

# Female Farmworkers' Health During Pregnancy

## Health Care Providers' Perspectives

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### RESEARCH ABSTRACT

Pregnant farmworkers and their fetuses are at increased risk of negative health outcomes due to environmental and occupational factors at their workplaces. Health care providers who serve farm communities can positively affect workers' health through the informed care they deliver. Yet, interviews with rural health care providers reveal limited knowledge about agricultural work or occupational and environmental health risks during pregnancy. Professional associations, government organizations, academic institutions, and practice settings must renew their efforts to ensure that environmental and occupational health education, especially as it relates to women and their children, is incorporated into academic and practice environments. [*Workplace Health Saf* 2013;61(7):308-313.]

Farming consistently ranks as one of the three most hazardous occupations in the United States (Earle-Richardson, Jenkins, Scott, & May, 2011). In 2011, agriculture had some of the highest rates of total recordable nonfatal occupational injuries and illnesses among goods-producing private industry sectors (Bureau of Labor Statistics, 2012). Nonfatal occupational injuries and illnesses in agriculture result principally from being

struck by or caught in workplace objects or equipment, falls, overexertion, transportation accidents, and exposure to harmful substances or environments (Arcury & Quandt, 2007). Pregnancy further complicates these risks because agricultural hazards present distinct hazards to both the mother and the fetus. However, few researchers have examined the specific risks to women working in agriculture during their pregnancies.

Of the estimated 3.5 million migrant and seasonal farmworkers in the United States, approximately 21% are women. Overall, female farmworkers are of childbearing age; in 2001–2002, the average age was 33, and half were younger than 31 (Carroll, Samardick, Bernard, Gabbard, & Hernandez, 2005). The effect of agricultural work on reproductive health outcomes has been studied to a limited extent, with conflicting results. Late prenatal care and low weight gain, for instance, have been identified as risks for Hispanic farmworkers (Centers for Disease Control and Prevention, 1997). Currently, Hispanic women in the United States have a higher incidence of preterm birth but a lower incidence of low birth weight than their non-Hispanic White counterparts. Conversely, Hispanic

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women have a higher incidence of macrosomia (high infant body weight) than other ethnic groups, a statistic only partly explained by the increased prevalence of gestational diabetes in this group (March of Dimes, 2012).

Pesticides have received the most attention among all potential occupational hazards that could affect the health of pregnant farmworkers. Yet, even the results of pesticide studies are conflicting (De Roos et al., 2005). Some data have pointed to the possibility of impaired fecundability (i.e., the probability of being pregnant in a single menstrual cycle) and increased incidence of spontaneous abortions, stillbirths, preterm births, and low birth weight (Hanke & Jurewicz, 2004). Other studies examining these same variables have not demonstrated increased risk (Bretveld, Zielhuis, & Roeleveld, 2006; Bretveld et al., 2008; Whyatt et al., 2004; Zhu, Hjollund, Andersen, & Olsen, 2006). The demonstration of causal relationships between pesticide exposure and reproductive health is methodologically challenging. Limited understanding of the cumulative, additive, and synergistic effects of multiple sources of exposure to multiple pesticides among high-risk populations complicates these studies (Committee on Environmental Justice, Institute of Medicine, 1999; World Health Organization, 2009). Moreover, gestational age at the time of exposure is also confounding (Calvert et al., 2007; Colborn, 2004).

In general, adverse pesticide exposure can result in a wide range of acute health effects, including nausea, dizziness, vomiting, headaches, stomach pain, rashes, and eye problems (Arcury & Quandt, 2003; McCauley et al., 2006). Findings from animal and some human studies have shown that pesticides can also have chronic effects on the neurological, respiratory, and immune systems, and that they can be carcinogenic and mutagenic (Alavanja et al., 2004; Kamel & Hoppin, 2004). The potential interactions between pesticides and other environmental hazards also merit attention. For example, a worker suffering from heat stress may be more susceptible to pesticide toxicity (Handal, Harlow, Breilh, & Lozoff, 2008). If workers' immune systems are compromised from exposure to pesticides, they may be more susceptible to other diseases (Repetto & Baliga, 1997). In addition, recent findings link pesticide exposure to lower cognitive development in childhood (Bouchard et al., 2011; Engel et al., 2011).

## STUDIES OF RISK AND HEALTH CARE EXPERIENCES

Investigators have used qualitative methods to examine farmworkers' knowledge of, perceptions about, and behaviors related to specific occupational risks. Findings from these studies show that farmworkers believe pesticides are dangerous but they receive little information about those pesticides used at their work sites, despite federal regulations mandating they receive this information (Arcury et al., 2006; Arcury, Quandt, & Russell, 2002; McCauley, Sticker, Bryan, Lasarev, & Scherer, 2002). In addition, farmworkers have limited knowledge of the long-term effects of pesticides. Instead, they rely on lay knowledge about symptoms of pesticide expo-

## Applying Research to Practice

Environmental and occupational health should be an essential component of health care provider training; health care providers need specialized education on the potential of occupational exposures to affect pregnancy outcomes. Agricultural workers are particularly at risk for the effects of pesticide exposure, ergonomic stress, and other occupational hazards during pregnancy. Occupational health histories should be an integral part of all prenatal histories and work exposures should be discussed with each woman.

sure and their senses to detect the presence of pesticides (Bender, Harbour, Thorp, & Morris, 2001).

Less research has been reported on farmworker health and health care during pregnancy. Investigators in a study focused on immigrant Latina workers' perceptions of prenatal care quality reported the most significant determinant of satisfaction was whether providers explained procedures (Bender et al., 2001). However, little research has focused on health care providers' perspectives about the needs of pregnant farmworkers. Only one published study was located in which the researchers addressed health care providers' knowledge of, perceptions about, and attitudes toward farmworker health. In this study, the researchers explored cancer screening among Hispanic workers and described interviews with health care providers, community members, and representatives from organizations that served Hispanics. All groups agreed that economic barriers to screening existed; community members thought that long waits in the clinic and the lack of a regular health care provider were barriers to screening not mentioned by the health care provider group (Puschel, Thompson, Coronado, Lopez, & Kimball, 2001).

## RESEARCH FRAMEWORK

To advance understanding of worker health and safety issues in this vulnerable population, university investigators partnered with community organizations to conduct community-based participatory research about pregnancy health among workers in Florida ferneries and nurseries. A long-term objective of this study is to influence public policy regarding appropriate occupational and environmental health and safety, worker protection, and training policies for pregnant farmworkers.

The findings reported in this article served as a preliminary step in developing a comprehensive program of research to address the specific occupational and environmental hazards associated with pregnant women working in agriculture. Focus groups and interviews were conducted with both female farmworkers of childbearing age (Flocks, Kelley, Economos, & McCauley, 2012) and

health care providers working in clinics in the targeted communities. This article reports the health care providers' perspectives regarding health care for pregnant farmworkers.

As context for this report, interviews were conducted in health centers located in three counties in central Florida. In 2011, the birth rates for these counties were 13.3 per 1,000 for Orange County (population 1.1 million), 11.4 per 10,000 for Putnam County (population 74,052), and 9.4 per 1,000 for Volusia County (population 495,400) (Florida Vital Statistics Annual Report 2011, 2012). In 2011, Florida, overall, had a birth rate of 11.2 per 1,000 (Hamilton, Martin, & Ventura, 2012). The approximate number of prenatal patients seen annually in each clinic was 1,200 in Orange County, 6,000 in Putnam County, and 1,000 in Volusia County. These numbers were estimates by providers in the clinics included in the study. From a statewide perspective, 27.5% of live births in Florida are to mothers of Hispanic origin (Hamilton et al., 2012). These numbers reflect the Hispanic population as a whole and not necessarily the specific communities targeted in this study, the nursery workers in Putnam County and Orange County and the fernery workers in Volusia County.

## METHODS

Potential study participants were identified using four sources: (1) research team members from the Farmworker Association of Florida (FWAF), (2) referrals from community residents known to the FWAF, (3) health care providers serving as consultants on the project, and (4) discussions with individuals from the Migrant Clinicians Network. Community clinics that served farmworkers in the targeted agricultural communities agreed to approach their women's health care providers regarding this interview. Potential participants were told of the purpose of the study, the extent and nature of involvement should they choose to participate, and the monetary reimbursement for participating (\$25). Potential participants were told the researchers were interested in participants' beliefs about the major risk factors women face in their jobs and other pregnancy-related issues such as access to care. Eight health care providers working in the targeted clinics agreed to participate; they were interviewed about their knowledge of, perceptions about, and practices related to farmworker health during pregnancy. Interviews were conducted in three different settings with four obstetricians, two advanced practice nurses, one physician's assistant, and one registered nurse.

Questions used to guide the structured interviews included:

1. During which trimester do you usually see pregnant farmworkers for their first prenatal visit?
2. Do you believe that access to prenatal care is readily available in your area? Why or why not?
3. What advice do you give pregnant farmworkers about pesticide exposure during pregnancy?
4. What recommendations do you give pregnant farmworkers about standing, lifting, and hot environments during pregnancy?

5. What types of problems do pregnant farmworkers present within your office? Do you see some conditions more frequently in farmworkers? If so, what are they?

All study protocols were reviewed and approved by the university Institutional Review Board. All interviews were conducted at health centers during 2010 by study investigators; the interviews were recorded and transcribed. Each team member independently reviewed the transcripts, created coding categories, and applied the codes to the transcripts. The codes were sorted into coded categories reflecting major themes from the interviews. Team members then reviewed each other's coding schemes and reached consensus on categories.

## RESULTS

The data converged along five thematic areas: (1) information collected at intake; (2) barriers to health care; (3) patient occupation, culture, and pregnancy health; (4) occupational and environmental hazards during pregnancy; and (5) health care provider needs.

### *Information Collected at Intake*

**Awareness of Patient Occupation.** All of the health care providers worked either part-time or full-time at the publicly funded health centers in which the interviews occurred. Farmworkers constituted a portion of their case loads in each center. With one exception, health care providers reported that they did not routinely record occupational information for the prenatal record. Occupational data were collected at a separate visit and on separate forms by intake workers. One health care provider reported that although space was provided in the medical record to record patients' occupations, occupations were not routinely recorded there.

**Awareness of Patient's Time of Entry Into Prenatal Care.** Health care providers indicated that pregnant farmworkers do seek prenatal care, being seen for the first time between 9 and 24 weeks' gestation. Very few women arrive at the hospital for delivery with no prenatal care. Two groups of providers reported a policy of declining to see prenatal patients in the third trimester because of the liability of unidentified high-risk cases without time to manage these mothers optimally.

**Health Care Coverage and Access.** The state in which the research was conducted grants an initial 45 days of presumptive Medicaid eligibility for pregnant women. This policy allows health centers time to verify income and citizenship; if verified, Medicaid covers pregnancy and delivery care. For farmworkers, many of whom are not citizens, presumptive eligibility provides entry into the prenatal care system and baseline prenatal testing. Clinics also seek other funding for women who may not be eligible for Medicaid. All interviewed health care providers believed adequate access to prenatal care existed for pregnant farmworkers.

### *Barriers to Health Care*

One of the eight health care providers interviewed was bilingual, speaking Spanish and English. Providers acknowledged that the ability to communicate di-

rectly with patients was not optimal, but they believed that adequate translation services were available in their clinics. Transportation for patients was not identified as a current barrier to care, but two health care providers indicated it had been a problem previously. When asked whether farmworkers had difficulty taking time off work for prenatal visits, health care providers reported they had received no indication from the patients that this was a barrier. One health care provider identified limited knowledge of available services as a barrier, and another expressed concern that immigration status could affect health-seeking behavior.

#### **Patient Occupation, Culture, and Pregnancy Health**

Health care providers believed that many patients who could be farmworkers were not actually working in the fields while pregnant, instead staying home raising children or being currently unable to find work. The economy was identified as affecting this trend. Health care providers also reported that Haitian and Hispanic female farmworkers did not generally voice complaints or ask questions during their prenatal visits; the health care providers believe that motherhood was a source of pride for the female farmworkers.

Health care providers noted that health issues specific to pregnancy were insufficient or excessive weight gain and increased incidence of diabetes and macrosomia (high infant body weight). Health care providers reported they had not perceived an increased incidence of preterm labor, preeclampsia, or other pregnancy complications in this patient group.

#### **Occupational and Environmental Hazards During Pregnancy**

**Pesticides.** Health care providers reported that patients did not ask about pesticide exposure, and the providers did not identify problems that were obviously related to pesticide exposure. For example, four health care providers erroneously believed that the Occupational Safety and Health Administration regulated agricultural pesticide use. Some health care providers admitted they did not know how to advise workers about pesticide exposure during pregnancy. Two health care providers believed that farmworkers were adequately informed and trained about pesticide exposure at their work sites.

One health care provider expressed perceptions of work practices related to pesticides this way:

If they're changing clothing like they're supposed to . . . if they're not entering a field prior to the time they're supposed to . . . then whether they are pregnant or not pregnant, you are not going to have any additional risk of exposure . . . The problem is not everything happens like it's supposed to happen.

**Ergonomics.** One health care provider reported that pregnant farmworkers complained of lower back pain, and another health care provider acknowledged that repetitive motion in farm work could cause pain. Four

health care providers stated that all women received the same advice about ergonomics during pregnancy—not to lift more than 25 pounds and to avoid motions that cause pain—regardless of occupational status.

**Heat Exposure.** Health care providers reported that patients never asked or complained about heat-related issues in the workplace. The health care providers recognized dehydration as a potential problem, but said they had not seen dehydration in the farmworker population.

#### **Health Care Provider Needs**

Two health care providers expressed the desire for training about the particular risks that female farmworkers faced, including ergonomic stress, pesticides exposure, and heat stress. One health care provider characterized this as follows:

My training is limited on how to guide them . . . You tell them that this is how you lift . . . don't breathe anything directly, if you smell anything unusual leave the area . . . Those are logical guidelines, but I don't think there are any special trainings on how to counsel that group of people.

## **DISCUSSION**

As reported in the Results section, health care providers did not tend to collect or record occupational information at the time of first visit to a provider. Although not recorded in the provider record, the clinicians reported that they saw pregnant farmworkers for the first visit between 9 and 24 weeks' gestation. Some providers declined to see women who first presented for prenatal care in the third trimester, citing liability considerations for the clinician. Because of presumptive Medicaid eligibility, providers reported that all women had access to prenatal care, although it might be episodic depending on immigration status. This section of the interviews indicated an overall awareness of pregnant farmworkers in the system but no particular attention to occupational risk assessment or health education. This finding is consistent with a recent nationwide survey from the University of California San Francisco of 2,600 obstetricians and gynecologists, asking about risk assessment and health information for women who are pregnant. Most of the physicians did not warn their patients about chemicals in food, consumer products that could be dangerous, or environmental hazards to the fetus (Kay, 2012).

Regarding barriers to prenatal care, the providers reported adequate translation services in their offices, although they acknowledged that the optimal situation would be for the provider to be bilingual, as one provider was. From the providers' perspective, transportation to the clinic or the ability to take time off from work were not identified as barriers to participating in prenatal care. Concern was expressed about how immigration status might affect health-seeking behavior. This feedback from the providers may reflect a truly enlightened health care environment in the area, or the possibility that providers are not aware of the barriers some women face in the workplace. The literature seeking information from farm-



workers about barriers reports this to be a problem for at least some women (Bircher, 2009).

Findings from the interviews relating to patient occupation, culture, and pregnancy health indicate that the providers believed that the economic downturn and the legal status of immigrants, as well as the choice to stay at home to raise children, resulted in fewer women in the farm work force. Personal interviews with the FWAF affirmed these observations.

The results also discussed occupational and environmental hazards during pregnancy, reflecting a lack of information about these issues, misinformation regarding who regulates agricultural pesticide use, and an expressed need by two providers for more training in this area. These findings are similar to those of the nationwide survey of obstetricians and gynecologists presented in the 2012 *Environmental Health News* report (Kay, 2012). In that study, 89% of the physicians interviewed said that guidelines from their professional organization, the American College of Obstetricians and Gynecologists, would be the most helpful way to gain information on environmental health.

The findings from this study offer only a glimpse of the potential unmet health needs of pregnant farmworkers. The sample was drawn from a specific geographic region; the findings may not be generalizable beyond the particular areas where these health care providers are located. This health care provider subgroup may not reflect the knowledge base of a less specialty-focused provider group, such as family physicians and family nurse practitioners.

## IMPLICATIONS FOR PRACTICE

The findings from this study affirm several points about health care provider training in farmworker communities that have been acknowledged and discussed by agencies and organizations for more than a decade.

First, environmental and occupational health should be an essential element of medical and nursing school curricula. The Institute of Medicine has long supported the integration of environmental health content into health care provider education (Pope & Rall, 1995; Pope, Snyder, & Mood, 1995). In addition, the National Environmental Education Foundation formed an interagency task force that brought together health professionals and other stakeholders, producing a position statement on health professionals and environmental health education (National Environmental Education Foundation, 2004). Despite this history of efforts, most health care providers do not have knowledge and tools to address patients' environmental and occupational health issues. If the work of federal agencies and nongovernmental organizations has been effective in improving health provider education or practice, it has been slow to become apparent at the farming community level. Health care providers who serve farmworkers are in a position to positively affect workers' health through prevention education, accurate diagnoses, and prompt and appropriate treatment. Yet, once in practice, their awareness and understanding of occupational injuries and environmental illnesses may not expand.

Second, health care providers should receive continuing education and information on environmental and occupational health risks in general and more specifically for the populations they serve. In farming communities, this education should include the recognition and management of pesticide-related illnesses, treatment options, risks to the fetus and fetal development, and instructions regarding specific pesticide poisoning reporting requirements. The Migrant Clinicians Network ([www.migrantclinician.org](http://www.migrantclinician.org)), an organization providing direct support for clinicians, offers education and technical assistance on issues relevant to farmworkers, including environmental and occupational health. In Florida, the Farmworker Health and Safety Institute, through the FWAF, offers training in pesticide exposure of farmworkers to clinics and health care providers.

Finally, an occupational health history should be part of initial health care visits. This history could be obtained prior to individuals seeing the clinician; it should be reviewed by the provider, using an interpreter if appropriate. Failure to assess patients' occupational health histories results in little attention to agriculture-related health issues in this group of women.

## CONCLUSION

To effectively meet the prenatal health needs of pregnant farmworkers and their fetuses, health care providers must be educated early and continuously in environmental and occupational health. Health care providers located in areas with farmworker populations must learn about their patient population. Inquiring about a pregnant farmworker's occupational history is an example of becoming more aware of the needs of this potentially high-risk and vulnerable population.

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