

streamline

Increasing Access to Health Care for Farmworkers Who Are Unaccompanied Minors

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BACKGROUND

Access to Health Care for Unaccompanied Migrant Farmworker Minors

This research study seeks to provide primary care providers with policy recommendations for increasing access to health services for migrant farmworkers who are unaccompanied minors, while ensuring the protection of providers from legal liabilities. It was initiated after several Health Centers in the Mid-Atlantic region of the United States reported instances of unaccompanied minors (defined as those under age 18) seeking treatment without a legal guardian who could give consent. Some primary care providers expressed concerns regarding the possible liabilities of serving unaccompanied minors.¹ Primary care providers also face ethical issues of whether these minors should be working at all or should be referred to social services and enrolled in school and foster care. Health Centers do not wish to adopt policies that would discourage patients from seeking the medical help they need, or policies that will prohibit them from effectively serving this vulnerable population.

Minors in Agricultural Labor

The number of minors employed in agricultural labor has increased in recent years as more teens immigrate alone to the United States in order to work in the agricultural industry and send earnings back home to their families.² The US Department of Labor reported in 2000 that 80 percent of migrant, minor farmworkers do not live with any member of their family, and 91 percent are foreign born.³ According to the Centers for Disease Control and Prevention, an estimated 230,000 youth were hired to work on US farms in 2009.⁴

Unaccompanied migrant minors face



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many challenges as a result of their work conditions, poverty, low levels of education and lack of parental support. Half of all teenage farmworkers live in households with annual incomes of less than \$10,000, yet only 2 percent of all farmworkers live in households that receive Temporary Assistance for Needy Families, and only 7 percent of farmworkers aged between 14 and 17 receive food stamps.⁵ Teenage farmworkers are half as likely to receive food stamp benefits as adult farmworkers. The low levels of federal assistance may be due to the fact that many minor migrant workers are foreign-born.

Minors working in agriculture are also paid less on average than adult farmworkers. Approximately 23 percent of adult agricultural workers earned minimum wage or less while 30 percent of child farmworkers earned at or below minimum wage.⁶ Teens

who work and live away from their families have also been shown to struggle academically. Almost half of unaccompanied teens indicated that they had worked for more than 13 weeks out of the year, which indicates that they performed some work during the school year.⁷

Health of Minor Farmworkers

Although data on unaccompanied minor farmworkers is limited, the US Department of Labor reported that, "it is unlikely that many of these minors have employer provided health insurance."⁸ In fact, only 8 percent of all farmworkers report having health insurance. This is especially troubling considering the often hazardous nature of farm work. According to the National Safety Council, agriculture is the most dangerous

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industry in the United States.⁹ The National Consumers League reported that between 1992 and 2000, 42 percent of all work-related deaths of minors occurred in agriculture, and in 2006, an estimated 5,800 children and adolescents were injured while performing farm work.¹⁰

Some of the many perils that face minors working in agriculture are farm machinery runovers and rollovers, injuries from sharp cutting tools, carrying heavy loads, awkward work positions, repeated actions, poor sanitation, long work hours¹¹, exposure to chemicals and pesticides, heat stroke and dehydration.¹² Children and adolescents are especially vulnerable to adverse health effects from farm work due to the developmental changes and growth that they are experiencing. Adolescents undergo rapid maturation of major organ systems including the respiratory, reproductive, skeletal, immune and central nervous systems.¹³ Children have a higher skin-to-body-weight ratio than adults which causes them to absorb a higher concentration of pesticides.¹⁴ Higher absorption rates occurring at a time of crucial development can result in cancer, neurological problems such as Parkinson's disease¹⁵, endocrine disruption, respiratory problems and dermatitis.¹⁶ Adolescents go through growth spurts, which can make them less flexible and more susceptible to musculoskeletal injuries such as bursitis, tendonitis, and carpal tunnel syndrome.¹⁷ Repetitive movements and heavy loads take an especially hard toll on the developing bodies of children and adolescents.

Environmental factors that minors are exposed to through agricultural work can affect the physical, psychological and social development of children and adolescents and lead to chronic health effects such as cancer, musculoskeletal disorders and psychological problems.¹⁸ The hazardous nature of their labor makes it especially important that these minors are able to access medical care.

METHODS

Surveys

In order to collect data on the numbers and demographics of unaccompanied minors who seek treatment at Health Centers in the Mid-Atlantic states, and to compare the different policies that are being implemented in Health Centers, interviews were conducted with 19 outreach coordinators and other staff members at health centers in NC, SC, TN, KY, VA, WV, MD, and DE. Informants were asked about their experiences with their health centers' policies regarding treatment of unaccompanied minors.

Table 1.
Mid-Atlantic State Laws on Minors' Right to Consent to Health Care²²

State	Contraceptive services	Prenatal care	STI/HIV services	Treatment for alcohol and/or drug abuse	Outpatient mental health services	General medical health services
NC	MC	MC ²³	MC ²⁴	MC	MC	MC ²⁵
SC	MC*	MC*	MC*	NL	NL	MC
TN	MC	MC	MC	MC	MC	NL
VA	MC	MC	MC	MC	MC	NL ²⁶
WV	NL ²⁷	NL ²⁸	MC	MC	NL	NL
MD	MC†	MC†	MC†	MC†	MC†	MC†
DE	MC†	MC†	MC†	MC	NL	MC
KY	MC†	MC†	MC†	MC†	MC† ²⁹	MC†

KEY

MC = Minor explicitly authorized to consent

PN = Parental notice explicitly required

* Applies to mature minors 15 and younger and to minors 16 and older³⁰

† Clinicians may, but are not required to, inform the minor's parents.

PC = Parental consent explicitly required

NL = No law or policy found.

M/CHC policies were evaluated based on the statutes of the state in which they reside, and how the policy affected the well-being of the patients. The criteria for assessing the legality of clinic policies were established after seeking the legal opinions of experts in law and medical ethics from the University of North Carolina School of Government, Duke Law School and the Director of Duke Hospital Clinical Ethics. It is important that any policy implemented by a Health Center both maximize access to health services for unaccompanied minors and minimize liabilities for clinicians and Health Centers.

Informants were contacted by e-mail and then interviewed over the phone or by e-mail. The informants were assured that their responses would be confidential. Phone interviews were conducted with 19 informants from Health Centers in eight states. The interviews lasted from 15 to 30 minutes based on the length of the informants' answers. A standard questionnaire was utilized to evaluate both the characteristics of unaccompanied minors that the M/CHC served and what policies were implemented to determine whether or not to treat unaccompanied minors. Unstructured responses were also allowed based on what the informants deemed was important to understanding the issue of treating unaccompanied minors.

Survey Findings

The profile for unaccompanied minors seeking treatment was similar across states. The

majority are migrant agricultural workers from Central America who suffer mainly from work-related health problems. Clinics who treat female unaccompanied minors generally reported providing care for pregnancy, birth control or sexually transmitted diseases (STDs).

The policies regarding treatment of unaccompanied minors varied among Health Centers. Many of the survey respondents had limited or inaccurate knowledge of their state's laws regarding a minor's consent to treatment, and inadvertently adopted official policies that reflected this. In several cases, Health Center staff who did not follow an official procedure acted in ways that were both ethical and followed the state's laws.

Laws on Consent to Health Care for Minors

In order to establish criteria for assessing the legality of clinic policies, research was conducted on state laws regarding minors' consent to treatment, and the legal opinions of experts in law and medical ethics from the University of North Carolina School of Government, Duke Law School and the Director of Duke Hospital Clinical Ethics were obtained.

The right of minors to consent to medical treatment is determined by state and federal law as well as by the Constitution and court

ecisions. Laws regarding minors' consent to treatment were first enacted in California in the 1950s. Throughout the 1960s and '70s there was a consistent pattern of enacting minor consent laws in all states. There were few changes made to these laws in the 1980s; however in the 1990s many minor consent laws were restricted or repealed.¹⁹

The laws regarding a minor's rights to consent to medical procedures vary by state. Most states allow minors to seek medical care without the consent of a guardian for health issues related to sexual activity, substance abuse and mental health care. Exceptions are also made for medical emergencies when there is no time to obtain parental consent. Minors can consent to diagnosis and treatment of venereal disease in most states, and some states allow for the prevention of communicable diseases. Depending on state reportable disease statutes and the status of the minor, minors may be able to consent to immunizations. Depending on state law, there are other instances in which parental consent is not required for treatment. Some states base minor consent laws on characteristics of the minor while others are based on the type of services being sought.²⁰

Mature Minor Doctrine

The Mature Minor Doctrine is not a statute. It is a doctrine developed by the courts that allows a minor of at least 14 years of age, who has capacity to give informed consent to give consent for mainstream medical care. There are no strict criteria by which to judge whether a minor has the capacity to give consent. It is left to the clinician to use his or her best judgment. Under this doctrine clinicians are not legally liable for not seeking parental consent.²¹

RECOMMENDATIONS

After considering both the information collected from interviews with M/CHC staff and legal experts, it is recommended that primary care providers establish clear policies regarding minors' consent, and Health Center staff should receive training on their state's laws governing the treatment of unaccompanied minors. Health providers that are provided with accurate and complete information regarding state laws are the most likely to adopt legal and ethical policy for the treatment of unaccompanied minors.

The question of whether to contact the state's department of social services (DSS) should be made on a case-by-case basis in all states, and Health Centers are recommended to seek independent counsel regarding these

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cases. Minors under 18 may need child protective services if they are abused, neglected or dependent. A provider has a duty to contact DSS if the juvenile is in need of assistance or placement.

CONCLUSION

This project began under the assumption that current legislation prohibited clinicians from serving unaccompanied minors. After careful analysis of current legislation and consultations with experts in both law and medical ethics, it has become clear that clinicians are often able to provide more services than they are aware of. The largest barrier to unaccompanied minors receiving medical care is misinformation regarding the laws governing minors' consent to treatment. Although the general rule for serving minors is to require parental consent, the statutes in most states allow clinicians a great deal of flexibility in using their best judgment to determine what course of action would be the most beneficial to a patient. It is important for clinicians to take seriously the need to attempt to contact a parent or guardian with due diligence and to protect them-



selves legally by documenting their attempts. However, after an effort has been made to contact a parent, in most cases, a clinician should accept the consent of the minor for treatment if delaying treatment will result in a deterioration of the patient's condition. This is not only true in the case of life-threatening emergencies, but also for less serious illnesses, such as respiratory infections or dermatological problems, which are common health problems for agricultural workers.

Immunizations are also an important area

in which laws have been misinterpreted. Many state statutes allow minors to consent to the prevention, diagnosis and treatment of communicable diseases. This exception to parental consent is especially important in the control and prevention of H1N1 influenza.

Primary health care providers should be educated on the laws governing minors' consent to care in their state. A valuable reference is the *State Minor Consent Laws: A Summary*, Third edition published by the North Carolina Center for Adolescent Health and the Law. This report outlines minor consent laws for all 50 states and would be invaluable for bringing accurate information to clinicians. Educating health care providers who treat unaccompanied minors about their state's laws governing minors' consent to treatment is essential to increasing access to health care for migrant farmworkers who are unaccompanied minors. It is also important that the minors themselves are made aware of their rights concerning consent to treatment, so that they will be more likely to seek out and receive the medical help that they need.

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ACA and Migrants: Challenges and Opportunities

Anna Krey

Liz Charles of Maine Migrant Health Program (MMHP) has been on the front lines of outreach to migrant farmworkers on public benefits and the Affordable Care Act since 2011.⁴ Funded by Maine Health Access Foundation, MMHP has provided resources and trainings in Spanish and Haitian Creole to migrants in the area. Initially most concerned with helping farmworkers avoid tax penalties, Charles said she was struck by the fact that farmworkers were equally interested in the new opportunities available to them through the Affordable Care Act. "I kind of took an apologetic approach," Charles said. "Having these conversations has convinced me that it's important to present the Affordable Care Act as an opportunity, or fact, and let people make their own judgments, instead of me saying, 'Sorry, this is complicated and it's going to be complicated for you.'"

Charles's observation about challenges and opportunities seems to define the ACA as it relates to farmworkers and other migrant populations. Clinics, clinicians, and

other outreach workers need to understand the major tenets of the Affordable Care Act so that they are prepared to help their clients navigate through the challenges and make the most of the opportunities.

Alexis Guild, of the national advocacy organization Farmworker Justice, offered a succinct analysis of the major issues at stake. "The way I see it, there are four major aspects of the ACA that impact farmworkers: 1) Medicaid expansion, 2) the marketplaces and tax credits, 3) the employer mandate, and 4) the individual mandate." These four areas, according to Guild, all carry significant implications for migrants and the health centers that serve them.¹¹

Medicaid / Medicaid expansion

The original intent of the ACA was to expand Medicaid eligibility in every state by increasing the upper limit of eligibility from 100% to 138% of the federal poverty level (FPL), and including coverage for childless adults ages 19-65, a previously ineligible population.¹² However, the U.S. Supreme

Court ruled in 2012 that it was unconstitutional to require states to expand Medicaid. This ruling opened the door for each state to choose whether it would accept Medicaid expansion or not, creating a coverage gap in those states that declined to expand. For a migrant, this means that a move across state lines may change whether he or she is eligible for Medicaid. This also means that health centers serving migrants will need to be aware of the eligibility implications of their clients' migration patterns and adjust outreach and enrollment efforts accordingly.

The immigration requirements for Medicaid are stiff. A non-citizen can access Medicaid benefits only if the individual has been a permanent resident or green-card holder for five years. Refugees and asylees also qualify.²¹ The five-year waiting period presents a challenge for migrants who are lawfully present but unable to access Medicaid benefits. This includes H-2A (visa)

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agricultural guest workers as well as permanent residents and green-card holders still in the five-year waiting period.⁹

A permanent resident or green-card holder still in their Medicaid waiting period may, however, qualify to purchase insurance through the marketplace, or to receive tax credits. Undocumented individuals do not qualify for any level of assistance through the marketplace or Medicaid.¹¹

Marketplaces & tax credits

The health insurance marketplace is arguably the defining feature of the Affordable Care Act. As of October 1, 2013, individuals are able to access a range of insurance plans and options with a single, streamlined application.

Any lawfully present individual may purchase insurance through the marketplace, and those whose incomes fall within 100-400 percent of the federal poverty level may also qualify for a tax credit, known as the Advance Premium Tax Credit, which can be paid out in advance and directly applied to monthly insurance premiums.^{13,14} In addition, individuals with income below 100 percent of the federal poverty level may be eligible for tax credits if they are in the Medicaid waiting period.¹¹

The health insurance marketplace will open up coverage options for certain categories of lawfully present migrants who have previously been unable to access an affordable insurance option. Permanent residents and green-card holders will qualify without the five-year waiting period imposed by Medicaid, as will H-2A guest workers and other nonimmigrant visa holders.⁷

Portability refers to an individual's ability to maintain health insurance benefits when switching employers or leaving the workforce altogether. Portability of health insurance is a significant concern for migrants, especially seasonal workers who may change employers and migrate across state lines several times in a year.

According to Rachel Udow of MHP, there are more questions than answers about how the question of portability will play out for migrants. For now it appears that, since every state uses a different health insurance marketplace, an individual migrating between states will have to reapply for insurance in each new state in which they establish permanent residence. This process may be further complicated by the fact that each state marketplace has its own residency requirements.¹⁹

Employer mandate

Beginning in 2015 the employer mandate stipulation of the ACA will require large

employers of 50 or more employees to offer health insurance to their full-time employees. Health insurance must meet certain minimum standards of coverage and be affordable, defined as costing the worker no more than 9.5% of household income.⁷

According to Alexis Guild, some migrants will undoubtedly gain coverage under this mandate, although the seasonal worker exception will also exempt some employers because a large employer doesn't have to count workers who work less than 120 days in a year.¹¹ Guild also noted, "While there is not a lot of data on the number of days farmworkers work for employers, it is reasonable to assume that the seasonal worker exception will disproportionately affect female farmworkers, who tend to work shorter seasons than their male counterparts."

Individual mandate

Another hallmark provision of the ACA is the individual mandate, a requirement that nearly everyone residing in the United States obtain health insurance – whether through their employer, through publicly funded programs such as Medicare and Medicaid, or through purchase individually via the marketplace. Those who choose not to get health coverage (or who aren't aware of the mandate) will be subject to penalties beginning in 2014. Penalties will start at \$95 per adult and \$47.50 per child or 1.0% of family income, whichever is greater, in 2014, and will rise to \$695 per adult and \$347.50 per child, or 2.5% of family income, whichever is greater, in 2016.^{5,15}

There are, however, nine categories of exemptions which would preclude an individual from having to pay penalties under the individual mandate. Migrants may qualify under the hardship exemption, a broad category that includes the homeless and victims of natural disasters, or the lack of affordable coverage exemption, an exemption that goes into effect when premiums for a qualifying policy would cost more than 8 percent of household income. Migrants may also be exempted based on having an income below the tax filing limit or being unlawfully present in the United States. Other exemption categories include members of Indian tribes, incarcerated individuals, religious conscience, members of health care sharing ministries, and short term gaps in coverage.¹⁵

Outreach

Many Federally Qualified Health Centers and other migration health agencies are rising to the challenge created by the Affordable Care Act by strengthening their outreach and

enrollment efforts, by becoming familiar with the in-person assistance available in every state, or even by becoming official Navigator or Certified Application Counselor (CAC) organizations themselves.

Rachel Udow works for MHP, a national organization formerly known as Migrant Health Promotion that serves migrant workers by providing culturally appropriate education and outreach in isolated and border communities. She observed, "Migrants traditionally have a harder time accessing information and resources because they spend a lot of time working and aren't necessarily plugged into the same resources [as mainstream society]. As a result they need additional resources and information."

MHP has completed Navigator credentialing as an organization, and began offering Navigator services on October 16. MHP is also sponsoring Navigator training for some of their individual staff members who work as *promotores* in the community.¹⁹ Udow stated, "Trying to respond appropriately to the ACA and helping folks understand their health coverage options is the major thing that we are focused on right now."

Magdalena Fernandez, of the North Carolina Community Health Center Association (NCCHCA), said that her organization is responding to North Carolina's decision not to expand Medicaid by redoubling their efforts to ensure that every single eligible person is enrolled. In 2012, NCCHCA did a study that looked at what would help get more children enrolled in the Children's Health Insurance Program (CHIP).¹⁰

"Last year we were looking at UDS [Uniform Data System] data for North Carolina health centers," said Fernandez. "We realized that 35% of our children were uninsured—a fact that didn't make sense given the low socioeconomic status of our population." Fernandez and her team interviewed staff and parents in the waiting rooms of various health centers. What they found is that many of the children were in mixed status families and that their parents were under the impression that they as parents would have to provide a social security number. "

With HRSA grant funding, NCCHCA created a protocol to ensure that front desk staff verifies CHIP eligibility for each child that is seen. In addition, all centers have hired outreach and enrollment specialists to facilitate the application process, and NCCHCA itself hired two outreach and enrollment specialists with strong

Moving Against Cancer Community Survey

Theresa Lyons and Deliana Garcia, MA

Migrant Clinicians Network's (MCN) Moving Against Cancer: Collaborative Health Promotion, Education and Training to Assist the Local Hispanic and Hispanic Mobile Poor is a combined health care provider and public health education project funded by the Cancer Prevention and Research Institute of Texas (CPRIT), that targets Texas Health Service Regions 2, 3, 8, 10, and 11. These areas have high rates of Hispanic poor and mobile Texans in close proximity to Texas-based Mexican consulates with Ventanilla de Salud (VdS) programs and accessible Federally Qualified Health Centers (FQHC). With assistance from partner organizations, MCN trained *promotores* and outreach staff at six Consulate-based VdS programs to educate and refer for screening members of their Hispanic communities for oral, breast, cervical, skin, prostate and colorectal cancers. Concurrently, MCN provided clinicians working in FQHCs throughout Texas, in-person and web-based training focusing on disparities in cancer detection and treatment, cultural aspects of care, and design of self-management education for this low literacy, Spanish speaking, Hispanic population. FQHCs serve as primary referral sites for many of those seen in the consulates, providing them with a medical home and linking outreach screening to follow-up care. MCN provided links for people referred for health care at the VdS with health center providers in FQHCs outside of this project area via an innovative patient navigation system, Health Network, developed by MCN for use by clinicians and the mobile poor they serve.

While some cancer rates vary due to clear biological factors such as gender, others vary by sociodemographic traits with more complex attributions. Race, ethnicity, geographic locale, educational level and income all contribute to risk profiles related to cancer morbidity and mortality. In particular, poorly educated, minority, culturally distinct, mobile, or isolated low-income individuals are more likely to experience inadequate screening, detection, follow-up and treatment of cancer than are their counterparts with fewer of these variables. This project aimed to mitigate disparities in cancer screening rates, treatment completions, and survivorship by providing culturally appropriate, locally available, accessible public education that links patient navigation systems with health care

providers who are trained to respond to the special needs of Texan Hispanics and mobile poor populations seeking assistance through Texas-based agencies.

In order to better understand the basic needs of the community in relation to cancer and cancer screening, MCN conducted a community survey in the

South Texas region. The survey was administered by trained *promotores* who were able to reach a total of 2,243 respondents. The following displays the findings of this community survey of cancer knowledge, needs, and experience.

CPRIT 2013 Community Report

Overall Aims:

Aim 1 Conduct a program to integrate the practice skills needed to increase screening recommendations to Hispanic patients into six clinical practice sites through a comprehensive training and technical assistance program.

Aim 2 Facilitate trainings, conduct outreach and provide information to 216 healthcare providers and community health workers/promotores to improve the recognition of the value of cancer screening and early diagnosis for successful treatment and increased survivorship.

Aim 3 Pilot a model for community cancer training to reach 2400 Hispanic community members through a network of six Ventanillas de Salud situated throughout Texas.

Aim 4 Strengthen, revise and develop training curricula and resources, to integrate key patient education and counseling practice skills specific to the cancer prevention and treatment needs of mobile poor Hispanic patients in the clinical setting.

Aim 5 Raise awareness among 35,000 Hispanics in Texas regarding the value and availability of cancer screening to improve treatment outcomes and survivorship.

Aim 6 Incorporate ethics teaching on health care justice into cancer disparity education for clinicians recommending and referring.

Aim 7 Evaluate the increases in knowledge and changes in practices regarding the recommendation of and referral to cancer screening for clinicians trained and partner health centers.

Aim 8 Provide patient navigation to patients identified at the FQHC that require on-going continuity of care for cancer while traveling away from the site of diagnosis.

Community SURVEY

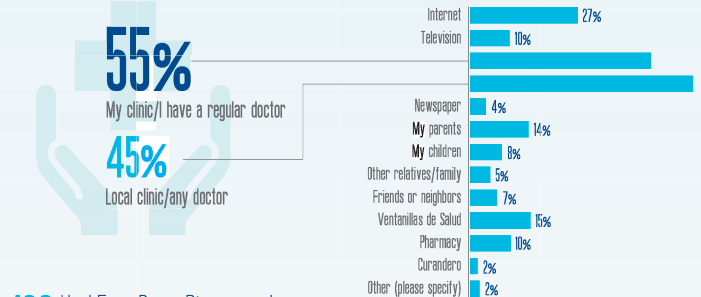
A Community Survey was used to identify the basic needs of the community in relation to cancer and cancer screening. Respondents took the survey in a wide variety of locations

2243
respondents

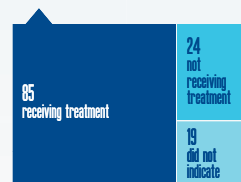
age 15-96
(mean age 44)



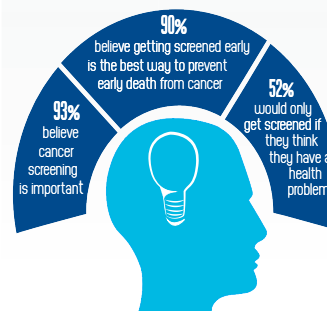
Primary sources of health information



128 Had Ever Been Diagnosed with Cancer



Cancer Attitudes and Beliefs

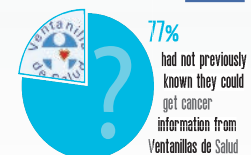


Retrospective Community Training Survey

A three-question retrospective community member evaluation was administered to 8830 individuals immediately following the trainings to assess whether any cancer knowledge was gained from speaking with the health promoter.

42% had not previously known that there are recommended schedules for cancer screening for men and women

99% responded that "yes" they did learn something new



Results from this brief post-training assessment suggest that the consulate and Ventanillas de Salud is a viable access point for providing health education on cancer topics to this population.



Effective Data Management for the Pursuit of Quality Health Care: OneWorld Health Center

Jillian Hopewell, MPA, MA

[Editor's note: This is the first in a two-part series highlighting the best practices of the Quality Management system at OneWorld Health Center in Omaha, Nebraska. This article focuses on the data management process. The second article will examine the performance improvement brought about because of effective data gathering and management.]

OneWorld Health Center in Omaha, Nebraska, has an impressive Quality Management (QM) system that functions because of strong leadership and overall organizational commitment to the process. Stephanie Gould, the Director of Quality Management (QM) and Human Resources, says that the unique factor in OneWorld's success with QM is direct clinician engagement. Dr. Kris McVea, the Chief Medical Officer, is a passionate champion who truly cares about providing quality care. She is effective at engaging the entire clinician team, which then helps to ensure that data is accurate, reliable and relevant.

OneWorld is the founding member of Heartland Community Health Network, which includes four health centers in Nebraska. The network was created specifically for the management of a shared electronic health record (EHR) as well as all the reporting functions of that system. The four health centers that make up the network collaborate on the reports they have in common such as UDS [Uniform Data System] and insurance reports. Each health center member also has reports which are not always adopted system-wide. However, when the network is creating a report for any of their members they try to make it replicable to the other sites if desired. The Medical Directors of each of the four health centers meet once a month and often talk about reporting priorities. Additionally, Hans Dethlefs, MD, a physician with OneWorld, is the part-time medical director for the network.

OneWorld has been working with their current QM system for about eight years. Gould says that initially a strong clinical champion is essential to the success of an effective QM program. While a strong clinical champion is still important for OneWorld, at this point their QM system is so enmeshed in the culture of the organization that it has become an essential part of the clinical functions of the health center. As a

result OneWorld is now able to recruit and attract clinicians with a passion and aptitude for performance improvement.

The Process

Generally it takes OneWorld 3-6 months to launch each new data report on a specific indicator or performance measure. The indicator being measured can be clinical, administrative, or financial. The team—made up of clinicians, nurses, administrators and technical staff—approaches the QI process very carefully and does all it can to be sure that when the data indicator reaches the final stage it has been vetted and is generating accurate data.

The organization is very committed to the iterative process with many opportunities for input by those impacted. Generally, the process of developing a new data report is as follows:

1. The staff identifies a new report that they want to generate (i.e. asthma severity with patients on an asthma action plan).
2. The team then works to define the patient population (the basic denominator).
3. They then determine the goals that they will use to measure the outcome. Most often the UDS national averages are used as the primary benchmark. Comparative benchmarks are also developed in addition to Healthy People 2020. There is a great deal of discussion that goes into this process. For instance, the team decides to focus on weight loss using the indicator of whether or not the patient with his/her provider has developed a weight management plan. In order to do this the team must answer a number of questions. What constitutes a "weight management plan"? Does it include a discussion of exercise and healthy eating? Does it need to be written or can it be a verbal discussion?
4. After determining the goal and the denominator, the IT staff runs a report for the first time. The report is created by two Structured Query Language (SQL) report writers who are on the staff of the Heartland Community Health Network. The initial results are examined by the health center team to determine whether the results have come back as expected or not. At this point they will also pick out certain patients who have fallen out of the expected range to try and figure out if the patients are truly outliers or if the data is not being captured correctly.

5. From this point the process can still take many months of refinement as the conversation goes back and forth between the administration, the clinicians and the IT developers.
6. Once the data points are finalized then the IT team must customize the EHR. This is often required both for the type of data collected as well as for the reports that are ultimately generated. Sometimes this requires modification of the EMR to create discrete data fields such as checkboxes to capture the data in a structured way. Additionally at this juncture there is often training for the clinical staff to be sure that they are entering data consistently and in the proper fields.
7. Before anything is finalized there is a process of patient auditing to determine if the data is running accurately.
8. OneWorld considers a report to be finalized once it is vetted as much as is reasonable. The door remains open to changes and improvements, however, with due diligence on the front end. They find that there are often very few changes that need to be made after this point. Additionally, because of the buy-in throughout the process, there is a great deal of trust in the data among all participants of the team.

What Do They Do With the Data?

There are currently 34 clinical providers in the OneWorld organization. The full provider group meets twice a month. On the 4th Thursday of every month the agenda is devoted to the organizational dashboards that show performance on all indicators and performance improvement.

According to Gould, the clinical providers have a strong sense of the connection between data and the impact it has on clinical care. The clinical team shares the same drive—to be a high performing health center. The conversations around data are ultimately designed to impact patients in a positive way by improving their health status. Each measurement is assessed for the current level of achievement and those that are not showing good progress are then slated for additional discussion.

When asked about the risk of being too data driven, Gould said that while she understands that pitfall, "If the data were just shoved upon them it would be an issue, but in our case the clinicians are really involved in setting the priorities and examin-

ing the data which helps to ensure that it is all relevant to clinical care.”

Next Steps

OneWorld is now moving toward creating individual provider dashboards. The plan is for this to be a collaborative effort in which the clinical team has substantial input over the full design. This will also be an iterative

process that will ultimately be used to inform the conversation and improve performance. At this juncture they are taking baby steps and not rushing the process so that everyone has time for input and ultimately feels comfortable with the outcome. Table 1 illustrates an example of an individual part-time provider’s performance dashboard.

Ultimately OneWorld is committed to

improving care for their patients. The QM system that they have put in place gives them the foundation that they need to pursue improvements and measure their progress. With the support of clinical leadership and a strong Information Technology department, the health center has managed to genuinely institutionalize a QM program that works. ■

Table 1
Monthly Provider Performance Review for an Individual Provider

Monthly Provider Performance Review			Current Numerator and Denominator		Month by Month Progression				
Measurements		2013 Target	Numerator	Denominator	May 2013	June 2013	July 2013	Aug 2013	Sept 2013
All Patients	Productivity – Current Year	1588			637	806	NR	1222	1336
	Productivity – Current Month	132			123	169	204	114	114
	Clinical Summaries Past Three Months	50%	163	254	31%	32%	41%	48%	64%
Peds Conditions	Childhood Immunizations Past 12 Months	80%	24	24	100%	100%	100%	100%	100%
	Missed Immunizations Current Month	5%	0	1	0%	0%	0%	NR	0%
	Asthma Severity Past 12 Months	78%	22	22	100%	87%	92%	100%	100%
	Asthma on ICS Past 12 Months	90%	5	5	100%	100%	100%	83%	100%
Weight Mgmt	Peds Weight Assessment Past 12 Months	65%	101	131	72%	72%	73%	73%	77%
	Peds Diet and Exercise Current Month	45%	10	14	59%	71%	81%	82%	71%
	Adult Weight Follow-Up Past 12 Months	45%	227	367	59%	60%	58%	60%	62%
	Adult Weight Self-Management Goal Current Month	18%	9	17	69%	57%	42%	69%	53%
Tobacco	Tobacco Cessation Past 12 Months	75%	32	42	80%	79%	80%	75%	76%
	Addressed Smoking Current Month	50%	5	7	100%	100%	60%	100%	71%
Heart Disease	LDL for CAD Past 12 Months	82%	2	2	100%	100%	100%	67%	100%
	Aspirin for IVD Past 12 Months	80%	21	23	90%	90%	90%	91%	91%
	HTN < 140/90 Past 12 Months	76%	77	94	80%	79%	82%	83%	82%
Cancer Screen	Colorectal Cancer Screening Past 12 Months *	38%	83	122	66%	69%	66%	67%	68%
	FOBT Ordered Current Month	39%	1	3	50%	43%	86%	100%	33%
	Pap Smears in the Past 12 Months	67%	139	176	75%	75%	76%	75%	79%
Diabetes	DM HbA1C < 9 Past 12 Months	81%	67	79	84%	86%	87%	87%	85%
	DM LDL Screening Past 12 Months	73%	70	86	86%	86%	84%	83%	81%
	For patients seen in the past 12 months , how many of them have had a HbA1c measured in the last 6 months .	87%	69	86	91%	90%	86%	80%	80%
	DM Eye Exam Past 12 Months	40%	55	86	68%	65%	60%	57%	64%
	DM Hypertension Controlled Past 12 Months	76%	62	86	63%	62%	60%	61%	72%
	DM Microalbumin Past 12 Months	69%	65	86	71%	74%	73%	72%	76%
	DM LEAP Past 12 Months	68%	55	86	77%	77%	72%	69%	64%

OneWorld uses the same definition for colorectal screening as the UDS: For patients seen in the past 12 months, did they have colonoscopy in the past 10 years or FOBT in the last year?

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CASE REPORTS

Severe Acute Illness in a Toddler Exposed to Multiple Agricultural Pesticides and an Insect Repellent

Jennifer S. Sievert, BA
Barbara F. Morrissey, MS
Geoffrey M. Calvert, MD, MPH

ABSTRACT

Acute severe pesticide-related illness among farm worker children is rarely reported. The authors report a toddler with acute onset of apnea, cyanosis, somnolence, hypotonia, tachycardia, and miosis who required hospitalization. Health care providers suspected pesticide poisoning, but were unable to determine the causal agent. Investigation by a public health program documented four pesticide exposures that occurred within one-half hour of acute illness. This case illustrates the importance of a thorough environmental/occupational exposure history and obtaining biological samples. It also documents the need to strengthen the Worker Protection Standard for agricultural workers and the importance of reporting and investigating pesticide-related illness.

Keywords. Carbaryl, Children, farm workers, orchard, pesticides

INTRODUCTION

Acute severe pesticide-related illness among farm worker children is rarely reported. In Washington, health care providers are required to report suspected cases of pesticide-related illnesses to the Washington State Department of Health (WDOH). Public health staff investigate reported cases to collect objective evidence, track trends in poisoning, and better target resources for public health prevention. In the past 5 years (2007–2011), the program documented 373 cases of illness that were plausibly related to agricultural pesticide exposures (unpublished communication with Joanne Prado, Pesticide Program, WDOH, Olympia, Washington; data provided May 2013). Only 12 cases (3%) involved children and there were no

other children with severe symptoms. In fact, there was only one other high-severity illness among the 373 cases of illness plausibly related to agricultural pesticides for this 5-year period.

We describe a case of severe acute illness in a child of farm workers. The case was promptly reported to WDOH and investigated in the subsequent 2 weeks. The case is presented here as a teaching opportunity for health care providers. We describe the medical observations, treatment, and recovery of the child. We also describe the evidence gathered during follow-up investigation and the additional information that would have been helpful to better understand the etiology.

CASE REPORT

On an early afternoon in June 2011, a 17-month-old male in good health became apneic and cyanotic immediately after consuming rinsed cherries from an orchard that had been sprayed 48 hours earlier with a pyrethroid (Warrior II, active ingredient lambda-cyhalothrin; US Environmental Protection Agency [EPA] Registration No. 100-1295) and a fungicide (Gem 500 SC, active ingredient trifloxystrobin; EPA Registration No. 264-826). About 20 minutes earlier, the child had also eaten unwashed cherries from the same cherry orchard while riding through that orchard on his father's lap in an all-terrain vehicle. Thinking their son had choked on a cherry, his parents administered cardiopulmonary resuscitation (CPR) and drove him to the nearest hospital. At the hospital, the child presented pale, limp, somnolent but reactive to physical stimulation, and with fluctuating consciousness. He also had repeated apneic

episodes lasting 15 to 20 seconds, which resolved with suctioning and mild stimulation. When stimulated, he would awake crying. He was tachycardic and there were copious respiratory secretions. Nasal and oral examinations were unremarkable. A neck and chest x-ray showed no evidence of obstruction or other pathology consistent with choking. A toxic ingestion of organophosphate (OP) pesticide was considered but ruled out after learning from the orchardist that no OPs were sprayed on the cherries. The child was transferred by air to a tertiary hospital for further care. During transport, he was given a racemic epinephrine treatment for an episode of difficult, noisy breathing. He arrived at the tertiary hospital approximately 4 hours after symptom onset and was observed to have miosis (pinpoint pupils), episodes of apnea that were successfully treated with oxygen, and continued sleepiness. As the evening progressed, the child became more alert, behaved more appropriately, and showed no further respiratory distress. He remained in the hospital for observation, and was released the following day completely asymptomatic. His parents were certain that the child had not ingested home medications and a urine drug screen was negative. Serum was collected at the tertiary hospital about 7 hours after symptom onset but was not analyzed for cholinesterase activity.

EXPOSURE HISTORY

On Monday following the Saturday incident, the WDOH retrieved a report of suspected pesticide poisoning from the Washington Poison Center's automated electronic report-

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ing system. WDOH obtained initial medical records and contacted the parents by telephone in Spanish that same day. The parents were interviewed about the activities of the family before symptom onset and about the course of the child's illness and recovery. Early Saturday morning, the father had worked thinning fruit in an apple orchard. Prior to symptom onset, the father put the child in his lap and took a short 20-minute ride on an all-terrain vehicle through two cherry orchards near his home. In the first cherry orchard, sprayed previously that morning with the pyrethroid and fungicide described earlier, the toddler grabbed some cherries but was not allowed to eat them. In the second orchard, sprayed 2 days earlier with the same pesticides, the father picked several cherries from different trees, wiped them on his unwashed work shirt, and fed them to the child. The father also brought cherries from the second orchard back to his home, rinsed them under the kitchen faucet, and promptly fed them to his family. The child's symptoms started immediately after eating one of these cherries. No other family members developed symptoms.

Just before their ride in the orchards, the father sprayed concentrated mosquito repellent on his own shirt and applied it by hand to his child (OFF! Deep Woods Sportsman, active ingredient 98% DEET [N,N-diethyl-m-toluamide]; EPA Registration No. 4822-276). The family lived in a small wood frame cabin surrounded by apple orchards but denied observing any spraying in these orchards on the day of the incident nor had the child played outdoors prior to picking cherries.

EXPOSURE EVIDENCE

The child's unwashed shirt and shorts from Saturday were retrieved from the family laundry on Monday, put in a clean plastic bag, and placed in the family's freezer for 2 days until WDOH transported them frozen to the Washington State Department of Agriculture (WSDA). A composite sample from several different areas of the clothing was analyzed for DEET, lambda-cyhalothrin, organophosphates, carbaryl, and multiple other pesticides. The child's clothing tested positive for DEET, carbaryl, and trace amounts of three low-toxicity fungicides; no pyrethroids or organophosphates were detected.

Four days post exposure, WDOH collected cherries in both orchards and transported them to WSDA. The cherries tested positive for the two pesticides that were recently applied to the orchard (lambda-cyhalothrin



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and trifloxystrobin) and were negative for organophosphate and carbamate insecticides. The owner of the apple and cherry orchards was re-contacted. He confirmed that carbaryl was used as a chemical thinner in the apple orchard where the father worked Saturday morning but did not specify the last date of application. This may have

been the source of the carbaryl residue on the child's clothing.

DISCUSSION

WDOH identified four potential pesticide exposures and evaluated their plausibility as

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contributors to the child's acute illness:

- Oral and dermal exposure to DEET insect repellent.
- Ingestion of lambda-cyhalothrin and trifloxystrobin residues on cherries.
- Oral and dermal exposure to carbaryl residues on the father's work clothing.

Application of DEET

Concentrated DEET insect repellent (98% DEET) was applied approximately 30 minutes prior to symptom onset. In addition, DEET on the father's hands and shirt may have transferred to the ingested cherries when the father wiped the cherries on his shirt before feeding them to his son (approximately 20 minutes prior to symptom onset). DEET is absorbed across the skin and gut. Skin permeation is higher in formulations that are concentrated. Since the efficacy of DEET repellents plateaus at about 30% active ingredient, the American Academy of Pediatrics recommends that repellents should contain no more than 30% DEET when used on children.

DEET has low acute toxicity but may be neurotoxic following ingestion or repeated topical application. In children, reported symptoms of DEET intoxication include myoclonus, behavioral changes such as agitation and restlessness, hypertonia, ataxia, low blood pressure, reduced consciousness, respiratory difficulty, seizures, and coma. DEET ingestion is associated with unreactive and dilated pupils. The child's symptoms were not highly consistent with DEET intoxication. He did not present with agitation, myoclonus, seizure, or low blood pressure (2 hours after symptom onset his blood pressure was 122/60 mm Hg before returning to a baseline of 102/39 mm Hg the next morning). In addition, his pupils were miotic rather than dilated. The parent's description of how they applied DEET complied with label directions. According to the parents, DEET repellent was routinely applied to the child before going outside in late spring and summer, so it is likely that the boy was treated often with this concentrated product.

Lambda-Cyhalothrin and Trifloxystrobin Applied to Cherry Orchard

At the orchard, the child and his father violated federal restrictions regarding the restricted entry interval (REI), which is the required time that must elapse before entry can be made into a treated orchard. The Warrior II label (active ingredient lambda-cyhalothrin) prohibits both orchard entry of unprotected persons for 24 hours after application and harvesting of treated fruit for 14 days. Although the amount of lambda-cyhalothrin detected on cherries (120 ppb) was less than the amount allowed by EPA on cherries in the market place (500 ppb), it should be noted that cherries were not collected from the orchard for laboratory analysis until 4 days post exposure. As such, residue levels present at the time of ingestion were undoubtedly higher.

Pyrethroids are irritants and are neurotoxic. They are not well absorbed across intact skin but are efficiently absorbed across the

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■ **Severe Acute Illness in a Toddler Exposed to Multiple Agricultural Pesticides and an Insect Repellent** continued from page 12

gut. In humans, ingestion commonly causes throat irritation, nausea, vomiting, and abdominal pain. Increased salivation, dizziness, headache, and fatigue are frequently reported; chest tightness and blurred vision are less frequently reported. Lambda-cyhalothrin is a type II pyrethroid. Laboratory animals that ingest toxic levels of type II pyrethroids typically show coarse tremor, reflex hyperexcitability, profuse salivation, and seizure. The child's illness was only partly consistent with a type II pyrethroid exposure. His respiratory secretions, respiratory difficulty, and somnolence could be consistent with such exposure, but no irritation of the throat or mouth was noted, he had no vomiting or tremors, and his reflexes were difficult to stimulate (not overactive).

The other product applied to the cherry orchards contained trifloxystrobin. The father's ride through the first cherry orchard a few hours after application violated this product's 12-hour restricted entry period. However, the 24-hour waiting time for harvesting cherries treated with trifloxystrobin was not violated and the levels detected on cherries 4 days post exposure (180 ppb) did not exceed the allowable residue level on cherries (2000 ppb). Trifloxystrobin is a low-toxicity fungicide that was not neurotoxic in acute oral rodent testing. In humans, similar strobilurin fungicides have produced upper respiratory tract pain upon inhalation and dermal and eye irritation upon direct contact. Other toxicity reports in humans are lacking. Trifloxystrobin was not suspected as a primary contributing factor because it appears to lack neurotoxicity and irritant symptoms were absent in the child.

Carbaryl Found on the Child's Clothing

Carbaryl was found on the child's clothing. We speculate that carbaryl was on the father's clothing from his work earlier that morning in an apple orchard and that it transferred to the child's clothing during the ride in his father's lap. Two facts support our speculation: the apple orchardist confirmed use of carbaryl and the father did not change his clothing until after the child became symptomatic. We did not analyze the father's shirt to confirm a take-home exposure. The toddler may have ingested carbaryl residuals by eating cherries that were first wiped on his father's work shirt or by sucking on his own hands after touching his father. Dermal exposure could also have occurred during close physical contact with his father.

Carbaryl is an N-methyl carbamate insecticide that acts as an acetylcholinesterase (AChE) inhibitor. Unlike organophosphorus insecticides, cholinesterase inhibition by carbamates is spontaneously reversible. Carbaryl is considered moderately toxic by ingestion and it has low toxicity by dermal and inhalation routes. Early symptoms of carbaryl exposure include headache, nausea, muscle weakness, and restlessness. Several pediatric case reports of carbamate intoxication are available. The most common findings in children included stupor/coma, hypotonia, miosis, bronchorrhea, tachycardia, excessive salivation, lethargy, respiratory distress, and respiratory failure. Children are more likely than adults to present with central nervous system (CNS) depression following carbamate exposure. Many of the child's signs and symptoms are consistent with acute carbamate toxicity, including the hallmark sign pinpoint pupils. A computed tomographic (CT) scan and toxicology screen at the tertiary hospital ruled out other possible causes of pinpoint pupils, including opiates, history of head trauma, and intracranial hemorrhage. The illness onset was within approximately 20 minutes of exposure, and resolution was within the same day without atropine. It is puzzling, however, how the child received a sufficient dose of carbaryl to cause such severe illness.

CONCLUSION

The child's symptoms were most consistent with pediatric intoxication with an AChE inhibitor, although it is unclear how the child received a sufficient dose of carbaryl to cause this severe illness. Pyrethroid intoxication shares some of the key features of AChE inhibitors, including respiratory secretions, and there was a clear source of overexposure to lambda-cyhalothrin in this incident. DEET may have contributed to symptoms given the high concentration of the repellent used and the repeated dermal applications applied to the child at that time of year. It is also important to recognize that young children may be more susceptible to pesticide poisoning compared with adults. Children can absorb more chemicals through their skin per body weight compared with adults because the ratio of their skin surface to body volume is greater. Young children may also have a less robust capacity for detoxification. For example, there is some evidence that young rodents are more susceptible to carbaryl toxicity compared with adults. In addition, pyrethroid exposure in young rats produced more symptoms and lethality than



in adult rats. Finally, it is possible that these three neurotoxicants—DEET, pyrethroid, and carbaryl—interacted to increase the neurotoxicity of the combined exposure. Coadministration of organophosphates (OPs) with pyrethroids slows the breakdown of pyrethroids and increases their toxicity. The mechanism may be inhibition or competition for carboxylesterases responsible for pyrethroid hydrolysis. There is also evidence that DEET acts synergistically with cholinesterase inhibitors and pyrethroids to enhance toxicity.

LESSONS LEARNED

Importance of Thorough Exposure History

In response to the parent's initial history, the first hospital obtained information from the cherry orchardist about recently sprayed pesticides. Upon consultation with the poison center, neither the pyrethroid nor trifloxystrobin was considered highly consistent with the child's presentation. The medical staff did not take an environmental and occupational history and thus did not learn about

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the child's DEET exposure or consider take-home exposure to chemicals present in the apple orchard. Soliciting an exposure history was complicated by a language barrier and reliance on a Spanish translator. When pediatric pesticide intoxication is suspected, clinicians should obtain a full environmental and occupational history, including an account of possible exposures around the home, home use of pesticides, observations of pesticide drift from adjacent properties, and an occupational history from both parents to assess take-home exposures. An online resource for clinicians on how to take an exposure history is available from the Agency for Toxic Substances and Disease Registry http://www.atsdr.cdc.gov/csem/pediatric_history/docs/pediatric_history.pdf.

Links to other pesticide-related training tools are available at the Migrant Clinicians Network Web site (<http://www.migrantclinician.org/home>).

Biological Sampling to Confirm Exposures

There was no medical laboratory confirmation of pesticide poisoning in this case. Serum was collected after the child had largely recovered at the tertiary hospital, approximately seven hours after exposure. This sample was not analyzed for cholinesterase depression by the medical staff or by WDOH. For assessment of blood cholinesterase inhibition by carbaryl, red blood cell and plasma samples need to be collected within 1 to 2 hours of exposure and analyzed with a specialized rapid laboratory method because cholinesterase reactivation can occur in vitro.

Some indication of carbaryl exposure may also be gained by analyzing urine for alpha-naphthol, a metabolite of carbaryl, within 12 hours of exposure. Pyrethroids and DEET are best measured in urine. The Centers for Disease Control and Prevention (CDC) national survey on environmental chemicals provides reference values for both DEET and pyrethroid metabolites in the urine of the general US population. When pesticide exposure is suspected, collection and freezing of whole blood, plasma, and urine during the first hours of presentation should be considered. An excellent resource for physicians is the National Pesticide Information Center (phone: 1-800-858-7378), which can provide consultation on the most appropriate biological samples for a given pesticide.

Public Health Partners Can Assist in Investigation and Prevention of Poisoning

Public health investigations can benefit



both the physician and the patient. In this case, subsequent investigation by WDOH and laboratory analysis by WSDA revealed two additional pesticide exposures to the child (i.e., carbaryl and DEET) that were important in understanding the child's illness. WDOH also followed up with the family to educate them about take-home exposures, early harvesting of sprayed fruit, and the use of a less concentrated repellent for their child. At least 10 states conduct public health investigations of acute pesticide-related illness. Contact information for these state programs is available at the National Institute for Occupational Safety and Health Web site for Pesticide Illness Surveillance (<http://www.cdc.gov/niosh/topics/pesticides/statebase.html>).

Training of Agricultural Orchard Workers

This case highlights why agricultural workers must understand pesticide hazards. The child's father had received training mandated by the federal Worker Protection Standard. He had even pursued pesticide applicator certification for a time. He saw

posted warning signs at the orchard entrance and knew from his employer that the cherry orchards had been sprayed. Still, he thought he could drive through the orchards without harm. He demonstrated some awareness of hazard by preventing his child from eating cherries from the most recently sprayed trees, but his actions in both cherry orchards demonstrate a lack of comprehension about the toxicity of pesticide residues. Neither parent understood that the pesticide residues on their work clothing could harm their children or that their work clothing should be washed separately from the family's laundry. These findings support the need to strengthen the Worker Protection Standard. Revisions to the standard are underway at the US Environmental Protection Agency and are expected to include requirements that agricultural employers provide improved and more frequent farm worker training, improved protections for workers reentering a treated field, and improved hazard communication.

■ Severe Acute Illness in a Toddler Exposed to Multiple Agricultural Pesticides and an Insect Repellent continued from page 14

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Female Farmworkers' Health During Pregnancy Health Care Providers' Perspectives

by Maureen A. Kelley, aSN, MS, PhD, Joan D. Flocks, as, MA, JD, Jeannie Economos, and Linda A. McCauley, aSN, MN, PhD

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 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

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Health Organization, 2009). Moreover, gestational age at the time of exposure is also confounding (Calvert et al., 2007; Colborn, 2004).

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 mem-

bers 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.

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?

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 directly 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,

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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.



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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

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think there are any special trainings on how to counsel that group of people."

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), 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 FWAFF, 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.

Engaging Migrant Men in the Prevention of Sexual and Intimate Partner Violence

Migrant Clinicians Network is excited to announce the availability of Engaging Migrant Men Videos and Fotonovelas <http://www.migrantclinician.org/EngagingMenOrderForm?utm_source=Feb+2014+-+eNewsletter+%28English%29&utm_campaign=Feb-enevs2014_english&utm_medium=email>. With the support of the U.S. Justice Department's Office on Violence Against Women, MCN has created resources designed by Latino migrant men for other Latino migrant men to engage them as allies with women in the prevention of sexual and intimate partner violence.

Visit our website www.migrantclinician.org to place an order for DVD and Fotonovelas, and for information on how to implement these resources with your population.

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Engaging Migrant Men
MCN Migrant Clinicians Network

La violencia no es solo física.
Es emocional, sexual y económica.
Violence is not only physical.
It is emotional, sexual, and economic.

EMOCIONAL

Román: Mi mamá! Creo que me voy a tomar una siesta.
My mom! I think I'm going to take a nap.

¿Y tú para donde vas?
And where are you going?

Juliana: Me invitó mi condadre a su casa para jugar lotería.
My friend invited me to her house to play some games. I'll be back in a couple of hours.

Román: ¿Te vas con esas perras que llaman sus amigas?
Are you going with those bitches you call friends?

**Te pasas más tiempo con ellas que conmigo.
¿Se te va pasar lo de ellas?**
You spend more time with them than with me.
You're going to become one of them!

CURRENT RESEARCH REVIEW

Editors Note: *In an effort to describe the health and safety needs of immigrant and migrant workers in the agriculture, forestry and fishing (AgFF) industries in the Southeast a conference of experts was convened to gather and present the current information available and make recommendations for research and policy interventions. The participants produced several articles published in a special edition of the American Journal of Industrial Medicine (Volume 56, 2013). Several of these articles are summarized below.*

Title: Occupational Health Policy and Immigrant Workers in the Agriculture, Forestry, and Fishing Sector

Authors: Amy K. Liebman, Melinda F. Wiggins, Clermont Fraser, Jeffrey Levin, Jill Sidebottom, and Thomas A. Arcury

American Journal of Industrial Medicine, Volume 56: 975-984 (2013)

Occupational and environmental risks are especially high in the Agriculture, Forestry, and Fishing (AgFF) industries, yet worker protections are limited when compared to protections in other industries. Agricultural workers in particular are affected by a long history of “exceptionalism” under the law as many regulatory protections specifically exclude this workforce. Laws and regulations that are currently in place are outdated and poorly enforced. Migrant and immigrant workers make up a significant portion of the hired workforce in AgFF industries. The vulnerability of workers in these industries is magnified by their immigration status. Cultural differences, language barriers in combination with immigration and worker safety and health policy deficiencies undermine workers’ abilities to seek adequate medical care for injuries or exposures and discourage them from reporting workplace safety violations.

The authors highlight various regulatory deficiencies and dangerous conditions experienced by the AgFF workforce. Several factors are analyzed showing the multiple vulnerabilities immigrant and migrant workers face. In addition, the authors examine the effects that immigration policy has on worker protections and the disadvantageous state many immigrant and migrant workers are subject to, due to their immigration status. The authors also reference several international policies that can offer a policy framework to improve the health and safety of immigrant and migrant workers.

The authors offer suggestions for a methodical approach to strengthen worker

protections to at least be in accord with those in other industrial sectors. The need for occupational health and safety policies that address immigration policy and worker protection regulations is stressed.

Title: Organization of Work in the Agricultural, Forestry, and Fishing Sector in the US Southeast: Implication for Immigrant Workers’ Occupational Safety and Health

Authors: Joseph G. Grzywacz, Hester J. Lipscomb, Vanessa Casanova, Barbara Neis, Clermont Fraser, Paul Monaghan, and Quirina M. Vallejos

American Journal of Industrial Medicine, Volume 56: 925-939 (2013)

Rest of citation

Organization of work plays an important role in determining health risks and outcomes for workers. The data available is limited to the agricultural sector and very little research has been conducted for the forestry and fishing industries, making it increasingly difficult to accurately report on organization of work and its effects on occupational health. There is considerably less information available that identifies how work organization affects immigrant workers in the AgFF sectors.

In this paper, the authors surveyed the research available for immigrant workers in relation to employment policies and work organization overall and in the Southeastern US when available. The authors highlight the awareness needed of the varied job tasks that immigrant workers in the AgFF perform and how essential it is to recognizing symptoms of exposure and assessing the injuries and risks associated for this population. The authors stress that additional research and documentation of the various elements of organization of work for immigrant workers would be invaluable in determining what safety training is needed, and what practices and policies would be of greatest benefit to

workers. For example, the piece-rate compensation system needs further analysis as to the effect it has on immigrant worker health and safety and how cultural and legal factors aggravate their vulnerability and increase risk and injury.

In conclusion, the authors provided a foundation for further occupational health research with a concentration on immigrant workers. The existing research examined is summarized in an effort to present areas where additional research is needed to foster greater understanding of organization of work and protect worker health.

Title: Health Care Access and Health Care Workforce for Immigrant Workers in the Agriculture, Forestry, and Fisheries Sector in the Southeastern US

Authors: Arthur L. Frank, Amy K. Liebman, Bobbi Ryder, Maria Weir, and Thomas A. Arcury

American Journal of Industrial Medicine, Volume 56: 960-974 (2013)

Health disparities for the primarily Latino immigrants in the Agriculture, Forestry, and Fishing (AgFF) industries are significant in particular due to the increasing amount of risk and hardship shouldered by this population. The authors discuss the substantial cultural and financial barriers that exist for immigrant workers and the healthcare workforce that provides care to this population. Major health problems for AgFF workers, such as chronic and infectious diseases, and how they are interconnected to health disparities is also examined.

The authors provide a summary of the programs and services in place to address the major health problems experienced by immigrant workers in the AgFF sectors and the current deficiencies. The authors point to the lack of sufficient literature documenting the

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■ **Current Research Review** continued from page 21

health needs, health hazards, exposures, and organizational pressures of the immigrant AgFF population as an indication that further research is needed. This paper also examines the important role of federally qualified Community and Migrant Health Centers (C/MHCs) in caring for immigrant and migrant workers. They describe the need for primary care healthcare provider preparation and training to adequately address the occupational related conditions of the population they serve. Several model programs are highlighted. In conclusion, the authors emphasize that healthcare needs for immigrant workers have not been adequately met and the lack of sufficient health care providers for this population negatively impacts their health care outcomes. The authors recommend more consideration of this population that labors to put economical food on our tables, so we may create a more comprehensive health care

policy designed to care for and sustain health-care workers and their families.

Title: Occupational Health Outcomes for Workers in the Agricultural, Forestry, and Fishing Sector: Implications for Immigrant Workers in the Southeastern US

Authors: Sara A. Quandt, Kristen L. Kucera, Courtney Haynes, Bradley G. Klein, Ricky Langley, Micheal Agnew, Jeffrey L. Levin, Timothy Howard, and Maury A. Nussbaum

American Journal of Industrial Medicine, Volume 56: 940-959 (2013)

A combination of the multiple exposures affecting AgFF workers coupled with lack of

access to medical care amplifies negative health outcomes experienced by immigrant workers. In this paper, the authors reviewed literature available for the occupational health outcomes in the AgFF industries and identified specific areas for further research. The paper examines their findings regarding the different types of exposures throughout differing body systems as well as the duration and severity of injuries, from immediate to delayed, and from acute to chronic. The authors discuss the various impacts on health outcomes for immigrant workers among the varying sectors and the lack of documentation available.

In conclusion, several recommendations are given to address research needs such as identifying and documenting the relationships between exposures and health outcomes in order to improve the occupational health of immigrant workers. ■

MCN applauds progress on the Worker Protection Standard (WPS)



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Migrant Clinicians Network welcomes news that the U.S. Environmental Protection Agency will soon propose revisions to the Worker Protection Standard (WPS), which provides workplace protections for farmworkers exposed to pesticides. MCN has long urged the EPA to include stronger protections for farmworkers in the WPS.

It has been more than 20 years since these rules have been updated and the current standards are inadequate. MCN calls for a strong worker protection rule to include improved safety training requirements, safety precautions limiting farmworkers' contact with pesticides, and mechanisms to improve enforcement of workplace protections. Worker protection should also include a national incident reporting system, medical monitoring for pesticide handlers and a robust and active surveillance system.

An estimated 1.1 billion pounds of pesticides are applied to crops annually in the United States with our nation's 1–2 million farmworkers facing the highest threat from the health impacts of these chemicals. The federal government estimates that there are 10,000–20,000 acute pesticide poisonings among workers in the agricultural industry each year. Short-term effects of pesticide exposures include stinging eyes, rashes, blisters, nausea, headaches, respiratory problems, and even death. Cumulative long-term exposures can increase the risk of serious chronic health problems such as birth defects, neurological impairments, cancer, and Parkinson's disease.

For more information about the WPS, join MCN on March 5, 2014 for a national conversation via webinar or view the archived webinar on our website at a later date. Learn more about the revised rule and how to voice your support to strengthen protections for farmworkers. For question about the WPS contact Amy Liebman, MPA, MA aliebman@migrantclinician.org or 512-579-4535.

backgrounds in the ACA who will serve as resources for member health centers.¹⁰

Bottom line

What these highlighted organizations have done is successfully educate themselves on the particulars of the Affordable Care Act so that they could strategically position themselves to confront the new challenges and maximize the new opportunities presented to their constituents by the ACA. All health centers and other organizations serving the mobile poor would be wise to respond accordingly. The specific response will vary depending on constituent demographics, state policies, and organizational capacity, but the opportunity should not be overlooked.

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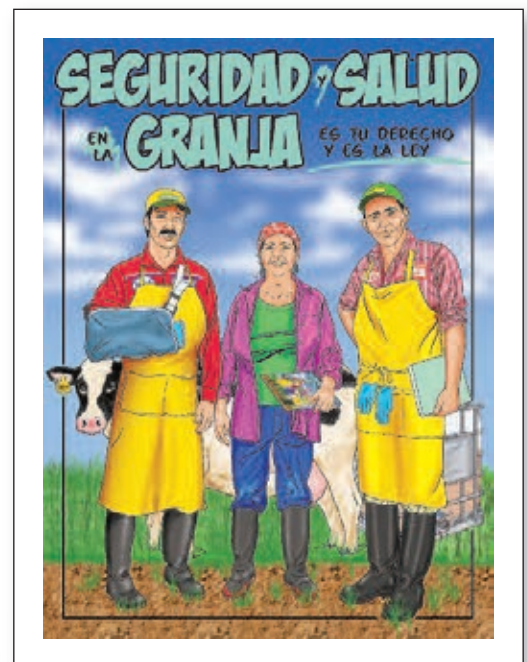
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MCN's New Dairy Worker Health and Safety Comic Book

This bilingual, full-color comic book addresses workers' compensation and workers' rights through a story of a Mexican dairy worker injured on the job and the steps he and his employer take to ensure he receives benefits and the farm improves safety. Developed through MCN's partnership with the National Farm Medicine Center and the Upper Midwest Agricultural Safety and Health Center as part of our *Seguridad en las Lecherías: Dairy Worker Health and Safety Project*.





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calendar

March 5

MCN Webinar: A National Conversation – Protecting Farmworkers from Pesticides

URL: http://migrantclinician.adobeconnect.com/wps352014/event/event_info.html

March 12

MCN webinar series: Essential Clinical Issues in Migration Health Webinar Series #1 “Structural Competencies in Migration Health”

March 19-23

Washington, D.C.

2014 NACHC Policy and Issues Forum (P&I)

URL: <http://meetings.nachc.com/policy-and-issues/>

April 2

MCN Webinar series: Essential Clinical Issues in Migration Health Webinar #2. “A Meaningful Approach to Clinical Quality Improvement”

(Hans Defalts, MD and Ed Zuroweste, MD)

April 8-9

State College, PA

The 2014 Rural Migrant and Immigrant Farmworker Health Conference

April 23

MCN webinar series: Essential Clinical Issues in Migration Health Webinar #3. “Ten Tips to Meet Clinical Program Reviews”
(Jennie McLaurin, MD)

May 7-9

Irvine, CA

IHA's 13th Annual Health Literacy Conference

URL: http://iha4health.org/default.aspx/MenuitemID/341/MenuGroup/_Health+Literacy+Conference.htm

May 14

MCN webinar series: Essential Clinical Issues in Migration Health Webinar #4. “Health Care for Migrant Women-Taking it to the Next Level” (Candace Kugel, FNP, CNM and TBA)

June 4

MCN webinar series: Essential Clinical Issues in Migration Health Webinar #5 “Approaching Nutritional Programs and Migration Health” (Kathy Brieger, RD; Anne Camp, MD and Elizabeth Magenheimer, MD)

June 25th

MCN webinar series: Essential Clinical Issues in Migration Health Webinar #6 “Integrating Oral Health into the Patient-Centered Health Home”
(Maria Smith, MPA and TBA Health Center Dentist)