing and transportation, overcrowding, cost of transportation, food security, income, poverty, health insurance coverage, healthcare utilization, health related behaviors-cigarette smoking, alcohol, hypertension, diabetes, nutrition, women and child health, obesity and mental health, worksite injuries and poisonings.

- **Sampling techniques:** Eighteen sites were approved, and 300 agricultural workers were surveyed between September 2013 and January 2014 at these venues. The survey was conducted using venue-based and convenience sampling techniques. A total of 293 agricultural workers aged 18 years or older were surveyed.

- **Methods:** The FHS instrument was available in English and Spanish. The survey was piloted with eight agricultural workers to determine the appropriateness of survey length and to test responses to questions. After adjusting the survey based on the pilot, data collectors contacted potential survey venues for permission to enter and survey agricultural workers. The survey was administered in person by trained, bi-lingual interviewers, and the survey took between 15 and 30 minutes to complete. Interviewers were trained in culturally appropriate interview techniques. All volunteer interview participants were given a \$10 gift card and a packet with local resources for referrals at the end of the interview⁴.

MICASA Survey: The survey focused on work related injuries in California Hispanic Agricultural workers, born chiefly in Mexico. The study's purpose was to provide longitudinal data for assessing the incidence and prevalence of injury and disease, with an emphasis on occupational health conditions. The study consisted of periodic interviews, objective measurement of anthropometric characteristics, pulmonary function, and field-based exposure measurements.

- **Questions asked:** The baseline and follow-up questionnaires were in Spanish and collected information on demographic, occupational, and health characteristics, including injury experience.

- **Sampling Techniques:** Sampling of the population consisted of a stratified area-sampling process comprising an initial mapping of the community, enumeration of households in 74 randomly selected census blocks within Mendota's two census tracts, and interview of the adult (age ≥ 18 years) head of household or spouse who self-identified as Mexican or Central American and had worked at least 45 days in agriculture in the preceding year. A total of 806 immigrant Latino agricultural workers from Mexico and Central America in a rural agricultural community in California's Central Valley were interviewed.

- Methods: Trained Spanish-speaking interviewers administered the questionnaire in the participant's home or at the study headquarters. An injury was defined as an unintentional event associated with bodily harm within the 12 months prior to follow-up interview along with at least one of the following: need for medical care, loss of consciousness, restriction from normal activities or at least one-half day of lost work time. Data collected included diagnosis, area of injury, activity engaged in when injured, event or exposure prior to injury, associated object, treatment, and lost or restricted work time⁵.

The Center for the Health Assessment of Mothers and Children of Salinas (CHAMCOS) Survey: The objective of the study was to explore the potential role of early social adversities such as pesticide exposure in modifying the IQ of children in an agricultural Mexican American population.

- Questions asked: Demographics, language, country of birth, maternal age, time lived in the U.S. during pregnancy, whether they worked in agriculture during pregnancy.

- Sampling techniques: The Center for the Health Assessment of Mothers and Children of Salinas (CHAMCOS) was a prospective longitudinal pre-birth cohort study which included 329 singleton infants and their mothers from a Mexican American agricultural worker community in Salinas, California who were followed from pregnancy through age 7.

- Methods: Demographic characteristics and adversity information were collected during interviews and home visits at numerous time points from pregnancy until age 7. Dialkyl phosphate metabolite concentrations (DAPs), a biomarker of organophosphate pesticide exposure, were measured in maternal urine collected twice during pregnancy and averaged. Child cognitive ability was assessed at 7 years using the Wechsler Intelligence Scale for Children – Fourth Edition⁶.

References

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