

# streamline

## Emerging Issues:

# How A Health Center in Puerto Rico Met the Zika Crisis Head-On

By Ileana Maria Ponce-Gonzalez, MD, MPCH, CNC, Senior Advisor for Scientific and Strategic Planning, Migrant Clinicians Network

Since September, Migrant Clinicians Network and the Puerto Rico Primary Care Association have been hosting the Zika ECHO Clinic for frontline clinicians treating patients with the Zika virus in Puerto Rico. Every month, the ECHO project brings together over 40 nurses, doctors, *promotores de salud*, and other health advocates to enhance communication, gain insight and current information from specialists focused on the virus, and share resources, case studies, and best practices.

The Zika ECHO Project has adopted the model of Project ECHO, an innovative learning and knowledge-sharing platform developed by the University of New Mexico. Through teleconferencing, telehealth technology, and clinical management tools, Project ECHO provides training, guidance, mentoring, and networking for clinicians in underserved areas, to help build specialty care capacity within the primary care model. For rural Puerto Rico, the Zika ECHO Clinic has enabled communities to quickly mobilize and respond to the Zika virus, a health crisis that has greatly affected the country's large agricultural worker population. This has been one way health centers have responded to the serious and widespread emerging issue.

The Director of Nursing at Costa Salud Community Health Centers in Rincón, Puerto Rico, Tamara Soto, RN, MSN, has been an active participant in the Zika ECHO Clinic. The following interview outlines actions taken as the disease emerged and outlines the health center's preparations for the future.

**Dr. Ileana Ponce-Gonzalez:** Tell me a little about how Zika first arrived at the



health center, and how the health center responded.

**Tamara Soto:** The geographical location favored us in the sense that the first cases had been diagnosed in the capital and in the eastern part of the Island. This allowed us to prepare ourselves and have a wider knowledge of what was happening. The health department had alerted us that cases were expected to increase and subsequently the Puerto Rico Primary Care Association offered training on strategies and unifying efforts to allow us to best deal with the number of cases seen.

After having trained the entire staff to raise awareness on the virus and how to address it, we trained the clinical staff. We

emphasized very comprehensive education, since our efforts were directed at the entire population, from the simplest [patient cases] to the most complex. Zika education is of vital importance because the virus created a lot of disbelief, worry, and bewilderment. There was even doubt [of its existence] because we were talking about the same vector that causes Dengue and Chikungunya. This proved to be a point of great confusion for our population. When we talk about the Zika virus, we now recognize the importance of empowering our population. We formed an interdisciplinary team to create a culture of education for

## PRAPARE:

# A New Protocol on Social Determinants of Health for Health Centers

By Claire Hutkins Seda, Writer, Migrant Clinicians Network, Managing Editor, *Streamline*



Many of PRAPARE's Core Measures overlap with Uniform Data System reporting requirements, so the system can be implemented to auto-populate the data a health center already has.

### The PRAPARE Core Measures are:

- Race
- Education
- Ethnicity
- Employment
- Agricultural Work
- Insurance
- Veteran Status
- Income
- Language
- Material Security
- Housing Status
- Transportation
- Housing Stability
- Social Integration and Support
- Address/Neighborhood
- Stress

### The Optional Measures are:

- Incarceration History
- Refugee Status
- Country of Origin
- Safety
- Domestic Violence

Considering how health centers struggle to address all of an agricultural worker patient's needs in the short window of time in the exam room, why would a health center ask a patient for more, seemingly non-health related information — like if a patient currently has a job, is proficient in English, or has secure housing? Because socioeconomic situation has been shown to affect individual health, and any long-term strategy toward improving individual health must take into account underlying causes of illness. Health centers that collect relevant Social Determinant of Health (SDOH) data can document an individual's risks and assets, give that person access to specific community resources, and use the data to shift its services to better address population trends, meeting health centers' population health goals while reducing costs. Most importantly, a tool to collect that data can align with health center priorities and integrate into current electronic health record (EHR) systems to reduce startup time investment and assure a useful end product. That's according to Andrew Hamilton, RN, BSN, MS, Alliance of Chicago's Chief Informatics Officer and Deputy Director, and one of the many stakeholder developers of PRAPARE — the Protocol to Respond to and Assess Patient Assets, Risks, and Experiences. The PRAPARE project coalition, spearheaded by the National Association of Community Health Centers (NACHC), the Association of Asian Pacific Community Health Organizations (AAPCHO), and the Oregon Primary Care Association (OPCA) and supported by the Institute for Alternative Futures along with the Kresge Foundation, Kaiser Permanente, and Blue Shield of California Foundation, has developed and piloted a national standardized protocol to help health centers understand and address its patients' SDOH.

"As we move into a more managed medical world, we believe this is a critically important way of viewing our populations and understanding what the true health risks are. A relatively healthy person can have a

high SDOH-related emergency room usage, for stress, anxiety, or depression," Hamilton said by way of example. In addition to improving patient health, Hamilton emphasizes that addressing SDOHs can have a significant and positive effect on a health center's bottom line. SDOH data analysis can lead a health center to develop non-clinical interventions, enabling services, or community linkages that can address the root causes of patients' health concerns before expensive interventions, potentially reducing the total cost of care while improving patients' long-term outcomes.

### Development of the Protocol

About a year ago, stakeholders began convening weekly for two-hour meetings to drill down on how they were to develop the protocol. "We largely sourced from other survey instruments from each focal area. When we looked at questions around housing, we talked to representatives from the federal Department of Housing and Urban Development (HUD) program; when we were looking at questions around food and food security, we spoke with related entities," he explained. While health centers already gather some of the information — like agricultural worker status — the protocol delves deeper, with questions on stress, education, material security, and much more, developing a broader and more detailed illustration of an agricultural worker's daily life, helping to illustrate that not all agricultural workers need the same services. (See sidebar for a full list of PRAPARE core measures.)

Once the protocol was developed, they began small focus groups, followed by a trial deployment with a provider's patients at one health center. Hamilton explained that the team utilized the Institute for Healthcare Improvement's Plan-Do-Study-Act (PDSA) cycle to test it out and tweak the protocol before larger-scale piloting, after which the group began to make the protocol compatible with the top four EHR systems

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most utilized by health centers across the country. After six months of planning, the group was ready to pilot the protocol.

### Piloting Across the US

Two clinics within Hamilton's home health center, Alliance of Chicago, were part of several health centers that piloted PRAPARE last year. Clinics were chosen for diversity, with different patient demographics, geographic settings, and EHR programs. For Alliance of Chicago, the first step was plotting out how to integrate PRAPARE into its everyday processes.

"Early on, we had to determine, what would be the workflow? Will it be at the health center, or prior to the office visit?" Hamilton questioned. "There are lots of different ways that you could potentially collect these data," and each method potentially had its own set of repercussions on staff time use and patient satisfaction. Once its workflow was set into place, the clinic began to capture the PRAPARE measures.

Preliminary data from four of the piloted clinics, representing almost 3,000 patients, showed diverse patient populations and an equally diverse list of SDOH risks and assets. One particular risk, though, popped up across the board: stress. "One of the things that is really clear is that stress is a huge concern," Hamilton said. "How health center staff appreciate and understand the level of stress that their consumers are reporting, that might change the way we bring patients in from the waiting room, for example. It's just about making people more aware." Hamilton also noted that the data demonstrated trends among the assets identified in each community. Hamilton pointed out a low occurrence of domestic violence in one neighborhood as an example. "What does that mean for the community?" he questioned. A good reading of assets provides alternative profiles of the community and can once again help health centers tailor programs and services that are the most useful for the community and evaluate the efficacy of programs already in place.

The pilot showed that questions were well designed— none of the questions were regularly skipped, which would indicate confusion or a lack of engagement on the part of the patient — and the stakeholder group went back to work to develop a set of implementation tools, based on the experiences of the clinical pilots.

### Multi-step Implementation

To implement PRAPARE, health centers must first address both in-house workflow readiness and EHR virtual readiness. Staff must be educated on the protocol, senior staff must be engaged and on board, and project champions must be identified and readied.



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Critically, the workflow in the clinic must be diagrammed and assessed to assure the protocol is adapted seamlessly and efficiently. The implementation plan provides plenty of guidance on staff engagement and workflow, including a readiness assessment, PDSA materials, a suggested timeline, sample progress reports, and more, all adopted based on the experiences of the piloting clinics.

Finally, the technology needs to be readied. The PRAPARE Implementation Plan has detailed EHR templates, sample data dictionaries, data specifications, and guidelines for design for each of the four most common EHR systems. But their Implementation Plan doesn't stop there. It's not all about how to get the information, Hamilton stressed — the Implementation Plan also includes a critical "action toolkit."

### From Implementation to Action: How to Act on the Data

"The other thing in terms of readiness was the need to think about when you identify the issue, what was going to be your response," Hamilton noted. Many clinicians, he said, might be uncomfortable asking untraditional questions about violence or having enough food to eat: "Patients might think, 'I have a sore throat. Why are you asking me about food?'" Additionally, staff may be concerned to ask about issues like transportation when in fact the clinic doesn't have a transportation resource to offer or even a community resource to recommend," he admitted. The PRAPARE team built up additional FAQs, sample workflows, and

other tools to "make sure you're asking the right questions at the right time," he said. He hopes the plan will equip trained clinicians to be comfortable and prepared to react: "You told me today that you have a problem paying for rent. We unfortunately don't have a service to assist you in that issue right now, but we are collecting these data to better understand your needs and the community's needs to better address these issues going forward," Hamilton offered. Equally as critical, health centers are instructed to catalog both clinic-sponsored and community-wide resources that are available for each identified SDOH, so when a patient expresses a need, the EHR is set up to immediately recommend a set of action steps the clinician and/or the patient can take. "It's not just about the questions, it's about how you inventory the resources relevant to the issues that you are identifying," Hamilton emphasized.

Now, the full suite of resources developed by the PRAPARE stakeholder group is available on NACHC's website. The group has recently secured an additional round of funding to further examine how to link the protocol up with risk stratification, the next step in the development and utilization of this unique protocol. ■

### Resources:

Visit NACHC's website to read FAQs, access the Implementation and Action Toolkit, or view a recent webinar on the pilot program at <http://www.nachc.org/research-and-data/prapare>.



# Tribute to Selina Zygmunt

By Claire Hutkins Seda, Writer, Migrant Clinicians Network, Managing Editor, *Streamline*

Last year, Selina Zygmunt, longtime MCN collaborator and dedicated supporter of agricultural workers, passed away in Reading, PA. As Site Coordinator at Keystone Health Center’s Migrant Health Program in Reading, PA, for almost 20 years, Zygmunt strived to improve the health of the underserved despite the strains of poverty, poor working conditions, and mobility.

“Selina always seemed to be a person for whom working with agricultural workers was a calling,” said Candace Kugel, CRNP, CNM, Specialist in Clinical Systems and Women’s Health for MCN.

At Keystone, Zygmunt was instrumental in developing and implementing a sealant program for agricultural worker children in local schools, and collaborated with a local dental residency program to start up a dental clinic for children during the winter months, said Mary Englerth, PA, at Keystone Health Center’s Migrant Health Program.

“We had great collaboration, and Selina followed through and was very creative with any suggestions given,” Englerth said. “She went out of her way to help others... There is just no one who could take her place.”

Zygmunt worked closely with MCN

through our *Hombres Unidos Contra La Violencia Familiar*, a program aimed at primary prevention of sexual and intimate partner violence in the Latino mobile community. “She had two of her male outreach workers trained as facilitators for *Hombres Unidos*, and she also promoted the program among the local workers. I observed the final session of the *Hombres Unidos* series attended by a group of male workers who shared a house and they expressed how deeply they were affected by the experience and their appreciation of Keystone and Selina,” Kugel noted. “Selina is missed but not forgotten.” ■



Selina Zygmunt (second from left) worked close with MCN through our *Hombres Unidos* program.



# Different Countries, Different Diagnoses: Health Network Case Study

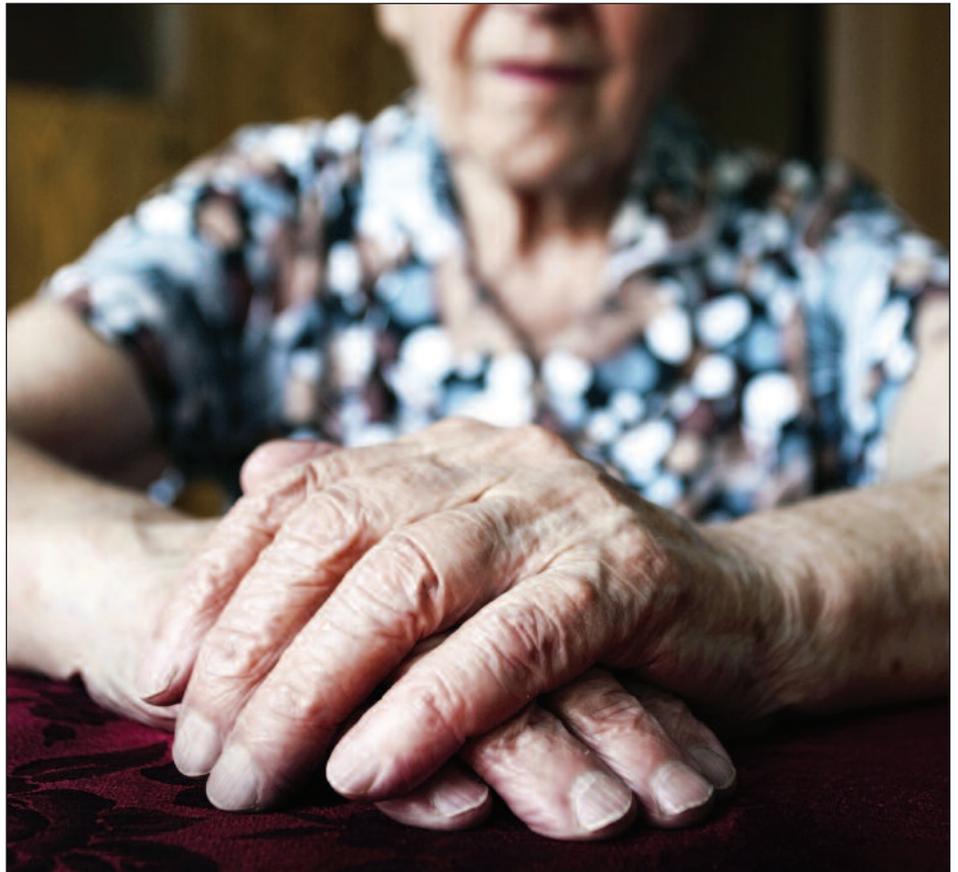
By Rob Corona, Health Network Associate

*[Editor's Note: Health Network assures continuity of care and treatment completion by providing comprehensive case management, medical records transfer, and follow-up services for mobile patients. What does Health Network look like for the Associates who work with mobile patients every day? In this article, Health Network Associate Rob Corona leads us through a case he managed last year.]*

Out of the dozens of tuberculosis (TB) cases that I managed in 2016, one stands out in my mind. Felicia Diego,\* a woman in her 90s from South America, was diagnosed as being positive for active *M. Tuberculosis* by a health department in the eastern United States. Ms. Diego started treatment in November of 2015 and was enrolled in Health Network because she would be moving back to South America the following week. The enrolling clinic wanted to ensure that the patient would continue with her treatment and expressed a strong concern for this patient given her advanced age.

When I first tried to contact the patient, she was already in South America. I never spoke with Ms. Diego directly. I instead received all information regarding the patient from her daughter, Roma. When I first spoke with Roma, she informed me that upon return to South America, her mother was seen by a doctor at a local hospital who did some follow-up exams and determined that her mother no longer had TB. The doctor told the family that Ms. Diego did not need to continue with the treatment so the patient stopped taking the medication immediately thereafter. Hearing this was very disconcerting for me. From what I had read on her medical records, Ms. Diego had positive Sputum and Culture results, which classified her as a very active case. I consulted our Chief Medical Officer, who affirmed that she definitely needed to continue with her treatment for the full six-month period prescribed by the health department in the US.

The anxiety I felt knowing that this patient with active TB was at risk and that her daughter was under the impression that her mother was fine made a lasting impression on me. I called the patient's residence no less than 10 times, repeatedly recommending that they see another doctor to get a second opinion. Roma seemed insistent in believing that the family doctor's negative diagnosis of her mother was correct, despite my relating to her the findings of the US-based health department.



Although it would ultimately be up to the patient and her family to continue treatment or not, I decided to contact the National TB Program so they could be informed of this case. I tried for three weeks to contact various health professionals at the national level via phone and email but they were slow to respond. My anxiety mounting, I asked my superior for advice on how to proceed. She put me in touch with Partners in Health (PIH), "a global health organization relentlessly committed to improving the health of poor and marginalized people." The group is active in several South American countries, including the patient's home country, so we decided reaching out to them wouldn't hurt. Immediately after I sent the first email, I received a reply stating that they would have a member of their team go to the patient's residence, to see if an in-person dialogue would be of use to the patient and her family. From my desk in Austin, communication with the family was challenging, and I was relieved to hear from PIH that they were successful in communicating with the family in-person, and that the patient had decided to restart treatment. After I received word that

the patient was back under treatment, I relied on PIH to relay any updates in the patient's treatment.

Following a string of emails between PIH and various health professionals in the country, I was told that the patient had been referred to a local health center and that a nurse was making frequent visits to administer Direct Observation Therapy (DOT) to the patient. I emailed our contact at PIH once a month for the next few months so I could continue to receive updates on the patient.

Finally, in December 2016, I was notified that the patient had undergone follow-up exams, was diagnosed as negative for *M. Tuberculosis*, and had officially completed treatment. I was elated at the news, knowing that Ms. Diego was in good health and that the public health risk had been properly treated. I sent this case to our Chief Medical Officer to review and close the case, after which the enrolling health department here in the US would receive notification of the treatment completion. ■

\* The patient's name, dates, and other identifying information have been changed to protect the patient's identity.

patients and families. It required significant teamwork among all departments, led by our excellent outreach team, with Yesmin Zapata as project coordinator.

We organized a work team with the goal to educate the communities, both the patients attending our clinic and the larger community. We made alliances with leaders of the neighborhoods and schools of the community and involved the local governmental agencies.

We started [seeing a big wave of] cases in the middle of July 2016 [which] extended into August and September. We quickly identified the region that was being affected. A partnership was established between government authorities and our outreach program to work with community leaders and inform the general population of measures to avoid the vector.

**Dr. Ponce-Gonzalez:** What happened after cases lessened in the fall?

**Soto:** During the months of October, November, and December, we saw an increase in the number of influenza cases. If the patient didn't present with a rash — a common symptom of Zika — the primary suspect was influenza. At the same time, the latest research estimated that four out of five patients who visited us in the emergency room were Zika positive and asymptomatic. We set ourselves with the task of re-training the clinical staff with that in mind. Continuous monitoring is therefore of vital importance in this process. The greatest number of Zika cases we experienced was during the month of October 2016.

**Dr. Ponce-Gonzalez:** What does Zika look like now at your health center, six months after the peak of cases?

**Soto:** For the month of February, the most recent month for which I have data, we recorded 159 new cases, both adult and pediatric. Two were prenatal patients. One infant was diagnosed with microcephaly.

**Dr. Ponce-Gonzalez:** When did Costa Salud begin participating in the Zika ECHO Clinic? Has this project benefited the health center?

**Soto:** In October, we received an email inviting us to participate in the November 18 video conference call, where our center would be actively integrated into the efforts of the Zika ECHO Clinic, and would give us a chance to share our work with other centers. The Zika ECHO Clinic has provided us with the tools to keep us informed and educated with excellent resources that have provided valuable information through webinars and have updated us on changes in protocols around Zika, in addition to giving our pediatricians the opportunity to participate in the presentation of cases in a forum open



## CDC's VitalSigns on Zika Virus Infection During Pregnancy

In April, the Centers for Disease Control and Prevention (CDC) released an updated report that provided new data analysis for US cases of Zika among pregnant women and the effects on their babies. In total, 250 pregnant women had confirmed Zika infection in the US in 2016, and 24 of those cases – roughly 10 percent – had a baby with Zika-related birth defects. Last year, 44 states reported Zika infections among pregnant women; most were travel-related. Read the complete VitalSigns report at <https://www.cdc.gov/vitalsigns/zika-babies/index.html>.

Clinicians should continue to screen pregnant women for exposure to Zika, and educate families about Zika and prevention strategies, including mosquito bite prevention, avoidance of travel to infected areas, and condom use. This is particularly relevant for clinicians serving mobile populations who may have recently traveled to or may be soon traveling to areas where Zika is locally transmitted. Read more at MCN's Zika page: <http://www.migrantclinician.org/issues/zika>.

to other professionals.

**Dr. Ponce-Gonzalez:** What is the plan of the health center for the next year in terms of Zika or other emerging issues?

**Soto:** We hope to continue to work as a team, educate the community including... making alliances with the government authorities of Rincón, and re-train staff to raise awareness.

**Dr. Ponce-Gonzalez:** Is there any particular educational strategy that you think was most effective? Or one element of the educational strategy that you can share with us?

**Soto:** We integrate all of our resources, like providing educational information to clinical staff in the electronic record as a reminder tool, and gathering data. Until [we

developed popular outreach materials for all ages], tools were used for children like coloring books, and comics and fun clothing for young adults, to stimulate curiosity in the population. Simultaneously, our outreach team visited all the schools and communities in Rincon and Aguada providing information to the public and delivering prophylactics and Zika kits for pregnant women. Visual and interactive tools were also implemented, such as videos, presentations, and talks for all ages. Many of our activities were coordinated with the local universities that integrated interactive education on Zika for our pediatric patients. Collaborative agreements were also worked out with community groups and municipal agencies. ■

# Bettering the Lives of Workers: Profile of Linda McCauley

By Claire Hutkins Seda, Writer, Migrant Clinicians Network, Managing Editor, *Streamline*

[Editor's note: This article is part of a series on the lives of members of Migrant Clinicians Network's External Advisory Board. Learn more about the board at <http://www.migrantclinician.org/about/external-advisory-board.html>.]

In the world of environmental and occupational health, there are few nurses. And that's a shame, says Linda McCauley, RN, PhD, FAAN, FAAOHN, a leading researcher on environmental health among underserved populations. She believes the gap between primary care and public health should be closed — beginning with the curriculum presented to our future medical providers. “We cannot do public health without the primary care workforce,” Dr. McCauley asserted. Environmental exposures — about which Dr. McCauley is an expert — is a leading example of this disconnect. During an appointment with a pregnant patient, for example, “you know what's important for prenatal care — and part of it is environmental. We talk about firearms, alcohol consumption, and where they live,” but what chemicals are our patients exposed to, and do we have the training to tease out when it's a health concern? Dr. McCauley has spent her career adding to the literature on the question.

## From Reproductive Health, to Environmental Health, to Planetary Health

After earning her nursing degree at the University of North Carolina in Chapel Hill, she earned a graduate's degree in children's health, feeding her interest in maternal and child health. Soon after, she began studying how environmental influences have reproductive health effects. Her focus then sharpened onto the environmental and occupational health piece. “I've always loved studying chemistry — and how the body responds to chemicals in the workplace, in the environment,” she noted. This interest led her to Oregon, where she received her master's in nursing and stayed on the West Coast to work with veterans exposed to chemicals. She then began a research program in coordination with the local Migrant Head Start, where she studied pesticide exposure in mobile or seasonal agricultural worker families.

What brought her to begin studying the effects of environmental exposures specifically on minority communities? “I think it was the nursing,” she replied, an urge to make sure that primary care providers are given the best information to serve their patients who are exposed to chemicals.

Dr. McCauley's work and her lifelong love



Linda McCauley, RN, PhD, FAAN, FAAOHN

of learning brought her back to school to earn a doctorate in environmental health. Dr. McCauley continued her research projects focused on the environmental impacts of workplaces of the underserved. Her dedication has been recognized and continued through her appointment as Dean and Professor at the Emory University Nell Hodgson Woodruff School of Nursing in Atlanta, GA.

Decades of research later, her current project still hovers on the same concerns, this time in Florida. In collaboration with the Farmworker Association of Florida, she is currently working on a project entitled Los Girasoles (Spanish for “sunflowers”), which studies the impact of heat exposure on agricultural workers' health.

“The symptoms of heat exposure are really similar to those of pesticide exposure, and clinicians need to understand that,” she noted. “And there's no place that they learn it.”

Los Girasoles, funded by the National Institute for Occupational Safety and Health (NIOSH), is a four-year project that aims to better understand how agricultural workers respond to heat stress and to garner more complete data on the magnitude of heat-related illnesses like heat stroke in agricultural work. These data will be even more critical as global temperatures continue to rise, replies Dr. McCauley. Agricultural workers, susceptible to heat-related physiologic responses due to exposure to sun, heat, and humidity over many working hours, have a heat-related death rate nearly 20 times greater than the overall US civilian workforce, according to Los Girasoles.

Dr. McCauley recognizes that the data are highly relevant in the primary care world. “Clinicians want to hear what we're learning about these ‘healthy’ workers and how their

body can become so degraded, so quickly,” as a result of prolonged heat exposure, she said. As an example, occupation is now considered a risk factor in the recent and ongoing epidemic of chronic kidney disease of unknown etiology, as agricultural workers exposed to many conditions including extreme heat and dehydration are showing a decrease in kidney function. Those in the primary care world need to know the latest data, Dr. McCauley insists, in order to better recognize and treat environmental illnesses.

In addition to a synchronization of primary care and public health, Dr. McCauley advocates for a reframing of environmental health to a broader, more inclusive “planetary health” — a term that is based in an understanding that human health depends on the health of the natural systems in which it thrives. This more inclusive, multidisciplinary term calls out our interdependencies and brings preventative care to a new level — by viewing ecosystem degradation as a risk factor for human health concerns.

## Connection to MCN

Dr. McCauley believes that organizations like MCN serve as critical links between the public health and primary care world, by bringing updated information to frontline clinicians. “MCN brings me back to my roots as a nurse,” Dr. McCauley says.

Dr. McCauley has worked closely with MCN's Amy K. Liebman, MPA, MA, Director of Environmental and Occupational Health, for decades, including in the Occupational Health section of the American Public Health Association. “Dr. McCauley is such an important colleague and contributor to the science that helps us better understand agricultural worker exposures,” said Liebman. “Her nursing background adds an important perspective to her work and ultimately fuels her passion to engage clinicians and help prepare them to better address the environmental and occupational health needs of their patients.”

Dr. McCauley now serves on MCN's External Advisory Board, a peer technical and scientific committee established to promote cross-disciplinary collaboration. Dr. McCauley is also a member of the *Streamline* External Editorial Board, reviewing the environmental and occupational health portion of the publication for accuracy and relevancy.

“We are fortunate to collaborate so closely with Dr. McCauley. She understands the important work that MCN does and pursues partnerships and collaborative efforts so that we can expand our collective impact.” Liebman said. ■

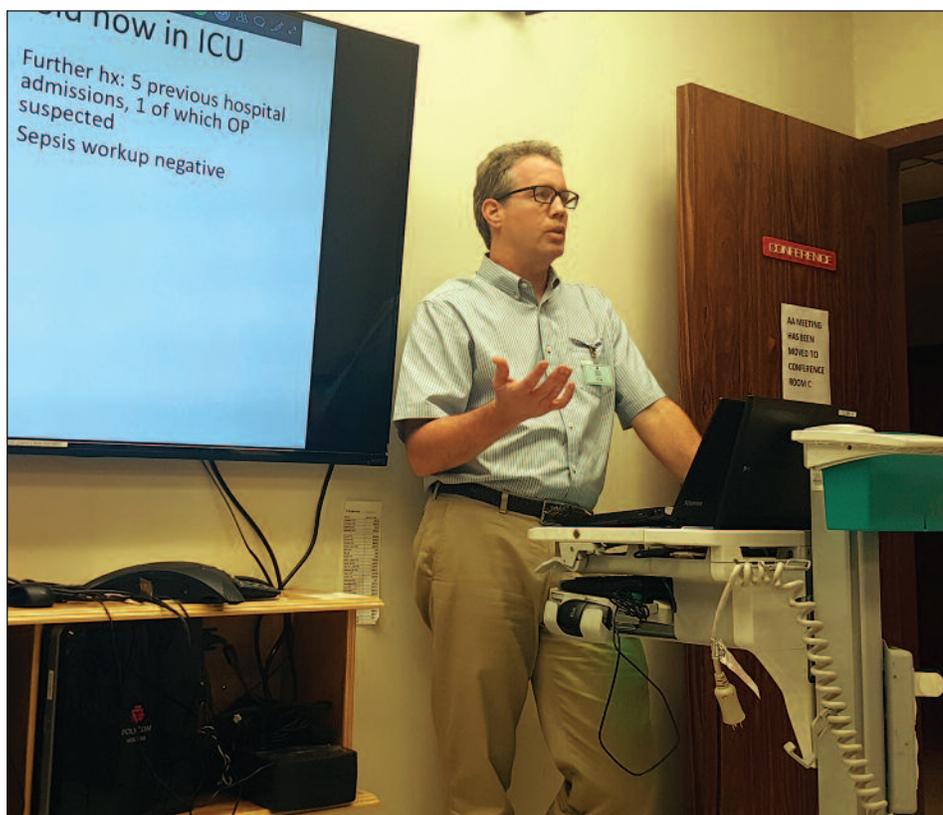
## In the Field: Frontline Clinicians Recognizing and Managing Pesticide Poisonings in Hawaii

*[Editor's note: This article is an expansion of a piece that originally appeared on MCN's news blog. Go to [www.migrantclinician.org/community/blog.html](http://www.migrantclinician.org/community/blog.html) to read about MCN's latest happenings and to sign up for updates. Go to our archived webinar page to see a recorded webinar by Dr. Jimmy Roberts: <http://www.migrantclinician.org/services/education/pastwebinars/>.]*

In January 2016, 19 agricultural workers on the Hawaiian island of Kauai re-entered a crop research field owned by seed giant Syngenta Seeds. The field had been recently sprayed with chlorpyrifos, a toxic organophosphate banned for household use but is the most used conventional insecticide in agriculture in the US.<sup>1</sup> Ten of the workers became too ill to work, and were transferred to the hospital for treatment. Unfortunately, agricultural workers in the US remain at risk to exposures like these from pesticides. Clinicians are often poorly equipped and have limited education regarding the recognition and management of pesticide poisonings. However, with sufficient clinician training and support, medical providers can help workers recover, report exposures, provide workers with education on their rights and ways to protect themselves, and help assure that fewer exposures will happen in the future. In March, through an onsite continuing education training at the Kauai Veterans Memorial Hospital in Hawaii, Migrant Clinicians Network stepped up to ensure that clinicians throughout Kauai including the first responders, hospital clinicians, and the providers at the local health center have the tools, training, and strong networks to effectively address such poisonings, should workers or residents ever be poisoned again.

"It was a real honor to be part of the solution to address the health care needs regarding the recognition and management of pesticide poisonings," said Amy K. Liebman, MPA, MCN's Director of Environmental and Occupational Health, who organized the training and technical assistance as part of MCN's environmental and occupational health program, sponsored by the Environmental Protection Agency (EPA).

Chlorpyrifos, the broad-spectrum insecticide that poisoned the workers in Hawaii, is an acetylcholinesterase inhibitor, which reduces the transmission of signals through the nervous system. Research has indicated that very low-level prenatal exposure to chlorpyrifos is correlated with brain development disruption including a decrease in IQ,



Dr. Roberts leading a session on the recognition and management of pesticide poisoning in Hawaii.

attention deficit disorders, working memory issues, and developmental delays in children.<sup>2,3,4</sup> Low-dose exposure of chlorpyrifos among agricultural workers can result in headaches, nausea, inability to concentrate, weakness, and fatigue. Additionally, organophosphate exposure among agricultural workers is associated with poor neurobehavioral test results.<sup>5</sup> Chlorpyrifos is widely used in agriculture and on turf lawn. Earlier this year, the EPA declined a petition to ban chlorpyrifos in agriculture. (You can read MCN's article on chlorpyrifos in the Winter/Spring issue of *Streamline* at <https://goo.gl/oahWud>.)

For this training, MCN's expertise was paired with one of the leading experts on the frontlines of the clinical responses to pesticide poisonings. Joining Liebman and serving as the lead faculty for the training was Jimmy Roberts, MD, MPH, co-author of the EPA's Recognition and Management of Pesticide Poisonings, 6th Edition (RMPP), the seminal reference guide for clinicians treating a pesticide exposed patient, and host of MCN's recent webinar on pesticide exposures among agricultural workers.

Dr. Roberts and Liebman worked with Kauai clinicians to begin to establish a clear and agreed-upon protocol on treatment, data collection, care coordination, and other critical aspects of care during a pesticide poisoning event. The West Kauai Medical Center is now developing a workplan with MCN's technical assistance to address pesticide exposure concerns, Liebman said.

A second day of training, co-sponsored by the Hawaii Department of Health, the Hawaii Chapter of the American College of Emergency Physicians, and Hawaii Emergency Physicians Associated, brought Liebman and Dr. Roberts to Oahu, to further integrate pesticide awareness and response to all levels of Hawaiian clinicians. "These smaller rural emergency departments are critical for the management of pesticide exposure," Liebman noted. She emphasized that emergency physicians can improve an exposed worker's health outcome if properly trained and equipped to recognize and manage pesticide poisoning.

MCN was invited by EPA's Region IX, which covers California, Nevada, Arizona, and Hawaii. "Migrant Clinicians Network's

training in Kauai and Oahu provided individuals with valuable training and it also initiated medical providers and state agencies to work on how they can improve their response to a pesticide poisoning," said Amy Miller, Senior Policy Advisor of the Office of Regional Administrator at EPA's Region IX.

On April 20, Dr. Roberts offered an MCN-sponsored national webinar on the recognition and management of pesticide poisonings, in which participants received some of the same critical training that Dr. Roberts and Liebman provided in-person in Hawaii. The webinar is now archived on the MCN site. Participants may receive continuing medical or nursing education credits for viewing the archived webinar. Visit <http://www.migrantclinician.org/services/education/pastwebinars> to view all of our recent webinars.

#### Resources:

Learn more about MCN's environmental and occupational health program at <https://goo.gl/rNBbSf>.

View online or order a free copy of the EPA book, Recognition and Management of Pesticide Poisonings, 6th edition, at <https://goo.gl/yr53qi>.

Visit MCN and Farmworker Justice's Pesticide Reporting Map to see state-by-state pesticide regulations and how to report pesticide exposures at <https://goo.gl/W6QhZK>.

#### References:

- 1 Chlorpyrifos Status Update. Pesticide Program Dialogue Committee; May 18, 2016. Available at: <https://www.epa.gov/sites/production/files/2016-05/documents/session-2-chlorpyrifos-human-health-risk-assessment-approach.pdf>
- 2 Rauh VA, Perera FP, Horton MK, et al. Brain anomalies in children exposed prenatally to a common organophosphate pesticide. *Proc Natl Acad Sci USA*. 2012;109(20):7871-6. Available at: <http://www.pnas.org/content/109/20/7871.full>
- 3 Rauh V, Arunajadai S, Horton M, et al. Seven-year neurodevelopmental scores and prenatal exposure to chlorpyrifos, a common agricultural pesticide. *Environ Health Perspect*. 2011;119(8):1196-201. Available at: <https://ehp.niehs.nih.gov/1003160/>
- 4 Shelton JF, Geraghty EM, Tancredi DJ, et al. Neurodevelopmental disorders and prenatal residential proximity to agricultural pesticides: the CHARGE study. *Environ Health Perspect*. 2014;122(10):1103-9. Available at: <https://ehp.niehs.nih.gov/1307044/>
- 5 Farahat TM, Abdelrasoul GM, Amr MM, et al. Neurobehavioural effects among workers occupationally exposed to organophosphorous pesticides. *Occ and Environ Med*. 2003;60:279-286. Available at: <http://oem.bmj.com/content/60/4/279>

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# Pesticide Handlers: New Rules on Medical Evaluations and Determinations

*[Editor's Note: In 2015, the Environmental Protection Agency updated its Worker Protection Standard, the primary set of regulations to protect agricultural workers on the job. The new WPS included important provisions to protect agricultural workers and pesticide applicators from pesticide exposure, among other protections. Many pieces of the newly revised WPS came into effect in January, 2017; others will be implemented in January 2018.]*

**M**any provisions of the revised Worker Protection Standard came into effect in January, 2017. Among them were new provisions to protect the health of pesticide handlers. Pesticide handlers, broadly defined, are those who mix, load, or apply pesticides. Handlers are now required to undergo a one-time medical evaluation by a licensed health care provider and to complete respirator fit testing every year. The costs for the evaluation and fit testing are to be covered by the employer.

## Medical Evaluation

Clinicians providing the medical evaluation determine whether the handler is physically able to use the required respirator needed for his/her job. The EPA outlines the requirements regarding the medical evaluation in its "How to Comply With the 2015 Revised Worker Protection Standard for Agricultural Pesticides," the complete guide to all the WPS changes.

"Using a respirator is very important for the safety of a pesticide handler, but, for handlers with certain health conditions like asthma or emphysema, a respirator could potentially injure the handler or exacerbate his or her health condition," said Ed Zuroweste, MD, Co-Chief Medical Officer of MCN. "The clinician must weigh the risk factors that may lead to injury, which include how often the handler will have to use the respirator, the conditions under which the respirator will be used, the type of respirator, and the severity of his or her health condition."

Under the new rules, the medical evaluation involves gathering information obtained from the handler as well as the handler's employer. The handler must present the provider with a questionnaire completed by the employer which details the specifics of the handler's job. In its guide, the EPA says

**Handlers are now required to undergo a one-time medical evaluation by a licensed health care provider and to complete respirator fit testing every year.**

the questionnaire outlines:

- The type and weight of respirator that the handler will use.
- How long and how frequently the handler will use the respirator.
- How much physical work the handler will do while using the respirator.
- Other PPE the handler will use.
- The temperature and humidity extremes of the working environment.

In addition to the form the employer completes, there is a confidential medical questionnaire detailing the handler's health conditions that needs to be completed by the handler. A questionnaire, developed by the Occupational Safety and Health Administration (OSHA), is accessible on MCN's website and meets EPA requirements. (See "Resources," below.) Ideally, the handler should complete the questionnaire during work hours, but as it is confidential, should not share the results with the employer, OSHA, or any other regulatory body. The questionnaire is only to be shared with the provider at the time of the medical evaluation. For agricultural workers for whom English is often not their first language, and who may not be able to read well, the handler may need help from the health care provider or clinic staff to complete the form.

## The Provider's Determination

Once the provider has received and reviewed both questionnaires and seen the handler in the exam room, the provider may take a number of actions depending on the needs of the handler. The provider may order additional medical tests or procedures to further evaluate the handler, approve the

medical release, either with or without conditions, or refuse to sign the medical release.

If any follow-up tests or procedures are needed, the provider will wait until they are completed to fill out the forms. The provider then may approve the medical release with certain conditions, which may include a requirement of a re-evaluation after a specific period of time and/or restrictions on the handler's use of the respirator.

The medical release must contain the results of the medical evaluation, which the EPA details must include:

- Whether the employee is medically able to use a respirator;
- Any restrictions on the employee's use of the respirator;
- The need for follow-up medical evaluations; and
- Verification that the provider has given the employee a copy of the written medical determination.

In addition to the medical evaluation, the newly revised WPS requires annual respirator fit testing. The testing must be repeated annually or whenever there's a change — either in the type of respirator or physiologically for the handler. At that time, the respirator is also checked to assure the seals are still properly functioning. These tests are performed on-site and do not require the presence of a health care provider. ■

## Resources

Visit MCN's "WPS Medical Evaluation Resources for Clinicians" page at <https://goo.gl/1kVYD4> to find the following three resources:

- "How to Comply With the 2015 Revised handler Protection Standard for Agricultural Pesticides: What Owners and Employers Need To Know," the Environmental Protection Agency's complete guide;
- "How to Comply..." excerpt on medical evaluation and fit testing;
- OSHA Respirator Medical Evaluation Questionnaire.

Learn more about the breadth of changes to the WPS on MCN's WPS page, <https://goo.gl/1HKYYM>.

Read the "Clinician's Guide to EPA's Worker Protection Standard," an updated guided created by MCN and Farmworker Justice, at <https://goo.gl/ZEwjGe>.



Dr. Jose Rodriguez (third from left) receives the 2017 US EPA Champion Award in May 2017.

## Hospital General Castañer Wins EPA Award

**M**igrant Clinicians Network congratulates Hospital General Castañer for its well-deserved selection for the 2017 United States Environmental Protection Agency Environmental Champion Award, given by the Environmental Protection Agency (EPA) Region 2. The prestigious award honors those who have demonstrated “outstanding commitment to protecting and enhancing environmental quality and public health,” according to the EPA.

Hospital General Castañer is a Center of Excellence in Environmental and Occupational Health through MCN’s *Workers and Health*, an EPA-funded program in which MCN provides on-site clinical training, resources, technical assistance, and peer-to-peer networking between frontline providers and occupational and environmental medicine specialists, in order to improve the recognition and management of pesticides poisonings and other occupational and environmental health conditions in primary care.

MCN has also worked with Hospital General Castañer through our *Worker Safety and Health in Community Health*



Dr. Jose Rodriguez (seated in doorway) works closely with clinicians and directly with farmers and agricultural workers on important concerns like pesticide safety in Puerto Rico.

*Centers* project, which utilizes a train-the-trainer approach to equip outreach staff to train agricultural workers on occupational health concerns including chemical safety,

heat stress, and workers’ rights. The project is supported by the Occupational Safety and Health Administration (OSHA) Susan Harwood Grant program.

Dr. Jose Rodriguez, Medical Director at Hospital General Castañer, attended the awards ceremony in New York City in mid-May. Dr. Rodriguez has partnered with MCN for trainings on pesticide safety throughout Puerto Rico and through national webinars.

“Dr. Rodriguez and his staff at Hospital General Castañer have done outstanding work to integrate and address environmental and occupational health in the primary care setting,” said Amy K. Liebman, MPA, Director of Environmental and Occupational Health at MCN, and a close collaborator with Dr. Rodriguez. “Dr. Rodriguez is a strong advocate of prevention. He works closely with farmers and workers to educate them about ways to protect themselves — both within and outside of the health center. He takes his message out to the farms themselves, making a great impact and improving the health of people throughout his community.”



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## calendar

**June 21, 2017**  
**WEBINAR | ¡Es su derecho saber!**  
**Ayudando a los Promotores de**  
**Salud a promover la seguridad**  
**química en el trabajo**  
Migrant Clinicians Network  
[www.migrantclinician.org](http://www.migrantclinician.org)

**July 8 – 11, 2017**  
**NCLR Health Summit**  
Phoenix Convention Center – Phoenix, AZ  
[www.healthsummit.nclr.org/](http://www.healthsummit.nclr.org/)

**September 7 – 9, 2017**  
**2017 Philadelphia Trans**  
**Health Conference**  
[www.mazzonicenter.org/trans-health](http://www.mazzonicenter.org/trans-health)

**September 16 – 19, 2017**  
**2017 Section on LGBT Health &**  
**Wellness (SOLGBTHW)**  
Chicago, IL  
[www.conferenceabstracts.com/cfp2/login.asp?](http://www.conferenceabstracts.com/cfp2/login.asp?EventKey=UMAXNUVV#)  
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**September 18-20, 2017**  
**27th Annual Midwest Stream Forum**  
**for Agricultural Worker Health**  
Grand Rapids, MI  
[http://www.ncfh.org/midwest-stream-](http://www.ncfh.org/midwest-stream-forum.html)  
[forum.html](http://www.ncfh.org/midwest-stream-forum.html)

**October 12-14, 2017**  
**2017 East Coast Migrant Stream**  
**Forum**  
Atlanta, GA  
<http://www.ncchca.org/>

**February 22-24, 2018**  
**2018 Western Forum for Migrant**  
**and Community Health**  
Seattle, WA  
<http://www.nwrpca.org/>